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Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

REFERENCES

“Non-Equilibrium Air Plasmas at Atmospheric Pressure”

Chapter 1, Section 1.7.

- Batenin V M, Klimovskii L I, Lysov G V, and Troitskii V N 1994 *Superhigh Frequency Generators of Plasma* (Boca Raton: CRC Press)
- Birdsall C K and Langdon A B 1991 *Plasma Physics via Computer Simulation* (Bristol: Institute of Physics Press)
- Birmingham J and Hammerstrom D 2000 “Bacterial Decontamination Using Ambient Pressure Plasma Discharges,” *IEEE Transactions on Plasma Science* **28** 1 p. 51-56.
- Boyd J M and Sanderson J J 2003 *The Physics of Plasmas* (Cambridge: Cambridge University Press)
- Capitelli M, Ferreira C M, Gordiets B F, and Osipov A I 2000 *Plasma Kinetics in Atmospheric Gases* (Berlin: Springer)
- Chapman B 1980 *Glow Discharge Processes: Sputtering and Plasma Etching* (New York: John Wiley & Sons)
- Chen F F 1984 *Introduction to Plasma Physics* (New York: Plenum Publishing Corp.)
- Dendy R O 1995 *Plasma Physics: An Introductory Course* (Cambridge: Cambridge University Press)
- Van Dyken R, McLaughlin T, and Enloe C 2004 “Parametric Investigations of a Single Dielectric Barrier Plasma Actuator,” *Proc. 42nd AIAA Aerospace Sciences Meeting and Exhibit* Reno, NV AIAA Paper 2004-846
- Griffiths D J 1998 *Introduction to Electrodynamics* (New York: Prentice Hall)
- Hippler R, Pfau S, Schmidt M, and Schoenbach K H (Eds.) 2001 *Low Temperature Plasma Physics* (Berlin: Wiley-VCH)
- Hockney R W and Eastwood J W 1988 *Computer Simulation Using Particles* (Bristol: Adam Hilger)
- Hudson R D 1971 “Critical Review of Ultraviolet Photoabsorption Cross Section for Molecules of Astrophysical and Aeronomic Interest,” *Rev. Geophys. Space Phys.*, **9** pp. 305-406.
- Humphreys W J 1964 *Physics of the Air* (New York: Dover Publications, Inc.) pp. 67-81.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Hutchinson I H 2002 *Principles of Plasma Diagnostics* (Cambridge: Cambridge University Press)
Jackson J D 1998 *Classical Electrodynamics* (New York: Wiley Text Books)
- Jursa A S (Ed.) 1985 *Handbook of Geophysics and the Space Environment* (U.S. Air Force Geophysics Laboratory, Hanscom Air Force Base, MA, USA) US Defense Technical Information Center (DTIC) Document Accession Number: ADA 167000
- Kogelschatz U, Egli W and Gerteisen E A 1999 *ABB Rev* **4/1999** pp.33-42
- Kuo S P and Bivolaru D 2004 "Plasma Torch Igniters for a Scramjet Combustor," *Proc. 42nd AIAA Aerospace Sciences Meeting and Exhibit* Reno, NV AIAA Paper 2004-839
- Kuo S P, Kalkhoran I M, Bivolaru D, and Orlick L 2000 "Observation of Shock Wave Elimination by a Plasma in a Mach-2.5 Flow," *Physics of Plasmas* **7** 5 pp. 1345-1348.
- Laroussi M, Richardson J P, and Dobbs F C 2002 "Effects of Nonequilibrium Atmospheric Pressure Plasmas on the Heterotrophic Pathways of Bacteria and on their Cell Morphology," *Applied Physics Letters* **81** 4 p. 22.
- Lieberman M A and Lichtenberg A J 1994 *Principles of Plasma Discharges and Materials Processing* (New York: Wiley-Interscience)
- Liu J, Wang F, Lee L, Theiss N, Romney P, and Gundersen M 2004 "Effect of Discharge Energy and Cavity Geometry on Flame Ignition by Transient Plasma," *Proc. 42nd AIAA Aerospace Sciences Meeting and Exhibit* Reno, NV AIAA Paper 2004-1011
- Mitchner M and Kruger C H 1973 *Partially Ionized Gases* (New York: John Wiley & Sons)
- Montie T C, Kelly-Wintenberg K, and Roth J R 2000 "Overview of Research Using a One Atmosphere Uniform Glow Discharge Plasma (OAUGDP) for Sterilization of Surfaces and Materials," *IEEE Trans. on Plasma Science*, **28** 1 pp. 41-50.
- Moran J M, Morgan M D, Pauley P M, and Moran M D 1996 *Meteorology: The Atmosphere and Science of Weather* (New York: Prentice Hall).
NASA 2004 (http://nssdc.gsfc.nasa.gov/space/model/ionos/about_ionos.html)
- Nishida M, Yukimura K, Kambara S, and Maruyama T 2001, *J.Appl.Phys.*, **90** pp. 2672-2677.
- Pollack G and Stump D 2002 *Electromagnetism* (New York: Prentice Hall)
- Raizer Y P, Shneider M N, and Yatsenko N A 1995 *Radio-Frequency Capacitive Discharges* (Boca Raton: CRC Press)
- Roth J R 1995 *Industrial Plasma Engineering: Principles* (Bristol & Philadelphia: Institute of Physics Publishing)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Roth J R 2001 *Industrial Plasma Engineering: Applications to Non-Thermal Plasma Processing* (Bristol & Philadelphia: Institute of Physics Publishing)
- Roth J R 2003 "Aerodynamic Flow Acceleration using Paraelectric and Peristaltic Electrohydrodynamic (EHD) Effects of a One Atmosphere Glow Discharge Plasma," *Physics of Plasmas* **10** 5 pp. 2117-2126.
- Roth J R, Chen Z, Sherman D M, Karakaya F, Tsai P P-Y, Kelly-Wintenberg K, and Montie T C 2001 "Increasing the Surface Energy and Sterilization of Nonwoven Fabrics by Exposure to a One Atmosphere Uniform Glow Discharge Plasma (OAugDP)," *International Nonwovens Journal* **10** 3 p. 34-47
- Schunk R W and Nagy A F 2000 *Ionospheres: Physics, Plasma Physics, and Chemistry* (Cambridge: Cambridge University Press).
- Stenhoff M 1999 *Ball Lightning* (New York: Kluwer Academic/Plenum Publishers)
- Stolarski R S and Johnson N P 1972 "Photoionization and Photoabsorption Cross Sections for Ionospheric Calculations," *J. Atmos. Terr. Phys.*, **34** p. 1691.
- Torr D G 1979 "Ionospheric Chemistry," *Rev. Geophys. Space Phys.*, **17** pp. 510-521.
- Tsai P, Wadsworth L, and Roth J R 1997 "Surface Modification of Fabrics Using a One-Atmosphere Glow Discharge Plasma to Improve Fabric Wettability," *Textile Research Journal* **5** 65 pp. 359-369.
- Vidmar R J 1990 "On the Use of Atmospheric Pressure Plasmas as Electromagnetic Reflectors and Absorbers," *IEEE Transactions on Plasma Science* **18** 4 pp. 733-741.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 2, Section 2.2.

Crooks W 1879 *Phil Trans. Pt. 1* 135-164

Coulomb M 1785 *Mém. Acad. Royale des Sci. de Paris* 612-38

Faraday M 1839 *Experimental Researches in Electricity*, Vol. I (London: Taylor and Francis)

Faraday M 1844 *Experimental Researches in Electricity*, Vol. II (London: Taylor)

Faraday M 1855 *Experimental Researches in Electricity*, Vol. III (London: Taylor and Francis)

Hittorf W 1869 *Pogg. Ann.* **136** 1-31 and 197-235

Stoletow M A 1890 *J. de Phys.* **9** 468-72

Thompson J J 1903 *Conduction of Electricity through Gases* (Cambridge: University Press)

Townsend J S and Hurst H E 1904 *Phil. Mag.* **8** 738-53

Townsend J S 1915 *Electricity in Gases* (Oxford: Clarendon Press)

Wilson C T R 1901 *Proc. Phys. Soc. London* **68** 151-61

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 2, Section 2.3.

- Ayrton H 1902 *The Electric Arc* (New York, London: The Electrician Print. Publ. Co.)
- Boeck W and Pfeiffer W 1999 *Conduction and breakdown in gases* in *Wiley Encyclopedia of Electrical and Electronics Engineering* (New York: Wiley), vol 4, p 130
- Boulos M I., Fauchais P and Pfender E 1994 *Thermal plasmas: Fundamentals and Applications* (New York: Plenum Press)
- Capitelli M and Bardsley J N Eds 1990 *Nonequilibrium Processes in Partially Ionized Gases* (New York: Plenum)
- Capitelli M, Ferreira C M, Gordiets B F and Osipov A-I 2000 *Plasma Kinetics in Atmospheric Gases* (Berlin: Springer)
- Chen J 2002 *Direct current corona-enhanced chemical reactions*, Ph D Thesis (Minneapolis: University of Minnesota) p 48
- Drawin HW 1971 *Thermodynamic Properties of the Equilibrium and Nonequilibrium States of Plasmas in Reactions under Plasma Conditions*, Venugopalan M Ed (New York: Wiley), vol 1 pp 53 –238
- Eckert H U 1974 *High Temp. Sci.* **6** 99-134
- Eliasson B and Kogelschatz U 1991 *IEEE Trans. Plasma Sci.* **19** 1063-1077
- Finkelnburg W and Maecker H 1956 *Elektrische Bögen und thermisches Plasma* in *Encyclopedia of Physics*, Flügge S Ed (Berlin: Springer) vol XXII p 307
- Heberlein J V R and Voshall R E 1997 *Thermal Plasma Devices* in *Encyclopedia of Applied Physics* Trigg G L Ed (New York: Wiley) vol **21** 163-191
- Hippler R, Pfau S, Schmidt M, and Schoenbach K H Eds 2001 *Low Temperature Plasma Physics* (Weinheim: Wiley-VCH)
- Hittorf W 1884 *Wiedemann Ann. Phys. Chem.* **21** 90-139
- Kruger C H, Laux C O, Yu L, Packan D L and Pierot L 2002 *Pure Appl. Chem.* **74** 337-347
- Kunhardt E E 2000 *IEEE Trans. Plasma Sci.* **28** 189-200
- Laroussi M, Lu X and Malott C M 2003 *Plasma Sources Sci. Technol.* **12** 53-56
- Lelevkin V M, Otorbaev D K and Schram D C 1992 *Physics of Non-Equilibrium Plasmas*, (Amsterdam: Elsevier)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Manheimer W, Sugiyama L E and Stix T H Eds 1997 *Plasma Science and the Environment* (Woodbury: American Institute of Physics)
- Moissan H 1892 *C. R. Acad. Sci. Paris* **115** 1031-1033
- Moissan H 1897 *Le Four Électrique* (Paris: Steinheil)
- Penetrante B M and Schultheis S E Eds 1993 *Non-Thermal Plasma Techniques for Pollution Control* (Berlin: Springer) Part A and B
- Penetrante B M, Hsiao M C, Bardsley J N, Merritt B T, Vogtlin G E, Kuthi A, Burkhart C P and Bayless J R 1997 *Plasma Sources Sci. Technol.* **6** 251-259
- Pfender E 1978 *Electric Arcs and Arc Gas Heaters in Gaseous Electronics: Electrical Discharges*, Hirsh M N and Oskam H J Eds (New York: Academic) vol 1 291-398
- Pfender E, Boulos M and Fauchais P 1987 *Methods and Principles of Plasma Generation in Plasma Technology in Metallurgical Processing* Feinman J Ed (Warrendale: Iron and Steel Soc)
- Pfender E 1999 *Plasma Chem. Plasma Proc.* **19** 1-31
- Protasevich E T 2000 *Cold Non-Equilibrium Plasma* (Cambridge: Cambridge Int. Sci. Publ.)
- Schönherr O 1909 *Elektrotechn. Zeitschr.* **30** 16 365-369 and 397-402
- Thomson J J 1927 *Phil. Mag. Ser. 7*, vol **4** No 25 Suppl. Nov. 1927, 1128-1160
- van Veldhuizen E M Ed 2000 *Electrical Discharges for Environmental Purposes: Fundamentals and Applications* (Commack: Nova Science)
- Yu L, Laux C O, Packan D M and Kruger C H 2002 *J. Appl. Phys.* **91** 2678-2686
- Zecca A, Karwasz G P and Brusa R S 1996 *Rivista Nuovo Cim.* **19** 3 1-146

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 2, Section 2.4.

- Alekseev S B, Orlovskii V M and Tarasenko V F *Tech. Phys. Lett.* **29** 411-3
- Allen K R and Philips K 1963 *Electr. Rev.* **173** 779-83
- Arrayás M, Ebert U and Hundsdorfer W 2002 *Phys. Rev. Lett.* **88** 174502
- Babaeva N Yu and Naidis G V 2000 *Modeling of streamer propagation in Electrical Discharges for Environmental Purposes*, van Veldhuizen E M Ed (Huntington: Nova Science) pp. 21 – 48
- Babich L P and Stankevich Yu 1973 *Sov. Phys.- Techn. Phys.* **12** 1333-6
- Babich, L P 2003 *High-Energy Phenomena in Electric Discharges in Dense Gases: Theory, Experiment and Natural Phenomena* (Arlington: Futurepast)
- Bazelian E M and Raizer Yu P 1998 *Spark Discharge* (Boca Raton: CRC Press)
- Boeck W and Pfeiffer W 1999 *Conduction and breakdown in gases* in *Wiley Encyclopedia of Electrical and Electronics Engineering* Webster J G Ed (New York: Wiley) vol 4 123-72
- Boeuf J P and Kunhardt E E 1986 *J. Appl. Phys.* **60** 915-23
- Buss K 1932 *Arch. Elektrotech.* **26** 266-72
- Cavenor M C and Meyer J 1969 *Austr. J. Phys.* **22** 155-67
- Chalmers I D 1971 *J. Phys. D: Appl. Phys.* **4** 1147-51
- Chen J and Davidson J H 2003 *Plasma Chem. Plasma Process.* **23** 83-102
- Dakin T W, Luxa G, Oppermann G, Vigreux J, Wind G and Winkelkemper H 1974 *Electra* **32** 61-82
- Davies A J, Davies C S and Evans C J 1971 *Proc. IEE* **118** 816-23
- Dawson G A and Winn W P 1965 *Z. Phys.* **183** 159-71
- Dhali S K and Williams P F 1985 *Phys. Rev.* **A 31** 1219-21
- Dhali S K and Williams P F 1987 *J. Appl. Phys.* **62** 4696-707
- Dhali S K 1989 *IEEE Trans. Plasma Sci.* **17** 603-11
- Doran A A 1968 *Z. Physik* **208** 427-40
- Doran A A and Meyer J 1967 *Brit. J. Appl. Phys.* **18** 793-9

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Druyvesteyn M J and Penning F M 1940 *Rev. Mod. Phys.* **12** 87-174
- Dutton J 1978 *Spark breakdown in uniform fields* in *Electrical Breakdown of Gases* Meek J M and Craggs J D Eds (Chichester: John Wiley) pp. 209-318
- Dutton J 1983 *Prebreakdown ionization in gases under steady-state and pulsed conditions in uniform fields* in *Electrical Breakdown and Discharges in Gases* Kunhardt E E and Luessen L E, Eds., NATO ASI Series B: Physics, Vol. 89a : (New York: Plenum Press) pp 207-40
- Edels H and Gambling W A 1959 *Proc. Roy. Soc.* **A249** 225-36
- Farish O and Tedford D J 1966 *Brit. J. Appl. Phys.* **17** 965-6
- Felsenthal P and Proud J. M 1965 *Phys.Rev.* **139** 1796-1804
- Fridman A, Nester S, Kennedy L A, Saveliev A and Mutaf-Yardimci O 1999 *Progr. Energy Combust. Sci.* **25** 211-31
- Gallimberti I 1972 *J. Phys. D: Appl. Phys.* **5** 2179-89
- Geballe R and Reeves M L 1953 *Phys. Rev.* **92** 867-8
- Hess H 1976 *Der elektrische Durchschlag in Gasen* (Braunschweig: Vieweg)
- Kline L E and Siambis J G 1971 *Proc. IEEE* **59** 707-9
- Kline L E and Siambis J G 1972 *Phys. Rev.* **A 5** 794-805
- Koppitz, J. 1973 *J. Phys. D: Appl. Phys.* **6** 1494-1502
- Korolev Yu D and Mesyats G A 1998 *Physics of Pulsed Breakdown in Gases* (Yekatarinburg: URO-Press)
- Kulikovskiy A A 1998 *Phys. Rev.* **E 57** 7066-74
- Kunhardt E E 1980 *IEEE Trans Plasma Sci.* **8** 130-8
- Kunhardt E E and Byszewski WW 1980 *Phys. Rev.* **21** 2069-77
- Kunhardt E E and Luessen L E Eds 1983 *Electrical Breakdown and Discharges in Gases*, NATO ASI Series B: Physics (New York. Plenum) vol. 89a and 89b
- Kunhardt E E 1983 *Nanosecond pulse breakdown of gas insulated gaps* in *Electrical Breakdown and Discharges in Gases* Kunhardt E E and Luessen L E, Eds, , NATO ASI Series B: Physics, (New York. Plenum) vol. 89a pp. 241-263
- Kunhardt E E 1985 *Pulse breakdown in uniform electric fields*, *Proc. 17th Int. Conf. on Phenomena in Ionized Gases (ICPIG XVII)*, Budapest 1985, Invited Papers 345-60
- Kunhardt E E 2000 *IEEE Trans. Plasma Sci.* **28** 189-200

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Les Renardières Group 1972 *Electra* **23** 53-157
- Little P 1956 *Secondary effects* in *Handbook of Physics*, Flügge S Ed (Berlin: Springer) vol 21 pp 574-63
- Llewellyn-Jones F 1957, 1966 *Ionization and Breakdown in Gases* (London: Methuen)
- Llewellyn-Jones F 1967 *Ionization, Avalanches, and Breakdown* (London: Methuen)
- Loeb L B 1939 *Fundamental Processes of Electrical Discharge in Gases* (New York: Wiley)
- Loeb L B and Meek J M 1940 *J. Appl. Phys.* **11** 438-74
- Loeb L B and Meek J M 1941 *The Mechanism of the Electric Spark* (Stanford: University Press)
- Lozanskii E D and Firsov O B 1975 *Theory of Spark* (Moscow: Atomizdat Publishers) (in Russian)
- Lozanskii E D 1976 *Sov. Phys. Usp.* **18** 893-908
- Lozanskii E D and Firsov O B 1973 *J. Phys. D: Appl. Phys.* **6** 976-81
- Maller V N and Naidu M. S 1976 *Indian J. Pure Appl. Phys.* **14** 733-7
- Marshak I S 1961 *Sov. Phys. Usp.* **3** 624-51
- Meek J M 1940 *Phys. Rev.* **57** 722-8
- Meek J M and Craggs J D Eds. 1978 *Electrical Breakdown of Gases* (Chichester: John Wiley)
- Mesyats G A and Bychkov Y I 1986 *Sov. Phys. Tech. Phys.* **12** 1255-60
- Meyer J 1967 *Brit. J. Appl. Phys.* **18** 801-6
- Morrow R and Lowke J J 1995 *Austr. J. Phys.* **48** 453-60
- Morrow R and Lowke J J 1997 *J. Phys. D: Appl. Phys.* **30** 614-27
- Moruzzi J L and Price D A 1974 *J. Phys. D: Appl. Phys.* **7** 1434-40
- Mutaf-Yardimci O, Savaliev A V, Fridman A A and Kennedy L A *J. Appl. Phys.* **87** 1632-41
- Niemeyer L 1999 *Gaseous insulation* in *Wiley Encyclopedia of Electrical and Electronics Engineering* Webster J G, Ed. (New York: Wiley), Vol. **8** 238-58
- Osipov V V 2000 *Phys. Usp.* **43** 221-41

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Paschen F 1889 *Wiedemann Ann. Phys. Chem.* **37** 69-96
- Penney G W and Hummert G T 1970 *J. Appl. Phys.* **41** 572-7
- Phelps A V and Petrovič Z L *Plasma Sources Sci. Technol.* **8** R21–R 44
- Protasevich E T 2000 *Cold Non-Equilibrium Plasma* (A Cambridge International Science Publishing Book)
- Raether H 1939 *Z. Phys.* **112** 464-89 (in German)
- Raether H 1940 *Naturwiss.* **28** 749-50 (in German)
- Raether H 1964 *Electron Avalanches and Breakdown in Gases* (London: Butterworths)
- Raizer Yu P 1986 *High Temp.* **24** 744-54
- Raizer Yu P 1991, 1997 *Gas Discharge Physics* (Berlin: Springer)
- Raja Rao C and Govinda Raju G R 1971 *J. Phys. D: Appl. Phys.* **4** 494-503
- Reininghaus W 1973 *J. Phys. D: Appl. Phys.* **6** 1486-93
- Rhodes Ch K Ed 1979, 1984 *Excimer Lasers* (New York: Springer)
- Rocco A, Ebert U and Hundsdorfer W 2002 *Phys. Rev. E.* **66** 035102-1 to **66** 035102-4
- Rogowski W, Flegler E and Tamm R 1927 *Arch. Elektrotech.* **18** 479-512 (in German)
- Rogowski W 1928 *Arch. Elektrotech.* **20** 99-106 (in German)
- Sigmond R S 1984 *J. Appl. Phys.* **56** 1355-70
- Šijačić D D and Ebert U *Phys. Rev. E* **66** 066410
- Tarasenko V F, Yakovlenko S I, Orlovskii V M, Tkachev A N and Shumailov S A 2003 *JETP Lett.* **77** 611-5
- Vollrath K and Thomer G 1967 *Kurzzeitphysik* (Wien: Springer) p 81
- von Engel A and Steenbeck M 1932, 1934 *Elektrische Gasentladungen* (Berlin: Springer) vol 1 and 2
- Wagner K H 1971 *Z. Phys.* **241** 258-70
- Water R T and Stark W B 1975 *J. Phys. D: Appl. Phys.* **8** 416-26
- Wilson C T R 1924 *Proc. Cambridge Phil. Soc.* **22** 534-8
- Zheleznyak M B, Mnatsakanyan A Kh and Sizykh S V 1982 *High Temp.* **20** 357-62

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 2, Section 2.5.

- Akishev Yu S, Deryugin A A, Kochetov I V, Napartovich A P, and Trushkin N I, 1993, *J. Phys. D: Appl. Phys.* **26** 1630-1637
- Akishev Yu S, and Leys C, 1999a, *J. Techn. Phys.* (Polish Acad. Sci., Warszawa) **40** 127-143
- Akishev Yu S, Grushin M E, Deryugin A A, Napartovich A P, and Trushkin N I, 1999b, *J. Phys. D: Appl. Phys.* **32** 2399-2409
- Akishev Yu S, Grushin M E, Kochetov I V, Napartovich A P, Pan'kin M V, and Trushkin N I, 2000, *Plasma Phys. Rep.* **26** 157-163
- Akishev Yu S, Goossens O, Callebaut T, Leys C, Napartovich A P, Pan'kin MV, and Trushkin N I, 2001a, *J. Phys. D: Appl. Phys.* **34** 2875-2882
- Akishev Yu S, Grushin M E, Karal'nik V B, and Trushkin N I, 2001b, *Plasma Phys. Rep.* **27** 520-531 (part I) and 532-541 (part II)
- Akishev Yu S, Dem'yanov A V, Karal'nik V B, Pan'kin M V, and Trushkin N I, 2001c, *Plasma Phys. Rep.* **27** 164-171
- Akishev Yu S, Napartovich A P, and Trushkin N I, 2002a, *Bull. of the American Phys. Society* **47** #7, 55th Annual Gaseous Electronics Conference, 76
- Akishev Yu S, Karal'nik V B, and Trushkin N I, 2002b, *Proc. of SPIE*, ed. by V. Ochkin, Vol. **4460** 26-37
- Akishev Yu S, Grushin M E, Napartovich A P, and Trushkin N I, 2002c, *Plasmas and Polymers* **7** 261-289
- Akishev Yu S, Grushin M E, Karal'nik V B, Monich A E, and Trushkin N I, 2003a, *Plasma Phys. Rep.* **29** 681-690
- Akishev Yu S, Grushin M E, Karal'nik V B, Kochetov I V, Monich A E, Napartovich A P, and Trushkin N I, 2003b, *Plasma Phys. Rep.* **29** 176-186.
- Allibone T E, Jones J E, Saunderson J C, Taplamacioglu M C, and Waters R T, 1993, *Proc. R. Soc. Lond. A* **441** 125-146
- Arrayas M, Ebert U, and Hundsdorfer W, 2002, *Phys. Rev. Letters* **88** 1745
- Babaeva N Yu, and Naidis G V, 1996a, *J. Phys. D.: Appl. Phys.* **29** 2423 – 2431
- Babaeva N Yu, and Naidis G V, 1996b, *Phys. Lett A* **215** 187 – 190
- Babaeva N Yu, and Naidis G V, 2000, in *Electrical Discharges for Environmental Purposes: Fundamentals and Applications*, Ed. by van Veldhuizen E M, Nova Science Publishers, Inc., New York 11743, 21-48

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Beattie I, 1975, *PhD Thesis*, University of Waterloo, Canada
- Blom P P M, 2001, *PhD Thesis*, Technische Universiteit Eindhoven
- Boullound A., Charrier I, and Le Ny R, 1979, *J. Physique* **40** C7 241
- Brown S C, 1959, *Elementary processes in gas discharge plasma*, MIT Press, Cambridge, MA
- Brown S C, 1966, *Basic Data of plasma physics*, MIT Press, Cambridge, Massachusetts
- Černák M, and Hosokawa T, 1991, *Phys. Review A* **43** 1107-1109
- Chang J.-S, Lawless P A, and Yamamoto T, 1991, *IEEE Trans. Plasma Sci.* **19** 1102-1166
- Colli L, Facchii U, Gatti E, and Persano A, 1954, *J. Phys. D: Appl. Phys.* **25** 429- 432
- Eliasson B, Hirth M, and Kogelschatz U, 1987, *J. Phys. D: Appl. Phys.* **20**, 1421-1437
- Eliasson B, and Kogelschatz U, 1991, *IEEE Trans. Plasma Sci.* **19** 309-323
- Fieux R, and Bouteau M, 1970, *Bull. Dir. Etude Rech. serie B*, Reseaux Electriques Materiels Electriques, #2, 55-88
- Goldman A, Goldman M, Rautureau M, and Tchoubar C, 1965, *J. de Physique* **26** 486-489
- Goldman M, and Goldman A, 1978, in *Gaseous electronics*, Vol. I, Ed by Hirsh M N, and Oskam H J, Academic Press, New York, 219-290
- 130%
M, and Sigmond R S, 1982, *IEEE Trans. on Electrical Insulation* **EI-17** 90-105
- Goldman A, Goldman M, Jones J E, and Yumoto M, 1988, in *Proceed. 9th Int. Conf. on Gas Discharges and Their Applications*, Venice, Padova: Trip, 197-200
- Goldman A, Goldman M, and Jones J E, 1992, *Proceedings of the 10th International Conference on Gas Discharges and Their Applications*, Swansea, p 270-273
- Hermstein W, 1960, *Archiv fur Electrotechnik* **45** 209-279
- Jones J E, Davies M, Goldman A, and Goldman M, 1990, *J. Phys. D: Appl. Phys.* **23** 542-552
- Kaptsov N A, 1947, *Corona Discharge*, Gostekhizdat, Moscow; 1953, *Electronics*, Gostekhizdat, Moscow.
- Kulikovskiy A A, 1997a, *J. Phys. D: Appl. Phys.* **30** 441-450, and 1515-1522

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Kulikovsky A A, 1997b, *IEEE Trans. Plasma Sci.* **25** 439-445
- Kulikovsky A A, 1998, *Phys. Rev. E* **57** 7066-7074
- Lama W L, and Gallo C F, 1974, *J. Appl. Phys.* **45** 103-113
- Lawless PA, McLean K J, Sparks L E, and Ramsey G H, 1986, *J. Electrostatics* **18** 199-217
- Loeb L B, Kip A F, Hudson G G, and Bennet W H, 1941, *Phys. Rev.* **60** 714-722
- Loeb L B, 1965, *Electrical Coronas*, Univ. of California Press, Berkeley–Los Angeles
- Marode E, 1975, *J. Appl. Phys.* **46**, 2005-2015 (part I) and 2016-2020 (part II)
- Marode E, Goldman A, and Goldman M, 1993, NATO ASI Series, Vol. **G 34**, Part A, 167-190, Ed. by Penetrante B M, and Schultheis S E, Springer-Verlag Berlin Heidelberg
- Morrow R, 1985a, *Phys. Rev. A* **32** 1799-1809; 1985b, *Phys. Rev. A* **32**, 3821-3824
- Morrow R, and Lowke J J, 1997, *J. Phys. D: Appl. Phys.* **30** 3099-3144
- Naidis G V, 1996, *J. Phys. D: Appl. Phys.* **29** 779-783
- Napartovich A P, and Akishev Yu S, 1993, in *Proceedings XXI ICPIG*, Vol. **III**, Ruhr-Universität Bochum, 207-216
- Napartovich A P, Akishev Yu S, Deryugin A A, Kochetov I V, Pan'kin MV, and Trushkin N I, 1997, *J. Phys. D: Appl. Phys.* **30** 2726-2736
- Napartovich A P, Akishev Yu S, Kochetov I V, and Loboyko A M, 2002, *Plasma Physics Reports* **28** 1049-1059
- Ono R, and Oda T, 2003, *J. Phys. D: Appl. Phys.* **36** 1952-1958
- Radu I, Bartnikas R, and Wertheimer M R, 2003, *J. Phys. D: Appl. Phys.* **36** 1284–1291
- Sigmund R S, 1978, *Corona discharges*, in *Electrical breakdown of gases*, Ed. by Meek J M, and Craggs J D, Wiley, New York, 319-384
- Sigmund R S, 1982, *J. Appl. Phys.* **53** 891-898
- Sigmund R S, 1984, *J. Appl. Phys.* **56** 1355-1370
- Sigmund R S, 1997, *Topical lecture at the ICPIG-23*, Toulouse **C4** 383-395
- Townsend J S, 1914, *Phil. Mag.* **28** 83-90
- Trichel G W, 1938, *Phys. Rev.* **54** 1078-1084
- van Veldhuizen E M, and Rutgers W R, 2002, *J. Phys. D: Appl. Phys.* **35** 2169-2179

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Velikhov E P, Golubev V S, and Pashkin S V, 1982, Glow discharge in gas flow, *Uspekhi Fizicheskikh Nauk*, Moscow, **137** 117-137
- Vereshchagin I P, 1985, Corona Discharge in Electronic and Ionic Technologies, *Énergoatomizdat*, Moscow.
- Vitello P A, Penetrante B M, and Bardsley J N, 1993, *NATO ASI Series*, Vol. **G 34**, Part A, 249-271, Ed. by Penetrante B M, and Schultheis S E, Springer-Verlag Berlin Heidelberg
- Von Engel A V, Steenbeck M, 1934, *Electrische Gasentladungen*, Berlin
- Von Engel A V, 1955, ***Ionized Gases***, Oxford, Clarendon Press, UK
- Warburg E, 1899, *Wied. Ann.* **67** 68-93; 1927, *Handbuch der Physik*, Springer- Verlag, Berlin, **4**, 154.
- Yamada T, Kondo, and Miyoshi Y, 1980, *J. Phys. D: Appl. Phys.* **13** 411-417
- Yan K, 2001, *PhD Thesis*, Technische Universiteit Eindhoven
- Zentner R, 1970a, *ETZ-A* **91**, #5 303-305
- Zentner R, 1970b, *Z. Angew. Physik* **29** 294-301

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 2, Section 2.6.

- Andrews T, P. Tait P G 1860 *Phil. Trans. Roy. Soc. London* **150** 113-31
- Bagirov M A, Nuraliev N E and Kurbanov M A 1972 *Sov. Phys.-Tech. Phys.* **17** 495-8
Berthelot M 1876 *Compt. Rend.* **82** 1360-6
- Buss K 1932 *Arch. Elektrotech.* **26** 261-5
- El-Bakkal J M and Loeb L B *J. Appl. Phys.* **33** 1567-77
- Falkenstein Z and J. J. Coogan J J 1997 *J. Phys. D: Appl. Phys.* **30** 817-25
- Glockler G and S. C. Lind S C 1939 *The Electrochemistry of Gases and other Dielectrics* (New York: John Wiley)
- Gobrecht H, Meinhardt O and Hein F 1964 *Ber. Bunsenges.. phys. Chem.* **68** 55-63
- Harries W L and von Engel A 1951 *Proc. Phys. Soc. (London)* **B 64** 916-29
- Harries W L and von Engel A 1954 *Proc. Royal Soc. (London)* **A 222** 490-508
- Hautefeuille P and Chappius J 1881 *Compt. Rend.* **92** 80-2
- Hautefeuille P and Chappius J 1882 *Compt. Rend.* **94** 1111-4
- Klemenc A, Hinterberger H and Höfer H 1937 *Z. Elektrochem.* **43** 708-12
- Kogelschatz U 1988 *Advanced Ozone Generation in Process Technologies for Water Treatment* Stucki S Ed (New York: Plenum Press) pp. 87-120
- Kogelschatz U, Eliasson B and Egli W 1997 *J. Phys. IV (France)* **7** C4-47 to C4-66
- Kogelschatz U, Eliasson B and Egli W 1999 *Pure Appl. Chem.* **71** 1819-28
- Kogelschatz U 2002a *IEEE Trans. Plasma Sci.* **30** 1400-8
- Kogelschatz U 2002b *Plasma Sources Sci. Technol.* **11** 3A, A1-A6
- Kogelschatz U 2003 *Plasma Chem. Plasma Process.* **23** 1-46
- Manley T C 1943 *Trans. Electrochem. Soc.* **84** 83-96
- Rummel T 1951 *Hochspannungs-Entladungchemie und ihre industrielle Anwendung* (Munich: Verlag von R. Oldenbourg und Hanns Reich Verlag)
- Siemens W 1857 *Poggendorffs Ann. Phys. Chem.* **102** 66-122
- Suzuki M and Naito Y 1952 *Proc. Jpn. Acad.* **2** 469-76

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Thénard A 1872 *Compt. Rend.* **74** 1280

Wagner H-E, Brandenburg R, Kozlov K V, Sonnenfeld A, Michel P and Behnke J F 2003
Vacuum **71** 417-36

Warburg E 1903 *Sitzungsber. d. königl. Preuss. Akad. d. Wissensch. (Math-Phys)* 1011-15

Warburg E 1904 *Ann. d. Phys. (4)* **13** 464-76

Warburg E 1908 *Über chemische Reaktionen, welche durch die stille Entladung in gasförmigen Körpern herbeigeführt werden in Jahrbuch der Radioaktivität u. Elektronik* vol 6 pp. 181-229

Warburg E 1927 *Über die stille Entladung in Gasen in Handbuch der Physik*, Geiger H and Scheel K, ed., vol 14 pp 149-70 (Berlin: Springer)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 3, Section 3.5.

- [1] R. Balescu, *Transport Processes in Plasmas*, North-Holland, Amsterdam, (1988).
- [2] M.E. Barone and D.B. Graves, *Plasma Sources Sci. Technol.*, **5**, 187, (1996).
- [3] H. Deutsch, K. Becker, R.K. Janev, M. Probst, T. D. Märk, *J. Physics. B Letters*, **33**, 865, (2000).
- [4] A. Kersch and W.J. Morokoff, *Transport Simulation in Microelectronics*, Birkhauser, Basel, (1995).
- [5] M.A. Lieberman and A.J. Lichtenberg, *Principles of Plasma Discharges and Material Processing*, Wiley, New York, (1994).
- [6] [1] D. Loffhagen and R. Winkler, *J. Phys. D: Appl. Phys.*, **34**, 1355, (2001).
- [7] M. Mitchner and C.H. Kruger, *Partially Ionized Gases*, Wiley, New York, (1973).
- [8] L. Tsendin, *private communication*, (1999).
- [9] K.-U. Riemann, *J. Phys. D: Appl. Phys.*, **24**, 491, (1991).
- [10] L. Waldmann, *Handbuch der Physik Bd XII, Transporterscheinungen in Gasen von mittlerem Druck*, Springer, Berlin-Göttingen-Heidelberg, (1958).
- [11] NIST Online Data Base *Electron-Impact Cross Sections for Ionization and Excitation*
<http://physics.nist.gov/PhysRefData/Ionization/index.html>.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 4, Section 4.5.6.

- Adamovich I V and Rich J W 1998, J. Chem. Phys., 109, 7711
- Adams N G and Smith D 1988, in "Rate Coefficients in Astrochemistry", eds. T. J. Millar, & D. A. Williams (The Netherlands: Kluwer Academic Publishers), 173
- Adams N G, Smith D, and Clary D C, 1985, Astrophys. J., 296, L31
- Akishev Yu S, Deryugin A A, Karalnik V B, Kochetov I V, Narpatovitch A P, Trushkin N L, 1994 *Numerical simulation and experimental study of an atmospheric-pressure direct-current glow discharge* Plasma Physics Report **20** 511-524
- Albritton D L, Dotan I, Lindinger W, McFarland M, Tellinghuisen J, and Fehsenfeld F C, 1977, J. Chem. Phys., 66, 410
- Alge E, and Lindinger W, 1981, J. Geophys. Res., 86, 871
- Anderson S L, 1991, in "Gas Phase Ion Chemistry", ed. K. R. Jennings (Dordrecht: Kluwer Acad. Pub.), 183
- Anderson S L, 1992a, in "State-Selected and State-to-State Ion-molecule Reaction Dynamics: Part 1. Experiment", eds. C. Ng, & M. Baer (New York: John Wiley)
- Anderson S L, 1992b, Adv. Chem. Phys., 82, 177 (Part I)
- Anderson S L, 1997, Accts. of Chem. Res., 30, 28
- Anthony E B, Schade W, Bastian M J, Bierbaum V M, and Leone S R, 1997, J. Chem. Phys., 106, 5413
- Appleton J P, Steinberg M, and Liquornick D S, 1968, J. Chem. Phys., 48, 599
- Armentrout P B, 2000, Int. J. Mass Spectrom. Ion Phys., 200, 219
- Armstrong D A, Sennhauser E S, Warman J M, and Sowada U, 1982, Chem. Phys. Lett., 86, 281
- Baer M and Ng C-Y, 1992, in (New York: John Wiley)
- Baeva M, Gier H, Pott A, Uhlenbusch J, Höschele J, Steinwandel J, 2001 *Studies on gas purification by a pulsed microwave discharge at 2.46 GHz in mixtures of N₂/NO/O₂ at atmospheric pressure* Plasma Chem. Plasma Proc. **21** 225-247
- Bardsley J N, 1968, J. Phys. B., 1, 365
- Bates D R, 1980, J. Phys. B., 13, 2587
- Bates D, 1981, J. Phys. B., 14, 3525

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Bates D R and Massey H S W, 1947, Proc. Roy. Soc. A, 192, 1
- Billing G D, 1986, in "Non-equilibrium vibrational kinetics", (Berlin: Springer Verlag), 85
- Bird G A, 1994, "Molecular Gas Dynamics and the Direct Simulation of Gas Glows", (Oxford: Clarendon Press)
- Boesl U, Neusser H J, and Schlag E W, 1978, Z. Naturforsch., 33A, 1546
- Borgnakke C and Larsen P S, 1975, J. Comp. Phys., 18, 405
- Boyd I D, 2001, in "Chemical Dynamics in Extreme Environments", ed. R. A. Dressler (Singapore: World Scientific), 81
- Bradbury N E and Nielsen R A, 1936, Phys. Rev., 49, 388
- Bundle C R, Neumann D, Price W C, Evans D, Potts A W, and Streets D G 1970, J. Chem. Phys., 53, 705
- Cao Y S and Johnsen R, 1991, J. Chem. Phys., 95, 5443
- Chen J, Davidson J H, 2002 *Ozone production in the positive dc corona discharge: Model and comparison to experiments* Plasma Chem. Plasma Process. **22** 495-522
- Chen A, Johnsen R, and Biondi M A, 1978, J. Chem. Phys., 69, 2688
- Chesnavich W J and Bowers M T, 1977a, J. Amer. Chem. Soc., 99, 1705
- Chesnavich W J and Bowers M T, 1977b, J. Chem. Phys., 66, 2306
- Chesnavich W J and Bowers M T, 1979, J. Phys. Chem., 83, 900
- Chiu Y, Fu H, Huang J, and Anderson S L, 1995a, J. Chem. Phys., 102, 1199
- Chiu Y, Pullins S, Levandier D J, and Dressler R A, 2000, J. Chem. Phys., 112, 10880
- Chiu Y, Fu H, Huang J-T, and Anderson S L, 1994, J. Chem. Phys., 101
- Chiu Y, Fu H, Huang J-T, and Anderson S L 1996, J. Chem. Phys., 105, 3089
- Chiu Y, Yang B, Fu H, and Anderson S L, 1995b, J. Chem. Phys., 102, 1188
- Chiu Y, Yang B, Fu H, Anderson S L, Schweizer M, and Gerlich D, 1992, J. Chem. Phys., 96, 5781
- Chiu Y, 1965, J. Chem Phys., 42, 2671
- Christophorou L G, McCorkle D L, and Christodoulides A A, 1984 Electron Attachment Processes, in Electron Molecule Interactions and their Applications, editor: L.G. Christophorou, Vol I, 477-617, Academic Press, Orlando

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Clary D C, 2003, *Annu. Rev. Phys. Chem.*, 54, 493
- Conaway W E, Ebata T, and Zare R N, 1987, *J. Chem. Phys.*, 87, 3447
- Cosby P C, 1993a *Electron impact dissociation of nitrogen* *J Chem. Phys.* **98** 9544-9553
- Cosby P C, 1993b *Electron impact dissociation of oxygen* *J Chem. Phys.* **98** 9560-9569
- Dai H-L and Field R W, 1995, "Molecular dynamics and spectroscopy by stimulated emission pumping", Vol. 4 (Singapore: World Scientific)
- Daly N R, 1960, *Rev. Sci. Instrum.*, 31, 264
- Dorai R, Kushner M J, 2003 A model for plasma modification of polypropylene using atmospheric pressure discharges *J. Phys. D: Appl. Phys.* **36** 666-685
- Dotan I, Hierl P M, Morris R A, and Viggiano A A, 1997, *Int. J. Mass Spectrom. Ion Phys.*, 167/168, 223
- Dotan I and Lindinger W, 1982a, *J. Chem. Phys.*, 76, 4972
- Dotan I and Lindinger W, 1982b, *J. Chem. Phys.*, 76, 4972
- Dotan I, Midey A J, and Viggiano A A, 1999, *J. Am. Soc. Mass Spectrom.*, 10, 815
- Dotan I, Midey A J, and Viggiano A A, 2000, *J. Chem. Phys.*, In press
- Dotan I and Viggiano A A, 1999, *J. Chem. Phys.*, 110, 4730
- Dressler R A, Meyer H, Langford A O, Bierbaum V M, and Leone S R, 1987, *J. Chem. Phys.*, 87, 5578
- Duncan M A, Bierbaum V M, Ellison G B, and Leone S R, 1983, *J. Chem. Phys.*, 79, 5448
- Durup-Ferguson M, Bohringer H, Fahey D W, Fehsenfeld F C, and Ferguson E E, 1984, *J. Chem. Phys.*, 81, 2657
- Durup-Ferguson M, Bohringer H, Fahey D W, and Ferguson E E, 1983, *J. Chem. Phys.*, 79, 265
- Esposito F and Capitelli M, 1999, *Chem. Phys. Lett.*, 302, 49
- Eliasson B, Egli W, and Kogelschatz U, 1994, *Pure and Appl. Chem.* 66, 1275
- Eliasson B and Kogelschatz U, 1991, *IEEE Trans. Plasma Sci.* 19, 1063
- Esposito F, Capitelli M, and Gorse C, 2000, *Chem. Phys.*, 257, 193
- Everest M A, Poutsma J C, Flad J E, and Zare R N, 1999, *J. Chem. Phys.*, 111, 2507

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Everest M A, Poutsma J C, and Zare R N, 1998, J. Phys. Chem., 102, 9593
- Fahey D W, Dotan I, Fehsenfeld F C, Albritton D L, and Viehland L A, 1981a, J. Chem. Phys., 74, 3320
- Fahey D W, Fehsenfeld F C, Ferguson E E, and Viehland L A, 1981b, J. Chem. Phys., 75, 669
- Farrar J M and Saunders Jr. W H, 1988, in (New York: John Wiley & Sons)
- Ferguson E E, 1974a, Rev. Geophys. Space Phys., 12, 703
- Ferguson E E, 1974b, in "Interactions between Ions and Molecules", ed. P. Ausloos (New York: Plenum), 320
- Ferguson E E, Fehsenfeld F C, and Schmeltekopf A L, 1969, in Adv. At. Mol Phys., ed. D. R. Bates (New York: Academic), 1
- Ferguson E E, Richter R, and Lindinger W, 1988, J. Chem. Phys., 89, 1445
- Fox J. L., 1993, in "Dissociative Recombination Theory, Experiment, and Application", ed. B. R. Rowe (New York: Plenum Press)
- Frost M J, Kato S, Bierbaum V M, and Leone S R, 1994, J. Chem. Phys., 100, 6359
- Frost M J, Kato S, Bierbaum V M, and Leone S R, 1998, Chem. Phys., 231, 145
- Fu H, Qian J, Green R J, and Anderson S L, 1998, J. Chem. Phys., 108, 2395
- Gallis M A and Harvey J K, 1996, J. Fluid Mech., 312, 149
- Gallis M A and Harvey J K, 1998, Phys. Fluids, 10, 1344
- Gerlich D, 1992, Adv. Chem. Phys., 82, 1
- Gilbert M, Giménez X, Huarte-Larrañaga F, González M, Aguilar A, Last I, and Baer M, 1999, J. Chem. Phys., 110, 6278
- Gioumoussis G and Stevenson D P, 1958, J. Chem. Phys., 29, 294
- Gordiets B F, Ferreira C M, Guerra V L, Loureiro A H, Nahorny J, Pagnon D, Touzeau M, Vialle M 1995 *Kinetic model of a low-pressure N₂-O₂ flowing glow discharge* IEEE Trans. Plasma Sci. **23** 750-767
- Gouw J A D, Ding L N, Frost M J, Kato S, Bierbaum V M, and Leone S R, 1995, Chem. Phys. Lett., 240, 362
- Govers T R and Guyon P-M, 1987, Chem. Phys., 113, 425
- Graham E, Johnsen R, and Biondi M A, 1975, J. Geophys. Res., 80, 2338

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Green D S, Sieck L W, Herron J T, 1995 *Characterization of chemical processes in non-thermal plasmas for the destruction of volatile organic compounds* 12th intern. Symp. Plasma Chem. Minneapolis 1995 Proc. **2** 965-969
- Guberman S, 1977, *Science*, 278, 1276
- Guberman S and Giusti-Suzor A, 1991, *J. Chem Phys.* 95, 2602
- Guberman S L, 1987, *Nature*, 327, 408
- Guberman S L, 1988, *Planet. Space Sci.*, 36, 47
- Guberman S L, 2003a, in "Dissociative Recombination of Molecular Ions with Electrons", ed. S. L. Guberman (New York: Plenum Press), 1
- Guberman S L, 2003b, in *Dissociative Recombination of Molecular Ions with Electrons*, ed. S. L. Guberman (New York: Kluwer/Plenum Academic Press), 187
- Guttler R D, Jones Jr., Posey L A, and Zare R N, 1994, *Science*, 266
- Hellberg F, Rosen S, Thomas R, Neau A, Larsson M, Petrigani A, and van der Zande W, 2003, *J. Chem. Phys.*, 118, 6250
- Hernandez R, Toumi R, and Clary D C, 1995, *J. Chem. Phys.*, 102, 9544
- Herron J T, 1999 *Evaluated chemical kinetics data for reactions of $N(^2D)$, $N(^2P)$, and $N_2(A^3E_u^+)$ the gas phase* *J. Chem. Ref. Data* **28** 1453-1483
- Herron J T, 2001 *Modeling studies of the formation and destruction of NO in pulsed barrier discharges in nitrogen and air* *Plasma Chem. Plasma Process.* **21** 581-609
- Herron J T, Green D S, 2001 *Chemical database and predictive schemes for humid air plasma chemistry. Part II: Neutral species reactions* *Plasma Chem. Plasma Process.* **21** 459-481
- Hierl P M, Dotan I., Seeley J V, Van Doren J M, Morris R A, and Viggiano A A, 1997, *J. Chem. Phys.*, 106, 3540
- Hierl P M, et al., 1996, *Rev. Sci. Inst.*, 67, 2142
- Howorka F, Dotan I, Fehsenfeld F C, and Albritton D L, 1980, *J. Chem. Phys.*, 73, 758
- Huarte-Larrañaga F, Giménez X, Lucas J M, Aguilar A, and Launay J M, 1998, *Phys. Chem. Chem. Phys.*, 1, 1125
- Huarte-Larrañaga F, Giménez X, Lucas J M, Aguilar A, and Launay J M, 2000, *J. Phys. Chem.*, 104, 10227
- Huber K P and Herzberg G, 1979, "Molecular Spectra and Molecular Structure. IV. Constants of Diatomic Molecules", (New York, NY: Van Nostrand Reinhold)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Ikezoe Y, Matsuoka S, Takebe M, and Viggiano A A, 1987, "Gas Phase Ion-Molecule Reaction Rate Constants Through 1986" (Tokyo: Maruzen Company, Ltd.)
- Jarvis G K, Song Y, and Ng C Y, 1999, Rev. Sci. Instr., 70, 2615
- Johnsen R, 1993, J. Chem. Phys., 98, 5390
- Johnsen R and Biondi M A, 1973, J. Chem. Phys., 59, 3504
- Johnsen R, Brown H L, and Biondi M A, 1970, J. Chem. Phys., 52, 5080
- Johnston H and Birks J, 1972, Acc. Chem. Res., 5, 327
- Jongma R T and Wodtke A M, 1999, J. Chem. Phys., 111, 10957
- Jursa A S. 1985, in (Springfield VA: National Technical Information Service)
- Karwasz G P, Brusa R S, Zecca A, 2001 *One century of experiments on electron-atom and molecule scattering: A critical review of integral cross-sections. II. Polyatomic molecules* Rivista del Nuovo Cimento **24(1)** 1-118
- Karwasz G P, Brusa R S, Zecca A, 2001 *One century of experiments on electron-atom and molecule scattering: A critical review of integral cross-sections. III. Hydrocarbons and halides* Rivista del Nuovo Cimento **24(2)** 1-101
- Kato S, Bierbaum V M, and Leone S R, 1998, J. Phys. Chem. A, 102, 6659
- Kato S, Frost M J, Bierbaum V M, and Leone S R, 1993, Rev. Sci. Instrum., 64, 2808
- Kato S, Frost M J, Bierbaum V M, and Leone S R, 1994, Can. J. Chem., 72, 625
- Kato S, Gouw J A D, Lin C-D, Bierbaum V M, and Leone S R, 1996a, Chem. Phys. Lett. 256, 305
- Kato S, Lin G-D, Bierbaum V M, and Leone S R, 1996b, J. Chem. Phys., 105, 5455
- Kella D, Johnson P J, Pederson H B, Velby-Christensen L, and Andersen L H, 1996, Phys. Rev. Lett., 77, 2432
- Kella D, Vejby-Christensen L, Johnson P J, Pedersen H B, and Anderson L H, 1997, Science, 276, 1530
- Kim H-T, Green R J, and Anderson S L, 2000, J. Chem. Phys., 112, 10831
- Kim H-T, Green R J, Qian J, and Anderson S L, 2000, J. Chem. Phys., 112, 5717
- Kossyi I A, Kostinki A Yu, Matveyev A A, Silakov V P, 1992 *Kinetic scheme of the non-equilibrium discharge in nitrogen-oxygen mixtures* Plasma Sources Sci. Technol. **1** 207-220

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Koyano I and Tanaka K, 1992, *Adv. Chem. Phys.*, 82, 263
- Koyano I, Tanaka K, Kato T, and Suzuki S, 1987, *Faraday Discuss. Chem. Soc.*, 84, 265
- Krishnamurthy M, Bierbaum V M, and Leone S R, 1997, *Chem. Phys. Lett.*, 281, 49
- Krupenie P H, 1972, *J. Phys. Chem. Ref. Data*, 1, 423
- Lagana A, Garcia E, and Ciccarelli L, 1987, *J. Phys. Chem.*, 91, 312
- Larsson M, Mitchell J B A, and Schneider I F, 2000, in (Singapore: World Scientific Publishing Co.)
- Larsson M and Thomas R, 2001, *Phys. Chem. Chem. Phys.*, 3, 4471
- Le Garrec J L, Lepage V, Rowe B R, and Ferguson E E, 1997, *Chem. Phys. Lett.*, 270, 66
- Lee W, Adamovic I V, and Lempert, W. R., 2001, *J. Chem. Phys.* 114, 1178.
- Levine R D, 1995, in "Frontiers in Chemical Dynamics", ed. E. Yurtsever (Kluwer Academic Publishers), 195
- Levine R D and Bernstein R B, 1971, *Chem. Phys. Lett.*, 11, 552
- Levine R D and Bernstein R B, 1972, *J. Chem. Phys.*, 56, 2281
- Levine R D and Bernstein R B, 1987, "Molecular Reaction Dynamics and Chemical Reactivity", (New York: Oxford University Press)
- Levine R D and Manz J, 1975, *J. Chem. Phys.*, 63, 4280
- Lias S G, Bartmess J E, Liebman J F, Holmes J L, Levin R D, and Mallard W G, 1988, *J. Phys. Chem. Ref. Data*, 17, Supplement 1, 1
- Light J C, 1967, *Disc. Faraday Soc.*, 44, 14
- Lindinger W, 1987, *Int. J. of Mass Spectrom. Ion Proc.*, 80, 115
- Lindinger W, Albritton D L, Fehsenfeld F C, and Ferguson E E, 1975, *J. Geophys. Res.*, 80, 3725
- Lindinger W, Fehsenfeld F C, Schmeltekopf A L, and Ferguson E E, 1974, *J. Geophys. Res.*, 79, 4753
- Macharet S O and Rich J W, 1993, *Chem. Phys.*, 174, 25
- Mack J A, Mikulecky K, and Wodtke A M, 1996, *J. Chem. Phys.*, 105, 4105
- Marcus R A, 1952, *J. Chem. Phys.*, 20, 359

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Marcus R A and Rice O K, 1951, J. Phys. Colloid Chem., 55, 894
- Marriott P M and Harvey J K, 1994, in "Rarefied gas dynamics: Experimental techniques and physical systems", ed. D. P. Weaver (Washington DC: AIAA), 197
- Mätzing H 1991 *Chemical kinetics of flue gas cleaning by irradiation with electrons* Advances in Chemical Physics **80** 315-402
- McFarland M, Albritton D L, Fehsenfeld F C, Ferguson E E, and Schmeltekopf A L, 1973a, J. Chem. Phys., 59, 6610
- McFarland M, Albritton D L, Fehsenfeld F C, Ferguson E E, and Schmeltekopf A L 1973b, J. Chem. Phys., 59, 6620
- McFarland M, Albritton D L, Fehsenfeld F C, Ferguson E E, and Schmeltekopf A L 1973c, J. Chem. Phys., 59, 6629
- McGowan J W and Mictchell J B A, 1984, in "Electron-Molecule Interactions and their Applications", ed. L. G. Christophorou (New York: Academic Press), 65
- Metayer-Zeitoun C, Alcaez C, Anderson S L, Palm H, and Dutuit O 1995, J. Phys. Chem., 99, 15523
- Midey A J and Viggiano A A, 1998, J. Chem. Phys., 109, 5257
- Midey A J, and Viggiano A A , 1999, J. Chem. Phys, 110., 10746.
- Miller J S, Chiu Y, Levandier D J, and Dressler R A, 2004, in preparation.
- Miller T M, Friedman J F, Menendez-Barreto M, Viggiano A A, Morris R A, Miller A E S, and Paulson J F, 1994, Phys. Scripta, T53, 84
- Mitchell J B A and McGowan J W, 1983, in "Physics of Ion-Ion and Electron-Ion Collisions", eds. F. Brouillard, & J. W. McGowan (New York: Plenum Press), 279
- Morgan W L, 1984, J. Chem. Phys., 80, 4565
- Morgan W L and Bardsley J N, 1983, Chem. Phys. Lett., 96, 93
- Nagard M B et al., 2002, J. Chem. Phys., 117, 5264
- Neau A et al., 2000, J. Chem Phys., 113, 1762
- NIST chemkin NIST Chemical Kinetics Database: Version 2Q98 (<http://www.nist.gov/srd/chemkin.htm>)
- NIST index NIST Chemical Kinetics Database on the Web. A compilation of kinetics data on gas-phase reactions (<http://kinetics.nist.gov/index.php>)
- Ng C Y, 1992, Adv. Chem. Phys., 82, 401

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Ng C Y , 2002, J. Phys. Chem., 106, 5953
- Ng C-Y and Baer M, 1992, in (New York: John Wiley)
- Ng C-Y and Baer M E, 1992, "State-selected and state-to-state ion-molecule reaction dynamics", Vol. 82 (New York: John Wiley & Sons)
- Orlando T M, Yang B, Chiu Y-H, and Anderson S L, 1990, J. Chem. Phys., 92, 7356
- Orlando T M, Yang B, and Anderson S L, 1989, J. Chem. Phys., 90, 1577
- Pechukas P, Light J C, and Rankin C J, 1966, J. Chem. Phys., 44, 794
- Pendergast P, Heck J M, Hayes E F, and Jaquet R, 1993, J. Chem. Phys., 98, 4543
- Peterson J R et al., 1998, J. Chem. Phys., 108, 1978
- Petrignani A, van der Zande W J, Cosby P, Hellberg F, Thomas R, and Larsson M., private communication (2004) and in preparation
- Peverall R et al., 2000, Geophys, Res. Lett., 27, 481
- Peverall R et al., 2001, J. Chem. Phys., 114, 6679
- Poulter K F, Rodgers M-J, Nash P J, Thompson T J, and Perkin M P 1983, Vacuum, 33, 311
- Poutsma J C, Everest M A, Flad J E, Jones Jr. G C, and Zare R N, 1999, Chem. Phys. Lett. 305, 343
- Poutsma J C, Everest M A, Flad J E, and Zare R N, 2000, Appl. Phys. B., 71, 623
- Price J M, Mack J A, Rogaski C A, and Wodtke A M, 1993, Chem. Phys., 175, 83
- Qian J, Fu H, and Anderson S L, 1997, J. Chem. Phys., 101, 6504
- Qian J, Green R J, and Anderson S L, 1998, J. Chem. Phys., 108, 7173
- Qian X et al., 2003a, Rev. Sci. Instr., in press
- Qian X, Zhang T, Chiu Y, Levandier D J, Miller J S, Dressler R A, and Ng C Y, 2003b, J. Chem. Phys., 118, 2455
- Radzig A A, Smirnov B B, 1985 *Reference data on atoms, molecules, and ions* Springer Verlag Berlin
- Rebick C and Levine R D, 1973, J. Chem. Phys., 58, 3942
- Rebrion C, Marquette J B, Rowe B R, and Clary D C 1988, Chem. Phys. Lett., 143, 130
- Rogaski C A, Mack J A, and Wodtke A M, 1995, Faraday Disc. Chem. Soc., 100, 287

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Rogaski C A, Price J M, Mack J A, and Wodtke A M, 1993, *Geophys. Res. Lett.*, **20**, 2885
- Rowe B R, Fahey D W, Fehsenfeld F C, and Albritton D L, 1980, *J. Chem. Phys.*, **73**, 194
- Schmeltekopf A L, 1967, *Planet. Space Sci.*, **15**, 401
- Schmeltekopf A L, Ferguson E E, and Fehsenfeld F C, 1968, *J. Chem. Phys.*, **48**, 2966
- Schultz R H and Armentrout P B, 1991, *J. Phys. Chem.*, **95**, 121
- Schwartz R, Slawsky Z, and Herzfeld K, 1952, *J. Chem. Phys.*, **20**, 1591
- Sieck L W, Herron J T, Green D S, 2000 *Chemical database and predictive schemes for humid air plasma chemistry. Part I: Positive ion –molecule reactions* *Plasma Chem. Plasma Process.* **20** 235-258
- Signorell R and Merkt F, 1998, *J. Chem. Phys.*, **109**, 9762
- Signorell R, Wüest A, and Merket F, 1997, *J. Chem. Phys.*, **107**, 10819
- Silva M, Jongma R, Field R W, and Wodtke A M, 2001, *Annu. Rev. Phys. Chem.*, **52**, 811
- Sizun M and Gislason E A, 1989, *J. Chem. Phys.*, **91**, 4603
- Smith D, Adams N G, and Miller T M, 1978, *J. Chem. Phys.*, **69**, 308
- Smith D and Spanel P, 1995, *Mass Spectrom. Rev.*, **14**, 255
- Smith M A, 1994, in “Unimolecular and Bimolecular Ion-Molecule Reaction Dynamics”, eds. C.-Ng Y, Baer T, and Powis L, (New York: John Wiley and Sons), 183
- Stefanovic I, Bibinov N K, Deryugin A A, Vinogradov I P, Narpatovich A P, Wiesemann K, 2001, *Kinetics of ozone and nitric oxides in dielectric barrier discharges in O₂/NO_x and N₂/O₂/NO_x mixtures* *Plasma Sources Sci. Technol.* **10** 406-416
- Tang B, Chui Y, Fu H, and Anderson S L, 1991, *J. Chem. Phys.*, **95**, 3275
- Teloy E and Gerlich D, 1974, *Chemical Physics*, **4**, 417
- Troe J, 1992, in “State-selected and state-to-state ion-molecule reaction dynamics: theory”, eds. M. Baer , and Ng C-Y, (New York: John Wiley), 485
- Viggiano A A and Arnold F, 1995, in “Atmospheric Electrodynamics”, ed. H. Volland (Boca Raton: CRC Press), 1
- Viggiano A A, Knighton W B, Williams S, Arnold S T, Midey A J, and Dotan I, 2003, *Int. J. Mass Spectrom.*, **223-224**, 397

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Viggiano A A and Morris R A, 1996, J. Phys. Chem., 100, 19227
- Viggiano A A, Morris R A, Dale F, Paulson J F, Giles K, Smith D, and Su T, 1990a, J. Chem. Phys., 93, 1149
- Viggiano A A, Morris R A, Deakyne C A, Dale F, and Paulson J F 1990b, J. Phys. Chem., 94, 8193
- Viggiano A A and Paulson J F, 1983, J. Chem. Phys., 79, 2241
- Viggiano A A and Williams S, 2001, in "Advances in Gas Phase Ion Chemistry", eds. N. G. Adams and Babcock L M, (New York: Academic Press), 85
- Vlasak P R, Beussman D J, Davenport M R, and Enke C G, 1996, Rev. Sci. Instr., 67, 68
- Wadsworth D C and Wysong I J, 1997, Phys. Fluids, 9, 3873
- Warman J M, Sennhauser E S, and Armstrong D A, 1979, J. Chem. Phys., 70, 995
- Wysong I J, Dressler R A, Chiu Y, and Boyd I D, 2002, J. Thermophys. Heat Transfer, 16, 83
- Yang B, Chiu Y-H, Fu, H, and Anderson S L, 1991, J. Chem. Phys., 95, 3275
- Yang B, Chiu Y-H, and Anderson S L, 1991, J. Chem. Phys., 94, 6459
- Zandee L and Bernstein R B, 1979, J. Chem. Phys., 71, 1359
- Zare R N, 1998, Science, 279, 1875
- Zecca A, Karwasz G P, Brusa R S, 1996 *One century of experiments on electron-atom and molecule scattering: A critical review of integral cross-sections. I. Atoms and diatomic molecules* Rivista del Nuovo Cimento **19** 1-146
- Zhang T, Qian X, Chiu Y, Levandier D J, Miller J S, Dressler R A, and Ng C Y, 2003, J. Chem. Phys., 119, 10175

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 5, Section 5.2.10.

- Gnoffo, P. A., Gupta, R. N., Shinn, J. L., (1989) "Conservation Equations and Physical Models for Hypersonic Air Flows in Thermal and Chemical Nonequilibrium," NASA TP-2867.
- Gordon, S., and McBride, B.J., (1994) "Computer Program for Calculation of Complex Chemical Equilibrium Compositions and Applications," NASA RP-1311.
- Gupta, R. N., Yos, J. M., Thompson, R. A., and Lee, K., (1990) "A Review of Reaction Rates and Thermodynamic and Transport Properties for an 11-Species Air Model for Chemical and Thermal Nonequilibrium Calculations to 30,000K," NASA RP-2953.
- Hammond, E.P., K. Mahesh, and P. Moin, "A Numerical Method to Simulate Radio-Frequency Plasma Discharges," *Journal of Computational Physics*, **176**, pp. 402-429, 2002.
- Laux, C., Pierrot, L., Gessman, R., and Kruger, C. H., (1999) "Ionization Mechanisms of Two-temperature Plasmas," AIAA Paper No. 99-3476.
- Laux, C.O., L. Yu, D.M. Packan, R.J. Gessman, L. Pierrot, and C.H. Kruger, "Ionization Mechanisms in Two-Temperature Air Plasmas," AIAA Paper 99-3476, June 1999.
- Millikan, R. C. and White, D. R., (1963) "Systematics of Vibrational Relaxation," *Journal of Chemical Physics*, Vol. 39, pp. 3209-3213.
- Raizer, Y.P, *Gas Discharge Physics*, Springer Verlag, Berlin, pp. 275-287, 1997.
- Ramshaw, J. D., (1990) "Self-Consistent Effective Binary Diffusion in Multicomponent Gas Mixtures, *Journal of Non-Equilibrium Thermodynamics*, Vol. 15, pp. 295-300.
- Ramshaw, J. D., and Chang, C. H., (1991) "Ambipolar Diffusion in Multicomponent Plasmas," *Plasma Chemistry and Plasma Processing*, Vol. 11, No. 3, pp. 395-403.
- Ramshaw, J. D., and Chang, C. H., (1993) "Ambipolar Diffusion in Two-Temperature Multicomponent Plasmas," *Plasma Chemistry and Plasma Processing*, Vol. 13, No. 3, pp. 489-498.
- Ramshaw, J. D., (1993) "Hydrodynamic Theory of Multicomponent Diffusion and Thermal Diffusion in Multitemperature Gas Mixtures," *Journal of Non-Equilibrium Thermodynamics*, Vol. 18, pp. 121-134.
- Ramshaw, J. D., and Chang, C. H., (1996) "Friction-Weighted Self-Consistent Effective Binary Diffusion Approximation," *Journal of Non-Equilibrium Thermodynamics*, Vol. 21.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 5, Section 5.3.6.

1. Pierrot, L., Laux, C.O., and Kruger, C.H., "Vibrationally-Specific Collisional-Radiative Model for Nonequilibrium Nitrogen Plasmas," *Proc. 29th AIAA Plasmadynamics and Lasers Conference, AIAA 98-2664*, Albuquerque, NM, 1998.
2. Pierrot, L., Laux, C.O., and Kruger, C.H., "Consistent Calculation of Electron-Impact Electronic and Vibrational Rate Coefficients in Nitrogen Plasmas," *Proc. 5th International Thermal Plasma Processing Conference*, (Begell House, New York), pp. 153-160, St.-Petersburg, Russia, 1998.
3. Yu, L., Pierrot, L., Laux, C.O., and Kruger, C.H., "Effects of vibrational nonequilibrium on the chemistry of two-temperature nitrogen plasmas," *Proc. 14th International Symposium on Plasma Chemistry*, Prague, Czech Republic, 1999.
4. Pierrot, L., Yu, L., Gessman, R.J., Laux, C.O., and Kruger, C.H., "Collisional-Radiative Modeling of Nonequilibrium Effects in Nitrogen Plasmas," *Proc. 30th AIAA Plasmadynamics and Lasers Conference, AIAA 99-3478*, Norfolk, VA, 1999.
5. Yu, L., "Nonequilibrium Effects in Two-Temperature Atmospheric Pressure Air and Nitrogen Plasmas," Ph.D. Thesis, Stanford University, 2001.
6. Lieberman, M.A. and Lichtenberg, A.J., *Principles of Plasma Discharges and Materials Processing*, John Wiley & Sons, New York, 1994.
7. Hierl, P.M., Dotan, I., Seeley, J.V., Van Doren, J.M., Morris, R.A., and Viggiano, A.A., "Rate Constants for the Reaction of O^+ with N_2 and O_2 as a Function of Temperature (300-1800 K)," *J. Chem. Phys.*, **106**, 3540-3544, 1997.
8. Dotan, I. and Viggiano, A.A., "Rate Constants for the Reaction of O^+ with NO as a function of Temperature (300-1400 K)," *J. Chem. Phys.*, **110**, 4730-4733, 1999.
9. Park, C., *Nonequilibrium Hypersonic Aerothermodynamics*, Wiley, New York, 1989.
10. Park, C., "Review of Chemical-Kinetic Problems of Future NASA Missions, I: Earth Entries," *Journal of Thermophysics and Heat Transfer*, **7**, 385-398, 1993.
11. Kee, R.J., Rupley, F.M., and Miller, J.A., "Chemkin-II: A Fortran Chemical Kinetics Package for the Analysis of Gas Phase Chemical Kinetics," Sandia National Laboratories, Report No. SAND89-8009, 1989.
12. Laux, C.O., Yu, L., Packan, D.M., Gessman, R.J., Pierrot, L., Kruger, C.H., and Zare, R.N., "Ionization Mechanisms in Two-Temperature Air Plasmas," *Proc. 30th AIAA Plasmadynamics and Lasers Conference, AIAA 99-3476*, Norfolk, VA, 1999.
13. Brown, S.C., *Basic Data of Plasma Physics*, The M.I.T. Press, 1966.
14. Shkarofsky, I.P., Johnston, T.W., and Bachynski, M.P., *The Particle Kinetics of Plasmas*, Addison-Wesley Pub. CO., 1966.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

15. Tsang, W. and Herron, J.T., "Chemical kinetic data base for propellant combustion. I. Reactions involving NO, NO₂, HNO, HNO₂, HCN and N₂O," *Journal of Physical and Chemical Reference Data*, **20**, 609-663, 1991.
16. Mitchner, M. and Kruger, C.H., *Partially Ionized Gases*, John Wiley & Sons, Inc., New York, 1973.
17. Pierrot, L., "Chemical Kinetics and Vibrationally-Specific Collisional-Radiative Models for Nonequilibrium Nitrogen Plasmas," Stanford University - Thermosciences Division,, 1999.
18. Chauveau, S.M., Laux, C.O., Kelley, J.D., and Kruger, C.H., "Vibrationally Specific Collisional-Radiative Model for Nonequilibrium Air Plasmas," *Proc. 33rd AIAA Plasmadynamics and Lasers Conference, AIAA 2002-2229*, Maui, HI, 2002.
19. Kazansky, Y.K. and Yelets, I.S., "The Semiclassical Approximation in the Local Theory of Resonance Inelastic Interaction of Slow Electrons with Molecules," *J. Phys. B*, **17**, 4767-4783, 1984.
20. Kozlov, P.V., Makarov, V.N., Pavlov, V.A., Uvarov, A.V., and Shatalov, O.P., "Use of CARS spectroscopy to study excitation and deactivation of nitrogen molecular vibrations in a supersonic gas stream," *Tech. Phys.*, **41**, 882-889, 1996.
21. Bray, K.N.C., "Vibrational relaxation of anharmonic oscillator molecules: relaxation under isothermal conditions," *J. Phys. B. (Proc. Phys. Soc.)*, **1**, 705-717, 1968.
22. Keck, J. and Carrier, G., "Diffusion theory of nonequilibrium dissociation and recombination," *J. Chem. Phys.*, **43**, 2284-2298, 1965.
23. Ahn, T., Adamovich, I.V., and Lempert, W.R., "Stimulated Raman Scattering Measurements of Nitrogen V-V Transfer," *Proc. 41st Aerospace Sciences Meeting and Exhibit, AIAA 2003-132*, Reno, NV, 2003.
24. Nagulapally, M., Candler, G.V., Laux, C.O., Yu, L., Packan, D.M., Kruger, C.H., Stark, R., and Schoenbach, K.H., "Experiments and simulations of DC and Pulsed Discharges in Air Plasmas," *Proc. 31st AIAA Plasmadynamics and Lasers Conference*, pp. AIAA 2000-2417, Denver, CO, 2000.
25. Raizer, Y.P., *Gas Discharge Physics*, Springer, Berlin, 1991.
26. Thoma, H. and Heer, L., *Z. Tech. Phys. (Leipzig)*, **13**, 464, 1932.
27. Gambling, W.A. and Edels, H., "The High-Pressure Glow Discharge in Air," *British Journal of Applied Physics*, **5**, 36-39, 1953.
28. Von Engel, A., *Ionized Gases*, Oxford University Press, Oxford, 1965.
29. Stark, R.H. and Schoenbach, K.H., "Direct current high-pressure glow discharges," *J. Appl. Phys.*, **85**, 2075-2080, 1999.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

30. Leipold, F., Stark, R.H., El-Habachi, A., and Schoenbach, K.H., "Electron density measurements in an atmospheric pressure air plasma by means of infrared heterodyne interferometry," *J. Phys. D.*, **33**, 2268-2273, 2000.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 5, Section 5.4.4.

Akischev Yu S, Deryugin A A, Kochetov I V, Napartovich A P, Pan'kin M V, Trushkin N I, 1996, *Hakone V Contr Papers*, Milovy, Czech Rep. 122

Akischev Yu S, Kochetov I V, Loboiko A I, Napartovich A P, 2002a, *Bulletin of the APS*, **47** 76

Akischev Yu S, Kochetov I V, Loboiko A I, Napartovich A P, 2002b, *Plasma Phys. Rep.* **28**, 1049-1059

Babaeva N Yu, and Naidis G V, 2000, in *Electrical Discharges for Environmental Purposes: Fundamentals and Applications*, van Veldhuizen E M, Ed, Nova Science Publishers, Inc., New York 11743, 21-48

Dhali S K, Williams P F, 1987, *J. Appl. Phys.* **62**, 4696-4707

Egli W, Eliasson B, 1989, *Helvetica Physica Acta*, **62**, 302-305

Kulikovsky A A, 1997a, *J. Phys. D: Appl. Phys.* **30**, 441-450;

Kulikovsky A A, 1997b, *J. Phys. D: Appl. Phys.* **30**, 1515-1522

Lama, W. L., Gallo, C. F., 1974, *J. Appl. Phys.*, **45**, 103-113

Loeb, L. B., Kip, A. F., Hudson G. G., and Bennet, W. H., 1941, *Phys. Rev.*, **60**, 714-722

Morrow R, 1985a, *Phys. Rev. A*, **32**, 1799-1809

Morrow R, 1985b, *Phys. Rev. A*, **32**, 3821-3824

Napartovich A P, Akischev Yu S, Deryugin A A, Kochetov I V, Pan'kin M V, Trushkin N I, 1997a, *J. Phys. D: Appl. Phys.* **30**, 2726-2736

Napartovich A P, Akischev Yu S, Deryugin A A, Kochetov I V, 1997b *Final report to the Contract between ABB Management Ltd. Corp. research, Baden, Switzerland and TRINITI*

Pietsch G J, Braun D, Gibalov V I, 1993, in *Non-thermal plasma techniques for pollution control*, Part A, Eds B M Penetrante, S E Schultheis, NATO ASI Series, 273-286

Thompson J F, Warsi Z U A, Mastin W C, 1985, *Numerical grid generation*, Elsevier, N-Y

Trichel G W, 1938, *Phys. Rev.* **54** 1078-1084

Vitello P A, Penetrante B M, Bardsley J N, 1993, in *Non-thermal plasma techniques for pollution control*, Part A, Eds. B M Penetrante, S E Schultheis, NATO ASI Series, 249-271

Warburg E, 1899, *Wied. Ann.* **67**, 69-83

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Warburg E, 1927 "*Charakteristik des Spitzenstormes*" in Handbuch der Physik **4**
Springer Verlag Berlin 154-155

Zentner, R., 1970a, *ETZ-A*, **91**, #5, 303-305

Zentner, R., 1970b, *Z. Angew. Physik*, **29**, #5, 294-301

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 5, Section 5.5.5.

- ¹J. M. Meek and J. D. Craggs, (Clarendon, Oxford, 1953).
- ²J. A. Palmer, Appl. Phys. Lett. **25**, 138 (1974).
- ³J. I. Levatter and S. C. Lin, J. Appl. Phys. **51**, 210 (1980).
- ⁴G. J. M. Hagelaar, M. H. Klein, R. J. M. M. Snijkers, and G.M.W. Kroesen., J. Appl. Phys. **89**, 2033 (2001).
- ⁵A. V. Phelps and Z. M. Petrivic, Plasma Sci Sources and Tech. **8**, R21 (1999).
- ⁶Y. B. Golubovskii, V. A. Maiorov, J. Behnke, and J.F. Beknke., J. Phys. D: Appl. Phys. **35**, 751 (2002).
- ⁷M. Kurata, *Numerical analysis for semiconductor devices* (Heath, Lexington, MA, 1982).
- ⁸P. L. G. Ventzek, T. J. Sommerer, R. J. Hoekstra, and M.J. Kushner, Appl Phys Lett **63**, 605 (1993).
- ⁹S. K. Dhali and P. F. Williams, J. Appl. Phys. **62**, 4696 (1987).
- ¹⁰J. Li and S. K. Dhali, J. Appl. Phys. **82**, 4205 (1997).
- ¹¹J. P. Boeuf, J. Phys. D: Appl. Phys. **36**, R53 (2003).
- ¹²U. Kogelschatz, B. Eliasson, and W. Egli, J. Phys. IV **7**, C4 (1997).
- ¹³F. Massines, A. Rabehi, P. Decomps, R.B. Gadri, P. Segur and C. Mayoux., J. Appl. Phys. **83**, 2950 (1998).
- ¹⁴U. Kogelschatz, Plasma Chem and Plasma Proc. **23**, 1 (2003).
- ¹⁵U. Kogelschatz, see chapter 6.2 of this book.
- ¹⁶B. Eliasson, M. Hirth, and U. Kogelschatz, J. Phys. D: Appl. Phys. **20**, 1421 (1987).
- ¹⁷B. Eliasson and U. Kogelschatz, IEEE Trans Plasma Sci **19**, 309 (1991).
- ¹⁸U. Kogelschatz, IEEE Trans on Plasma Sci. **30**, 1400 (2002).
- ¹⁹D. Braun, V. Gibalov, and G. Pietsch, Plasma Sources Sci. Technol. **1**, 166 (1992).
- ²⁰V. I. Gibalov and G. J. Pietsch, J Phys D: Appl Phys **33**, 2618 (2000).
- ²¹V. I. Gibalov, T. Murata, and G. J. Pietsch, in *XIII International Conference on Gas Discharges and their Applications*, edited by S. J. MacGregor, Glasgow, 2000).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- ²²G. Steinle, D. Neundorf, W. Hiller, and M. Pietralla., J. Phys. D: Appl. Phys. **32**, 1350 (1999).
- ²³R. J. Carman and R. P. Mildren, J. Phys. D: Appl. Phys. **36**, 19 (2003).
- ²⁴F. Vollkommer and L. Hitzschke, in *8th Int. Symp. on the Sciences and Techn. of Light Sources*, edited by G. Babucke, Greifswald, 1998), p. 51.
- ²⁵X. Xu and M. J. Kushner, J. Appl. Phys. **84**, 4153 (1998).
- ²⁶X. P. Xu and M. J. Kushner, J. Appl. Phys. **83**, 7522 (1998).
- ²⁷Y. B. Golubovskii, V. A. Maiorov, J. Behnke, and J.F. Behnke., J. Phys. D : Appl. Phys. **36**, 975 (2003).
- ²⁸J. P. Boeuf, in *Proceedings of the Plasma Technology Training School*, Glasgow, August, 2003.
- ²⁹O. Sahni, C. Lanza, and W. E. Howard, J. Appl. Phys. **49**, 2365 (1978).
- ³⁰Y. Ikeda, K. Suzuki, H. Fukumoto, J.P. Verboncoeur, P.J. Christenson, C.K. Birdsall, M. Shibata, and M. Ishigaki, J. Appl. Phys. **88**, 6216 (2000).
- ³¹J. K. Lee, S. Dastgeer, C. H. Shon, M.S. Hur, H.C. Kim and S. Cho, Jap. J. Appl. Phys. **40**, L528 (2001).
- ³²J. Meunier, P. Belenguer, and J. P. Boeuf, J. Appl. Phys. **78**, 731 (1995).
- ³³R. Ganter, T. Callegari, L. C. Pitchford, and J.P. Boeuf., Appl. Surf. Sci. **192**, 299 (2002).
- ³⁴J. Ouyang, T. Callegari, B. Caillier, and J.P. Boeuf., IEEE Trans Plasma Sci **31**, 422 (2003).
- ³⁵J. T. Ouyang, T. Callegari, B. Caillier, and J.P. Boeuf, J. Phys. D: Appl. Phys. **36**, 1959 (2003).
- ³⁶S. Okazaki, M. Kogoma, M. Uehara, and Y. Kimura, J. Phys. D: Appl. Phys. **26**, 889 (1993).
- ³⁷P. Segur and F. Massines, in *XIII International Conference on Gas Discharges and their Applications*, edited by S. J. MacGregor, Glasgow, 2000), Vol 1, p. 15.
- ³⁸F. Tochikubo, T. Chiba, and T. Watanabe, Jpn. J. Appl. Phys. **9A**, 5244 (1999).
- ³⁹Y. B. Golubovskii, V. A. Maiorov, J. Behnke, and J.F. Behnke, J. Phys. D: Appl. Phys. **36**, 39 (2003).
- ⁴⁰Y. B. Golubovskii, V. A. Maiorov, J. Behnke, and J.F. Behnke, in *Proceedings of the Int'l Conf on Phenomena in Ionized Gases*, Greifswald, 2003.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- ⁴¹E. Aldea, C. P. G. Schrauwen, and M. C. M. van de Sanden, in *Proceedings of the Int'l Symposium on Plasma Chemistry*, Taormina, Italy, 2003.
- ⁴²Y. P. Raizer, *Gas Discharge Physics* (Springer-Verlag, Heidelberg, 1991).
- ⁴³H. Raether, *Z. Phys.* **112**, 464 (1939).
- ⁴⁴L. B. Loeb and J. M. Meek, *J. Appl. Phys.* **11**, 438 (1940).
- ⁴⁵<http://www.siglo-kinema.com>
- ⁴⁶Y. D. Korolev and G. A. Mesyats, *Physics of pulsed breakdown in gases* (URO-Press, Yekaterinburg, 1998).
- ⁴⁷J. Guikema, N. Miller, J. Niehof, M. Klein and M. Walhout, *Phys. Rev. Lett.* **85**, 3817 (2000).
- ⁴⁸I. Brauer, C. Punset, H.-G. Purwins, and J.P. Boeuf, *J. Appl. Phys.* **85**, 7569 (1999).
- ⁴⁹E. E. Kunhardt, *IEEE Trans Plasma Sci* **28** (2000).
- ⁵⁰K. H. Schoenbach, R. Verhappen, T. Tessnow, F.E. Peterkin, and W.W. Byszewski, *Appl. Phys. Lett.* **68**, 13 (1996).
- ⁵¹W. Shi, R. H. Stark, and K. H. Schoenbach, *IEEE Trans. Plasma Sci.* **27**, 16 (1999).
- ⁵²J. W. Frame, D. J. Wheeler, T. A. DeTemple, and J.G. Eden, *Appl. Phys. Lett.* **71**, 1165 (1997).
- ⁵³Z. Yu, K. Hoshimiya, J. D. Williams, S.F. Polvinen and G.J. Collins, *Appl. Phys. Lett.* **83**, 854 (2003).
- ⁵⁴R. M. Sankaran and K. P. Giapis, *J. Appl. Phys.* **92**, 2406 (2002).
- ⁵⁵A. Fiala, L. C. Pitchford, and J. P. Boeuf, in *Int'l Conf on Phenomena in Ionized Gases*, edited by K. H. Becker, W. E. Carr and E. E. Kunhardt (Stevens Institute of Technology, Hoboken, NJ, USA, 1995), Vol. 4, p. 191.
- ⁵⁶D. D. Hsu and D. B. Graves, *J. Phys. D: Appl. Phys.* **36**, 2898 (2003).
- ⁵⁷C. G. Wilson, Y. B. Gianchandani, R. R. Arslanbekov, V. Kolobov and A.E. Wendt, *J. Appl. Phys.* **94**, 2845 (2003).
- ⁵⁸M. J. Kushner, *J. Appl. Phys.* **85**, 846 (2004).
- ⁵⁹P.S. Kothnur, X. Yuan and L.L. Raha, *Appl. Phys. Letts.* **82**, 629 (2003).
- ⁶⁰C. Penache, M. Miclea, A. Brauning-Demian, et al., *Plasma Sources Sci. Technol.* **11**, 476 (2002).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- ⁶¹ K. V. Kozlov, H.-E. Wagner, R. Brandenburg-Demian, O. Hohn, S. Schossler, T. Jahnke, K. Niemax, and H. Schmidt-Böcking. *J. Phys. D: Appl. Phys.* **34**, 3164 (2001).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 5, Section 5.6.5.

- [1] J. P. Verboncoeur, A. B. Langdon, and N. T. Gladd, "An object-oriented electromagnetic PIC code", *Computer Physics Communications* **87**, 199-211 (1995).
- [2] V. Vahedi and M. Surendra, "Monte Carlo collision model for particle-in-cell method: Application to argon and oxygen discharges", *Computer Physics Communications* **87**, 179-198 (1995).
- [3] A. G. Robertson, *Journal Physics B* **5**, 648 (1972).
- [4] I. Shimamura, *Scientific Papers of the Institute of Physical and Chemical Research* **82** (1989).
- [5] S. R. Hunter, J. G. Carter and L. G. Christophorou, *Physical Review A* **38**, 5539 (1988).
- [6] M. Hayashi, *Journal of Physics D* **16**, 581 (1983).
- [7] V. Peuch and S. Mizzi, *Journal of Physics D* **24**, 1974 (1991).
- [8] N. J. Mason and W. R. Newell, *Journal of Physics B* **20**, 1357 (1987).
- [9] R. C. Wetzel, F. A. Baiocchi, T. R. Hayes, and R. S. Freund, *Physical Review A* **35**, 559 (1987).
- [10] F. J. de Heer, R. H. J. Jansen and W. van der Kaay, *Journal of Physics B* **12**, 979 (1979).
- [11] D. Rapp and P. Englander-Golden, *Journal of Chemistry and Physics* **43**, 1464 (1965).
- [12] J. P. Verboncoeur, P. J. Christenson, and K. L. Cartwright, "Breakdown in a 3-electrode ac plasma display panel". *Proc. 50th Annual Gaseous Electronics Conf.* **42**, 1739 (1997).
- [13] J. P. Verboncoeur, "Initiation of breakdown in a 3-electrode plasma display panel cell", *25th IEEE ICOPS*, Raleigh, N.C. (1998).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 6, Section 6.1.

Hubička M, Čada, M. Šícha M, Churpita A, Pokorný P, Soukop L and Jastrabík L 2002 *Plasma Sources Sci. Technol.* **11** 195-202

Kunhardt E E 2000 *IEEE Trans. Plasma Sci.* **28** 189-200

Miclea M, Kunze K, Musa G, Franzke J and Niemax K 2001 *Spectrochim. Acta* **B 56** 37-43

Park S-J, Chen J, Liu C and Eden J G 2001 *Appl. Phys. Lett.* **78** 419-21

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 6, Section 6.2.2.

- Akishev Yu S, Dem'yanov A V, Karal'nik V B, Pan'kin M V and Trushkin N I 2001 *Plasma Phys. Rep.* **27** 164-171
- Ammelt E, Schweng D and Purwins H-G *Phys. Lett. A* 1993 **179** 348-54
- Bartnikas R 1968 *Brit. J. Appl. Phys. (J. Phys. D) Ser. 2* 659-61
- Bartnikas R 1969 *J. Appl. Phys.* **40** 1974-76
- Bartnikas R 1971 *IEEE Trans. Electr. Insul.* **6** 63-75
- Boyers D G and Tiller W A 1982 *Appl. Phys. Lett.* **41** 28-30
- Brandenburg R, Kozlov K V, Morozov A M, Wagner H-E and Michel P 2003 *Proc. 26th Int. Conf. on Phenomena in Ionized Gases (XXVI ICPIG)* (Greifswald, Germany) <http://www.icpig.uni-greifswald.de/>
- Brauer I, Punset C, Purwins H-G and Boeuf J P 1999 *J. Appl. Phys.* **85** 7569-72
- Braun D, K uchler U and Pietsch G 1991 *J. Phys. D: Appl. Phys.* **24**(1991), 564-72
- Braun D, Gibalov V and Pietsch G 1992 *Plasma Sources Sci. Technol.* **1** 166-72
- Breazeal W, Flynn K M and Gwinn E G 1995 *Phys. Rev. E* **52** 1503-15
- Coogan J J and Sappey A D 1996 *IEEE Trans. Plasma Sci.* **24** 91-2
- Dhali S K and Williams P F 1987 *J. Appl. Phys.* **62** 4696-707
- Dong L, Yin Z, Li X and Wang L 2003 *Plasma Sources Sci. Technol.* **12** 380-8
- Donohoe K G and Wydeven T 1979 *J. Appl. Polymer Sci.* **23** 2591-601
- Dorai R and Kushner M J 2000a *J. Appl. Phys.* **88** 3739-47
- Dorai R, Hassouni K and Kushner M J 2000b *J. Appl. Phys.* **88** 6060-71
- Dorai R and Kushner M J 2001 *J. Phys. D: Appl. Phys.* **34** 574-83
- Dorai R and Kushner M J 2003 *J. Phys. D: Appl. Phys.* **36** 666-85
- Dřimal J, Gibalov V I and Samoilovich V G 1987 *Czech. J. Phys.* **B 37** 1248-55
- Dřimal J, Kozlov K V, Gibalov V I and Samoylovich V G 1988 *Czech. J. Phys.* **B 38** 159-65
- Egli W, and Eliasson B 1989 *Helvet. Phys. Acta* **62** 302-5

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Eliasson B, Hirth M and Kogelschatz U 1987 *J. Phys. D: Applied Phys.* **20** 1421-37
- Eliasson B and Kogelschatz U 1991 *IEEE Trans. Plasma Sci.* **19** 309-22
- Eliasson B, Simon F-G and Egli W 1993 *Non-Thermal Plasma Techniques for Pollution Control* (Penetrante B M and Schultheis S E, eds), NATO ASI Series G: Ecological Sciences, Vol. 34, Part B, (Berlin: Springer) pp 321-37
- Eliasson B, Egli W and Kogelschatz U 1994 *Pure Appl. Chem.* **66** 1275-86
- Falkenstein Z 1997 *J. Appl. Phys.* **81** 5975-9
- Foest R, Adler F, Sigenege F and Schmidt M 2003 *Surf. Coat. Technol.* **163/164** 323-30
- Gentile A C and Kushner M J 1996 *J. Appl. Phys.* **79** 3877-85
- Gibalov V I, Samoilovich V G and Filippov Yu V 1981 *Russ. J. Phys. Chem.* **55** 471-9
- Gibalov V I, Dřimal J, Wronski M and Samoilovich V G 1991 *Contrib. Plasma Phys.* **31** 89-99
- Gibalov V I and Pietsch G J 2000 *J. Phys. D: Appl. Phys.* **33** 2618-36
- Golubovskii Yu B, Maiorov V A, Behnke J and Behnke J F 2002 *J. Phys. D: Appl. Phys.* **35** 751-61
- Golubovskii Yu B, Maiorov V A, Behnke J and Behnke J F 2003a *J. Phys. D: Appl. Phys.* **36** 39-49
- Golubovskii Yu B, Maiorov V A, Behnke J and Behnke J F 2003b *J. Phys. D: Appl. Phys.* **36** 975-81
- Guikema J, Miller N, Niehof J, Klein M and Walhout M 2000 *Phys. Rev. Lett.* **85** 3817-20
Hirth M 1981 *Beitr. Plasmaphys.* **21** 1-27 (in German)
- Khamphan C, Ségur P, Massines F, Bordage M C, Gherardi N and Cesses Y 2003 *Proc. 16th Int. Symp on Plasma Chem. (ISPC-16)* (Taormina, Italy)
- Klein M, Miller N and Walhout M 2001 *Phys. Rev.* **E 64** 026402-1 to 026402-5
- Kogelschatz U, Eliasson B and Egli W 1997 *J. de Phys. IV (France)* **7** C4-47 to C4-66
- Kogelschatz U 2002 *IEEE Trans. Plasma Sci.* **30** 1400-8
- Kogelschatz U *Plasma Chem. Plasma Process.* **23** 1-46
- Kozlov K V, Wagner H-E, Brandenburg R and Michel P 2001 *J. Phys. D: Appl. Phys.* **34** 3164-76
- Kudryavtsev A A and Tsendin L D 2002 *Tech. Phys. Lett.* **28** 1036-9

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Li J and Dhali S K 1997 *J. Appl. Phys.* **82** 4205-10
- Lukas C, Spaan M, Schulz-von der Gathen V, Thomson M, Wegst R, Döbele H F and Neiger M 2001 *Plasma Sources Sci. Technol.* **10** 445-50
- Massines F, Mayoux C, Messaoudi R, Rabehi A and Ségur P 1992 *Proc. 10th Int. Conf. on Gas Discharges and Their Applications (GD-92)* (Swansea) Williams W T Ed 730-3
- Massines F, Rabehi A, Decomps P, Gadri R B, Ségur P and Mayoux C 1998 *J. Appl. Phys.* **83** 2950-7
- Müller I, Punset C, Ammelt E, Purwins H-G and Boeuf J-P 1999a *IEEE Trans. Plasma Sci.* **27** 20-1
- Müller I, Ammelt E and Purwins H-G 1999b *Phys. Rev. Lett.* **82** 3428-31
- Niessen W, Wolf O, Schruft R and Neiger M 1998 *J. Phys. D: Appl. Phys.* **31** 542-50
- Nikonov V, Bartnikas R and Wertheimer M R *J. Phys. D: Appl. Phys.* **34** 2979-86
- Radehaus C, Dohmen R, Willebrand H and Niedernostheide F-J 1990 *Phys. Rev. A* **42** 7426-46
- Radu I, Bartnikas R and Wertheimer M R 2003 *J. Phys. D: Appl. Phys.* **36** 1284-91
- Radu I, Bartnikas R, Czeremuszkina G and Wertheimer M R 2003 *IEEE Trans. Plasma Sci.* **31** 411-21
- Salge J *J. de Phys. IV (France)* **5** C5-583 to C5-592
- Samoilovich V G, Gibalov V I and Kozlov K V 1997 *Physical Chemistry of the Barrier Discharge* (Düsseldorf: DVS-Verlag, Conrads J P F and Leipold F eds.), Original Russian Edition, Moscow State University 1989
- Steinle G, Neundorf D, Hiller W and Pietralla M 1999 *J. Phys. D: Appl. Phys.* **32** 1350-6
- Tanaka M, Yagi S and Tabata N 1978 *Trans. IEE of Japan* **98A** 57-62
- Tepper J, Li P and Lindmayer M 2002 *Proc. 14th Int. Conf on Gas Discharges and their Applications (GD-2002)* vol 1 (Liverpool: 2002) 175-8
- Tochikubo F, Chiba T and Watanabe T 1999 *Jpn. J. Appl. Phys.* **38** Part 1 5244-50
- Trunec D, Brablec A, Št'astný F and Bucha J *Contrib. Plasma Phys.* **38** 435-45
- Trunec D, Brablec A and Buchta J 2001 *J. Phys. D: Appl. Phys.* **324** 1697-9
- Wagner H-E, Brandenburg R, Kozlov K V, Sonnenfeld A, Michel P and Behnke J F 2003 *Vacuum* **71** 417-36

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Wendt R and Lange H 1998 *J. Phys. D: Appl. Phys.* **31** 3368-72

Xu X P and Kushner M J 1998 *J. Appl. Phys.* **84** 4153-60

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 6, Section 6.3.3.

- Babukutty Y, Prat Y, Endo K, Kogoma M, Okazaki S and Kodama M 1999 *Langmuir*, vol. 15, pp. 7055-7062
- Brandenburg R, Wagner H-E., Michel P, Trunec D and Stahl D 2003 in *Proc. XXVIth Int. Conference on Phenomena in Ionized Gases*, Greifswald, Germany, Vol. 4, p.45 – 46.
- Buchta J, Brablec A and Trunec D 2000 *Czech. J. Phys.*, vol. 50/53, pp. 273-276, Private discussion with the group.
- Von Engel A, Seelinger R and Steenbeck M 1933 *Z. Phys.* Vol. 85,p.144
- Golubovskii Yu B, Maiorov V. A, Behnke J and Behnke J. F. 2002 in *Proc. VIIIth Int. Symp. on High Pressure Low Temperature Plasma Chem.*, Puhajarve, Estonia, vol.1, pp53 –57
- Hong J, Kim S, Lee K, Lee K, Choi J. J. and Kim Y. K. 2002 in *Proc. VIIIth Int. Symp. on High Pressure Low Temperature Plasma Che.*, Puhajarve, Estonia, vol.2, pp.360 – 363
- Japan Patent pending 1994 300911/1994
- Japan Patent pending 2002 116459/2002
- Kanazawa S, Kogoma M, Moriwaki T and Okazaki S 1987 in *Proc. 8th Int. Symp. on Plasma Chem.*, Tokyo, Japan vol.3,pp 1839-1844
- Kanazawa S, Kogoma M, Moriwaki T, and Okazaki S 1988 *J. Phys. D:Appl. Phys.*, vol.21, pp. 838-840
- Kekez M. M., Barrault M. R. and Craggs 1970 *J. Phys. D: Appl. Phys.*, vol.3,p.1886
- Khamphan C, Segur P, Massines F, Bordage M. C. Gherardi N. and Cesses Y. 2003 in *Proc. 16th Int. Symp on Plasma Chem.*, Taormina, Italy, p. 181
- Kogoma M. and Okazaki S 1994 *J. Phys. D: Appl. Phys.*,vol. 27, pp.1985 –1987
- Kojima I,Prat R, Babukutty Y., Kodama M., Kogoma M., Okazaki S and Koh Y. J 2001, in *Proc. 15th Int. Symp. on Plasma Che.*,Orleans, France vol. VI, pp.2391 – 2396
- Massines F, Segur P, Gherardi N.,Khamphan C. and Ricard A 2003 *Surface and Coating Technology*, 174-175C, pp. 8-14, 2003.. Private discussion with the group
- Mori T., Tanaka K., Inomata T., Takeda A and M. Kogoma 1998 *Thin Solid Films*, 316,pp.89-92

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Nagata A., Takehiro S., Sumi S., Kogoma M., Okazaki S and Horiike Y., 1989 Proc. Jpn. Symp. Plasma Chem., vol.2,pp.109 – 115
- Nakajima T., Tanaka K., Inomata T. and Kogoma M 2001 thin solid Films,386,pp. 208–212
- Nakamura H., Kogoma M., Jinno H. and Okazaki S. 1991 Proc. Jpn. Symp. Plasma Chem., vol.4,pp.339 –344
- Ogawa S., Takeda A., Oguchi M., Tanaka K., Inomata T. and Kogoma M 2001, Thin Solid Films 386,pp.213 – 216
- Okazaki S, Kogoma M and Uchiyama H 1991 in Proc. IIIrd Int. Symp. on High Pressure Low Temperature Plasma Chem., Strasburg, France pp.101- 107
- Okazaki S., Kogoma M., Uehara M and Kimura Y.,1993a J. Phys. D:Appl. Phys.,vol.26, pp.889 – 892
- Okazaki S and Kogoma M 1993b J. Photopolymer Sci. Tech., vol.6,pp.339-342
- Okazaki S and Kogoma M 1999 in Proc. XXIVth Int. Conference Phenomena in Ionized Gases, Warsaw, Poland, vol. I,pp. 123 –124
- Prat R., Suwa T., Kogoma M and Okazaki S 1998 J. Adhesion, vol 66, pp. 163 –182
- Rzaneck-Borocho Z., Schmidt-Szalowski K, Janowska J, Dudzinski K., Szymanska A and Misiak M. 2002 in Proc.VIIIth Int. Symp. on High Pressure LowTemperature Plasma Chem., Puhajarve, Estonia,vol.2, pp.415 –419
- Sawada Y. Ogawa S and Kogoma. M 1995 J. Phys.D: Appl. Phys., vol.28,pp.1661 – 1668
- Sugiyama K., Kiyokawa K., Matsuoka H., Itoh A., Hasegawa K and Tsutsumi K 1998 Thin Solid Films 316, pp.117 – 122
- Tanaka K, Inomata T and Kogoma M 1999 Plasmas and Polymers, vol. 4, pp. 269-281
- Tanaka K and . Kogoma M 2001a Plasma and Polymers, vol. 6, pp. 27-33
- Tanaka K, Inomata T and Kogoma M 2001b Thin Solid Films, 386, pp. 217-221
- Taniguchi K, Tanaka K, Inomata T and Kogoma M 1997 J. Photopolymer Sci. Tech., vol. 10, pp. 113-118
- Tepper J, Li P and Lindmayer M 2002, in Proc. XIVth Int. Conference on Gas Discharges and their Applications, Liverpool, pp. 1- 4
- Tepper J, Lindmayer M and Salge J 1998 in Proc. Vith Int. Symp. on High Pressure Low Temperature Plasma Che., Cork,Ireland, pp. 123-127

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Trunec D, Brablec A and Stastny F 1998 in Proc. VIth Int. Symp. on High Pressure Low Temperature Plasma Chem., Cork, Ireland, pp. 313-317

Yamakawa K, Den S, Katagiri T, Hori M and Goto T 2003 in Proc. 16th Int. Symp. on Plasma Chem., Taormina, Italy, p. 832

Yokoyama T, Kogoma M, Moriwaki T and Okazaki S 1990 J. Phys. D: Appl. Phys., vol. 23, pp. 1125-1128

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 6, Section 6.4.3.

- Alexeff I, Laroussi M, Kang W, and Alikafesh A, " A Steady-State One Atmosphere Uniform DC Glow Discharge Plasma", *In Proc. IEEE Int. Conf. Plasma Sci.*, p. 208, June 1999.
- Alexeff I and Laroussi M, " The Uniform, Steady-State Atmospheric Pressure DC Plasma", *IEEE Trans. Plasma Sci.*, Vol. 30, No. 1, pp. 174-175, 2002.
- Andre P, Barinov Y, Faure G, Kaplan V, Lefort A, Shkol'nik S, and Vacher D, " Experimental Study of Discharge with Liquid non-metallic (tap-water) Electrodes in Air at Atmospheric Pressure", *J. Phys. D: Appl. Phys.*, Vol. 34, pp. 3456-3465, 2001.
- Bartnikas R, "Note on Discharges in Helium Under AC Conditions," *Brit. J. Appl. Phys. (J. Phys. D.)* Ser. 2, vol. 1, pp. 659–661, May 1968.
- Davies RA and Hickling A, *J. Chem. Soc.*, 3595, 1952.
- Donohoe K G, "The Development and Characterization of an Atmospheric Pressure Nonequilibrium Plasma Chemical Reactor," California Institute of Technology, Pasadena, CA, Ph D Thesis, 1976.
- Gherardi N, Gouda G, Gat E, Ricard A, and Massines A, "Transition from glow silent discharge to micro-discharges in nitrogen gas," *Plasma Sources Sci. Technol.* vol. 9, pp. 340-346, 2000.
- Kanazawa S, Kogoma M, Moriwaki T, and Okazaki S, "Stable Glow at Atmospheric Pressure," *J. Phys. D: Appl. Phys.*, vol. 21, pp. 838–840, May 1988.
- Kogelschatz U, "Silent Discharges for the Generation of Ultraviolet and Vacuum Ultraviolet Excimer Radiation," *Pure Appl. Chem.*, vol. 62, pp. 1667-1674, Sept. 1990.
- Kogelschatz U, Eliasson B, and Egli W, "Dielectric-Barrier Discharges: Principle and Applications," *J. Physique IV*, vol. 7, C4, pp. 47-66, Oct. 1997.
- Kogelschatz U, "Filamentary, Patterned, and Diffuse Barrier Discharges", *IEEE Trans. Plasma Sci.*, Vol. 30, No. 4, pp. 1400-1408, 2002.
- Laroussi M " Non-Thermal Decontamination of Biological Media by Atmospheric Pressure Plasmas: Review, Analysis, and Prospects", *IEEE Trans. Plasma Sci.*, Vol. 30, No. 4, pp. 1409-1415, 2002 .
- Laroussi M, Alexeff A, Richardson J P, and Dyer F F " The Resistive Barrier Discharge", *IEEE Trans. Plasma Sci*, Vol. 30, No. 1, pp. 158-159, 2002a.
- Laroussi M, Malott C M, and Lu X " Generation of an Atmospheric Pressure Non-Equilibrium Diffuse Discharge in Air by Means of a Water Electrode", *In Proc. Int. Power Modulator Conf.*, Hollywood, CA, pp. 556-558, 2002b.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Laroussi M, Lu X, and Malott C M, " A Non-equilibrium Diffuse Discharge in Atmospheric Pressure Air", *Plasma Sources Sci. Technol.*, Vol. 12, No. 1, pp.53-56, 2003.
- Lu X and Laroussi M, " Ignition Phase and Steady-State Structures of a Non-thermal Air Plasma", *J. Phys. D: Appl. Phys.*, Vol. 36, pp. 661-665, 2003.
- Massines F, Mayoux C, Messaoudi R, Rabehi A, and Ségur P, "Experimental Study of an Atmospheric Pressure Glow Discharge Application to Polymers Surface Treatment," *In Proc. GD-92*, Swansea, UK, 1992, vol. 2, pp. 730–733.
- Massines F, Gadri R B, Decomps P, Rabehi A, Ségur P, and Mayoux C, "Atmospheric Pressure Dielectric Controlled Glow Discharges: Diagnostics and Modelling," *In Proc. ICPIG XXII*, Hoboken, NJ, 1995, Invited Papers, AIP Conference Proc. vol. 363, pp. 306-315, 1996.
- Massines F, Rabehi A, Decomps P, Gadri R B, Ségur P, and Mayoux C, "Experimental and Theoretical Study of a Glow Discharge at Atmospheric Pressure Controlled by a Dielectric Barrier," *J. Appl. Phys.* vol. 8, pp. 2950-2957, March 1998.
- Okazaki S, Kogoma M, Uehara M, and Kimura Y, "Appearance of a Stable Glow Discharge in Air, Argon, Oxygen and Nitrogen at Atmospheric Pressure using a 50 Hz Source," *J. Phys. D: Appl. Phys.*, vol. 26, pp. 889-892, May 1993.
- Roth J R, Laroussi M, and Liu C, "Experimental Generation of a Steady-State Glow Discharge at Atmospheric Pressure," in Proc. 27th IEEE ICOPS, Tampa, FL, 1992, paper P21.
- Roth J R, *Industrial Plasma Engineering*, vol. 1, Bristol and Philadelphia, PA: IOP Publishing, 1995, pp. 453-463.
- Siemens W, *Poggendorfs Ann. Phys. Chem.*, Vol. 12, pp. 66-122, 1857.
- Wang X, Li C, Lu M, and Pu Y, " Study on Atmospheric Pressure Glow Discharge", *Plasma Source Science and Technology*, Vol.12 , No.3, pp.358-361, 2003.
- Yokoyama T, Kogoma M, Moriwaki T, and Okazaki S, "The Mechanism of the Stabilized Glow Plasma at Atmospheric Pressure," *J. Phys. D: Appl. Phys.*, vol. 23, pp. 1125–1128, Aug. 1990.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 6, Section 6.5.4.

- Adler, F. Kindel, E., and E. Davliatchine, "Comprehensive Parameter Study of a Microhollow Cathode Discharge Containing Xenon," *J. Phys. D: Appl. Phys.* **35**, 2291 (2002).
- Allmen, P. von, Sadler, D.J. Jensen, C. Ostrom, N.P., McCain, S.T., Vojak, B.A., and Eden, J.G., "Linear, segmented microdischarge array with an active length of 1 cm: cw and pulsed operation in the rare gases and evidence of gain on the 460.30 nm transition of Xe⁺," *Appl. Phys. Lett.* **82**, 4447 (2003).
- Allmen, P. von McCain, S.T. Ostrom, N.P. Vojak, B.A., Eden, J.G., Zenhausern, F., Jensen, C., and Oliver, M. "Ceramic microdischarge arrays with individually ballasted pixels," *Appl. Phys. Lett.* **82**, 2562 (2003).
- Amorer L E (1999) PhD Thesis, Stevens Institute of Technology, unpublished
- Badareu, E. and Popescu, I., "Research on the Double Cathode Effect," *J. Electr. Contr.*, **4**, 503 (1958).
- Becker K, Kurunczi P, and Schoenbach K H, (2002) "Collisional and radiative processes in high-pressure discharge plasmas", *Phys. Plasmas* **9**, 2399
- Block, Rolf, Toedter, Olaf., and Schoenbach, Karl h., "Gas Temperature Measurements in High Pressure Glow Discharges in Air," *Proc. 30th AIAA Plasma Dynamics and Lasers Conf.*, Norfolk, VA, July 1999, paper AIAA-99-3434.
- Block, Rolf, Laroussi, Mounir, Leipold, Frank, and Schoenbach, Karl H., "Optical Diagnostics for Non-Thermal High Pressure Discharges," *Proc. 14th Intern. Symp. Plasma Chemistry*, Prague, Czech Republic, August 1999, Volume II, p. 945.
- Borodin, V.S. and Kagan, Yu.M., "Investigation of Hollow-Cathode Discharge. I. Comparison of the Electrical Characteristics of a Hollow Cathode and a Positive Column," *Sov. Phys. – Tech. Phys.* **11**, 131 (1966).
- Chen, J, Park, S.-J., Fan, Z. Eden, J.G., and Liu, C., "Development and Characterization of Micromachined Hollow Cathode Plasma Display devices," *J. Microelectromechanical Systems* **11**, 536 (2002).
- Choi, K. C., "A New DC Plasma Display Panel Using Microbridge Structure and Hollow Cathode Discharges," *IEEE Trans. Electron Devices* **46**, 2256 (1999).
- Choi, K. C. and Tae, H.-S., "The Characteristics of Plasma Display with the Cylindrical Hollow Cathode," *IEEE Trans. Electron Devices* **46**, 2344 (1999).
- Cobine, J.D., *Gaseous Conductors: Theory and Engineering Applications*, Dover Publications, Inc., New York, 1958, page 218-225.
- Eden, J.G., Park, S.-J., Ostrom, N.P., McCain, S.T., Wagner, C.J., Vojak, B.A., Chen, J. Liu, C., von Allmen, P., Zenhausern, F., Sadler, D.J., Jensen, J., Wilcox, D.L., and Ewing, J.J., "Microplasma devices fabricated in silicon, ceramic, and metal/polymer

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- structures: arrays, emitters and photodetectors," J. Phys. D: Appl. Phys. **36**, 2869 (2003).
- El-Habachi, Ahmed, and Schoenbach, Karl H., "Generation of Intense Excimer Radiation from High-Pressure Hollow Cathode Discharges," Appl. Phys. Lett. **73**, 885 (1998).
- El-Habachi, Ahmed, and Schoenbach, Karl. H., "Emission of Excimer Radiation from Direct Current, High Pressure Hollow Cathode Discharges," Appl. Phys. Lett. **72**, 22 (1998).
- El-Habachi, Ahmed, Shi, Wenhui, Moselhy, Mohamed, Stark, Robert H., and Schoenbach, Karl H., "Series Operation of Direct Current Xenon Chloride Excimer Sources," J. Appl. Phys. **88**, 3220 (2000).
- Fiala, A., Pitchford, L.C., and Boeuf, J.P., "Two-dimensional, hybrid model of glow discharge in hollow cathode geometries, Proc. 22nd Conf. On Phenomena in Ionized Gases (Hoboken, NJ, 1995) ed. Kurt H. Becker and Erich Kunhardt, (Hoboken, NJ: Stevens Institute of Technology), p. 191
- Frame W., Wheeler, D.J., DeTemple, T.A., and Eden, J.G., "Microdischarge devices fabricated in silicon," Appl. Phys. Lett. **71**, 1165 (1997).
- Frame, J.W, and Eden, J.G., Electr. Lett., "Planar microdischarge arrays," **34**, 1529 (1998).
- Frame, J. W., John, P. C., DeTemple, T. A., and Eden, J. G., "Continuous-wave emission in the ultraviolet from diatomic excimers in a microdischarge," Appl. Phys. Lett. **72**, 2634 (1998).
- Frank, K., Ernst, U., Petzenhauser, I., and Hartmann, W., *Conf. Record IEEE Intern. Conf. Plasma Science*, Las Vegas, NV, 2001, 381.
- Gill P and Webb C E (1977) J. Phys. D **10**, 299
- Güntherschulze A (1923) Z. Tech. Phys. **19**, 49
- Gewartkovski J W and Watson H A (1965), "Principles of Electron Tubes", Van Nostrand-Reinhold, Princeton
- Guo, Y.-B., and Hong, F. C.-N., "Radio-frequency microdischarge arrays for large-area cold atmospheric plasma generation," Appl. Phys. Lett. **82**, 337 (2003).
- Helm, H., "Experimenteller Nachweis des Pendel-Effektes in einer zylindrischen Niederdruck-Hohlkathode-Entladung in Argon," Z. Naturf. **A27**, 1812 (1972)
- Hsu, D.D, and Graves, D.B., "Microhollow cathode discharge stability with flow and reaction," J. Physics D: Appl. Phys. **36**, 2898 (2003).
- Kogelschatz, U., "Excimer Lamps: History, Discharge Physics, and Industrial Applications," Invited Lecture, 6th Intern. Conf. "Atomic and Molecular Pulsed Lasers," September 15-19, 2003, Tomsk, Russia, to appear in SPIE Proc.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Kunhardt E E, Becker K, and Amorer L E (1997a), Proc. 12th International Conference on Gas Discharges and their Applications, Greifswald, Germany, p. I-374
- Kunhardt E E, Becker K, Amorer L E, and Palatini L (1997b), Bull. Am. Phys. Soc. **42**, 1716
- Kunhardt E E, Korfiatis G P, Becker K, and Christodoulatos C (1998) "Non-Thermal Plasma Technology for Remediation of Air Contaminants", "Proc. 4th International Conference on Protection and Restoration of the Environment", Halkidiki, Greece (1998), edited by: G.P. Korfiatis
- Kunhardt E E and Becker K (1999) US Patents 5872426, 6005349, and 6147452
Kurunczi, P., Shah, H. and Becker, K., "Hydrogen Lyman- α and Lyman- β emissions from high-pressure microhollow cathode discharges in Ne-H₂ mixtures," J. Phys. B. **32**, L651 (1999).
- Kurunczi, P., Lopez, J., Shah, H., and Becker, K., "Excimer Formation in High-Pressure MHC Discharge Plasmas in He Initiated by Low-Energy Electrons", Int. J. Mass Spectrom. **205**, 277-83 (2001).
- Kurunczi, P., Martus, K., and Becker, K., "Neon Excimer Emission from Pulsed High-Pressure MHC Discharge Plasmas", Int. J. Mass. Spectrom. **223/224**, 37 (2003).
- Kurunczi, P., Abramzon, N., Figus, M., and Becker, K., "Measurement of Rotational Temperatures in High-Pressure Microhollow Cathode (MHC) and Capillary Plasma Electrode (CPE) Discharges," to appear in Acta Physica Slovakia (2003).
- Leipold, Frank, Stark, Robert H., El-Habachi, Ahmed, and Schoenbach, Karl H. "Electron Density Measurements in an Atmospheric Pressure Air Plasma by Means of IR Heterodyne Interferometry" J. Phys. D: Appl. Phys. **33**, 2268 (2000).
- Miclea, M., Kunze, K., Franzke, J., Leis, F., Niemax, K., Penache, C., Hohn, O., Schoessler, S., Jahnke, T., Braeuning-Demian, A., and Schmidt-Boecking, H., "Decomposition of Halogenated Molecules in a Micro-Structured Electrode Glow Discharge in Atmospheric Pressure," Proc. of Hankone VIII, Puhajaerve, Estonia **1**, p. 206 (2002).
- Miyake, M., Takahashi, H., Yasuoka, K., and Ishii, S., Conference Record, IEEE Intern. Conf. Plasma Science, Monterey, CA, 1999 (Institute of Electrical and Electronic Engineers, Piscataway, NJ), p. 143.
- Mohamed, Abdel-Aleam H., Block, Rolf, and Schoenbach, Karl H., "Direct Current Glow Discharges in Atmospheric Air," IEEE Trans. Plasma Science **30**, 182 (2002).
- Moselhy, M., Stark, R.H., Schoenbach, K.H., and Kogelschatz, U., "Resonant energy transfer from argon dimers to atomic oxygen microhollow cathode discharges," Appl. Phys. Lett. **78**, 880 (2001).
- Moselhy, M., Shi, W., Stark, R.H. and Schoenbach, K.H., "Xenon Excimer Emission from Pulsed Microhollow Cathode Discharges," Appl. Phys. Lett. **79**, 1240 (2001).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Moselhy, Mohamed, Isfried Petzenhauser, Klaus Frank, and Karl H. Schoenbach, "Excimer Emission from Microhollow Cathode Discharges in Argon," J. Phys. D: Appl. Phys. **36**, 2922 (2003).
- Moselhy, M., Shi W., Stark, R.H., and Schoenbach, K.H., IEEE Trans. Plasma Sci. **30**, 198 (2002).
- Moselhy, M., and Schoenbach, K.H., "Excimer Emission from Cathode Boundary Layer Discharges," to appear in J. Applied Physics, February 2004
- Moskwinski L, Ricatto P J, Abramzon N, Becker K, Korfiatis G P, and Christodoulatos C, Proc. XIV. Symposium on Applications of Plasma Processes (SAPP), Jasna, Slovakia, p. ? (2003)
- Okazaki S, Kogoma M, Uehara M, and Kimura Y (1993) J. Phys. D **26**, 889
- Panikov N S, Paduraru A, Crowe R, Ricatto P J, Christodoulatos C, and Becker K (2002) "Destruction of Bacillus Subtilis Cells Using an Atmospheric-Pressure Dielectric Capillary Electrode Discharge Plasma", IEEE Trans. Plasma Sci. **30**, 1424
- Park, S.-J., Wagner, C.J., Herring, C.M., and Eden, J.G., "Flexible microdischarge arrays: metal/polymer devices," Appl. Phys. Lett. **77**, 199 (2000).
- Park, S.-J., Eden, G. Chen, J., and Liu, C., "Independently addressable subarrays of silicon microdischarge devices: Electrical characteristics of large (30x30) arrays and excitation of a phosphor," Appl. Phys. Lett. **13**, 2100 (2001).
- Park, S.-J., Eden, J.G., and Ewing, J.J., "Photodetection in the visible, ultraviolet, and near-infrared with silicon microdischarge devices," Appl. Phys. Lett. **81**, 4529 (2002).
- Park, H.I. Lee, T.I., Park, K.W., and Baik, H.K., "Formation of large-volume, high pressure plasmas in microhollow cathode discharges," Appl. Phys. Lett. **82**, 3191 (2003).
- Paschen F (1916) Ann. Phys. **50**, 901
- Penache, C., Braeuning-Demian, A., Spielberger, L., and Schmidt-Boecking, H., "Experimental study of high pressure glow discharges based on MSE arrays," Proc. of Hakone VII, Greifswald, Germany, **2**, p. 501 (2000).
- Penache, C., Datta, S., Mukhopadhyay, S., Braeuning-Demian, A., Joshi, P., Hohn, O, Schoessler, S., Jahnke, T., and Schmidt-Boecking, H., "Large Area Surface Modification Induced by Parallel operated MSE Sustained Glow Discharges," Proc. Of Hakone VIII, Puhajaerve, Estonia **2**, p. 390 (2002).
- Penache, C., Miclea, M., Braeuning-Demian, A., Hohn, O. Schoessler, S., Jahnke, T., Niemax, K. and Schmidt-Boecking, H., "Characterization of a High-Pressure Microdischarge Using Diode laser Atomic Absorption Spectroscopy," Plasma Sources Science and Technology **11**, 476 (2003).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Petzenhauser, I., Biborosch, L.D., Ernst, U., Frank, K., and Schoenbach, K.H., "Comparison between the ultraviolet emission from pulsed microhollow cathode discharges in xenon and argon," *Appl. Phys. Lett.* **83**, 4297 (2003).
- Sankaran, R.M., and Giapis, K.P., "Maskless etching of silicon using patterned microdischarges," *Appl. Phys. Lett.* **79**, 593 (2001).
- Sankaran, R.M. and Giapis, K.P., "Hollow cathode sustained plasma microjets: Characterization and application to diamond deposition," *J. Appl. Phys.* **92**, 2406 (2002).
- Sankaran, R.M., and Giapis, K.P., "High-pressure micro-discharges in etching and deposition applications," *J. Phys. D: Appl. Phys.* **36**, 2914 (2003).
- Schaefer, G. and K. H. Schoenbach, "Basic Mechanisms Contributing to the Hollow Cathode Effect" in *Physics and Applications of Pseudosparks*, M. Gundersen and G. Schaefer, eds., Plenum Press, 1990, p.55.
- Schoenbach, K.H., R. Verhappen, T. Tessnow, P.F. Peterkin, and W. Byszewski, "Microhollow cathode discharges," *Appl. Phys. Lett.* **68**, 13 (1996)
- Schoenbach, Karl H., Ahmed El-Habachi, Wenhui Shi, and Marco Ciocca, "High-pressure hollow cathode discharges," *Plasma Sources Sci. Technol.* **6**, 468 (1997)
- Schoenbach, Karl H., El-Habachi, Ahmed, Moselhy, Mohamed M., Shi, Wenhui, and Stark, Robert H., "Microhollow Cathode Discharge Excimer Lamps," *Physics of Plasmas* **7**, 2186 (2000).
- Schoenbach, K.H., Moselhy, M., Shi, W., and Bentley, R., "Microhollow Cathode Discharges," *J. Vac. Sci. Technol.* **A 21**, 1260 (2003).
- Schoenbach, K.H., Moselhy, M., and Shi, W., "Selforganization in Cathode Boundary Layer Microdischarges," to appear in *Plasma Sources Science and Technology*, March 2004.
- Shi, W., Stark, R.H., and Schoenbach, K.H. "Parallel Operation of Microhollow Cathode Discharges," *IEEE Trans. Plasma Science* **27**, 16 (1999).
- Stark, Robert H., and Schoenbach, Karl H., "Direct Current High Pressure Glow Discharges," *J. Appl. Phys.* **85**, 2075 (1999).
- Stark, R.H., and Schoenbach, K.H., "Direct Current Glow Discharges in Atmospheric Air," *Appl. Phys. Lett.* **74**, 3770 (1999).
- Stark, Robert H., and Karl H. Schoenbach, "Electron Heating in Atmospheric Pressure Glow Discharges," *J. Appl. Phys.* **89**, 3568 (2001)
- Stockhausen G and Kock M (2001), *J. Phys. D* **34**, 1683

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Sturges, D.J., and H.J. Oskam, "Studies of the properties of hollow cathode glow discharges in helium and neon," *Appl. Phys.* **35**, 2887 (1964)
- Vojak, B.A., Park, S.-J., Wagner, C.J., Eden, J.G. , Koripella, R. Burdon, J., Zenhausen, F. and Wilcox, D.L., "Multistage, monolithic ceramic microdischarge device having an active length of ~0.27 mm," *Appl. Phys. Lett.* **78**, 1340 (2001).
- Walsh A (1956), *Spectrochim. Acta* 7, 108
- White A D "New hollow cathode glow discharges," *J. Appl. Phys.* **30**, 711 (1959)
- Yalin, A.P., Yu, Z.Q., Stan, O, Hoshimiya, K. Rahman, A., Surla, V.K., and Collins, G.J., "Electrical and optical emission characteristics of radio-frequency-driven hollow slot microplasmas operating in open air," *Appl. Phys. Lett.* **83**, 2766 (2003).
- Yu, Z., Hoshimiya, K., Williams, J.D., Polvinen, S.F., and Collins, G.J., "Radio-frequency-driven near atmospheric pressure microplasma in a hollow slot electrode configuration," *Appl. Phys. Lett.* **83**, 854 (2003).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 6, Section 6.6.5.

- Akisev Yu S, Dvurechenskii S V, Zakharchenko A I, Napartovich A P, Pashkin S V and Ponomarenko V V, 1981, *Sov. J. Plasma Phys.* 7 700
- Akisev Yu S, Napartovich A P, Pashkin S V, Ponomarenko V V, 1982, *Sov. J. Tech. Phys. Lett.* 8, 512
- Akisev Yu S, Napartovich A P, Pashkin S V, Ponomarenko V V, Sokolov N A, Trushkin N I, 1984, *High Temp.* 22 157
- Akisev Yu S, Napartovich A P, Ponomarenko V V, Trushkin N I, 1985a, *Sov. Phys. Tech. Phys.* 30 388
- Akisev Yu S, Napartovich A P, Pashkin S V, Ponomarenko V V, Sokolov N A, 1985b, *High Temp.* 23 522
- Akisev Yu S, Volchek A M, Napartovich A P, Sokolov N A, Trushkin N I, 1987, *High Temp.* 25 465
- Akisev Yu S, Levkin V V, Napartovich A P, Trushkin N I, 1991, *Proc. XX ICPIG, Pisa, Italy*, v. 4 901
- Akisev Yu S, Deryugin A A, Kochetov I V, Napartovich A P, and Trushkin N I, 1993a, *J. Phys. D: Appl. Phys.* 26 1630-1637
- Akisev Yu S, Deryugin A A, Karal'nik V B, Kochetov I V, Napartovich A P, and Trushkin N I, 1993b, *Proc. ICPIG XXI, Bochum*, vol. 2 293
- Akisev Yu S, Deryugin A A, Karal'nik V B, Kochetov I V, Napartovich A P, Trushkin N I, 1994a, *Plasma Phys. Rep.* 20 437-442
- Akisev Yu S, Deryugin A A, Elkin N N, Kochetov I V, Napartovich A P, Trushkin N I, 1994b, *Plasma Phys. Rep.* 20 511-523
- Akisev Yu S, Deryugin A A, Kochetov I V, Napartovich A P, Pan'kin M V, Trushkin N I, 1996, *Hakone V Contr Papers, Milovy, Czech Rep.* 122
- Akisev Yu S, Grushin M E, Kochetov I V, Napartovich A P, Trushkin N I, 1999, *Plasma Phys. Rep.* 25 922-927
- Akisev Yu S, Grushin M E, Kochetov I V, Napartovich A P, Pan'kin M, Trushkin N I, 2000, *Plasma Phys. Rep.* 26 157-163
- Akisev Yu S, Goossens O, Callebaut T, Leys C, Napartovich A P, and Trushkin N I, 2001, *J. Phys. D: Appl. Phys.* 34 2875-2882
- Akisev Yu S, Grushin M E, Napartovich A P, Trushkin N I, 2002a, *Plasmas and Polymers* 7 261-289

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Akischev Yu S, Kochetov I V, Loboiko A I, Napartovich A P, 2002b, *Plasma Phys. Rep.* 28, 1049-1059
- Baranov V Yu, Borisov V M, Vedenov A A, Drobyazko S V, Knizhnikov V N, Napartovich A P, Niziev V G, Strel'tsov A P, 1972, *Preprint of Kurchatov Atomic Energy Inst.* #2248 (in Russian), Moscow
- Baranov V Yu, Borisov V M, Stepanov Yu Yu, 1988, *Electric discharge excimer noble-gas halides lasers*, Energoatomizdat, Moscow
- Cavenor M C, Meyer J, 1969, *Aust. J. Phys.* 22 155-167
- Černák M, Hosokawa T, 1991, *Phys. Rev. A* 43 1107
- Chang, J.-S., P. A. Lawless and T. Yamamoto "Corona discharge processes", *IEEE Trans. on Plasma Science*, 19(1991), 8, 1152 - 1166
- Cross J A, Morrow R, Haddad G N, 1986, *J. Phys. D: Appl. Phys.* 19 1007-1017
- Doran A A, Meyer J, 1967, *Brit. J. Appl. Phys.* 18 793-799
- Dykhne A M, Napartovich A P, 1979, *Sov. Phys. Dokl.* 24 632
- Dykhne A M, Napartovich A P, Taran M D, Taran T V, 1982, *Sov. J. Plasma Phys.* 8 422
- Dykhne A M, Elkin N N, Napartovich A P, Taran M D, Taran T V, 1984, *Sov. J. Plasma Phys.* 10 366
- Korolev Yu D and Mesyats G A, 1998, *Physics of Pulsed Breakdown in Gases*, URO-PRESS Yekaterinburg
- Koval'chuk B M, Kremnev V V, Mesyats G A, 1970, *Sov. Phys. Dokl.* 191, 76-78
Llewellyn-Jones F, 1966, *Ionization and Breakdown in Gases*, London, CO Ltd; N.Y.; Brisbane; Toronto: John Wiley
- Mesyats G A, Proskurovsky D I, 1989, *Pulsed Electrical Discharge in Vacuum*, Springer Verlag Inc.
- Meyer J, 1969, *Brit. J. Appl. Phys.* 20 221-227
- Morrow R, 1985, *Phys. Rev. A* 32 1799-1809
- Napartovich A P and Akischev Yu S, 1993a, *Proc. XXI ICPIG, Bochum, Germany*, v. 3 207-216
- Napartovich A P, Akischev Yu S, Deryugin A A, Kochetov I V, Trushkin N I, 1993b, "Non-Thermal Plasma Techniques for Pollution Control" Part B, ed. by B M Penetrante, S E Schultheis, NATO ASI Series G 34, 355-370
- Palmer A J, 1974, *Appl. Phys. Lett.* 25 138-140

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Pashkin S V, 1976, *High Temp.* 14 581

Scott D A, Haddad G N, 1986, *J.Phys. D: Appl. Phys.* 19 1507-1517

Vertriest R, Morent R, Dewulf J, Leys C, and van Langenhove H, 2003, *Plasma Sources Sci. Technol.* 12 412-416

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 6, Section 6.7.3.

- Boulos, M., P. Fauhais, and E. Pfender, *Thermal Plasmas Fundamentals and Applications* vol. 1. Plenum Press 1994, pp. 33-47 and 403-418.
- Brown, S. C., *Basic Data of Plasma Physics*, M.I.T. Press, Cambridge, 1967.
Christophorou, L. G., *Electron-Molecule Interactions and Their Applications—Vol. 2* (Academic Press, Orlando, 1984).
- Gage, R. M., *Arc Torch and Process* (United States Patent No. US2858411, 1961).
Incropera, F. P. and D. P. DeWitt, *Fundamentals of Heat and Mass Transfer* (John Wiley & Sons, 1996), Fourth Edition.
- Koretzky, E. and S. P. Kuo, "Characterization of an atmospheric pressure plasma generated by a plasma torch array," *Phys. Plasmas*, vol. 5, no. 10, pp. 3774-3780, 1998.5.
- Koretzky, E. and S. P. Kuo, "Simulation study of a capacitively coupled plasma torch array," *IEEE Trans. Plasma Sci.*, vol. 29, no. 1, pp. 51-56, 2001.
- Kuo, S. P. and Y. S. Zhang, "Bragg scattering of electromagnetic waves by microwave produced plasma layers," *Phys. Fluids B*, vol. 2, no. 3, pp. 667-673, 1990.
- Kuo, S. P., E. Koretzky, and L. Orlick, "Design and electrical characteristics of a modular plasma torch," *IEEE Trans. Plasma Sci.*, vol. 27, no. 3, pp. 752-758, 1999.
- Kuo, S. P., E. Koretzky, and R. J. Vidmar, "Temperature Measurement of an Atmospheric-Pressure Plasma Torch," *Rev. Sci. Instruments*, vol. 70, no. 7, pp. 3032-3034, 1999.
- Kuo, S. P., E. Koretzky, and L. Orlick, *Methods and Apparatus for Generating a Plasma Torch* (United States Patent No. US 6329628 B1, 2001).
- Kuo, S. P., D. Bivolaru, and L. Orlick, "A magnetized torch module for plasma generation," *Rev. Sci. Instruments*, vol. 73, no. 8, pp. 3119-3121, 2002.
- Kuo, S. P., Daniel Bivolaru, Campbell D. Carter, Lance Jacobsen, and Skip Williams, "Operational characteristics of a plasma torch in a supersonic cross flow", *AIAA Paper 2003-1190*, American Institute of Aeronautics and Astronautics, Washington DC, Jan. 2003.
- Lupan, Y. A., "Refined theory for an RF discharge in air," *Sov. Phys. Tech. Phys.*, vol. 21, no. 11, pp. 1367-1370, 1976.
- Rowe, B. R., *Recent Flowing Afterglow Measurements, in Dissociative Recombination: Theory, Experiment and Applications* (Plenum Press, New York, 1993).
- Siegel, R. and J. R. Howell, *Thermal Radiation Heat Transfer* (Hemisphere Publishing Corp., 1992), Third Edition.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Zhang, Y. S. and S. P. Kuo, "Bragg scattering measurement of atmospheric plasma decay," *Int'l J. IR & Millimeter Waves*, vol. 12, no. 4, pp. 335-343, 1991.

Zhukov, M., "Linear direct current plasma torches", in *Thermal Plasma and New Material Technology, Vol. 1: Investigations of Thermal Plasma Generators*, O. Solonenko and M. Zhukov, Ed. Cambridge Interscience Publishing 1994, pp.9-43.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 7, Section 7.2.2.

- Adamovich I., Saube S., Grassi M.J., Schulz O., Macheret S., and Rich J.W., Chem. Phys., vol. 173, 1993, p. 491
- Adamovich I.V., and Rich J.W., J. Physics D: Applied Physics, vol. 30, 1997, p. 1741
- Adamovich I.V., "Control of Electron Recombination Rate and Electron Density in Optically Pumped Nonequilibrium Plasmas", accepted for publication in Journal of Physics D: Applied Physics, December 2000
- Basov, N.G., Babaev, I.K., Danilychev, V.A., et al., Sov. Journal of Quantum Electronics, vol. 6, 1979, p. 772
- Billing, G.D., "Vibration-Vibration and Vibration-Translation Energy Transfer, Including Multiquantum Transitions in Atom-Diatom and Diatom-Diatom Collisions", Nonequilibrium Vibrational Kinetics, Springer-Verlag, Berlin, 1986, Chap. 4, pp. 85-111.
- DeLeon R.L., and Rich J.W., "Vibrational Energy Exchange Rates in Carbon Monoxide", Chemical Physics, Vol. 107, 1986, p. 283
- Dünnwald H., Siegel E., Urban W., Rich J.W., Homicz G.F., and Williams M.J., "Anharmonic Vibration-Vibration Pumping in Nitric Oxide by Resonant IR-Laser Irradiation", Chemical Physics, Vol. 94, 1985, p. 195
- Flament C., George T., Meister K.A., Tufts J.C., Rich J.W., Subramaniam V.V., Martin J.P., Piar B., and Perrin M.Y., "Nonequilibrium Vibrational Kinetics of Carbon Monoxide at High Translational Mode Temperatures", Chemical Physics, Vol. 163, 1992, p. 241
- Generalov, N.A., V.P. Zimakov, V.D. Kosynkin, Yu.P. Raizer, and D.I. Roitenburg, Technical Physics Letters, vol. 1, p. 431, 1975
- Kovalev A.S., Muratov E.A., Ozerenko A.A., Rakhimov A.T., and. Suetin N.V, Sov. J. Plasma Physics, Vol. 11, 1985, p. 515
- Lee W., Adamovich I.V., and Lempert W.R., "Optical Pumping Studies of Vibrational Energy Transfer in High-Pressure Diatomic Gases", J. Chem. Phys., Vol. 114, 2000, p. 117
- Palm P., Plönjes E., Buoni M., Subramaniam V.V., and Adamovich I.V., "Electron Density and Recombination Measurements in CO-seeded Optically Pumped Plasmas", submitted to Journal of Applied Physics, December 2000
- Plönjes E., Palm P., Chernukho A.P., Adamovich I.V., and Rich J.W., "Time-Resolved Fourier Transform Infrared Spectroscopy of Optically Pumped Carbon Monoxide", Chemical Physics, vol. 256, 2000, p. 315

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Plönjes E., Palm P., Lee W., Chidley M. D, Adamovich I.V., Lempert W.R., and Rich J. W., "Vibrational Energy Storage in High-Pressure Mixtures of Diatomic Molecules", *Chemical Physics*, vol. 260, 2000, pp. 353-366
- Plönjes E., Palm P., Adamovich I.V., and Rich J. W., "Ionization Measurements in Optically Pumped Discharges", *Journal of Physics D: Applied Physics*, vol. 33, No. 16, 2000, p. 2049
- Plonjes E., Palm P., Lee W., Lempert W.R, and Adamovich I. V., "Radio Frequency Energy Coupling to High-Pressure Optically Pumped Nonequilibrium Plasmas", *J. Appl. Phys.*, Vol.89,2001,p.5911.
- Polak L.S, Sergeev P.A, and Slovetskii D.I., *Sov. High Temperature Physics*, Vol. 15, 1977, p. 15.
- Raizer, Y.P., "Gas Discharge Physics", Springer-Verlag, Berlin, 1991.
- Rich W., Bergman R.C., and Lordi J.A., *AIAA J.*, vol. 13, p. 95, 1975
- Rich, J.W., "Relaxation of Molecules Exchanging Vibrational Energy," in *Applied Atomic Collision Physics*, Vol. 3, *Gas Lasers*, Chap. 4, pp. 99-140, Ed. H.S.W. Massy, E. McDaniel, B. Bederson, W. Nighan, Academic Press, NY, 1982.
- Rich J.W., Bergman R.C., and Williams M.J., "Measurement of Kinetic Rates for Carbon Monoxide Laser Systems", Final Contract Report AFOSR F49620-77-C-0020 (November 1979).
- Saupe S., Adamovich I., Grassi M.J., and Rich J.W., "Vibrational and Electronic Excitation of Nitric Oxide in Optical Pumping Experiments", *Chemical Physics*, Vol. 174, 1993, p. 219
- Treanor, C.E., Rich, J.W., and Rehm, R.G., "Vibrational Relaxation of Anharmonic Oscillators with Exchange-Dominated Collisions", *J. Chem. Phys.* vol. 48, p. 1798, 1968
- Velikhov E.P, Kovalev A.S., and Rakhimov A.T., "Physical Phenomena in Gas Discharge Plasmas", Moscow, Nauka, 1987.
- Wallaart H.L., Piar B., Perrin M.Y., and Martin J.P., "Transfer of Vibrational Energy to Electronic Excited States and Vibration Enhanced Carbon Production in optically pumped CO", *Chemical Physics*, Vol. 196, 1995, p. 149.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 7, Section 7.2.3.3.

- Akhtar K., Scharer J., Tysk S., and Denning C. M., "Characterization of laser produced tetrakis (dimethylamino) ethylene plasma in a high-pressure background gas.", *IEEE Trans. Plasma Sci.*, (April 2004).
- Akhtar K., Scharer J., Tysk S., and Kho E., "Plasma interferometry at high pressures", *Rev. Sci. Instrum.*, vol. 74, pp. 996, 2003.
- Bates D.R., *J. Phys. B.*, "Classical theory of electron-ion recombination in an ambient gas", vol.13, pp. 2587, 1980.
- Biberman L.M., Vorob'ev V. S., and Yakubov I. T., *Kinetics of Nonequilibrium Low-Temperature Plasmas*, New York: Consultant Bureau, 1987, pp. 412
- Campbell G E. E. B., Ulmer G., and Hertel I.V., "Delayed ionization of C₆₀ and C₇₀", *Phys. Rev. Lett.*, vol. 67, pp. 1986, 1991.
- Capitelli M, Ferreira C.M, Gordiets B.F., and Osipove A.I., *Plasma Kinetics in Atmospheric Gases*, Berlin: Springer Verlag, 2000, pp.140.
- Ding G., Scharer J.E., and Kelly K., "Diagnostics and analyses of decay process in laser produced tetrakis(dimethyl-amino)ethylene plasma" *Phys. Plasmas*, vol.8, pp. 334, 2001
- Holroyd R.A, Preses J.M., Woody C.L., and Johnson R.A., "Measurement of the absorption length and absolute quantum efficiency of TMAE and TEA from threshold to 120 nm", *Nucl. Instr. and Meth. Phys. Res.*, vol. A261, pp. 440, 1987.
- Hori M, Kimura K., and Tsubomura H., "The electronic spectrum and chemiluminescence of tetrakis- (dimethylamino) – ethylene (TDAE)", *Spectrochimica Acta*, vol. 24A, pp. 1397, 1968.
- Kelly K.L., Scharer J.E., Paller E.S., and Ding G., " Laser ionization and radio frequency sustainment of high-pressure seeded plasmas", *J. Appl. Phys.*, vol. 92, pp. 698, 2002.
- Levin R.D., "Separation of time scales in the dynamics of high molecular Rydberg states", *Adv. Chem. Phys.*, vol. 101, pp. 625, 1997.
- Nakato Y, Ozaki M., Egawa A., and Tsubomura H., " Organic amino compounds with very low ionization potentials", *Chem. Phys. Lett.*, vol. 9(6), pp. 615, 1971.
- Nakato Y, Ozaki M., and Tsubomura H, "Photoionization and Rydberg states of Tetraaminoethylenes", *J. Physical Chemistry*, vol. 76, pp. 2105, 1972.
- NRL Plasma Formulary, Revised Edition 2002
- Platzman R.L., in *Radiation Research*, G. Silini, Ed. Amsterdam: North-Holland, 1967.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Raizer, Y.P., *Gas Discharge Physics*, Berlin Heidelberg: Springer-Verlag, 1991, pp. 62.
- Remacle F. and Levin R.D., "Prompt and delayed ionization of large molecules", *Physics Letters A*, vol. 173, pp. 284, 1993.
- Schlag E.W., and Levin R.D., *J. Phys. Chem.*, "Ionization, charge separation, charge recombination, and electron transfer in large systems", vol. 96, pp. 10608, 1992.
- Stalder K.R., and Eckstrom D. J., "Afterglow decay kinetics of nonuniform plasmas with cylindrical symmetry: Application to the measurement of electron decay in large photoionized plasmas in atmospheric-pressure", *J. Appl. Phys.*, vol. 72, pp. 3917, 1992.
- Stalder K.R, Vidmar R.J., and Eckstrom, D.J., "Observations of strong microwave absorption in collisional plasmas with gradual density gradients", *J. Appl. Phys.*, vol. 72, pp. 5098, 1992.
- Wurz P, Lykke K.R., Pellin M.J., and Gruen D. M., "Velocity distributions and photodissociation of neutral C₆₀ and C₇₀ clusters", *J. App. Phys.*, vol. 70, pp. 6647, 1991.
- Zel'dovich Y. B., and Raizer Y.P, *Physics of Shock Waves and High-Temperature Hydrodynamic Phenomena*, New York: Academic Press, 1966, vol. 1, pp 407.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 7, Section 7.3.2.

- Boulos, M.I., *The Inductively Coupled RF (Radio-Frequency) Plasma*. Pure and Applied Chemistry, 1985. 57(9): p. 1321-1352.
- Davies, J. and P. Simpson, *Induction Heating Handbook*. 1979, London, New-York: McGraw-Hill.
- Dresvin, S.V., et al., *Physics and Technology of Low-Temperature Plasmas*, ed. S.V. Dresvin. 1972, Moscow: Atomizdat.
- Eckert, H.U., F.L. Kelly, and H.N. Olsen, *Spectroscopic Observations on Induction-Coupled Plasma Flames in Air and Argon*. J. Appl. Phys., 1968. 39(3): p. 1846.
- Laux, C.O., *Optical Diagnostics and Radiative Emission of Air Plasmas*, Ph.D. Thesis in Mechanical Engineering. 1993, Stanford University: Stanford, CA
- Mostaghimi, J., P. Proulx, and M.I. Boulos, *A 2-Temperature Model of the Inductively Coupled RF-Plasma*. J. Appl. Phys., 1987. 61(5): p. 1753-1760.
- Mostaghimi, J. and M.I. Boulos, *Two-Dimensional Electromagnetic Field Effects in Induction Plasma Modeling*. Plasma Chem. and Plasma Proc., 1989. 9(1): p. 25-44.
- Reed, T.B., *Induction-coupled plasma torch*. J. Appl. Phys., 1961. 32: p. 821.
- Van den Abeele, D., et al., *Numerical simulation of multi-component inductive plasma flows under chemical non-equilibrium*. Heat and Mass Transfer under Plasma Conditions, 1999. 891: p. 340-347.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 7, Section 7.3.4.2.

- Christophorou, L. G., *Electron-Molecule Interactions and Their Applications–Vol. 2* (Academic Press, Orlando, 1984).
- Gildenburg V.B., and Kim A. V., Ionization instabilities of an electromagnetic wave, *Sov. Phys. JETP*, 47, 72, 1978.
- Gurevich A. V., An ionized layer in a gas, *Sov. Phys. Usp., Engl. Transl.* 23, 862-865, 1980
- Kuo S.P., Frequency up-conversion of microwave pulse in a rapidly growing plasma", *Phys. Rev. Lett.*, 65(8), 1000-1003, 1990.
- Kuo S.P. and Zhang Y.S, "Bragg scattering of EM waves by microwave produced plasma layers", *Phys. Fluids*, 2(3), 667-673, 1990
- Kuo S.P. and Zhang Y.S., A theoretical model for intense microwave pulse propagation in an air breakdown environment, *Phys. Fluids B*, 3(10), 2906-2912, 1991.
- Kuo S.P., Zhang Y.S, Lee M. C., Kossey P.A., and Barker R.J., Laboratory chamber experiments exploring the potential use of artificially ionized layers of gas as a Bragg reflector for over-the-horizon signals, *Radio Sci.*, 27(6), 851-865, 1992.
- Lupan Y.A., Refined theory for an RF discharge in air, *Sov. Phys. Tech. Phys.*, 21(11), 1367-1370, 1976.
- Rowe, B. R., *Recent Flowing Afterglow Measurements, in Dissociative Recombination: Theory, Experiment and Applications* (Plenum Press, New York, 1993
- Vikharev A.L., Gildenburg V.B., Golubev S. V. *et al.*, Nonlinear dynamics of a freely localized microwave discharge in an electromagnetic wave beam, *Sov. Phys. JETP*, 67, 724-728, 1988.
- Vikharev A.L., Gildenburg V.B., Ivanov O. A., and Stepanov A. N., Microwave discharge in intersecting electromagnetic wave beams, *Sov. J. Plasma Phys.*, 10, 96, 1984.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 7, Section 7.4.4.

Nagulapally, M., G.V. Candler, C.O. Laux, L. Yu, D. Packan, C.H. Kruger, R. Stark, and K.H. Schoenbach. *Experiments and Simulations of DC and Pulsed Discharges in Air Plasmas*. in *31st AIAA Plasmadynamics and Lasers Conference*. 2000. Denver, CO.

Packan, D.M., *Repetitively Pulsed Glow Discharge in Atmospheric Pressure Air*, Ph.D. Thesis in *Mechanical Engineering*. 2003, Stanford University: Stanford, CA.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 7, Section 7.5.

- [Ada97] I.V. Adamovich and J.W. Rich, "The Effect of Superelastic Electron-Molecule Collisions on the Vibrational Energy Distribution Function", *Journal of Physics D: Applied Physics*, vol. 30, No. 12, 1997, pp. 1741-1745
- [Ada98] I.V. Adamovich, J.W. Rich, and G.L. Nelson, "Feasibility Study of Magneto-hydrodynamics Acceleration of Unseeded and Seeded Air Flows", *AIAA Journal*, vol. 36, No. 4, 1998, pp. 590-597
- [Ada00] I.V. Adamovich, J. W. Rich, A.P. Chernukho, and S.A. Zhdanok, "Analysis of the Power Budget and Stability of High-Pressure Nonequilibrium Air Plasmas", Paper 00-2418, 31th Plasmadynamics and Lasers Conference, Denver, CO, June 19-22, 2000
- [Ale78] N.L. Aleksandrov, A.M. Konchakov, and E.E. Son, *Sov. J. Plasma Physics*, Vol. 4, 1978, p. 169
- [Ale79] N.L. Aleksandrov, A.M. Konchakov, and E.E. Son, *Sov. Phys. Tech. Phys.*, Vol. 49, 1979, p. 661
- [Bas79] Basov, N.G., Babaev, I.K., Danilychev, V.A., et al., *Sov. Journal of Quantum Electronics*, vol. 6, 1979, p. 772
- [Gen75] Generalov, N.A., V.P. Zimakov, V.D. Kosynkin, Yu.P. Raizer, and D.I. Roitenburg, *Technical Physics Letters*, vol. 1, p. 431, 1975
- [Kov85] A.S. Kovalev, E.A. Muratov, A.A. Ozerenko, A.T. Rakhimov, and N.V. Suetin, *Sov. J. Plasma Physics*, Vol. 11, 1985, p. 515
- [Lee01] W. Lee, I.V. Adamovich, and W.R. Lempert, "Optical Pumping Studies of Vibrational Energy Transfer in High-Pressure Diatomic Gases", *Journal of Chemical Physics*, vol. 114, No. 3, 2001, pp. 1178-1186
- [Lem00] W.R. Lempert, W. Lee, R. Leiweke, and I.V. Adamovich, "Spectroscopic Measurements of Temperature and Vibrational Distribution Function in Weakly Ionized Gases", Paper 00-2451, presented at 21st AIAA Aerodynamic Measurement Technology And Ground Testing Conference, Denver, CO, 19 - 22 June 2000
- [Mac99] S.O. Macheret, M.N. Shneider, and R.B. Miles, AIAA Paper 99-3721, 30th AIAA Plasmadynamics and Lasers Conference, Norfolk, VA, June 28 - July 1, 1999
- [Mac00] S.O. Macheret, M.N. Shneider, and R.B. Miles, "Modeling of air plasma generation by electron beams and high-voltage pulses", AIAA Paper 2000-2569, 31st AIAA Plasmadynamics and Lasers Conference, Denver, CO, June 19-22, 2000
- [Mae91] H. Maetzing, "Chemical Kinetics of Flue Gas Cleaning by Irradiation with Electrons", *Adv. in Chem. Phys.*, vol.80, pp. 315-40

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- [Mos99] T. Mostefaoui, S. Laube, G. Gautier, C. ebrion-Rowe, B.R. Rowe, and J.B.A. Mitchell, *J. Phys. B: At. Mol. Opt. Phys.*, Vol. 32, 1999, p. 5247
- [Pal01a] P. Palm, E. Plönjes, M. Buoni, V.V. Subramaniam, and I.V. Adamovich, "Electron Density and Recombination Rate Measurements in CO-Seeded Optically Pumped Plasmas", *Journal of Applied Physics*, vol. 89, 2001, pp. 5903-5910
- [Pal01b] Peter Palm, Elke Plönjes, Igor V. Adamovich, Vish V. Subramaniam, Walter R. Lempert, and J. William Rich, "High pressure air plasmaS sustained by an electron beam and enhanced by optical pumping", *AIAA-Paper 2001-2937*, 32nd AIAA Plasmadynamics and Lasers Conference, 11-14 June 2001, Anaheim, CA
- [Plo00a] E. Plönjes, P. Palm, A.P. Chernukho, I.V. Adamovich, and J.W. Rich, *Chem. Phys.*, vol. 256, 2000, p. 315
- [Plo00b] E. Ploenjes, P. Palm, W. Lee, M. D. Chidley, I.V. Adamovich, W.R. Lempert, and J. William Rich, "Vibrational Energy Storage in High-Pressure Mixtures of Diatomic Molecules", *Chemical Physics*, vol. 260, 2000, pp. 353-366
- [Plo01] E. Ploenjes, P. Palm, W. Lee, W.R. Lempert, and I.V. Adamovich, "RF Energy Coupling to High-Pressure Optically Pumped Nonequilibrium Plasmas", *Journal of Applied Physics*, vol. 89, No. 11, 2001, pp. 5911-5918
- [Plo02] E. Plönjes, P. Palm, I.V. Adamovich, J.W. Rich, "Characterization of Electron-Mediated Vibration-Electronic (V-E) Energy Transfer in Optically Pumped Plasmas Using Langmuir Probe Measurements", *AIAA-Paper 2002-2243*, 33rd AIAA Plasmadynamics and Lasers Conference, 20-23 May 2002, Maui,Hawaii
- [Rai91] Raizer, Y.P., "Gas Discharge Physics", Springer-Verlag, Berlin, 1991
- [Ric75] W. Rich, R.C. Bergman, and J.A. Lordi, *AIAA J.*, vol. 13, p. 95, 1975
- [Vel87] E.P. Velikhov, A.S. Kovalev, and A.T. Rakhimov, "Physical Phenomena in Gas Discharge Plasmas", Moscow, Nauka, 1987
- [Zhd90] Zhdanok, S.A., Vasilieva, E. M., and Sergeeva, L.A., "Study of the High Voltage Atmospheric Pressure Discharge and its Application for Surface Treatment", *Sov. J. of Engineering Physics*, Vol. 58, No.1, pp.101-104, 1990

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 8, Section 8.1.

- O. Aucillo and D. L. Flamm, eds. "Plasma Diagnostics", Vol. 1 & 2, Academic, New York, 1989.
- W. Demtroder, "Laser Spectroscopy", Springer-Verlag, Berlin, 1981.
- R. W. Dreyfus, J. M. Jasinski, R. E. Walkup, and G. S. Selwyn, Pure & Appl. Chem. Vol. 57, 1265 (1985).
- A.C. Eckbreth, "Laser Diagnostics for Combustion Temperature and Species", Gordon and Breach, Amsterdam, 1996.
- R. J. Fonock and D. J. Den Hartog, eds. Proceedings of the 14th Topical Conference on High Temperature Plasma Diagnostics, Rev. Sci. Instrum. Vol. 74, Issue 3 (2003). And other previous conference proceedings published in Rev. Sci. Instrum.
- T. Gans, V. Schulz-von der Gathen, and H. F. Dobeles, Plasma Sources Sci. Technol. Vol 10, 17 (2001).
- I. P. Herman, "Optical Diagnostics for Thin Film Processing", Academic, New York, 1996.
- M. Huang, K. Warner, S. Lehn, and G. M. Hieftje, Spectrochimica Acta Part B Vol. 55, 1397 (2000).
- I. H. Hutchinson, "Principles of Plasma Diagnostics", Cambridge, UK, 2002.
- A. McLlroy, Chem. Phys. Lett. Vol 296, 151 (1998).
- V. N. Ochkin, ed. "Spectroscopy of Nonequilibrium Plasma at Elevated Pressure", Proceedings of SPIE, Vol. 4460, 2002.
- C. Penache, M. Micelea, A. Brauning-Demian, O. Hohn, S. Schossler, T. Jahnke, K. Niemax, and H. Schmidt-Bocking, Plasma Sources Sci. Technol. 11, 476 (2002).
- B. L. Preppernau, K. Pearce, A. Tserpi, E. Wurzburg, and T. A. Miller, Chem. Phys. Vol 196, 371 (1995).
- A. Staicu, R. I. Stolk, and J. J. ter Meulen, J. Appl. Phys. Vol 91, 969 (2002).
- R. H. Stark and K. H. Schoenbach, Appl. Phys. Lett. Vol 74, 3770 (1999).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 8, Section 8.2.5.

Ahn, T, and Lempert W., To be published (2004).

Asawaroengchai, C., and Rosenblatt, G.M., *Journal of Chemical Physics*, 72, 2664 (1980).

Bakker, L.P., Freriks J.M., deGroog F.J., and Kroesen G.M.W., *Review of Scientific Instruments*, 71, 2007 (2000).

Bakker, L.P., and Kroesen, G.M., *Journal of Applied Physics*, 88, 3899 (2000).

Berne, B.J., and Pecora, R., *Dynamic Light Scattering*, John Wiley & Sons, New York, 1976.

Bonamy, L., Bonamy, J., Robert, D., Lavorel, B., Saint-Loup, R., Chaux, J., Santos, J., and Berger, H., *Journal of Chemical Physics*, 89, 5568 (1988).

Chu, B., *Laser Light Scattering – Basic Principles and Practice* 2nd Edition, Academic Press, Boston, 1991.

Clops, R., Fink, M., Varghese, P.L., and Young, D., *Applied Spectroscopy*, 54, 1391 (2000).

Dicke, R.H., *Physical Reviews*, 89, 472 (1953).

Eckbreth, A.C., *Laser Diagnostics for Combustion Temperature and Species*, 2nd Ed., Gordon and Breach Publishers, Amsterdam, 1996.

Elliott, G.S., Glumac, N., and Carter, C.D., *Measurement Science and Technology*, 12, 452 (2001).

Evans, D.K, and Katzenstein J., *Rep. Progress in Physics*, **32**, 207 (1969).

Demtroder. W., *Laser Spectroscopy* 2nd Edition, Springer, Berlin, 1998.

Drake, M., *Optics Letters*, 7, 440 (1982).

Galatry, L., *Physical Reviews*, 122, 1281 (1961).

Gallas, J.A., *Physical Review A*, 21, 1829 (1980).

Gresillon, D., Gemaux, G., Cabrit, B., and Bonnet, J.P., *European Journal of Mechanics B*, 9, 415 (1990).

Hall, R.J., Verdieck, J.F., and Eckbreth, A.C., *Optics Communications*, 35, 69 (1979).

Hutchinson, I.H., *Principles of Plasma Diagnostics*, Cambridge University Press, Cambridge, 1990.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Indralingan, R., Simeonsson, J.B., Petrucci, G.A., Smith, B.W., and Winefordner, J.D.W., *Analytical Chemistry*, 64, 964 (1991).
- Lee, W., "Development of Raman and Thomson Scattering Diagnostics for Study of Energy Transfer in Nonequilibrium Molecular Plasmas," The Ohio State University, Ph.D. Thesis, June, 2003.
- Lee, W., Adamovich, I.V., and Lempert, W.R., *Journal of Chemical Physics*, 114, 1178 (2001).
- Lee, W., and Lempert W. R., *AIAA Journal*, 40, 2504 (2002).
- Lempert, W.R., Rosasco G.J., and Hurst W.S., *Journal of Chemical Physisc*, 81, 4241 (1984).
- Long, D.A., *The Raman Effect*, John Wiley & Sons, London, 2002.
- Macheret, S.O., Ionikh, Y.Z., Chernysheva, N.V., Yalin, A.P., Martinelli, L., Miles, R.B., *Physics of Fluids*, 13, 2693 (2001).
- Measurement Science and Technology*, Vol. 12, No. 4, 2001.
- Miles, R.B., Lempert, W.R., and Forkey, J.N., "Laser Rayleigh Scattering," *Measurement Science and Technology* 12, pp. (2001).
- Miles, R.B., Yalin, A.P., Tang, Zhen, Zaidi, S.H., Forkey, J.N., *Measurement Science and Technology*, 12, 442 (2001).
- Noguchi, Y., Matsuoka, A., Bowden, M.D., Uchino, K., and Muraoka, K., *Japanese Journal of Applied Physics*, 40, 326 (2001).
- Ornstein, L.S., and Zernike, F., *Phys. Z*, 27, 761 (1926).
- Pelletier, M.J., *Applied Spectroscopy*, 46, 395 (1992).
- Penney, C. M., St. Peters, R. L., and Lapp, M., *Journal of the Optical Society of America*, 64, 712 (1974)
- Rahn, L.A., and Palmer, R.E., *Journal of Optical Society of America B.*, 3, 1165 (1986).
- Rasetti, F., *Nuovo Cimento*, 7, 261 (1930).
- Regnier, P.R., and Taran, J.P.E, *Applied Physics Letters*, 23, 240 (1973).
- Rosasco, G.J., Lempert, W., Hurst, W.S., and Fein, A., *Spectral Line Shapes, Vol 2*, Walter de Gruyter & Co., Berlin, p. 635 (1983).
- Salpeter, E.E, *Physical Review*, 120, 1528 (1960)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Shardanand and Rao. A.D.P., "Absolute Rayleigh Scattering Cross Sections of Gases and Freons of Stratospheric Interest in the Visible and Ultraviolet Regions, NASA Technical Note, TN D-8442, 1977

Shimizu, H., Lee, S.A., and She, C.Y., *Applied Optics*, **22**, 1373 (1983)

Vaughan, J.M., "*The Fabry-Perot Interferometer*", Adam Hilger Series on Optics, IOP, Bristol UK, 1989.

Weber, A., "*Raman Spectroscopy of Gases and Liquids*," Springer-Verlog, Berlin, 1979.

Wolniewicz, L., *Journal of Chemical Physics*, **45**, 515 (1966).

Yariv, A., *Quantum Electrodynamics*, 2nd Edition, John Wiley & Sons, New York, 1975.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 8, Section 8.3.

Akhtar K., Scharer J., Tysk S., and Kho E., "Plasma interferometry at high pressures", *Rev. Sci. Instrum.*, **74**, 996-1001 (2003).

Griem H.R., in *Principles of Plasma Spectroscopy*, (Cambridge University Press, Cambridge, 1997), pp 258.

Hutchinson I.H., *Principles of Plasma Diagnostics*. Cambridge: Cambridge University Press, 2002, pp 114.

Laroussi M., *Int. J. Infrared and Millimeter Waves*, **20**, 1501, (1999).

Lochte-Holtgreven W., in *Plasma Diagnostics*, edited by W. Lochte-Holtgreven, (North-Holland Publishing Company, Amsterdam, 1968), pp186.

Podgorny I.M., in *Topics in Plasma Diagnostics*, (Plenum Press, New York, 1971), pp 141.

Stix T.H., in *Waves in Plasmas*, AIP Press, Springer-Verlag, New York (1992).

Wharton C.B., in *Plasma Diagnostic Techniques*, edited by R.H. Huddlestone and S.L. Leonard, (Academic Press, NewYork, 1965), pp 477.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 8, Section 8.4.6.

- L. A. Duschin and O. S. Pawlitschenko; *Plasmadiagnostik mit Lasern*, Akademie-Verlag Berlin, 8, (1973)
- Walter Greiner, *Theoretische Physik*, Verlag Harri Deutsch, Frankfurt am Main, (1986)
- I. H. Hutchinson, *Principles of plasma diagnostics*, Cambridge University Press, (1991)
- Frank Leipold, Abdel-Aleam Mohamed, and Karl H. Schoenbach, "Electron Temperature Measurements in Pulsed Atmospheric Pressure Plasmas ", *Bull APS (GEC)*, Vol. 46, No. 6, October 9-12, 2001, DTP 45, p. 22
- Frank Leipold, Robert H. Stark, Ahmed El-Habachi, and Karl H. Schoenbach, "Electron Density Measurements in an Atmospheric Pressure Air Plasma by Means of IR Heterodyne Interferometry" *J. Phys. D: Appl. Phys.* **33**, 2268 (2000).
- Frank Leipold, Abdel-Aleam H. Mohamed, and Karl H. Schoenbach, "High Electron Density, Atmospheric Pressure Air Glow Discharges," *Conf. Record, 25th Intern. Power Modulator Symp. and 2002 High Voltage Workshop*, Hollywood, CA, June 2002, p. 130.
- Y.P. Raizer, *Gas Discharge Physics*, 2nd edition, Springer, Berlin, Germany, 1991
- Robert H. Stark and Karl H. Schoenbach, "Direct Current Glow Discharges in Atmospheric Air," *Appl. Phys. Lett.* **74**, 3770 (1999).
- R.H. Stark and K. H. Schoenbach, "Electron Heating in Atmospheric Pressure Glow Discharges", *J. Appl. Phys.* **89**, 3568 (2001).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 8, Section 8.5.4.7

- Copeland, R. A. and D. R. Crosley (1984). "Rotational Level Dependence of Electronic Quenching of Hydroxyl OH (A^2S^+ , $v=0$)."
Chem. Phys. Lett. **107**(3): 295-300.
- Gessman, R. J. (2000). An Experimental Investigation of the Effects of Chemical and Ionizational Nonequilibrium in Recombining Air Plasmas. Mechanical Engineering Dept., Stanford, CA, Stanford University.
- Gessman, R. J., C. O. Laux and C. H. Kruger (1997). Experimental study of kinetic mechanisms of recombining atmospheric pressure air plasmas. 28th AIAA Plasmadynamics and Lasers Conference, Atlanta, GA.
- Gigosos, M. A. and V. Cardeñoso (1996). "New Plasma Diagnosis Tables of Hydrogen Stark Broadening Including Ion Dynamics." *J. Phys. B: At. Mol. Opt. Phys.* **29**: 4795-4838.
- Gomès, A. M., J. Bacri, J. P. Sarrette and J. Salon (1992). "Measurement of Heavy Particle Temperature in a RF Air Discharge at Atmospheric Pressure from the Numerical Simulation of the NOg System." *Journal of Analytical Atomic Spectroscopy* **7**: 1103-1109.
- Griem, H. R. (1964). *Plasma Spectroscopy*. New York, McGraw-Hill Book Company.
- Laux, C. O. (1993). Optical Diagnostics and Radiative Emission of Air Plasmas. Ph.D. Thesis, HTGL Report 288, Mechanical Engineering. Stanford, CA, Stanford University.
- Laux, C. O. (2002). Radiation and Nonequilibrium Collisional-Radiative Models. *Special Course on Physico-Chemical Modeling of High Enthalpy and Plasma Flows*. T. M. D. Fletcher, S. Sharma. Rhode-Saint-Genèse, Belgium, von Karman Institute.
- Laux, C. O., R. J. Gessman, C. H. Kruger, F. Roux, F. Michaud and S. P. Davis (2001). "Rotational Temperature Measurements in Air and Nitrogen Plasmas Using the First Negative System of N_2^+ ." *JQSRT* **68**(4): 473-482.
- Levin, D. A., C. O. Laux and C. H. Kruger (1999). "A General Model for the Spectral Radiation Calculation of OH in the Ultraviolet." *JQSRT* **61**(3): 377-392.
- Michaud, F., F. Roux, S. P. Davis, A.-D. Nguyen and C. O. Laux (2000). "High resolution Fourier spectrometry of the $^{14}N_2^+$ ion." *J. Molec. Spectrosc.* **203**: 1-8.
- Park, C. (1985). Nonequilibrium Air Radiation (NEQAIR) Program: User's Manual. Moffett Field, CA, NASA-Ames Research Center.
- Scott, C. D., H. E. Blackwell, S. Arepalli and M. A. Akundi (1998). "Techniques for estimating rotational and vibrational temperatures in nitrogen arcjet flow." *J. Thermophys. Heat Transfer* **12**(4): 457-464.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Wiese, W. L., M. W. Smith and B. M. Glennon (1966). *Atomic Transition Probabilities. Vol. 1. Hydrogen through Neon*. Washington, DC, U.S. National Bureau of Standards National Standard Reference Series. **1**: 153.

Yu, L., C. O. Laux, D. M. Packan and C. H. Kruger (2002). "Direct-Current Glow Discharges in Atmospheric Pressure Air Plasmas." *J. Appl. Phys.* **91**(5): 2678-2686.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 8, Section 8.6.5.

- Aldener, M., B. Lindgren, A. Pettersson and U. Sassenberg (2000). "Cavity Ringdown Laser Absorption Spectroscopy : Nitrogen cation." *Physica Scripta* **61**(1): 62-65.
- Berden, G., R. Peeters and G. Meijer (2000). "Cavity Ring-Down Spectroscopy: Experimental Schemes and Applications." *Int. Reviews in Physical Chemistry* **19**(4): 565-607.
- Booth, J. P., G. Cunge, L. Biennier, D. Romanini and A. Kachanov (2000). "Ultraviolet cavity ring-down spectroscopy of free radicals in etching plasmas." *Chem. Phys. Lett.* **317**(6): 631-636.
- Brown, S. S., A. R. Ravishankra and H. Stark (2000). "Simultaneous Kinetics and Ring-Down: Rate Coefficients from Single Cavity Loss Temporal Profiles." *J. Chem. Phys. A* **104**: 7044-7052.
- Busch, K. W. and A. M. Busch, Eds. (1999). *Cavity-Ringdown Spectroscopy*. ACS Symposium Series, Oxford University Press.
- Grangeon, F., C. Monard, J.-L. Dorier, A. A. Howling, C. Hollenstein, D. Romanini and N. Sadeghi (1999). "Applications of the Cavity Ring-Down Technique to a Large-Area RF-Plasma Reactor." *Plasma Sources Science and Technology* **8**: 448-456.
- Jarvis, G. K., M. Evans, C. Y. Ng and K. Mitsuke (1999). "Rotational-resolved pulsed field ionization photoelectron study of NO⁺ (X¹S⁺, v⁺=0-32) in the energy range of 9.24-16.80 eV." *JCP* **111**(7): 3058-3069.
- Kessels, W. M. M., A. Leroux, M. G. H. Boogaarts, J. P. M. Hoefnagels, M. C. M. van de Sanden and D. C. Schram (2001). "Cavity ring down detection of SiH₃ in a remote SiH₄ plasma and comparison with model calculations and mass spectrometry." *J. Vac. Sci. Technol. A* **19**(2): 467-476.
- Kotterer, M., J. Conceicao and J. P. Maier (1996). "Cavity ringdown spectroscopy of molecular ions: A ²P_u-X ²S_g⁺ (6-0) transition of N₂⁺." *Chem. Phys. Lett.* **259**(1-2): 233-236.
- Laux, C. O. (1993). *Optical Diagnostics and Radiative Emission of Air Plasmas*. *Mechanical Engineering*. Stanford, CA, Stanford University: 232.
- Laux, C. O., R. J. Gessman, C. H. Kruger, F. Roux, F. Michaud and S. P. Davis (2001). "Rotational Temperature Measurements in Air and Nitrogen Plasmas Using the First Negative System of N₂⁺." *JQSRT* **68**(4): 473-482.
- Michaud, F., F. Roux, S. P. Davis, A.-D. Nguyen and C. O. Laux (2000). "High resolution Fourier spectrometry of the ¹⁴N₂⁺ ion." *J. Molec. Spectrosc.* **203**: 1-8.
- Park, C. (1989). *Nonequilibrium Hypersonic Aerothermodynamics*. New York, Wiley.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Pierrot, L., L. Yu, R. J. Gessman, C. O. Laux and C. H. Kruger (1999). Collisional-radiative modeling of nonequilibrium effects in nitrogen plasmas. 30th AIAA Plasmadynamics and Lasers Conference, Norfolk, VA.
- Quandt, E., I. Kraemer and H. F. Dobele (1999). "Measurements of Negative-Ion Densities by Cavity Ringdown Spectroscopy." *Europhysics Letters* **45**: 32-37.
- Schwabedissen, A., A. Brockhaus, A. Georg and J. Engemann (2001). "Determination of the gas-phase Si atom density in radio frequency discharges by means of cavity ring-down spectroscopy." *J. Phys. D-Appl. Phys* **34**(7): 1116-1121.
- Shkarofsky, I. P., T. W. Johnston and M. P. Bachynski (1966). *The Particle Kinetics of Plasmas*, Addison-Wesley Pub. CO.
- Siegman, A. E. (1986). *Lasers*. Mill Valley, University Science Books.
- Spuler, S. and M. Linne (2002). "Numerical analysis of beam propagation in pulsed cavity ring-down spectroscopy." *Appl. Optics* **41**(15): 2858-2868.
- Yalin, A. P. and R. N. Zare (2002). "Effect of Laser Lineshape on the Quantitative Analysis of Cavity Ring-Down Signals." *Laser Physics* **12**(8): 1065-1072.
- Yalin, A. P., R. N. Zare, C. O. Laux and C. H. Kruger (2002). "Temporally Resolved Cavity Ring-Down Spectroscopy in a Pulsed Nitrogen Plasma." *Appl. Phys. Lett.* **81**(8): 1408-1410.
- Zalicki, P. and R. N. Zare (1995). "Cavity ring-down spectroscopy for quantitative absorption measurements." *Journal of Chemical Physics* **102**(7): 2708-17.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.1.

- Blakely E A, Bjornstad K A, Galvin J E, Montero O R, and Brown I G, "Selective neutron growth on ion implanted and plasma deposited surfaces", *In Proc. IEEE Int. Conf. Plasma Sci.*, Banff, Canada, p. 253, 2002.
- Dorai R and Kushner M, "A model for plasma modification of polypropylene using atmospheric pressure discharges", *J. Phys. D: Appl. Phys.*, Vol. 36, pp. 666-685, 2003.
- El-Habachi A and Schoenbach K H "Emission of excimer radiation from direct current, high pressure hollow cathode discharges", *Appl. Phys. Lett.*, Vol. 72, pp. 22-24, 1998.
- Eliasson B, and Kogelschatz U, " Non-equilibrium volume plasma processing", *IEEE Trans. Plasma Sci.*, Vol. 19, No. 6, pp. 1063-1077, 1991.
- Laroussi M., "Non-thermal decontamination of biological media by atmospheric pressure plasmas: Review, analysis, and prospects", *IEEE Trans. Plasma Sci.*, Vol. 30, No. 4, pp. 1409, 1415, 2002.
- Sanchez-Estrada F S, Qiu H, and Timmons R B, "Molecular tailoring of surfaces via RF pulsed plasma polymerizations: Biochemical and other applications", *In Proc. IEEE Int. Conf. Plasma Sci.*, Banff, Canada, p. 254, 2002.
- Smulders E H W M, Van Heesch B E J M, and Van Paasen B S V B, " Pulsed power corona discharges for air pollution control", *IEEE Trans. Plasma Sci.*, Vol. 26, No. 5, pp. 1476-1484, 1998.
- Stadler K, " Plasma Characteristics of electrosurgical discharges", *In Proc. Gaseous Electronics Conf.*, San Fransisco, CA, p. 16, 2003.
- Stoffels E, Kieft I E, and Sladek R E J, "Superficial treatment of mammalian cells using plasma needle", *J. Phys. D: Appl. Phys.*, Vol. 36, pp. 1908-1913, 2003.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.2.

- Choi B S and Fletcher C A J 1997 *J Electrostat* **40/41** 413-418
- Cottrell F C 1911 *J Ind Eng Chem* **3** 542-550
- Cross J A 1987 *Electrostatics: Principles, Problems and Applications* (Bristol: Adam Hilger)
- Crowley J M 1998 *Electrophotography* in *Wiley Encyclopedia of Electrical and Electronic Engineering* Webster J G ed. (New York: Wiley-Interscience) vol **6** pp 719-734
- Deutsch W 1922 *Ann. Phys.* **68** 335-344
- Deutsch W 1925a *Z. Techn. Phys.* **6** 423-437
- Deutsch W 1925b *Ann. Phys.* **76** 729-736
- Egli W Kogelschatz U Gerteisen E A and Gruber R 1997 *J Electrostat* **40/41** 425-439
- Eschholz O H 1919 *Trans Am Inst Mining Metall Eng* **LX** 243-279
- Fuchs N A 1964 *The mechanics of aerosols* (Oxford: Pergamon)
- Gallimberti I 1998 *J Electrostat* **43** 219-247
- Gilbert W 1600 *Tractatus, sive Physiologia de Magnete, Magnetisque corporibus magno Magnete tellure, sex libris comprehensus* (London: Excudebat Petrus Short)
- Guitard C F 1850 *Mech Mag (London)* **53** 346
- Hall H J 1990 *J Electrostat* **25** 1-22
- Hohlfeld M 1824 *Arch. f. d. ges. Naturl.* **2** 205-206
- Hutchings W M 1885 *Berg- u Hüttenmänn Zeitschr* **44** 253-254
- Kirsch A A and Zagnit'ko A V 1990 *Aerosol Sci Technol* **12** 465-470
- Kogelschatz U, Egli W and Gerteisen E A 1999 *ABB Rev* **4/1999** 33-42
- Ladenburg R and Tietze W 1930 *Ann Phys* **6** 581 - 621
- Lawless P A, Yamamoto T and Oshani 1995 *Modeling of electrostatic precipitators and filters* in *Handbook of Electrostatic Processes*, Chang J S Kelly A J and Crowley J M eds (New York: Marcel Dekker) 481-507
- Lawless P A and Altman R F 1999 *Electrostatic precipitators* in *Wiley Encyclopedia of Electrical and Electronic Engineering*, Webster J G, ed. (New York: Wiley-Interscience) vol. **7** pp. 1-15

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Lemp H 1904 Alternating current selector, US Pat No. 774,090
- Lodge O J 1886 *J Soc Chem Ind* **5** 572-576
- Lowke J J Morrow R and Medlin A J 1998 *Proc. 7th Int. Conf. on Electrostatic Precipitation (ICESP VII)*, (Kyonju, Korea, 1998) pp 69-75
- Mazumder M K 1999 *Electrostatic Processes in Wiley Encyclopedia of Electrical and Electronic Engineering*, John G. Webster, Ed. (New York: Wiley-Interscience) vol. **7** pp. 15-39
- McLean K J 1988 *IEE Proc.* **135** 347-361
- Medlin A J, Fletcher C A J and Morrow R 1998 *J Electrostat* **43** 39–60
- Meroth A M 1997 *Numerical Electrohydrodynamics in Electrostatic Precipitators* (Berlin: Logos-Verlag)
- Möller K 1884 *Röhrenförmiges Gas und Dampffilter*, German Pat. No. 31911
- Oglesby S and Nichols G 1978 *Electrostatic Precipitation* (New York: Decker)
- Parker K R 1997 *Applied Electrostatic Precipitation* (London: Blackie)
- Robinson M 1962 *Am J Phys* **30** 366-372
- Schmidt W A 1920 *Means for separating suspended matter from gases*, US Pat. No. 1,343,285
- Seeliger R 1926 *Z techn Phys* **7** 49-71
- Walker A O 1884 *A process for separating and collecting particles of metals or metallic compounds applicable for condensing fumes from smelting furnaces and for other purposes*, Brit Pat No. 11,120
- White H J 1957 *J Air Poll Contr Ass* **7** 167-77
- White H J 1963 *Industrial Electrostatic Precipitation* (Reading: Addison-Wesley)
- White H J 1977/78 *J Electrostat* **4** 1-34
- White H J 1984 *J Air Poll Contr Ass* **34** 1163-1167

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.3.5

- Andrews T and Tait P G 1860 *Phil Trans Roy Soc (London)* **150** 113–
- Boelter K and Davidsen J H 1997 *Aerosol Sci Technol* **27** 689–708
- Braun D K uchler U and Pietsch G 1988 *Pure Appl. Chem.* **60** 741-746
- Braun D K uchler U and Pietsch G 1991 *J Phys D: Appl Phys* **24** 564–572
- Chen J 2002 *Direct current corona-enhanced chemical reactions*, (Minneapolis: PH D Thesis, University of Minnesota 2002)
- Chen J and Davidson J H 2002 *Plasma Chem Plasma Process* **22** 199-224
- Chen J and Davidson J H 2003a *Plasma Chem Plasma Process* **23** 83-102
- Chen J and Davidson J H 2003b *Plasma Chem Plasma Process* **23** 501–518
- Crutzen P J 1970 *Quart. J Roy Meteor Soc* **96** 320-325
- Eliasson B and Kogelschatz U 1986a *J Chim Phys* **83** 279–282
- Eliasson B and Kogelschatz U 1986b *J. Phys. B: At. Mol. Phys.* **19** 1241–1247
- Eliasson B Hirth M and Kogelschatz U 1987a *J Phys D: Appl Phys* **20** 1421–1437
- Eliasson B and Kogelschatz U 1987b *Proc 8th Int Symp on Plasma Chemistry (ISPC-8)* (Tokyo 1987) vol 2 pp 736-741
- Filippov Yu V Boblikova V A and Panteleev V I 1987 *Electrosynthesis of Ozone* (in Russian), (Moscow: Moscow State University Press).
- Glaze W H and Kang J W 1988 *J AWWA* **88** 57–63
- Hoign  J 1998 *Chemistry of aqueous ozone and transformation of pollutants by ozonation and advanced oxidation processes*, in *Handbook of Environmental Chemistry*, Vol 5, Part C: Quality and Treatment of Drinking Water II, Hrubec J ed (Berlin: Springer Verlag) pp 83–141
- Held B and Peyrous R 1999 *Eur Phys J AP* **7** 151-166
- Herron J T 1999 *J Phys Chem Ref Data* **28** 1453-1483
- Herron J T 2001 *Plasma Chem. Plasma Proc* **21** 581-609
- Herron J T and Green D S 2001 *Plasma Chem Plasma Process* **21** 459-481
- Horv th M Bilitzky L and H ttner J 1985 *Ozone* (New York: Elsevier Science Publishing)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Johnston H S 1992 *Ann Rev Phys Chem* **43** 1-32
- Kitayama J and Kuzumoto M 1997 *J Phys D: Appl Phys* **30** 2453-2461
- Kitayama J and Kuzumoto M 1999 *J Phys D: Appl Phys* **32** 3032-3040
- Kogelschatz U and Baessler P 1987b *Ozone Sc. Eng* **9** 195-206
- Kogelschatz U 1988 *Advanced Ozone Generation in Process Technologies for Water Treatment* Stucki S ed (New York: Plenum Press) pp 87-120
- Kogelschatz U and Eliasson B 1995 *Ozone Generation and Applications in Handbook of Electrostatic Processes*, Chang J S Kelly A J and Crowley J M Eds. (New York: Marcel Dekker 1995) pp 581-605
- Kogelschatz U 1999 *Proc Int Ozone Symp* (Basel: 1999) pp 253-265
- Kogelschatz U 2000 *Ozone Generation and Dust Collection in Electrical Discharges for Environmental Purposes: Fundamentals and Applications* van Veldhuizen E M ed. (Huntington NY: Nova Science Publishers) pp 315-344
- Kogoma M and Okazaki S 1994 *J Phys D: Appl Phys* **27** 1985-1987
- Kossyi I A Kostinsky A Yu Matveyev A A and Silakov V P *Plasma Sources Sci Technol* **1** 207-220
- Krivosonova O E Losev S A Nalivaiko V P Mukoseev Yu K and Shatolov O P *Recommended data on the rate constants of chemical reactions among molecules consisting of N and O atoms in Reviews of Plasma Chemistry*, Smirnov B M Ed (New York: Consultants Bureau, 1991) vol 1, 1-29
- Nilsson J O Eninger J E 1997 *IEEE Trans Plasma Sci* **25** 73-82
- Ohlmüller W 1891 *Ueber die Einwirkung des Ozons auf Bakterien* (Berlin: Springer Verlag)
- Peyrous R 1986 *Simulation de l'évolution temporelle de diverses espèces gazeuses créées par l'impact d'une impulsion électronique dans l'oxygène ou de l'air, sec ou humide* (Pau: Ph D Thesis, Université de Pau, 1986)
- Peyrous R 1990 *Ozone Sci Eng* **12** 19-64
- Peyrous R Pignolet P and Held B 1989 *J Phys D: Appl Phys* **22** 1658-1667
- Pietsch G and Gibalov V I 1998 *Pure Appl Chem* **70** 1169-1174.
- Rice R G and Netzer A 1982 1984 eds *Handbook of Ozone Technology and Applications* vol 1 and 2, (Ann Arbor: Ann Arbor Science Publishers)
- Samoilovich V G and Gibalov V I 1986 *Russ J Phys Chem* **60** 1107-1116

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Samoilovich V G Gibalov V I and Kozlov K V 1989 *Physical Chemistry of the Barrier Discharge* (in Russian) (Moscow: Moscow State University Press) (English translation: Düsseldorf: DVS-Verlag 1997 Conrads J P F Leipold F eds.)
- Schönbein C F 1840 *Compt Rend Hebd Séances Acad Sci* **10** 706-710
- Sieck L W Herron J T and Green D S *Plasma Chem Plasma Process* **20** 235-258
- Siemens W 1857 *Poggendorfs Ann Phys Chem* **102** 66-122
- Soret J L 1865 *Ann Chim Phys (Paris)* **7** 113-118
- Wojtowicz J A 1996 *Ozone* in *Kirk-Othmer Encyclopedia of Chemical Technology*, (John Wiley) Fourth Edition vol 17 pp 953-994
- Yagi S and Tanaka M 1979 *J Phys D: Appl Phys* **12**, 1509-1520
- Yehia A Abdel-Salam M and Mizuno A 2000 *J Phys D: Appl Phys* **33** 831-835
- Zakharov A I Klopovskii K S Opsipov A P Popov A M Popovicheva O B Rakhimova T V Samarodov V A and Sokolov A P 1988 *Sov J Plasma Phys* **14** 191-195

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.4.5.

- Aleksandrov N L 1993 *Chemical Physics Letters* **212** 409-412
- Borisov N D, and Gurevich A V 1980 *Geomagn.. Aeronomy.* **20** 587-591
- Bortner M H and Baurer T 1979 *Defense Nuclear Agency Reaction Rate Handbook, Second Edition, NTIS AD-763699* Chapter 22
- Budden K G 1985 *The Propagation of Radio Waves, The Theory of Radio Waves of Low Power in the Ionosphere and Magnetosphere* (New York: Cambridge University Press) 438-479
- Epstein P S 1930 *Proceedings of the National Academy of Sciences* **16** 627-637
- Gunar M and Mennella R 1965 *Proceedings of the 2nd Space Congress – New Dimensions in Space Technology, Canaveral Council of Technical Societies* 515-548
- Gurevich A V 1978 *Nonlinear Phenomena in the Ionosphere, Physics and Chemistry in Space Volume 10* (New York: Springer-Verlag) pp 370
- Gurevich A V 1980 *Sov. Phy. Usp.* **23** 862-865
- Lanczos C 1964 *J. SIAM Numer. Anal. Ser. B* **1** 86-96
- Lowke J J 1992 *J. Phys D: Appl. Phys.* **25** 202-210
- Manheimer W M 1991 *IEEE Trans. Plasma Sci.* **PS-19** 1228-1234
- Macheret S O, Shneider M N and Miles R B 2001 *Physics of Plasmas* **8** 1518-1528
- Ruck G T, Barrick D E, Stuart W D, and Krichbaum C K 1970 *Radar Cross Section Handbook Volume 2* (New York: Plenum) 473-484 and 874-875
- Santorù J, and Gregoire D J 1993 *J. Appl. Phys.* **74** 3736-3743
- Spencer M N, Dickinson J S, and Eckstrom D J 1987 *J. Phys D: Appl. Phys.* **20** 923-932
- Tanenbaum B S 1967 *Plasma Physics* (New York: McGraw-Hill) 62-86
- Vidmar R J 1990 *IEEE Trans. Plasma Sci.* **PS-18** 733-741
- Vidmar R J and R J Barker R J 1998 *IEEE Trans. Plasma Sci.* **PS-26** 1031-1043
- Vidmar R J and Stalder K R 2003 *AIAA* 2003-1189

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.5.3.

- ¹Gruber, M., Jackson, K., Mathur, T., Jackson, T. and Billig, F., "A Cavity-Based Fuel Injector/ Flameholder for Scramjet Applications," *35th JANNAF Airbreathing Propulsion Subcommittee and Combustion Subcommittee Meeting*, Tucson, AZ, 1998, pp. 383.
- ²Mathur, T., Streby, G., Gruber, M., Jackson, K., Donbar, J., Donaldson, W., Jackson, T., Smith, C. and Billig, F., "Supersonic Combustion Experiments with a Cavity-Based Fuel Injector," *AIAA Paper 99-2102*, American Institute of Aeronautics and Astronautics, Washington DC, June 1999.
- ³Gruber, M., Jackson, K., Mathur, T. and Billig, F., "Experiments with a Cavity-Based Fuel Injector for Scramjet Application," *ISABE Paper IS-7154*, September 1999.
- ⁴Mercier, R. A. and Weber, J. W., "Status of the US Air Force Hypersonic Technology Program," *35th JANNAF Airbreathing Propulsion subcommittee and Combustion Subcommittee Meeting*, Tucson, AZ, 1998, pp. 17.
- ⁵Williams, S., Bench, P. M., Midey, A. J., Arnold, S. T., Viggiano, A. A., Morris, R. A., Maurice, L. Q. and Carter, C. D., *Detailed Ion Kinetic Mechanisms For Hydrocarbon/Air Combustion Chemistry*, AFRL report 2000, Hanscom AFB, MA 01731-3010, pp.1.
- ⁶Wagner, T., O'Brien, W., Northam, G. and Eggers, J., "Plasma Torch Igniter for Scramjets," *J. Propulsion and Power*, vol. 5, no. 5, 1989.
- ⁷Masuya, G., Kudou, K., Komuro, T., Tani, K., Kanda, T., Wakamatsu, Y., Chinzei, N., Sayama, M., Ohwaki, K. and Kimura, I., "Some Governing Parameters of Plasma Torch Igniter/flamholder in a Scramjet Combustor," *J. Propulsion and Power*, vol. 9, no. 2, 1993, pp. 176-181.
- ⁸Jacobsen, L. S., Carter, C. D. and Jackson, T. A., "Toward Plasma-assisted Ignition in Scramjets," *AIAA Paper 2003-0871*, American Institute of Aeronautics and Astronautics, Washington DC, Jan. 2003.
- ⁹Kuo, S. P., Koretzky, E. and Orlick, L., "Design and Electrical Characteristics of a Modular Plasma Torch," *IEEE Trans. Plasma Sci.*, Vol. 27, No. 3, 1999, pp. 752.
- ¹⁰Kuo, S. P., Koretzky, E. and Orlick, L., *Methods and Apparatus for Generating a Plasma Torch* (United States Patent No. US 6329628 B1, 2001).
- ¹¹Parish, J. and B. Ganguly, "Absolute H Atom Density Measurement in Short Pulse Methane Discharge," *AIAA Paper 2004-0182*, American Institute of Aeronautics and Astronautics, Washington DC, Jan. 2004.
- ¹²Koretzky, E. and Kuo, S. P., "Characterization of an Atmospheric Pressure Plasma Generated by a Plasma Torch Array," *Phys. Plasmas*, Vol. 5, No. 10, 1998, pp. 3774.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- ¹³Kuo, S. P., Bivolaru, D., Carter, C. D., Jacobsen, L. S. and Williams, S., "Operational Characteristics of a Plasma Torch in a Supersonic Cross Flow", *AIAA Paper* 2003-1190, American Institute of Aeronautics and Astronautics, Washington DC, Jan. 2003.
- ¹⁴Kuo, S. P., Bivolaru, D., Carter, C. D., Jacobsen, L. S. and Williams, S., "Operational Characteristics of a Periodic Plasma Torch", *IEEE Trans. Plasma Sci.*, February issue, 2004.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.6.3.

1. Chang, Paul. K., *Separation of Flow*, Pergamon Press Inc., 1970.
2. Buseman, A., *Atti del V Convegna 'Volta'*, Reale Accademia d'Italia, Rome, 1935.
3. Kantrowitz, A., *Flight Magnetohydrodynamics*, Clauser, F. H., gen. ed., Addison-Wesley Publishing Co., Inc., pp. 221-232, 1960.
4. Levin, V. A. and Taranteva, L. V., "Supersonic Flow over Cone with Heat Release in The Neighborhood of the Apex," *Fluid Dynamics*, Vol. 28, No. 2, pp. 244-247, 1993.
5. Riggins, D., Nelson, H. F. and Johnson, E., "Blunt-Body Wave Drag Reduction Using Focused Energy Deposition," *AIAA Journal*, Vol. 37, No. 4, April 1999.
6. Katzen, E. D. and Kaattari, G. E., "Inviscid Hypersonic Flow Around Blunt Bodies," *AIAA Journal*, Vol. 3, No. 7, pp. 1230-1237, 1965.
7. Myrabo, L. N. and Raizer, Yu. P., "Laser Induced Air-Spike for Advanced Trans-atmospheric Vehicles," AIAA Paper 94-2451, 25th AIAA Plasmadynamics and Laser Conference, Colorado Springs, CO, June, 1994.
8. Manucci, M. A. S., Toro, P. G. P., Chanes Jr., J. B., Ramos, A. G., Pereira, A. L., Nagamatsu, H. T. and Myrabo, L. N., "Experimental Investigation of a Laser-Supported Directed-Energy Air Spike in Hypersonic Flow," 7th International Workshop on Shock Tube Technology, hosted by GASL, Inc., Port Jeferson, New York, September, 2000.
9. Klimov, A. N., Koblov, A. N., Mishin, G. I., Serov, Yu. L., Khodataev, K. V. and Yavov, I. P., "Shock wave propagation in a decaying plasma", *Sov. Tech. Phys. Lett.*, vol. 8, 240, 1982.
10. Voinovich, P. A., Ershov, A. P., Ponomareva, S. E. and Shibkov, V. M., "Propagation of weak shock waves in plasma of longitudinal flow discharge in air", *High Temp.*, vol. 29, no. 3, 468-475, 1990.
11. Bletzinger, P., Ganguly, B. N. and Garscadden, A., "Electric field and plasma emission responses in a low pressure positive column discharge exposed to a low Mach number shock wave," *Phys. Plasmas*, vol. 7, no. 7, pp. 4341-4346, 2000.
12. Mishin, G. I., Serov, Yu. L. and Yavor, I. P., *Sov. Tech. Phys. Lett.* **17**, 413 (1991).
13. Bedin, A. P. and Mishin, G. I., *Sov. Tech. Phys. Lett.* **21**, 14 (1995).
14. Serov, Yu. L. and Yavor, I. P., *Sov. Tech. Phys.* **40**, 248 (1995).
15. Kuo, S. P. and Bivolaru, D., "Plasma effect on shock waves in a supersonic flow," *Phys. Plasmas*, vol. 8, no. 7, pp. 3258-3264, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

16. Beaulieu, W., Brovkin, V., Goldberg, I. *et al.*, Microwave Plasma Influence on Aerodynamic Characteristics of Body in Airflow, in *Proceedings of the 2nd Workshop on Weakly Ionized Gases*, American Institute of Aeronautics and Astronautics, Washington DC, 1998, p.193.
17. Exton, R. J., On-Board Generation of a "Precursor" Microwave Plasma at March 6: Experiment Design, in *Proceedings of the 1st Workshop on Weakly Ionized Gases*, Vol. 2, pp. EE3-12, Wright Lab. Aero propulsion and Power Directorate, Wright-Patterson AFB, OH, 1997.
18. Baryshnikov, A. S., Basargin, I. V., Dubinina, E. V. and Fedotov, D. A., "Rearrangement of the shock wave structure in a decaying discharge plasma", *Tech. Phys. Lett.*, vol. 23, no. 4, pp. 259-260, 1997.
19. Gordeev, V. P., Krasilnikov, A. V., Lagutin, V. I. and Otmennikov, V. N., "Plasma technology for reduction of flying vehicle drag," *Fluid Dynamics*, vol. 31, no. 2, 313, 1996.
20. "Drag Factor," *Jane's Defence Weekly* (ISSN 0265-3818), vol. 29, no. 24, 23-26, 1998.
21. Kuo, S. P., Kalkhoran, I. M., Bivolaru, D. and Orlick, L., "Observation of Shock Wave Elimination by a Plasma in a Mach 2.5 Flow," *Physics of Plasmas*, vol. 7, No. 5, 1345, 2000.
22. S. P. Kuo, D. Bivolaru, and Lester Orlick, "A magnetized torch module for plasma generation and plasma diagnostic with microwave", *AIAA Paper 2003-135*, American Institute of Aeronautics and Astronautics, Washington DC, Jan. 2003.
23. S. P. Kuo, E. Koretzky, and R. J. Vidmar, "Temperature Measurement of an Atmospheric-Pressure Plasma Torch," *Rev. Sci. Instruments*, 70(7), 3032-3034, 1999.
24. Bivolaru, D. and Kuo, S.P., "Observation of Supersonic Shock Wave Mitigation by a Plasma Aero-Spike," *Physics of Plasmas*, vol. 9, No. 2, 721-723, 2002.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.7.8.

- Akischev Y, Grushin M, Narpatovich A, Trushkin N, 2002 *Novel AC and DC non-thermal plasma sources for cold surface treatment of polymer films and fabrics at atmospheric pressure* Plasma and Polymers **7** 261-289
- Basner R, Schmidt M, Becker K, Deutsch H, 2000 *Electron impact ionization of organic silicon compounds* Adv. Atomic, Molecular and Optical Physics **43** 147-185
- Behnisch J 1994 *Plasmachemische Modifizierung von Cellulose – Möglichkeiten und Grenzen* Das Papier no. 12 780 – 783
- Behnke J F, Steffen H, Lange H, 1996a *Elipsometric investigations during plasma cleaning: Comparison between low pressure rf-plasma and barrier discharge at atmospheric pressure* Proc. 5th Int. Symp. on High Pressure Low Temperature Plasma Chemistry (HAKONE V) ed. by J. Janca et al. , Milovy/Czech Rep.133-137
- Behnke J F, Lange H, Michel P, Opalinski T, Steffen H, Wagner H-E 1996b *The cleaning process of metallic surfaces in barrier discharges* Proc. 5th Int. Symp. on High Pressure Low Temperature Plasma Chemistry (HAKONE V) ed. by J. Janca et al. , Milovy/Czech Rep.138-142
- Behnke J F, Steffen H, Sonnenfeld A, Foest R, Lebedev V, Hippler R, 2002 *Surface modification of aluminium by dielectric barrier discharges under atmospheric pressure* Proc. 8th Int. Symp. on High Pressure Low Temperature Plasma Chemistry (HAKONE VIII) e ed. by A. Haljaste, T. Planck, Tartu/Estonia **2** 410
- Behnke J.F., Sonnenfeld A., Ivanova O., Hippler , To R. T. X. H., Pham G. V., Vu K. O., Nguyen T. D, 2003 *Study of corrosion protection of aluminium by siliconoxid-polymer coatings deposited by a dielectric barrier discharge under atmospheric pressure*“ 56th Gaseous Electronics Conference, October 21-24, 2003, San Francisco, CA Poster GTP.015-
<http://www.aps.org/meet/GEC03/baps/abs/S110015.html>
- J.F. Behnke, A. Sonnenfeld, O. Ivanova, T. X. H. To, G. V. Pham, K. O. Vu, T. D. Nguyen, R. Foest, M. Schmidt, R. Hippler, 2004 *Study of corrosion protection of alumimium by siliconoxid-polymer coatings deposited by a dielectric barrier discharge at atmospheric pressure*, Proc. 9th Int. Symp. on High Pressure Low Temperature Plasma Chemistry (HAKONE IX) ed. by M.. Rea et.al., August 23 - 26, 2004 , Padova (Italy)- in print
- Chan C-M 1994 *Polymer Surface Modification and Characterization* Munich: Carl Hauser Verlag
- Charbonnier M, Romand M, Esrom H, Seeböck R, 2001 *Functionalization of polymer surfaces using excimer VUV systems and silent discharges. Application to electroless metallization* J. Adhesion **75** 381-404
- Cui N-Y, Brown N M D, 2002 *Modification of the surface properties of a propylene (PP) film using an air dielectric barrier discharge plasma* Appl. Surf. Sci. **189** 31-38

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Dorai R, Kushner M, 2002 *Atmospheric pressure plasma processing of polypropylene* 49th Int. Symp. Am. Vac. Soc. Banff, Canada Nov. 2002
- Dorai R, Kushner M, 2002 *Plasma surface modification of polymers using atmospheric pressure discharges* 29th ICOPS Banff, Canada
- Dorai R, Kushner M, 2003 *A model for plasma modification of polypropylene using atmospheric pressure discharges* J. Phys. D: Appl. Phys. **36** 666-685
- Falkenstein Z, Coogan J J, 1997 *Photoresist etching with dielectric barrier discharges in oxygen* J. Appl. Phys. **82** 6273-6280
- Foest R, Adler F, Sigeneger F, Schmidt M, 2003 *Study of an atmospheric pressure glow discharge (APG) for thin film deposition* Surf. Coat. Technol. **163-164** 323-330
- Foest R, Schmidt M, Behnke J, 2004 *Plasma polymerization in an atmospheric pressure dielectric barrier discharge in a flowing gas* in Gaseous Dielectrics X, ed. Christophorou L G Kluwer Academic / Plenum Publisher New York in Print
- Greenwood O D, Boyd R D, Hopkins J, Badyal J P S, 1995 *Atmospheric silent discharge versus low pressure plasma treatment of polyethylene, polypropylene, polyisobutylene, and polystyrene* J. Adhesion Sci. Technol. **9** 311-326
- Guimond S, Radu I, Czeremuskin G, Carlsson D J, Wertheimer M R, 2002 *Biaxially orientated polypropylene (BOPP) surface modification by nitrogen atmospheric pressure glow discharge (APGD) and by air corona* Plasma and Polymers **7** 71-88
- Jansen B, Kümmeler F, Müller H B, Thomas H, 1999 *Einfluß der Plasma- und Harzbehandlung auf die Eigenschaften der Wolle* Proc. Workshop Plasmaanwendungen in der Textilindustrie Stuttgart, Germany, 17-23
- Kataoka Y, Kanoh M, Makino N, Suzuki K, Saitoh S, Miyajima H, Mori Y, 2000, *Dry etching characteristics of Si-based materials used CF₄/O₂ atmospheric-pressure glow discharge plasmas* Jpn. J. Appl. Phys. **39** 294-298
- Kersten H, Behnke J F, Eggs C, 1994 *Investigations on plasma-assisted surface cleaning of aluminium in an oxygen glow-discharge* Contr. Plasma Phys. **34** 563
- Klages C P, Eichler M 2002 *Coating and cleaning of surfaces with atmospheric pressure plasmas* (in German) Vakuum in Forschung und Praxis **14** 149-155
- Klages C P, Eichler M, Thyen R 2003 *Atmospheric pressure PA-CVD of silicon- and carbon-based coatings using dielectric barrier discharges* New Diamond Front C Tec **13** 175-189
- Kogoma M, Okazaki S, Tanaka K, Inomata T, 1998 *Surface treatment of powder in atmospheric pressure glow plasma using ultra-sonic dispersal technique* Proc. 6th

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Int. Symp. on High Pressure Low Temperature Plasma Chemistry (HAKONE VI), Cork, Ireland, 83-87

- Korfiatis G, Moskwinski L, Abramzon N, Becker K, Christodoulatos C, Kunhardt E, Crowe R, and Wieserman L 2002, *Investigation of Al surface cleaning using a novel capillary non-thermal ambient-pressure plasma*, in "Atomic and Surface Processes", editors: P. Scheier and T.D. Märk, University of Innsbruck Press (2002)
- Kunhardt E E, 2000 *Generation of large-volume atmospheric-pressure, non-equilibrium plasmas*, IEEE Trans. Plasma Sci, **28**189-200
- Lee Y-H, Yi C-H, Chung M-J, Yeom G-Y, 2001 *Characteristics of He/O₂ atmospheric pressure glow discharge and its dry etching properties of organic materials* Surface and Coatings Technology **146-147** 474-479
- Lynch J B, Spence P D, Baker D E, Postlethwaite T A, 1999 *Atmospheric pressure plasma treatment of polyethylene via a pulse dielectric barrier discharge: Comparison using various gas composition versus corona discharge in air* J Appl. Polym. Sci. **71** 319-331
- Massines F, Gherardi N, Sommer F, 2000 *Silane based coatings on propylene. Deposited by atmospheric pressure glow discharge* Plasmas Polym. **5** 151-172
- Massines F, Gouda G, Gherardi N, Duran M, Croquesel E, 2001 *The role of dielectric barrier discharge atmosphere and physics on polypropylene surface treatment* Plasma and Polymers **6** 35-49
- Meichsner J 2001 *Low-temperature plasmas for polymer surface modification* in Hippler R, Pfau S, Schmidt M and Schönbach K (Eds.) *Low Temperature Plasma Physics* (Berlin: Wiley-VCH) 453 – 472
- Meiners S, Salge J G H, Prinz E, Foerster F. 1998 *Surface modifications of polymer materials by transient gas discharges at atmospheric pressure* Surf. Coat. Technol. **98** 1112-1127
- Moskwinski L, Ricatto P J, Babko-Malyi S, Crowe R, Abramzon N, Christodoulatos C, Becker K, 2002 *Al surface cleaning using a novel capillary plasma electrode discharge*, GEC 2002, Mineapolis, MN (USA), Bull. APS **47(7)** 67
- Müller S, Conrads J, Best W, 2000 *Reactor for decomposing soot and other harmful substances contained in flue gas* (Hakone VII), International Symposium on high pressure low temperature plasma chemistry Greifswald, Germany, Contr. Papers **2** 340-344
- O`Hare L A, Leadley S, Parbhoo B, 2002 *Surface physicochemistry of corona-discharge-treated polypropylene film* Surface and Interface Analysis **33** 335-342
- Roth J R, Chen Z, Sherman D M, Karakaya F, Tsai P P-Y, Kelly-Wintenberg K, Montie T C, 2001a *Increasing the surface energy and sterilization of nonwoven fabrics by*

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- exposure to a one atmosphere uniform glow discharge plasma (OAUGDP) Int. Nonwoven Journal* **10** 34-47
- Roth J R, Chen Z Y, Tsai P P-Y, 2001b *Treatment of metals, polymer films, and fabrics with a one atmosphere uniform glow discharge plasma (OAUGDP) for increased surface energy and directional etching Acta Metallurgica Sinica (English Letters)* **14** 391-407
- Rott U, Müller-Reich C, Prinz E, Salge J, Wolf M, Zahn R-J, 1999, *Plasmagestützte Antifilzausrüstung von Wolle – Auf der Suche nach einer umweltfreundlichen Alternative Proc. Workshop Plasmaanwendungen in der Textilindustrie Stuttgart, Germany, 7-16*
- Schmidt-Szalowski K, Rzanek-Boroch Z, Sentek J, Rymuza Z, Kusznierevicz Z, Misiak M. 2000 *Thin film deposition from hexamethyldisiloxane and hexamethyldisilazane under dielectric barrier discharge (DBD) conditions Plasmas and Polymers* **5** 173.
- Seeböck R, Esrom H, Charbonnier M, Romand M, 2000 *Modification of polyimide in barrier discharge air-plasma: Chemical and morphological effects Plasma and Polymers* **5** 103-118
- Seeböck R, Esrom H, Charbonnier M, Romand M, Kogelschatz U, 2001 *Modification of polyimide using dielectric barrier discharge treatment Surf. Coating Technol.* 142 - 144 455-459
- Softal Report 102 E *Corona pretreatment to obtain wettability and adhesion Softal electronic GmbH D 21107 Hamburg Germany*
- Softal Report 151 E Part 2/3 *New trends in corona technology for stable adhesion Softal electronic GmbH D 21107 Hamburg Germany*
- Softal Report 152 E Part 3/3 *New trends in corona technology for stable adhesion Softal electronic GmbH D 21107 Hamburg Germany*
- Sonnenfeld A, Tun T M, Zajickova L, Wagner H-E, Behnke J F, Hippler R, 2001 *The deposition process based on silicon organic compounds in two different types of an atmospheric barrier discharge in: Proc. 15th Int. Symp. on Plasma Chem. Contr. Orléans/France 9 –13 July 2001 Eds. A. Bouchoule et.al.* **5** 1835-40
- Sonnenfeld A, Kozlov KV, Behnke JF, 2001a *Influence of noble gas on the reaction of plasma chemical decomposition of silicon organic compounds in the dielectric barrier discharge Proc. 15th Int. Symp. on Plasma Chem. Contr. Orléans/France 9-13 July 2001 Eds. A. Bouchoule et.al.* **5** 1829-1834
- Sonnenfeld A, Tun T M, Zajickova M, Kozlov K V, Wagner H E, Behnke J F, Hippler R , 2001b *Deposition Process Based Organosilicon Precursors in Dielectric Barrier Discharges at Atmospheric Pressure Plasma and Polymers* **6** 237
- Steffen H, Schwarz J, Kersten H, Behnke J F, Eggs C, 1996 *Process control of rf plasma assisted surface cleaning Thin Solid Films* **283** 158

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Tanaka K, Inomata T, Kogoma M 1999 *Ashing of organic compounds with spray-type plasma reactor at atmospheric pressure* Plasma and Polymers **4** 269-281
- Thyen R, Höpfner K, Kläke N, Klages C-P, 2000 *Cleaning of silicon and steel surfaces using dielectric barrier discharges*, Plasma and Polymers **5** 91-102
- Tsuchiya Y, Akutu K, Iwata A, 1998 *Surface modification of polymeric materials by atmospheric plasma treatment* Progress in Organic Coatings **34** 100-107
- VDI-TZ Physikalische Technologien, Düsseldorf, Germany (Ed.) 2001 *Plasmagestützte Filzausrüstung von Wolle* INFO PHYS TECH No. 32
- Wulff H, Steffen H, *Characterization of thin solid films*, in: Hippler R, Pfau S, Schmidt M, Schoenbach K H, *Low Temperature Plasma Physics*, WILEY-VCH, 2001
- Yamamoto T, Newsome J R, Ensor D S, 1995 *Modification of surface energy, dry etching, and organic film removal using atmospheric-pressure pulsed-corona plasma* IEEE Transactions Ind. Applications **31** 494- 495

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.8.9

- [1] E.A. Filmonova, R.H.Amirov, S.H.Hong, Y.H.Kim, Y.H.Song: Proc. HAKONE VIII, International Symposium on High Pressure Low Temperature Plasma chemistry, 337-341 (2002)
- [2] E.A.Filmonova, Y.H.Kim, S.H.Hong, Y.H.Song, *Journal of Physics D: Applied Physics*, **35**, 2795-2807(2002)
- [3] S.V.Kudrjashov, E.E.Sirotkina, D.Loos: Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 257-261 (2000)
- [4] R.Dorai, M.J.Kushner: *Journal of Physics D: Applied Physics*, **35**, 2954-2968 (2002)
- [5] M.B.Chang, S.C.Yang, *Environmental and Energy Engineering*, **47**, 1226-1233 (2001)
- [6] R.Dorai, M.J.Kushner: *Journal of Physics D: Applied Physics*, **34**, 574-583 (2001)
- [7] Th.Hammer, Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 234-241 (2000)
- [8] K.Aritoshi, M.Fujiwara, M.Ishida, *Jpn.J.Appl.Phys.*, **41**, 7522-7528 (2002)
- [9] M.Kirkpatrick, W.C.Finney, B.R.Locke: *IEEE Transactions of Industry Applications*, **36**, 500-509 (2000)
- [10] O.Eichwald, M.Yousfi, A.Hennad, M.D.Benabdessadok: *J.Appl.Phys.*, **82**, 4781-4794 (1997)
- [11] R.Cramariuc, G.Mrtin, D.Martin, B.Cramariuc, I.Teodorescu, V.Munteanu, V.Ghiuta: *Radiation Physics and Chemistry*, **57**, 501-505 (2000)
- [12] J.S.Chang, P.C.Looy, K.Nagai, T.Yoshioka, S.Aoki, A.Maezawa: *IEEE Transactions of Industry Applications*, **32**, 131-137 (1996)
- [13] K.Shimizu, T.Hirano, T.Oda: 33rd IAS Annual Meeting, 1998 IEEE, Industry Applications Conference, **3**, 1865-1870 (1998)
- [14] H.H.Kim, K.Takashima, S.Katsura, A.Mizuno, *J.Phys.D:Appl.Phys.*, **34**, 604-613 (2001)
- [15] Y.Hayashi, T.Yanobe, K.Itoyama: IEEE 1994 Annual report, Conference on Electrical Insulation and Dielectric Phenomena, 828-833 (1994)
- [16] M.Nishida, K.Yukimura, S.Kambara, T.Maruyama, *J.Appl.Phys.*, **90**, 2672-2677 (2001)
- [17] S.Kanazawa, J.S.Chang, G.F.Round, G.Sheng, T.Ohkubo, Y.Nomoto, T.Adachi, *Combust. Sci. and Tech.*, **133**, 93-105 (1998)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- [18] J.S.Chang, K.Urashima, M.Arquilla, T.Ito: *Combust. Sci. and Tech.*, **133**, 31-47 (1998)
- [19] K.Takaki, M.A.Jani, T.Fujiwara: *IEEE Transactions of Plasma Science*, **27**, 1137-1145 (1999)
- [20] J.D.Moon, G.T.Lee, S.T.Geum, *Journal of Electrostatics*, **50**, 1-15 (2000)
- [21] Y.S.Mok, S.W.Ham: *Chemical Engineering Science*, **53**, 1667-1678 (1998)
- [22] V.Puchkarev: Conference record of 25th International Power Modulator Symposium and 2002 High-Voltage Workshop, 161-164 (2002)
- [23] S.Tsukamoto, T.Namihira, D.Wang, S.Katsuki, H.Akiyama, E.Nakashima, A.Sato, Y.Uchida, M.Koike: *Electrical Engineering in Japan*, **134**, 28-35 (2001)
- [24] K.Takaki, T.Sasaki, S.Kato, S.Mukaigawa, T.Fujiwara: Conference record of 25th International Power Modulator Symposium and 2002 High-Voltage Workshop, 575-578 (2002)
- [25] J.O.Chae, J.W.Hwang, J.Y.Jung, J.H.Han, H.J.Hwang, S.Kim, V.I.Demidiouk, *Physic of Plasmas*, **8**, 1403-1410 (2001)
- [26] R.Gasprik, M.Gasprikova, C.Yamabe, S.Satoh, S.Ihara: *Jpn.J.Appl.Phys.*, **37**, 4186-4187 (1998)
- [27] G.Penghui, N.Hyashi, S.Ihara, S.Satoh, C.Yamabe: Proc. HAKONE VIII, International Symposium on High Pressure Low Temperature Plasma chemistry, 347-350 (2002)
- [28] K.Yan, H.Hui, M.Cui, J.Miao, X.Wu, C.Bao, R.Li: *Journal of Electrostatics*, **44**, 17-39 (1998)
- [29] O.Mutaf-Yardimci, L.A.Kennedy, S.A.Nester, A.V.Saveliev, A.A.Fridman: Proc. 1998 SAE International Fall Fuels and Lubricants Meeting, Plasma Exhaust Aftertreatment (SP-1395),1-6 (1998)
- [30] J.-D. Moon, G.-T. Lee, S.-T. Geum, *Journal of Electrostatics*, **50**, 1-15 (2000)
- [31] M.C.Park, D.R.Chang, M.H.Woo, G.J.Nam, S.P.Lee: Proc. 1998 SAE International Fall Fuels and Lubricants Meeting, Plasma Exhaust Aftertreatment (SP-1395), 93-99 (1998)
- [32] T.Fujii, M.Ree: *Vacuum*, **59**, 228-235 (2000)
- [33] K.Yan, D.Higashi, S.Kanazawa, T.Ohkubo, Y.Nomoto, J.S.Chang: *Transactions of IEE Japan*, **118-A**, 948-953 (1998)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- [34] K.Minami, M.Akiyama, A.Okino, M.Watanabe, E.Hotta: Proceedings of 2nd Asia-Pacific International Symposium on the Basis and Application of Plasma Technology, 39-44 (2001)
- [35] T.Kawasaki, S.Kanazawa, T.Ohkubo, J.Mizeraczyk, Y.Nomoto: *Thin Solid Films*, **386**, 177-182 (2001)
- [36] J.Boyle, A.Russell, S.C.Yao, Q.Zhou, J.Ekmann, Y.Fu, M.Mathur, *Fuel*, **72**, 1419-1427 (1993)
- [37] T.Ohkubo, K.Yan, D.Higashi, S.Kanazawa, Y.Nomoto, J.S.Chang: *J.Oxid.Technol.*, **4**, 1-4 (1999)
- [38] S.Masuda, S.Hosokawa, X.L.Tu, K.Sakakibara, S.Kitoh, S.Sakai: *IEEE Transactions of Industry Applications*, **29**, 781-786 (1993)
- [39] M.Baeva, A.Pott, J.Uhlenbusch, *Plasma Source Sci. Technol.*, **11**, 135-141 (2002)
- [40] M.Baeva, H.Gier, A.Pott, J.Uhlenbusch, J.Höschele, J.Steinwandel, *Plasma Source Sci.Technol.*, **11**, 1-9 (2002)
- [41] M.Tsuji, A.Tanaka, T.Hamagami, K.Nakano, Y.Nishimura, *Jpn.J.Appl.Phys.*, **39** (Part 2), L933-L935 (2000)
- [42] P.Scheffler, C.Geßner, K.-H.Gericke, Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 407-411 (2000)
- [43] M.Yamada, Y.Ehara, T.Ito: Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 370-374 (2000)
- [44] K.Toda, K.Takaki, S.Kato, T.Fujiwara, *J.Phys.D:Appl.Phys.*, **34**,2032-2036 (2001)
- [45] T.Namihira, S.Tsukamoto, D.Wang, S.Katsuki, R.Hackam, H.Akiyama, Y.Uchida: *IEEE transactions of Plasma Science*, **28**, 434-442 (2000)
- [46] K.Kadowaki, S.Nishimoto, I.Kitani: *Jpn. J.Appl.Phys.*, **42**, L688-L690 (2003)
- [47] M.Dors, J.Mizeraczyk, Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 375-378 (2000)
- [48] H.Miessner, K.-P.Francke, R.Rudolph, Th.Hammer: *Catalysis Today*, **75**, 325-330 (2002)
- [49] H.Miessner, K.P.Francke, R.Rudolph: *Applied Catalysis B: Environmental*, **36**, 53-62 (2002)
- [50] S.Ogawa, T.Nomura, Y.Ehara, H.Kishida, T.Ito, Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 365-369 (2000)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- [51] M.Higashi, K.Fujii, *Electrical Engineering in Japan* **120**, 1-7 (1997) [*Trans. IEEJ*, **116-A**, 868-872 (1996)]
- [52] G.Lepperhoff, K.Hentschel, P.Wolters, W.Neff, K.Pochner, F.-J.Trompeter, Proc. 1998 SAE International Fall Fuels and Lubricants Meeting, Plasma Exhaust Aftertreatment (SP-1395), 79-86 (1998)
- [53] Y.S.Mok, I.-S.Nam, *IEEE Trans. Plasma Science*, **27**, 1188-1196 (1999)
- [54] J.S.Chang, K.Urashima, Y.X.Tong, W.P.Liu, H.Y.Weil, F.M.Yang, X.J.Liu, *Journal of Electrostatics*, **57**, 313-323(2003).
- [55] R.Dorai, K.Hassouni, M.J.Kushner: *J.Appl.Phys.*, **88**, 6060-6071 (2000)
- [56] S.Müller, J.Conrads, W.Best, Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 340-344 (2000)
- [57] S.Tsukamoto, T.Namihira, D.Wang, S.Katsuki, R.Hackam, H.Akiyama, A.Sato, Y.Uchida, M.Koike, *IEEE Trans. Plasma Science*, **29**, 29-36 (2001)
- [58] A.Khacef, M.Nikravech, O.Motret, P.Lefaucheux, R.Viladrosa, J.M.Pouvesle, J.M.Cormier: Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 360-364 (2000)
- [59] T.Fujii, Y.Aoki, N.Yoshioka, M.Rea: *Journal of Electrostatics*, **51-52**, 8-14 (2001)
- [60] M.Nishida, K.Yukimura, S.Kambara, T.Maruyama: *Jpn.J.Appl.Phys.*, **40**, 1114-1117 (2001)
- [61] D.Evans, L.A.Rosocha, G.K.Anderson, J.J.Coogan, M.J.Kushner: *J.Appl.Phys.*, 5378-5386 (1993)
- [62] T.Yamamoto, K.Ramanathan, P.A.Lawless, D.S.Ensor, J.R.Newsome, N.Plaks, G.H.Ramsey: *IEEE Transactions of Industry Applications*, **28**, 528-534 (1992)
- [63] T.Yamamoto, K.Mizuno, I.Tamori, A.Ogata, M.Nifuku, M.Michalska, G.Prieto: *IEEE Transactions of Industry Applications*, **32**, 100-105 (1996)
- [64] K.V.Kozlov, P.Michel, H.-E.Wagner, Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 262-266 (2000)
- [65] H.Kohno, A.A.Berezin, J.S.Chang, M.Tamura, T.Yamamoto, A.Shibuya, S.Honda: *IEEE Transactions of Industry Applications*, **34**, 953-966 (1998)
- [66] T.Oda, T.Takahashi, H.Nakano, S.Masuda: *IEEE Transactions of Industry Applications*, **29**, 787-792 (1993)
- [67] S.Kanazawa, D.Li, S.Akamine, T.Ohkubo, Y.Nomoto, *Trans. The Institute of Fluid-Flow Machinery*, No. 107, 65-74 (2000)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- [68] S.Futamura, A.Zhang, G.Prieto, T.Yamamoto: *IEEE Transactions of Industry Applications*, **34**, 967-974 (1998)
- [69] G.Proeto, O.Prieto, C.R.Gay, T.Yamamoto: *IEEE Transactions of Industry Applications*, **39**, 72-78 (2003)
- [70] M.Kogoma, T.Abe, K.Tanaka, Proc. HAKONE VIII, International Symposium on High Pressure Low Temperature Plasma chemistry, 303-307 (2002)
- [71] J.Hong, S.Kim, K.Lee, K.Lee, J.J.Choi, Y.-K.Kim, Proc. HAKONE VIII, International Symposium on High Pressure Low Temperature Plasma chemistry, 360-363 (2002)
- [72] H.H.Kim, K.Tsunoda, S.Katsura, A.Mizuno: *IEEE Transactions of Industry Applications*, **35**, 1306-1310 (1999)
- [73] A.Z.Ponizovsky, L.Z.Ponizovsky, S.P.Kryutchkov, V.Ya.Starobinsky, D.Battleson, J.Joyce, J.Montgomery, S.Babko, G.Harris, A.P.Shvedchikov, Proc. HAKONE VII, International Symposium on High Pressure Low Temperature Plasma chemistry, 345-349 (2000)
- [74] A.Ogata, K.Yamanouchi, K.Mizuno, S.Kushiyama, T.Yamamoto: *IEEE Transactions of Industry Applications*, **35**, 1289-1295 (1999)
- [75] B.M.Penetrante, J.N.Bardsley, M.C.Hsiao: *Jpn. J.Appl.Phys.*, **36**, 5007-5017 (1997)
- [76] R.Vertriest, R.Morent, J.Dewulf, C.Leys, H.V.Langenhove, Proc. HAKONE VIII, International Symposium on High Pressure Low Temperature Plasma chemistry, 342-346 (2002)

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.9.4.

- Bettleheim F A and March J., *Introduction to General, Organic, and Biochemistry*, Saunders College Pub., 4th Edition, 1995.
- Block S S, "Sterilization", *Encyclopedia of Microbiology*, Vol. 4, pp. 87-103, Academic Press, 1992.
- Boucher (Gut) R M, 1980 "Seeded Gas Plasma Sterilization Method", US Patent 4,207,286.
- Donohoe K G, "The development and Characterization of an Atmospheric Pressure Non-Equilibrium Plasma Chemical Reactor", California Institute of Technology, Pasadena, CA, Ph.D. Thesis, 1976.
- Donohoe K G and Wydeven T, "Plasma Polymerization of ethylene in an Atmospheric Pressure Discharge", *J. Appl. Polymer Sci.*, Vol. 23, pp. 2591-2601, 1979.
- Herrmann H W, Henins I, Park J, and Selwyn G S, "Decontamination of Chemical and Biological Warfare (CBW) Agents Using an Atmospheric Pressure Plasma Jet", *Phys. Plasmas*, Vol. 6, No. 5, pp.2284-2289, 1999.
- Jacobs P T and Lin S M, 1987 "Hydrogen Peroxide Plasma Sterilization System", US Patent 4,643,876.
- Kanazawa S, Kogoma M, Moriwaki T, and Okazaki S, "Stable Glow Plasma at Atmospheric Pressure", *J. Appl. Phys. D: Appl. Phys.*, Vol. 21, pp. 838-840, 1988.
- Kelly-Wintenberg K, Montie T C, Brickman C, Roth J R, Carr A K, Sorge K, Wadworth L C, and Tsai P P Y, "Room Temperature Sterilization of Surfaces and Fabrics with a One Atmosphere Uniform Glow Discharge Plasma", *J. Industrial Microbiology & Biotechnology*, Vol. 20, pp. 69-74, 1998.
- Kuzmichev A I, Soloshenko I A, Tsiolko V V, Kryzhanovsky V I, Bazhenov V Yu, Mikhno I L, and Khomich V A, "Feature of Sterilization by Different Type of Atmospheric Pressure Discharges", *In Proc. Int. Symp. High Pressure Low Temperature Plasma Chem. (HAKONE VII)*, pp. 402-406, Greifswald, Germany, 2001.
- Laroussi M, "Sterilization of Tools and Infectious Waste by Plasmas", *Bull. Amer. Phys. Soc. Div. Plasma Phys.*, Vol. 40, No. 11, pp. 1685-1686, 1995.
- Laroussi M "Sterilization of Contaminated Matter with an Atmospheric Pressure Plasma", *IEEE Trans. Plasma Sci.*, Vol.24, No.3, pp. 1188-1191, 1996.
- Laroussi M, Saylor G S, Galscock B B, McCurdy B, Pearce M, Bright N, and Malott C, "Images of Biological Samples Undergoing Sterilization by a Glow Discharge at Atmospheric Pressure", *IEEE Trans. Plasma Sci.*, Vol. 27, No. 1, pp. 34-35, 1999.
- Laroussi M and Alexeff I, "Decontamination by Non-Equilibrium Plasmas", *In Proc. Int. Symp. Plasma Chem.*, pp. 2697-2702, Prague, Czech Rep., August 1999.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Laroussi M, Alexeff I, and Kang W. "Biological Decontamination by Non-thermal Plasmas", *IEEE Trans. Plasma Sci.*, Vol.28, No.1, pp. 184-188, 2000.
- Laroussi M, Alexeff I, Richardson J P, and Dyer F F " The Resistive Barrier Discharge", *IEEE Trans. Plasma Sci*, Vol. 30, No. 1, pp. 158-159, 2002a.
- Laroussi M, Richardson J P, and Dobbs F C, " Effects of Non-Equilibrium Atmospheric Pressure Plasmas on the Heterotrophic Pathways of Bacteria and on their Cell Morphology", *Appl. Phys. Lett.*, Vol. 81, No. 4, pp. 772-774, 2002b.
- Laroussi M, " Non-Thermal Decontamination of Biological Media by Atmospheric Pressure Plasmas: Review, Analysis, and Prospects", *IEEE Trans. Plasma Sci.*, Vol. 30, No. 4, pp. 1409-1415, 2002 .
- Laroussi M and Leipold F, "Mechnisms of Inactivation of Bacteria by an Air Plasma", In. Proc. Int. Colloq. Plasma Processing, Juan les Pins, France, June 2003.
- Laroussi M, Mendis DA, and Rosenberg M, "Plasma Interaction with Microbes", *New Journal of Physics*, Vol. 5, pp. 41.1-41.10, 2003.
- Lerouge S, Werthheimer M R, Marchand R, Tabrizian M, Yahia L'H, " Effects of gas Composition on Spore Mortality and Etching During Low-Pressure Plasma Sterilization", *J. Biomed. Mater. Res.*, Vol. 51, pp. 128-135, 2000.
- Mendis D A, Rosenberg M, and Azam F, " A Note on the Possible Electrostatic Disruption of Bacteria", *IEEE Trans. Plasma Sci.*, Vol. 28, No. 4, pp. 1304 – 1306, 2000.
- Moreau S, Moisan M, Barbeau J, Pelletier J, Ricard A, "Using the Flowing Afterglow of a Plasma to Inactivate Bacillus subtilis Spores: Influence of the Operating Conditions", *J. Appl. Phys.*, Vol. 88, pp. 1166-1174, 2000.
- Moisan M, Barbeau J, Moreau S, Pelletier J, Tabrizian M, and Yahia L'H, " Low Temperature Sterilization Using Gas Plasmas: A Review of the Experiments, and an Analysis of the Inactivation Mechanisms", *Int. J. Pharmaceutics*, Vol. 226, pp. 1-21, 2001.
- Montie T C, Kelly-Wintenberg K, and Roth J R, " An Overview of Research Using the One Atmosphere Uniform Glow Discharge Plasma (OAUGDP) for Sterilization of Surfaces and Materials", *IEEE Trans. Plasma Sci.*, Vol. 28, No. 1, pp. 41-50, 2000.
- Richardson J P, Dyer F F, Dobbs F C, Alexeff I, Laroussi M, " On the Use of the Resistive Barrier Discharge to Kill Bacteria: Recent Results", *In Proc. IEEE Int Conf. Plasma Science*, New Orleans, LA, 2000, p. 109.
- Scutze A, Jeong J Y, Babyan S E, Park J, Selwyn G S, and Hicks R F, "The Atmospheric Pressure Plasma Jet: A Review and Comparison to Other Plasma Sources", *IEEE Trans. Plasma Sci.*, Vol. 26, No. 6, pp. 1685-1694, 1998.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Yamamoto M, Nishioka M, and Sadakata M, "Sterilization Using a Corona Discharge with H₂O₂ Droplets and Examination of Effective Species", *In Proc. 15th Int. Symp. Plasma Chem.*, Vol. II, pp. 743-751, Orleans, France, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chapter 9, Section 9.10.4.

- Alberts B, *Molecular biology of the cell*, Garland Publishing, New York, 1994.
- Baeva M, Dogan A, Ehlbeck J, Pott A, Uhlenbusch J, CARS diagnostic and modeling of a dielectric barrier discharge, *Plasma Chemistry & Plasma Processing*, 19(4), 445-466, 1999.
- Brand CU, Blum A, Schlegel A, Farin G, Garbe C, Application of argon plasma coagulation in skin surgery, *Dermatology* 197, 152-157, 1998.
- Cohen GM, Caspases: the executioners of apoptosis, *Biochem. J.*, 326, 1-16, 1997.
- Coolen S, Antipirine Hydroxylates as Indicators for Oxidative Damage, PhD Thesis, Eindhoven University of Technology, 2000.
- D'Arsonval A, Action physiologique des courants alternatifs a grand frequence, *Archives Physiol. Norm. Path.* 5, 401-408, 1893.
- Gabriel S, Lau RW, Gabriel C, The dielectric properties of biological tissues. 2. Measurements in the frequency range 10Hz to 20GHz, *Physics in Medicine and Biology* 41(11), 2251-69, 1996.
- Guyton AC, Hall JE, *Textbook of medical physiology*, W.B. Saunders Company, 2000.
- Laroussi M, Non-Thermal Decontamination of Biological Media by Atmospheric Pressure Plasmas: Review, Analysis, and Prospects, *IEEE Trans. Plasma Sci.* 30(4), 1409-1415, 2002 .
- Lu XP, Laroussi M, Ignition phase and steady-state structures of a non-thermal air plasma, *J. Phys. D: Appl. Phys.* 36(6), 661-665, 2003.
- Maat LPWM, Slager CJ, Van Herwerden LA, Schuurbijs JCH, Van Suylen RJ, Kofflard MJM, Ten Cate FJ, Bos E, Spark erosion myectomy in hypertrophic obstructive cardiomyopathy, *Annals Thoracic Surgery* 58(2), 536-540, 1994.
- Mohamed AAH, Block R, Schoenbach KH, Direct current glow discharges in atmospheric air, *IEEE Trans. on Plasma Sci.* 30(1), 182-183, 2002.
- Moisan M, Barbeau J, Moreau S, Pelletier J, Tabrizian M, and Yahia L'H, Low Temperature Sterilization Using Gas Plasmas: A Review of the Experiments, and an Analysis of the Inactivation Mechanisms, *Int. J. Pharmaceutics* 26, Vol. 226, 1-21, 2001.
- Moon SY, Choe W, A comparative study of rotational temperatures using diatomic OH, O₂ and N₂⁺ molecular spectra emitted from atmospheric plasmas, *Spectrochimica Acta B - Atomic Spectroscopy* 58(2-3), 249-257, 2003.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Motret O, Hibert C, Pellerin S, Pouvesle JM, Rotational temperature measurements in atmospheric pulsed dielectric barrier discharge - gas temperature and molecular fraction effects, *J. Phys. D: Appl. Phys.* 33(12), 1493-1498, 2000.
- Park J, Henins I, Herrmann HW, Selwyn GS, Hicks RF, Discharge phenomena of an atmospheric pressure radio-frequency capacitive plasma source *J. Appl. Phys.* 89(1), 20-28, 2001.
- Polk C, Postow E. (eds) *Handbook of Biological Effects of Electromagnetic Fields*, CRC press, 1995
- Reilly JP, *Electrical Stimulation and Electropathology*, Cambridge Univ. Press, Cambridge UK, 1992
- Ross R, Atherosclerosis – an inflammatory disease, *The New England Journal of Medicine*, 340(2), 115-126, 1999.
- Slager CJ, Essed CE, Schuurbiens JCH, Bom N, Serruys PW, Meester GT, Vaporisation of atherosclerotic plaques by spark erosion, *Journal of the American College of Cardiology* 5(6), 1382-1386, 1985.
- Stalder KR, Woloszko J, Brown IG, Smith CD, Repetitive plasma discharges in saline solutions, *Appl. Phys. Lett.* 79, 4503-4505, 2001.
- Stoffels E, Flikweert AJ, Stoffels WW, Kroesen GMW, Plasma needle: a non-destructive atmospheric plasma source for fine surface treatment of (bio)materials, *Plasma Sources Sci. Technol.* 11: 383-388, 2002.
- Stoffels E, Kieft IE, Sladek REJ, Superficial treatment of mammalian cells using plasma needle, *J. Phys. D: Appl. Phys.* 36, 2908-2913, 2003.
- Toshifuji J, Katsumata T, Takikawa H, Sakakibara T, Shimizu I, Cold arc-plasma jet under atmospheric pressure for surface modification, *Surface & Coatings Technology* 171(1-3), 302-306, 2003.
- Woloszko J, Stalder KR, Brown IG, Plasma characteristics of repetitively-pulsed electrical discharges in saline solutions used for surgical procedures, *IEEE Trans. Plasma Sci.* 30, 1376-1383, 2002.

Additional References

Atmospheric Pressure Air Chemistry

Organized by Journal

ACTA Physica Slovaca

Černák, M., J. Skalný, S. Veis, and D Dindošová, "Dependence of Negative Corona Current in Air Upon Ozone Density," ACTA Phys. Slov., Vol 29, No 2, pp 97-102, 1979

Advances in Atomic and Molecular Physics Series (Academic Press Series)

Takayangi, K, and Y. Itikawa, "The Rotational Excitation of Molecules by Slow Electrons," Advances in Atomic and Molecular Physics Series, Vol 6, pp 105-153, 1970.

Advances in Chemistry Series

Fessenden, R. W., and J. M. Warman, "The Study of Electron Decay in Pulse-Irradiated Gases by a Microwave Technique," Advances in Chemistry Ser, No 81-82, No 2, pp 222-230, 1967.

The Aeronautical Journal

Elsenaar, A., "Vortex Formation and Flow Separation: the Beauty and the Beast in Aerodynamics," The Aeronautical Journal, Vol 104, No 1042, pp 615-633, Dec, 2000.

AGARD

North Atlantic Treaty Organization Advisory Group for Aerospace Research and Development

Muntz, E. P., The Electron Beam Fluorescence Technique, AGARDograph 132, Clearinghouse for Federal Scientific and Technical Information (CFSTI), Springfield, Virginia, p 112, Dec, 1968.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

AIAA Conference Papers

- Laux, C. O., R. J. Gessman, and C. H. Kruger, "Mechanisms of Ionizational Nonequilibrium in Air and Nitrogen Plasmas," AIAA 95-1989, p 9, June, 1995.
- Laux, C. O., R. J. Gessman, B. Hilbert, and C. H. Kruger, "Experimental Study and Modeling of Infrared Air Plasma Radiation," AIAA 95-2124, p 13, June, 1995.
- Gordiets, B. F., and C. M. Ferreira, "Self-Consistent Modeling of Volume and Surface Processes in Air Plasma," AIAA 97-2504, p 11, Jun, 1997.
- Leonov, S., V. Bityurin, K. Savelkin, and D. Yarantsev, "Effect of Electrical Discharge on Separation Processes and Shocks Position in Supersonic Airflow," AIAA 2002-0355, p 11, Jan, 2002.
- Kuranov, A. L., and E. G. Sheikin, "MHD Control on Hypersonic Aircraft Under "AJAX" Concept. Possibilities of MHD Generator," AIAA 2002-0490, p 11, Jan, 2002.
- Chauveau, S. M., J. D. Kelley, C. O. Laux, and C. H. Kruger, "Vibrationally Specific Modeling of Nonequilibrium Effects in Air Plasmas," AIAA 2003-0137, p 13, Jan, 2003.
- Roth, J. R., H. Sin, and R. C. Madhamn, "Flow Re-Attachment and Acceleration by Paraelectric and Peristaltic Electrohydrodynamic (EHD) Effects," AIAA 2003-531, p 12, Jan, 2003.
- Machala, Z., C. O. Laux, X. Duten, D. M. Packan, L. Yu, and C. H. Kruger, "Scaled-Up Nonequilibrium Air Plasma," AIAA 2003-874, p 15, Jan, 2003.
- Vidmar, R. J., and K. R. Stalder, "Air Chemistry and Power to Generate and Sustain Plasma: Plasma Lifetime Calculations," AIAA 2003-1189, p 8, Jan, 2003.
- Vidmar, R. J., and K. R. Stalder, "Electron-Beam Generated Plasma in Air: Pulsed and Continuous Generation," AIAA 2004-359, p 8, Jan, 2004.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

AIAA Journal

- Pigache, D. R., "A Laboratory Simulation of the Ionospheric Plasma," AIAA Journal, Vol 11, No 2, pp 129-130, Feb, 1973.
- Adamovich, I. V., S. O. Macheret, J. W Rich, and C. E. Treanor, "Vibrational Relaxation and Dissociation Behind Shock Waves Part 1: Kinetic Rate Models," AIAA Journal, Vol 33, No 6, pp 1064-1069, June, 1995.
- Laux, C. O., R. J. Gessman, and C. H. Kruger, "Ionizational Nonequilibrium Induced by Neutral Chemistry in Air Plasmas," AIAA Journal, Vol 34, No 8, pp 1745-1747, Aug, 1996.
- Adamovich, I. V., V. V. Subramaniam, and J. W Rich, "Phenomenological Analysis of Shock-Wave Propagation in Weakly Ionized Plasmas," AIAA Journal, Vol 36, No 5, pp 816-822, May, 1998.
- Gordiets, B. F., and C. M. Ferreira, "Self-Consistent Modeling of Volume and Surface Processes in Air Plasma," AIAA Journal, Vol 36, No 9, pp 1643-1651, Sep, 1998.
- Roth, J. R., and D. M. Sherman, "Electrohydrodynamic Flow Control with a Glow-Discharge Surface Plasma," AIAA Journal, Vol 38, No 7, pp 1166-1172, July, 2000.

Annales de Géophysique

- Phelps, A. V., "Collision Cross Sections for Electrons with Atmospheric Species," Ann Géophys, t 28, fasc 3, 1972, p 611 à 625, (pp 1-15, 1972).
- Pavlov, A. V., "New Electron Energy Transfer Rates for Vibrational Excitation of N₂," Annales Geophysicae, Vol 16, Issue 2, pp 176-182, 1998.
- Pavlov, A. V., "New Electron Energy Transfer and Cooling Rates by Excitation of O₂," Annales Geophysicae, Vol 16, Issue 8, pp 1007-1013, 1998.
- Pavlov, A. V., and K. A. Berrington, "Cooling Rate of Thermal Electrons by Electron Impact Excitation of Fine Structure Levels of Atomic Oxygen," Annales Geophysicae, Vol 17, Issue 7, pp 919-924, 1999.

Applied Optics

- Karl, R. R., "Multiple Pulse Relativistic Electron Beam Energy Loss by Photometric Observation of Fluorescence from Atmospheric Propagation," Applied Optics, Vol 28, No 3, pp 446-450, Feb, 1989.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Applied Physics Letters

- Fenstermacher, C. A., M. J. Nutter, W. T. Leland, and K. Boyer, "Electron-Beam-Controlled Electrical Discharges as a Method of Pumping Large Volumes of CO₂ Laser Media at High Pressure," *Applied Physics Letters*, Vol 20, No 2, pp 56-60, 15 Jan 1972.
- Smith, R. C., "Computed Secondary-Electron and Electric Field Distributions in an Electron-Beam-Controlled Gas-Discharge Laser," *Applied Physics Letters*, Vol 21, No 8, pp 352-355, 15 Oct 1972.
- Wiegand, W. J., and W. L. Nighan, "Plasma Chemistry of CO₂-N₂-He Discharges," *Applied Physics Letters*, Vol 22, No 11, pp 583-586, 1 June 1973.
- Ishikawa, T., D. Hayashi, K. Sasaki, and K. Kadota, "Determination of Negative Ion Density with Optical Emission Spectroscopy in Oxygen Afterglow Plasmas," *Applied Physics Letters*, Vol 72, No 19, pp 2391-2393, 11 May 1998.
- Katsch, H. M., A. Goehlich, T. Kawetzki, E. Quandt, and H. F. Döbele, "Attachment-Induced Ionization Instability of a Radio Frequency Excited Discharge in Oxygen," *Applied Physics Letters*, Vol 75, No 14, pp 2023-2025, Oct, 1999.
- Berezhnoj, S. V., C. B. Shin, U. Buddemeier, and I. Kaganovich, "Charged Species Profiles in Oxygen Plasma," *Applied Physics Letters*, Vol 77, No 6, pp 800-802, Aug, 2000.
- Schmiedberger, J, and H. Fujii, "Radio-Frequency Plasma Jet Generator of Singlet Delta Oxygen with High Yield," *Applied Physics Letters*, Vol 78, No 18, pp 2649-2651, 30 April 2001.

Atomic Data

- Pages, L. E., E. Bertel, H. Joffre, and L. Sklavenitis, "Energy Loss, Range, and Bremsstrahlung Yield for 10-keV to 100-MeV Electrons," *Atomic Data*, Vol 4, No 1, pp 1-127, Mar, 1972.
- Albritton, D. L., *Atomic Data and Nuclear Data Tables, Ion-Neutral Reaction-Rate Constants Measured in Flow Reactors Through 1977*, Vol 22, No 1, July, 1978.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Australian Journal of Physics

- Milloy, H. B., I. D. Reid, and R. W. Crompton, "Zero-field Mobility for Electrons in Dry and Humid Air," *Aust. J. Phys.*, Vol 28, No 2, pp 231-234, 1975.
- Reid, I. D., and R. W. Crompton, "The Drift Velocity of Low Energy Electrons in Oxygen at 293 K," *Aust. J. Phys.*, Vol 33, No 2A, pp 215-226, May, 1980.
- Hegerberg, R., and I. D. Reid, "Electron Drift Velocities in Air," *Aust. J. Phys.*, Vol 33, No 2A, pp 227-230, May, 1980.
- Kumar, K., H. R. Skullerud, and R. E. Robson, "Kinetic Theory of Charged Particle Swarms in Neutral Gases," *Aust. J. Phys.*, Vol 33, No 2B, pp 343-448, July, 1980.
- Sato, N., and S. C. Haydon, "Observation and Analysis of Nanosecond Time-Resolved R.F. Corona in Air and Comparison to N₂," *Aust. J. Phys.*, Vol 40, No 4, pp 527-545, 1987.
- Morrow, R., and J. J. Lowke, "Electrical Breakdown in Air and in SF₆," *Aust. J. Phys.*, Vol 48, No 3, pp 453-460, 1995.

Canadian Journal of Chemistry

- Fehsenfeld, F. C., and D. L. Albritton, "Associative-Detachment Reactions of O⁻ and O₂⁻ by O₂(¹Δ_g)," *Canadian Journal of Chemistry*, Vol 47, No ?, pp1793-1795, 1969.

Canadian Journal of Physics

- Carruthers, J. A., "Conductivity of Electrons in Gases Weakly Ionized by X Rays," *Canadian Journal of Physics*, Vol 40, No 11, pp1528-1536, Nov, 1962.
- Ali, A. A., E. A. Ogryzlo, Y. Q. Shen, and P. T. Wassell, "The Formation of O₂(a¹Δ_g) in Homogeneous and Heterogeneous Atom Recombination," *Canadian Journal of Physics*, Vol 64, No 12, pp1614-1620, Dec, 1986.
- Liu, J., and G. R. Govinda Raju, "Calculation of Electron Swarm Parameters in Oxygen Using a Rigorous Boltzmann Equation Analysis," *Canadian Journal of Physics*, Vol 70, No 4, 216-224, April, 1992.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chemical Physics

- Beenakker, C. I. M., F. J. De Heer, H. B. Krop, and G. R. Möhlmann, "Dissociative Excitation of Water by Electron Impact," *Chemical Physics*, Vol 6, No ???, pp 445-454, Month ?, 1974.
- Loureiro, J., "Dissociation Rate and N(⁴S) Atom Concentrations in a N₂ Glow-Discharge," *Chemical Physics*, Vol 157, No 1-2, pp 157-168, 1 Nov 1991.
- Kreil, J., M.-W. Ruf, H. Hotop, I. Ettischer, and U. Buck, "Threshold Electron Attachment and Electron Impact Ionization Involving Oxygen Dimers," *Chemical Physics*, Vol 239, No 1-3, pp 459-473, Dec, 1998.
- Hubschmid, W., and B. Hemmerling, "Relaxation Processes in Singlet O₂ Analyzed by Laser-Induced Gratings," *Chemical Physics*, Vol 259, Issue 1, pp 109-120, 1 Sept 2000.

Chemical Physics Letters

- Findlay, F. D., C. J. Fortin, and D. R. Snelling, "Deactivation of O₂(a¹Δ_g)," *Chemical Physics Letters*, Vol 3, No 4, pp 204-206, April, 1969.
- Aleksandrov, N. L., "Three-Body Electron Attachment to O₂(a¹Δ_g)," *Chemical Physics Letters*, Vol 212, No 3,4, pp 409-412, Sept, 1993.
- Matejcek, S., P. Cicman, A. Kiendler, J. D. Skalny, E. Illenberger, A. Stamatovic, and T. D. Märk, "Low-Energy Electron Attachment to Mixed Ozone/Oxygen Clusters," *Chemical Physics Letters*, Vol 261, No 4,5, pp 437-442, Oct, 1996.
- Laricchiuta, A., R. Celiberto, M. Capitelli, "Electron Impact Cross-Sections for Electronic Excitation of Vibrationally Excited O₂ to B³Σ_u⁻ State," *Chemical Physics Letters*, Vol 329, No 5-6, pp 526-532, 27 Oct 2000.
- Coletti, C., and G. D. Billing, "Vibrational Energy Transfer in Molecular Oxygen Collisions," *Chemical Physics Letters*, Vol 356, No 1-2, pp 14-22, 15 April 2002.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Chemical Reviews

Caledonia, G. E., "A Survey of the Gas-Phase Negative Ion Kinetics of Inorganic Molecules. Electron Attachment Reactions," *Chemical Reviews*, Vol 75, No ???, pp 333-352, ???, 1975.

Comments At. Mol. Phys.

Kimura, M., and M. Inokuti, "Subexcitation Electrons in Molecular Gases," *Comments At. Mol. Phys.*, Vol 24, No 5, pp 269-286, 1990.

Contributions to Plasma Physics

Scheier, P. and T. D. Märk, "Unimolecular Decay of Metastable Cluster Anions: $(\text{O}_2)_n^* \rightarrow (\text{O}_2)_{n-1}^- + \text{O}_2$," *Contrib. Plasma Phys.*, Vol 30, No 6, pp 749-753, 1990.

Khvorostovskaya, L. E., and V. A. Yankovsky, "Negative Ions, Ozone, and Metastable Components in DC Oxygen Glow Discharge," *Contrib. Plasma Phys.*, Vol 31, No 1, pp 71-88, 1991.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Czechoslovak Journal of Physics

Brežná, E., and Š. Veis, "Study of Recombination - Processes in a Late Stage of a Spark Discharge," Czechoslovak Journal of Physics, Vol B25, pp 859-863, 1975.

Mašek, K., L. Láška, and T. Růžička, "Electron Collision Rates in Oxygen Glow Discharge," Czechoslovak Journal of Physics, Vol B28, pp 1321 – 1331+??, 1978.

Láška, L., K. Mašek, and T. Růžička, "Numerical Analysis of Glow Discharge in Oxygen," Czechoslovak Journal of Physics, Vol B29, pp 498-511, 1979.

Cicman, P., M. Francis, J. D. Skalny, S. Matejčík, T. D. Märk, "The Rate Constant for Dissociative Electron Attachment to Ozone Revisited," Czechoslovak Journal of Physics, Vol 53, No 3, pp 181-272, 2003.

Geophysical Research Letters

Zipf, E. C., "The Dissociative Recombination of Vibrationally Excited N_2^+ Ions," Geophysical Research Letters, Vol 7, No 9, pp 645-648, Sept, 1980.

Pasko, V. P., U. S. Inan, Y. N. Taranenkov, and T. F. Bell, "Heating, Ionization and Upward Discharges in the Mesosphere Due to Intense Quasi-Electrostatic Thundercloud Fields," Geophysical Research Letters, Vol 22, No 4, pp 365-368, 15 Feb, 1995.

Dwyer, J. R., "A Fundamental Limit on Electric Fields in Air," Geophysical Research Letters, Vol 30, No 20, Article 2055, 25 Oct 2003.

Health Physics

Bortner, T. E., and G. S. Hurst, "An Apparatus for Measuring Electron Attachment: Results for Oxygen in Argon," Health Physics, Vol 1, pp 39-45, 1958.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

High Temperature Translated from *Teplofizika Vysokikh Temperatur*

- Ul'yanov, K. N., "The Electron Velocity Distribution in a Nonequilibrium Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 4, No 3, pp 309-317, May-Jun, 1966.
- Biberman, L. M., and G. E. Norman, "Possibility of the Existence of a Supercooled Dense Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 7, No 5, pp 767-775, Sept-Oct, 1969.
- Biberman, L. M., V. S. Vorob'ev, and I. T. Yakubov, "Nonequilibrium Low-Temperature Plasma. IV. The ionization and Recombination Functions," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 7, No 4, pp 543-552, July-Aug, 1969.
- Vargin, A. N., O. A. Golubev, and O. A. Malkin, "Emission in the Vacuum UV by a Molecular-Gas Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 12, No 5, pp 825-830, Sept-Oct, 1974.
- Asinovskii, É. I., L. M. Vasilyak, A. V. Kirillin, and V. V. Markovets, "Nanosecond Discharge in a Weakly Ionized Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 13, No 1, pp 32-35, Jan-Feb, 1975.
- Kruzhilin, N. A., and I. T. Yakubov, "Ionization by Electron Impact in Nonequilibrium Plasma in Electric Field," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 13, No 1, pp 157-159, Jan-Feb, 1975.
- Golubev, V. F., and M. M. Malikov, "Ionization Wave of a Glow Discharge in a Turbulent Air Flow," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 13, No 3, pp 587-589, May-June, 1975.
- Kirsanov, N. V., "Solution of the One-Dimensional Transfer Equation in an Absorbing and Radiating Gas by the Method of Discrete Angular Subdivision," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 14, No 1, pp 105-108, Jan-Feb, 1976.
- Bushmin, A. S., and L. M. Dmitriev, "Distribution of Electron Energy Losses in a Gas-Discharge Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 14, No 2, pp 243-246, March-April, 1976.
- Novikova, T. I., and A. I. Osipov, "Thermodynamic Description of Vibrational Relaxation in Binary Mixtures of Diatomic Molecules," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 14, No 2, pp 246-251, March-April, 1976.
- Radtsig, A. A., and B. M. Smirnov, "Mobility of Diatomic Molecular Ions in a Gas of the Same Element," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 14, No 4, pp 611-614, July-Aug, 1976.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Aleksandrov, N. L., Mechanism of Electron Binding to Oxygen Molecules in Nitrogen Plasma," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 16, No 2, pp 192-195, March-April, 1978.
- Aleksandrov, N. L., "Three-Body Electron Attachment to Oxygen Molecules in a Gas Discharge," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 16, No 4, pp 617-620, July-Aug, 1978.
- Aleksandrov, N. L., "Destruction of NO^- Ions During Collision with Excited Molecules," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 16, No 5, pp 928-930, Sept-Oct, 1978.
- Aleksandrov, N. L., A. M. Konchakov, and É. E. Son, "Excitation of Electronic Levels in a Gas-Discharge Nitrogen Plasma," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 17, No 1, pp 179-181, Jan-Feb, 1979.
- Bazhenova, T. V., L. Yu. Dzagurov, and Yu. S. Lobastov, "Effect of Dependence of Collision Cross Section on Electron Velocity of Interaction of Radiowaves with an Air Plasma," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 17, No 5, pp 763-767, Sept-Oct, 1979.
- Bychkov, V. L., and A. V. Eletsii, "Constriction of Discharges in Electronegative Molecular Gases," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 17, No 6, pp 951-958, May, 1980.
- Lappo, G. B., M. M. Prudnikov, and V. G. Chicherin, "Electron Distribution Function of Air Plasma Produced by a Beam of Fast Electrons," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 18, No 4, pp 527-531, July-Aug, 1980.
- Aleksandrov, N. L., "Breakup of O_2^- Ions in Collisions with Molecules," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 18, No 5, pp 690-694, Sept-Oct, 1980.
- Son, É. E., "Energy Distribution Function of Electrons and Rate of Three-Body Adhesion to Oxygen When an Ionization Source Acts on the Gas," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 19, No 1, pp 12-17, Jan-Feb, 1981.
- Aleksandrov, N. L., F. I. Vysikailo, R. Sh. Islamov, I. V. Kochetov, A. P. Napartovich, and V. G. Pevgov, "Electron Distribution Function in 4:1 $\text{N}_2\text{-O}_2$ Mixture," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 19, No 1, pp 17-21, Jan-Feb, 1981.
- Gavrilova, T. V., "Total Emission Coefficient of a Dense Air Plasma," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 19, No 3, pp 313-317, May-June, 1981.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Aleksandrov, N. L., F. I. Vysikailo, R. Sh. Islamov, I. V. Kochetov, A. P. Napartovich, and V. G. Pevgov, "A Theoretical Model for a Discharge in an $N_2:O_2 = 4:1$ Mixture," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 19, No 3, pp 342-346, May-June, 1981.
- Barkalov, A. D., and G. G. Gladush, "Domain Instability of a Non-Self-Sustaining Discharge in Electronegative Gases. I. Numerical Calculations," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 20, No 1, pp 16-22, Jan-Feb, 1982.
- Akisev, Yu. S., A. V. Dem'yanov, I. V. Kochetov, A. P. Napartovich, S. V. Pashkin, V. V. Ponomarenko, V. G. Pevgov, and V. B. Podobedov, "Determination of Vibrational Exchange Constants in N_2 from Heating of Gas," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 20, No 5, pp 658-666, Sept-Oct, 1982.
- Londer, Ya. I., K. N. Ul'yanov, and V. A. Fedorov, "Effects of Ionization Inhomogeneity on the Charged-Particle Balance in a Non-Self-Maintaining Discharge in Oxygen," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 20, No 5, pp 679-684, Sept-Oct, 1982.
- Baranov, V. Y., R. K. Bevov, F. I. Vysikailo, A. P. Napartovich, and S. V. Khomenko, "Effect of Water Vapor on an Externally Maintained Gas Discharge," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 20, No 6, pp 815-819, Nov-Dec, 1982.
- Gorbatov, A. V., and E. V. Samuilov, "Electromagnetic Wave Damping in a Nonequilibrium Aerosol Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 21, No 1, pp 15-19, Jan-Feb, 1983.
- Gorelov, V. A., L. A. Kil'dyushova, and V. M. Chernyshev, "Measurement of Air Ionization Behind Intense Shock Waves," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 21, No 3, pp 335-339, May-Jun, 1983.
- Zaitsev, V. V., R. I. Golubenets, V. V. Kulikov, A. S. Prikhod'ko, and V. A. Savel'ev, "Electron-Energy Distributions and the Rates of Inelastic Processes in an Inhomogeneous Positive Column in an $N_2 + O_2$ Mixture," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 21, No 4, pp 473-478, July-Aug, 1983.
- Aleksandrov, N. L., and A. M. Konchakov, "Thee Effects of Vibrational Excitation on the Rate of Attachment of Electrons to O_2 Molecules in a Gas Discharge," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 22, No 2, pp 205-208, Mar-Apr, 1984.
- Golubovskii, Y. B., and V. M. Telezhko, "Ionization Processes in a Nitrogen Discharge at Medium Pressures," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 22, No 3, pp 340-348, May-June, 1984.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Sopin, P. I., "Electron Energy Balance in a Non-Self-Sustaining Gas Discharge," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 23, No 2, pp 185-189, March-April, 1985.
- Mnatsakanyan, A. Kh., and G. V. Naidis, "The Vibrational-Energy Balance in a Discharge in Air," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 23, No 4, pp 506-513, July-Aug, 1985.
- Aleksandrov, N. L., I. V. Kochetov, and A. P. Napartovich, "Electron-Level Excitation in Molecules with High Ground-State Vibrational Levels," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 23, No 5, pp 666-669, Sept-Oct, 1984. (year is probably 1985)
- Zhukovitskii, D. I., "Resonant Electromagnetic-Wave Absorption in a Plasma Containing a Dispersed Condensed Phase," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 23, No 6, pp 814-821, Nov-Dec, 1985.
- Aleksandrov, N. L., and V. I. Kucherenko, "Resonant Electron Scattering by $^{18}\text{O}_2$," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 24, No 3, pp 303-306, May-Jun, 1986.
- Aleksandrov, N. L., and V. L. Bychkov, "Formation and Destruction of NO^- in Collisions with Molecules," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 24, No 4, pp 472-478, July-Aug, 1986.
- Anders, A., S. Anders, I. B. Timofeev, and U. Yusupaliev, "Dynamic Characteristics of a Dense Plasma Jet in the Atmosphere," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 25, No 3, pp 338-343, May-Jun, 1987.
- Aleksandrov, N. L., and I. V. Kochetov, "Effect of Vibrational Excitation on the Electron Process Rates in a Weakly Ionized Plasma of Molecular Gases and Gaseous Mixtures," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 25, No 6, pp 766-771, Nov-Dec, 1987.
- Aleksandrov, A. F., I. B. Timofeev, V. A. Chernikov, and U. Yusupaliev, "Toroidal Plasma Vortex in Air," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 26, No 4, pp 475-479, July-Aug, 1988.
- Raizer, Y. P., and M. N. Shneider, "Electrodeless Capacitive Discharge Sustained by Repetitive High-Voltage Pulses," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 27, No 3, pp 329-335, May-June, 1989.
- Valuev, A. A., P. I. Sopin, and G. A. Sorokin, "Space-Charge Fields of Strong-Current Relativistic Electron Beams and Dynamics of their Compensation in a Dense Gas," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 27, No 4, pp 498-505, July-Aug, 1989.
- Aleksandrov, A. F., K. Sh. Isaev, and V. A. Chernikov, "Determination of the Temperature of an Erosion-Plasma Jet Effusing into Air," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 28, No 4, pp 486-489,

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

July-Aug, 1990.

- Vasil'eva, A. N., K. S. Gulyaev, A. S. Kovalev, and D. V. Lopaev, "Effectiveness of the Formation of Singlet Oxygen in a Non-Self-Maintaining Discharges in Mixtures of O₂ with Noble Gases," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 29, No 1, pp 54-57, 1991.
- Aleksandrov, N. L., and A. M. Konchakov, "Electron Attachment to N₂O Molecules in Weakly Ionized Plasmas," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 29, No 6, pp 850-855, Nov-Dec, 1991.
- Bychkov, V. L., and V. A. Yurovskii, "Modelling of Beam Plasmas in Water Vapor," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 31, No 1, pp 7-18, Jan-Feb, 1993.
- Bazelyan, A. E., and E. M. Bazelyan, "A Cathode-Directed Streamer in the Air for Voltage Pulses with a Nanosecond Front," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 31, No 6, pp 799-805, 1993.
- Bychkov, V. L., A. Y. Gridin, and A. I. Klimov, "On the Nature of Artificial Ball Lightnings. Part 1: Investigation of the Structure and Physical Properties of Polymer Plasmoids in the Atmosphere," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 32, No 2, pp 179-183, 1994.
- Popov, N. A., "Investigation of the Instability of Non-Self-Maintained Microwave Discharge in Nitrogen-Oxygen Mixtures," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 32, No 2, pp 166-171, 1994.
- Bazelyan, A. E., and E. M. Bazelyan, "The Parameters of a Cathode-Directed Streamer Plasma in Air: The Effect on Current and Propagation Velocity," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 32, No 3, pp 332-340, 1994.
- Golovin, Y. M., G. B. Lappo, and M. M. Prudnikov, "Experimental and Theoretical Study of Emission from Weakly Ionized Air Plasma Generated by an Electron Beam," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 32, No 4, pp 458-467, 1994.
- Rybkin, V. V., A. B. Bessarab, and A. I. Maksimov, "Numerical Simulation of a Positive Column of Glow Discharge in Oxygen," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 33, No 2, pp 184-189, 1995.
- Babich, L. P., "The Bistability of an Ensemble of Electrons Interacting with a Dense Gas of Neutral Particles in the Electric Field: The Application to the Field of Thunderclouds," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 33, No 5, pp 653-656, 1995.
- Rybkin, V. V., A. B. Bessarab, and A. I. Maksimov, "Analysis of the Gas Heating Sources in the Positive Column of a Glow Discharge in Oxygen," High Temperature (Translated from Teplofizika Vysokikh Temperatur), Vol 34, No 2, pp 175-180, 1996.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Glushko, A. I., N. N. Pilyugin, and V. M. Tarutin, "The Effect of NH_3 and H_2 Additives on the Reduction of the Electron Number Density in an Air Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 34, No 4, pp 500-505, 1996.
- Shibkov, V. M., "Free-Localized Pulse-Periodic Microwave Discharge in Air. Electric Field Strength in Plasma," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 34, No 4, pp 519-524, 1996.
- Kuzovnikov, A. A., V. M. Shibkov, and L. V. Shibkova, "The Kinetics of Charged Particles in a Free-Localized Pulse-Periodic Microwave Discharge in Air," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 34, No 5, pp 651-655, 1996.
- Kuznetsov, D. L., G. A. Mesyats, and Y. N. Novoselov, "Removal of Sulfur Oxide from Stack Gas by Pulsed Electron-Beam Irradiation," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 34, No 6, pp 833-840, 1996.
- Sinkevich, O. A., "Long-Lived Plasma Formations and Problems Associated with Ball Lightning," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 35, No 4, pp 639-652, 1997.
- Kunin, V. N., V. S. Pleshivtsev, and L. V. Furov, "Experimental Studies of the Nature of Ball Lightning," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 35, No 6, pp 853-857, 1997.
- Sinkevich, O. A., "Long-Lived Plasma Formations and Problems Associated with Ball Lightning, Part 2," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 35, No 6, pp 955-969, 1997.
- Aleksandrov, N. L., E. M. Bazelyan, I. V. Kochetov, and G. A. Novitskii, "Nonequilibrium Effects in the Plasma of Hot Air at Atmospheric Pressure in Electric Field," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 36, No 6, pp 966-968, 1998.
- Kuznetsov, Y. E., V. V. Skvortsov, and A. A. Uspenskii, "Investigation of the Problems Associated with the Development of a Glow Discharge on the Wing of an Aerodynamic Model," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 37, No 3, pp 484-487, 1999.
- Galushkin, M. G., V. S. Golubev, Y. N. Zavalov, V. E. Zavalova, and V. Y. Panchenko, "A Study of the Turbulent Characteristics of Thermodynamically Nonequilibrium Flow of Molecular Gas," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 37, No 5, pp 676-684, 1999.
- Mironychev, P. V., and L. P. Babbich, "Propagation of an Electron Beam in Atmosphere at Altitudes from 15 to 100 km: Numerical Experiment," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 38, No 6, pp 834-842, 2000.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Shuvalov, V. A., A. E. Churilov, and M. G. Bystritskii, "Diagnostics of Flows of Pulsed Plasma by Probe, Microwave, and Photometric Methods," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 38, No 6, pp 843-847, 2000.
- Sinkevich, O. A., and V. E. Sosnin, "Singularities of Ionization-Field Instability and Structurization of Plasma of High-Pressure Non-Self-Maintained Free-Localized Discharge in the Field of a Quasi-Monochromatic Microwave," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 39, No 2, pp 180-194, 2001.
- Kashevarov, A. V., "The Characteristic of a Probe in Moving Collisional Plasma for the Flow Stagnation Point," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 39, No 3, pp 355-360, 2001.
- Protasevich, E. T., "Cold Nonequilibrium Plasma and the Reduction of Current Neutralization of a High-Current Electron Beam," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 39, No 6, pp 932-934, 2001.
- Smirnov, S. A., V. V. Rybkin, and I. V. Kholodkov, "Simulation of the Processes of Formation and Dissociation of Neutral Particles in Air Plasma: Vibrational Kinetics of Ground States of Molecules," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 40, No 2, pp 161-165, 2002.
- Smirnov, S. A., V. V. Rybkin, I. V. Kholodkov, and V. A. Titov, "Simulation of the Processes of Formation and Dissociation of Neutral Particles in Air Plasma: Kinetics of Neutral Components," High Temperature (Translated from *Teplofizika Vysokikh Temperatur*), Vol 40, No 3, pp 323-330, 2002.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

IEEE Journal of Quantum Electronics

Stratton, T. F., G. F. Erickson, C. A. Fenstermacher, and E. O. Swickard, "WA7-Electron-Beam-Controlled CO₂ Laser Amplifiers," IEEE Journal of Quantum Electronics, Vol-QE-9, No 1, pp 157-163, Jan, 1973.

IEEE Transactions on Dielectrics and Electrical Insulation

IEEE: The Institute of Electrical and Electronic Engineers

Hackam, R., and H. Akiyama, "Air Pollution Control by Electrical Discharges," IEEE Transactions on Dielectrics and Electrical Insulation, Vol 7, No 5, pp 654-683, Oct, 2000.

IEEE Transactions on Electrical Insulation

IEEE: The Institute of Electrical and Electronic Engineers

Wen, C., and J. M. Wetzer, "Electron Avalanches Influenced by Detachment and Conversion Processes," IEEE Transactions on Electrical Insulation, Vol 23, No 6, pp 999-1008, Dec, 1988.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

IEEE Transactions on Plasma Science

IEEE: The Institute of Electrical and Electronic Engineers

- Murray, C. S., J. J. Rocca, and B. Szapiro, "A Reflex Electron Beam Discharge as a Plasma Source for Electron Beam Generation," IEEE Transactions on Plasma Science, Vol 16, No 5, pp 570-573, Oct, 1988.
- Vidmar, R. J., "On the Use of Atmospheric Pressure Plasmas as Electromagnetic Reflectors and Absorbers," IEEE Transactions on Plasma Science, Vol 18, No 4, pp 733-741, Aug, 1990.
- Manheimer, W. M., "Plasma Reflectors for Electronic Beam Steering in Radar Systems," IEEE Transactions on Plasma Science, Vol 19, No 6, pp 1228-1234, Dec, 1991.
- Laroussi, M., and J. R. Roth, "Numerical Calculation of the Reflection, Absorption, and Transmission of Microwaves by a Nonuniform Plasma Slab," IEEE Transactions on Plasma Science, Vol 21, No 4, pp 366-372, Aug, 1993.
- Gordiets, B. F., C. M. Ferreira, V. L. Guerra, J. M. A. H. Loureiro, J. Nahorny, D. Pagnon, M. Touzeau, and M. Vialle, "Kinetic Model of a Low-Pressure N₂-O₂ Flowing Glow Discharge," IEEE Transactions on Plasma Science, Vol 23, No 4, pp 750-768, Aug, 1995.
- Hoshi, Y., H. Yoshida, K. Yamanaka, and Y. Usui, "Time Delay in Laser-Guided Discharge at Low Air Pressure," IEEE Transactions on Plasma Science, Vol 24, No 3, pp 1137-1146, June, 1996.
- Laroussi, M., "Sterilization of Contaminated Matter with an Atmospheric Pressure Plasma," IEEE Transactions on Plasma Science, Vol 24, No 3, pp 1188-1191, June, 1996.
- Kulikovsky, A. A., "Production of Chemically Active Species in the Air by a Single Positive Streamer in a Nonuniform Field," IEEE Transactions on Plasma Science, Vol 25, No 3, pp 439-446, June, 1997.
- Kruger, C. H., T. G. Owano, and C. O. Laux, "Experimental Investigation of Atmospheric Pressure Nonequilibrium Plasma Chemistry," IEEE Transactions on Plasma Science, Vol 25, No 5, pp 1042-1051, Oct, 1997.
- Brandenburg, J. E., and J. F. Kline, "Experimental Investigation of Large-Volume PIA Plasmas at Atmospheric Pressure," IEEE Transactions on Plasma Science, Vol 26, No 2, pp 145-149, April, 1998.
- Laroussi, M., G. S. Saylor, B. B. Glascock, B. McCurdy, M. E. Pearce, N. G. Bright, and C. M. Malott, "Images of Biological Samples Undergoing Sterilization by a Glow Discharge at Atmospheric Pressure," IEEE Transactions on Plasma Science, Vol 27, No 1, pp 34-35, Feb, 1999.
- La Fontaine, B., F. Vidal, D. Comtois, C. Chien, A. Desparois, T. W. Johnston, J. Kieffer, H. P. Mercure, H. Pépin, and F. A. M. Rizk, "The Influence of Electron Density on

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- the Formation of Streamers in Electrical Discharges Triggered with Ultrashort Laser Pulses," IEEE Transactions on Plasma Science, Vol 27, No 3, pp 688-700, June, 1999.
- Ivanov, V. V., K. S. Klopovsky, D. V. Lopaev, A. T. Rakhimov, and T. V. Rakhimova, "Experimental and Theoretical Investigation of Oxygen Glow Discharge Structure at Low Pressures," IEEE Transactions on Plasma Science, Vol 27, No 5, pp 1279-1287, Oct, 1999.
- Aleksandrov, N. L., and E. M. Bazelyan, "The Effect of Initial NO Content on Spark Breakdown in High-Temperature Air," IEEE Transactions on Plasma Science, Vol 27, No 5, pp 1454-1457, Oct, 1999.
- Laroussi, M., I. Alexeff, and W. L. Kang, "Biological Decontamination by Nonthermal Plasmas," IEEE Transactions on Plasma Science, Vol 28, No 1, pp 184-188, Feb, 2000.
- Laroussi, M., I. Alexeff, J. P. Richardson, and F. F. Dyer, "The Resistive Barrier Discharge," IEEE Transactions on Plasma Science, Vol 30, No 1, pp 158-159, Feb, 2002.
- Alexeff, I., and M. Laroussi, "The Uniform, Steady-State Atmospheric Pressure DC Plasma," IEEE Transactions on Plasma Science, Vol 30, No 1, pp 174-175, Feb, 2002.
- Laroussi, M., "Nonthermal Decontamination of Biological Media by Atmospheric-Pressure Plasmas: Review, Analysis, and Prospects," IEEE Transactions on Plasma Science, Vol 30, No 4, pp 1409-1415, Aug, 2002.
- Laroussi, M., F. C. Dobbs, Z. Wei, M. A. Doblin, L. G. Ball, K. R. Moreira, F. F. Dyer, and J. P. Richardson, "Decontamination of Water by Excimer UV Radiation," IEEE Transactions on Plasma Science, Vol 30, No 4, pp 1501-1503, Aug, 2002.
- Kong, M. G., and X. T. Deng, "Electrically Efficient Production of a Diffuse Nonthermal Atmospheric Plasma," IEEE Transactions on Plasma Science, Vol 31, No 1, pp 7-18, Feb, 2003.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

International Journal of Infrared and Millimeter Waves

Laroussi, M., "Relationship Between the Number Density and the Phase Shift in Microwave Interferometry for Atmospheric Pressure Plasma," *International Journal of Infrared and Millimeter Waves*, Vol 20, No 8, pp 1501-1508, Aug, 1999.

Japanese Journal of Applied Physics

Sugiyama, T., "Attachment of Low-Energy Electrons to O₂-Molecules in Ar-N₂-O₂ Gaseous Mixtures," *Jpn. J. Appl. Phys.*, Vol 20, No 8, pp 1361-1370, Aug, 1981.

**Japanese Journal of Applied Physics Part 1
Regular Papers, Short Notes & Review Papers**

Jinno, M., M. Kubo, M. Aono, and R. Itatani, "The Effect of Oxygen on the Delay Time of Flashover by a Laser-Produced Plasma," *Jpn. J. Appl. Phys. Part 1*, Vol 36, No 5A, pp 2870-2873, May, 1997.

Shibata, M., T. Makabe, and N. Nakano, "A Novel Sustaining Mechanism in Capacitively Coupled Radio Frequency Plasma in Oxygen," *Jpn. J. Appl. Phys. Part 1*, Vol 37, No 7, pp 4182-4185, July, 1998.

Hayashi, D., and K. Kadota, "Efficient Production of O⁻ by Dissociative Attachment of Slow Electrons to Highly Excited Metastable Oxygen Molecules," *Jpn. J. Appl. Phys. Part 1*, Vol 38, No 1A, pp 225-230, Jan, 1999.

**Journal of Applied Mechanics and Technical Physics
Translated from Zhurnal Prikladnoi Mekhaniki I Tekhnicheskoi Fiziki**

Artamonov, A. S., V. A. Gorbunov, N. K. Kuksanov, and R. A. Salimov, "Propagation of a Steady Electron Beam in Air," *Journal of Applied Mechanics and Technical Physics (Translated from Zhurnal Prikladnoi Mekhaniki I Tekhnicheskoi Fiziki)*, Vol 22, No 1, pp 15-19, Jan-Feb, 1981.

Aleksandrov, N. L., A. P. Napartovich, and A. N. Starostin, "Electron Transport Coefficients in a Nonequilibrium Weakly Ionized Plasma in Electric and Magnetic Fields," *Journal of Applied Mechanics and Technical Physics (Translated from Zhurnal Prikladnoi Mekhaniki I Tekhnicheskoi Fiziki)*, Vol 25, No 3, pp 346-350, May-June, 1984.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Journal of Applied Physics

- Swain, D. W., "Ionization of a Background Gas by a Weak ($v/\gamma \ll 1$) Relativistic Electron Beam," J. Appl. Phys., Vol 43, No 2, pp 396-405, 2 Feb, 1972.
- Hammer, D. A., C. A. Kapetanacos, and M. Ury, "Formation of Ionization Channel in High-Pressure Gas Using Pulsed Relativistic Electron Beam," J. Appl. Phys., Vol 44, No 3, pp 1121-1127, March, 1973.
- Jacob, J. H., "Penetration and Energy Deposition of Electrons in Thick Targets," J. Appl. Phys., Vol 45, No 1, pp 467-475, Jan, 1974.
- Kline, L. E., "Effect of Negative Ions on Current Growth and Ionizing Wave Propagation in Air," J. Appl. Phys., Vol 46, No 5, pp 1994-2000, May, 1975.
- Davies, D. K., "Analysis of Current Growth Measurements in Attaching Gases," J. Appl. Phys., Vol 47, No 5, pp 1916-1919, May, 1976.
- Suhre, D. R., and J. T. Verdeyen, "Energy Distributions of Electrons in Electron-Beam-Produced Nitrogen Plasmas," J. Appl. Phys., Vol 47, No 10, pp 4484-4488, 10 Oct, 1976.
- Freeman, J. R., and J. W. Poukey, "Electron-Beam Propagation in Plasma Channels," J. Appl. Phys., Vol 50, No 9, pp 5691-5693, Sept, 1979.
- Nobata, K., and S. Yamamoto, "Small Energy Loss Rate of an Electron and Deexcitation of Metastable Molecules by Superelastic Collisions in High-Pressure Oxygen Glow Discharge," J. Appl. Phys., Vol 52, No 12, pp 7107-7113, Dec, 1981.
- Haridoss, S., M. M. Perlman, and C. Carlone, "Vibrationally Excited Diatomic Molecules as Charge Injectors During Corona Charging of Polymer Films," J. Appl. Phys., Vol 53, No 9, pp 6106-6114, Sept, 1982.
- Verhaart, H. F. A., and P. C. T van der Laan, "The Influence of Water Vapor on Avalanches in Air," J. Appl. Phys., Vol 55, No 9, pp 3286-3292, 1 May, 1984.
- Taylor, R. D., and A. W. Ali, "Collisional-Radiative Ionization and Recombination Model for High-Temperature Air and Its Application to Discharges," J. Appl. Phys., Vol 64, No 1, pp 89-97, 1 July, 1988.
- Stearns, R. G., "The Positive Corona in Air: A Simplified Analytic Approach," J. Appl. Phys., Vol 66, No 7, pp 2899-2913, 1 Oct, 1989.
- Kajita, S., S. Ushiroda, and Y. Kondo, "Influence of the Dissociation Process of Oxygen on the Electron Swarm Parameters of Oxygen," J. Appl. Phys., Vol 67, No 9, pp 4015-4023, 1 May, 1990.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Chou, C., T. Wei, and J. Phillips, "Detailed Model of the Afterglow Region of a Microwave Generated Oxygen Plasma," *J. Appl. Phys.*, Vol 72, No 3, pp 870-878, 1 Aug 1992.
- Stalder, K. R., and D. J. Eckstrom, "Afterglow Decay Kinetics of Nonuniform Plasmas with Cylindrical Symmetry: Application to the Measurement of Electron Decay in Large, Photoionized Plasmas in Atmospheric-Pressure Helium," *J. Appl. Phys.*, Vol 72, No 9, pp 3917-3923, 1 Nov, 1992.
- Stalder, K. R., R. J. Vidmar, and D. J. Eckstrom, "Observations of Strong Microwave Absorption in Collisional Plasmas with Gradual Density Gradients," *J. Appl. Phys.*, Vol 72, No 11, pp 5089-5094, 1 Dec 1992.
- Santoru, J., and D. J. Gregoire, "Electromagnetic-Wave Absorption in Highly Collisional Plasmas," *J. Appl. Phys.*, Vol 74, No 6, pp 3736-3743, 15 Sept, 1993.
- Shibata, M., N. Nakano, and T. Makabe, "Effect of $O_2(a^1\Delta_g)$ on Plasma Structures in Oxygen Radio Frequency Discharges," *J. Appl. Phys.*, Vol 80, No 11, pp 6142-6147, 1 Dec, 1996.
- Bhattacharjee, S., and H. Amemiya, "Interpulse Plasma of a High-Power Narrow-Bandwidth Pulsed Microwave Discharge," *J. Appl. Phys.*, Vol 84, No 1, pp 115-120, 1 July, 1998.
- Hayashi, D., and K. Kadota, "Measurements of Negative Ion Density in High-Density Oxygen Plasmas by Probe-Assisted Laser Photodetachment," *J. Appl. Phys.*, Vol 83, No 2, pp 697-702, Jan, 1998.
- Yousfi, M., A. Hennad, and O. Eichwald, "Improved Monte Carlo Method for Ion Transport in Ion-Molecule Asymmetric Systems at High Electric Fields" *J. Appl. Phys.*, Vol 84, No 1, pp 107-114, 1 July, 1998.
- Kanzari, Z. M. Yousfi, and A. Hamani, "Modeling and Basic Data for Streamer Dynamics in N_2 and O_2 Discharges," *J. Appl. Phys.*, Vol 84, No 8, pp 4161-4169, 15 Oct 1998.
- Tatarova, E., F. M. Dias, and C. M. Ferreira, "On the Axial Structure of a Nitrogen Surface Wave Sustained Discharge: Theory and Experiment," *J. Appl. Phys.*, Vol 85, No 1, pp 49-62, 1 Jan, 1999.
- Kelly, K. L., J. E. Scharer, G. Ding, M. Bettenhausen, and S. P. Kuo, "Microwave Reflections from a Vacuum Ultraviolet Laser Produced Plasma Sheet," *J. Appl. Phys.*, Vol 85, No 1, pp 63-68, 1 Jan, 1999.
- Panda, S., D. J. Economou, and M. Meyyappan, "Effect of Metastable Oxygen Molecules in High Density Power-Modulated Oxygen Discharges," *J. Appl. Phys.*, Vol 87, No 12, pp 8323-8333, 15 June, 2000.
- Stark, R. H., and K. H. Schoenbach, "Electron Heating in Atmospheric Pressure Glow Discharges," *J. Appl. Phys.*, Vol 89, No 7, pp 3568-3572, 1 April, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- White, A. R., P. Palm, E Plönjes, V. V. Subramanian, and I. V. Adamovich, "Effect of Electron Density on Shock Wave Propagation in Optically Pumped Plasmas," J. Appl. Phys., Vol 91, No 5, pp 2604-2610, 1 March 2002.
- Yu, L., C. O. Laux, D. M. Packan, and C. H. Kruger, "Direct-Current Glow Discharges in Atmospheric Pressure Air Plasmas," J. Appl. Phys., Vol 91, No 5, pp 2678-2686, 1 March 2002.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

The Journal of Chemical Physics

- Doering, J. P., and B. H. Mahan, "Photoionization of Nitric Oxide," J. Chem. Phys., Vol 36, No 3, pp 669-674, 1 Feb 1962.
- Pack, J. L., and A. V. Phelps, "Electron Attachment and Detachment. I. Pure O₂ at Low Energy," J. Chem. Phys., Vol 44, No 5, pp 1870-1883, 1 March 1966.
- Moruzzi, J. L., and A. V. Phelps, "Survey of Negative-Ion-Molecule Reactions in O₂, CO₂, H₂O, CO, and Mixtures of These Gases at High Pressures," J. Chem. Phys., Vol 45, No 12, pp 4617-4627, 15 Dec 1966.
- Asundi, R. K., G. J. Schulz, and P. J. Chantry, "Studies of N₄⁺ and N₃⁺ Ion Formation in Nitrogen Using High-Pressure Mass Spectrometry," J. Chem. Phys., Vol 47, No 5, pp 1584-1591, 1 Sept 1967.
- Mahan, B. H., and I. C. Walker, "Rate of Attachment of Gaseous Electrons to Nitrogen Dioxide," J. Chem. Phys., Vol 47, No 10, pp 3780-3782, 15 Nov 1967.
- Niles, F. E., "Airlike Discharges with CO₂, NO, NO₂, and N₂O as Impurities," J. Chem. Phys., Vol 52, No 1, pp 408-424, 1 Jan, 1970.
- Conway, D. C., and G. S. Janik, "Determination of the Bond Energies for the O₂-O₂⁺ through O₂-O₁₀⁺," J. Chem. Phys., Vol 53, No 5, pp 1859-1866, 1 Sep, 1970.
- Meyer, J. A., D. H. Klosterboer, and D. W. Setser, "Energy Transfer Reactions of N₂(A³Σ_u⁺). IV. Measurement of the Radiative Lifetime and Study of the Interaction with Olefins and Other Molecules," J. Chem. Phys., Vol 55, No 5, pp 2084-2091, 1 Sept 1971.
- Trajmar, S., W. Williams, and A. Kuppermann, "Angular Dependence of Electron Impact Excitation Cross Sections of O₂," J. Chem. Phys., Vol 56, No 8, pp 3759-3765, 15 April, 1972.
- Nelson, D. R., and F. J. Davis, "Thermal and Near-Thermal Electron Transport Coefficients in O₂ Determined with a Time-of-Flight Swarm Experiment Using a Drift-Dwell-Drift Technique," J. Chem. Phys., Vol 57, No 10, pp 4079-4084, 15 Nov 1972.
- Douglas-Hamilton, D. H., "Recombination Rate Measurements in Nitrogen," J. Chem. Phys., Vol 58, No 11, pp 2820-2823, 1 June 1973.
- Burrow, P. D., "Dissociative Attachment from the O₂(a¹Δ_g) State," J. Chem. Phys., Vol 59, No 9, pp 4922-4931, 1 Nov, 1973.
- Fehsenfeld, F. C., C. J. Howard, and E. E. Ferguson, "Thermal Energy Reactions of Negative Ions with H Atoms in the Gas Phase," J. Chem. Phys., Vol 58, No 12, pp 5841-5842, 15 June 1973.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Lawton, S. A., and A. V. Phelps, "Excitation of the $b^1\Sigma_g^+$ state of O_2 by Low Energy Electrons," J. Chem. Phys., Vol 69, No 3, pp 1055-1068, 1 Aug 1978.
- Shin, H. K., "Temperature Dependence of the Vibrational Relaxation Rate Coefficient of $N_2(1) + N_2(0)$," J. Chem. Phys., Vol 74, No 5, pp 2866-2868, 1 Mar 1981.
- Tachibana, K., and A. V. Phelps, "Excitation of the $O_2(a^1\Delta_g)$ State by Low Energy Electrons," J. Chem. Phys., Vol 75, No 7, pp 3315-3320, 1 Oct, 1981.
- Tembe, B. L., and A Mozumder, "Electron Thermalization in Gases. V. Diatomic Molecules H_2 , N_2 , and CO ," J. Chem. Phys., Vol 78, No 4, pp 2030-2038, 15 Feb 1983.
- Yamabe, C., and A. V. Phelps, "Excitation of the $O_2(a^1\Delta_g)$ State by Low Energy Electrons in O_2 - N_2 Mixtures," J. Chem. Phys., Vol 78, No 6, Part 1, pp 2984-2989, 15 March 1983.
- Gerber, T., and W. Lüthy, "The Formation of $OH(A^2\Sigma^+)$ from H_2O in a Longitudinal Discharge," J. Chem. Phys., Vol 79, No 11, pp 5445-5447, 1 Dec 1983.
- Warman, J. M., M. Zhou-lei, and D. Van Lith, "Electron Thermalization in Nanosecond Pulse-Ionized Dry and Humid Air," J. Chem. Phys., Vol 81, No 9, pp 3908-3914, 1 Nov, 1984.
- Kowari, K., M. Kimura, and M. Inokuti, "Electron Degradation and Yields on Initial Products. II. Subexcitation Electrons in Molecular Nitrogen," J. Chem. Phys., Vol 89, No 12, pp 7229-7237, 15 Dec 1988.
- Bailey, C. G., D. J. Lavrich, D. SERXNER, AND M. A. Johnson, "Autodetachment from Vibrational Levels of the $O_2^- A^2\pi_u$ Resonance Across Its Dissociation Limit by Photoexcitation from $O_2^- X^2\pi_g$," J. Chem. Phys., Vol 105, No 5, pp 1807-1814, 1 Aug, 1996.
- Meinrenken, C. J., W. D. Gillespie, S Macheret, W. R. Lempert, and R. B. Miles, "Time Domain Modeling of Spectral Collapse in High Density Molecular Gases," J. Chem. Phys., Vol 106, No 20, pp 8299-8309, 22 May 1997.
- De Benedictis, S., and G. Dilecce, "Rate Constants for Deactivation of $N_2(A) v=2-7$ by O , O_2 , and NO " J. Chem. Phys., Vol 107, No 16, pp 6219-6229, 22 Oct, 1997.
- Matejcik, P. Stampfli, A. Stamatovic, P. Scheier, and T. D. Märk, "Electron Attachment to Oxygen Clusters Studied with High Energy Resolution," J. Chem. Phys., Vol 111, No 8, pp 3548-3558, Aug, 1999.
- Lindsay, B. J., M. A. Mangan, H. C. Straub, and R. F. Stebbings, "Absolute Partial Cross Sections for Electron-Impact Ionization of NO and NO_2 from Threshold to 1000 eV," J. Chem. Phys., Vol. 112, No 21, pp. 9404-9410, 1 Jun 2000.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Macheret, S., and I. V. Adamovich, "Semiclassical Modeling of State-Specific Dissociation Rates in Diatomic Gases," J. Chem. Phys., Vol 113, No 17, pp 7351-7361, 1 Nov 2000.
- Lee, W., I. V. Adamovich, and W. R. Lempert, "Optical Pumping Studies of Vibrational Energy Transfer in High-Pressure Diatomic Gases," J. Chem. Phys., Vol 114, No 3, pp 1178-1186, 15 Jan 2001.
- Clements, T. G., A. K. Luong, H-J Deyerl, and R. E. Continetti, "Dissociative Photodetachment Studies of $O^-(H_2O)^2$, $OH^-(H_2O)_2$, and the Duterated Isotopomers: Energetics and Three-Body Dissociation Dynamics," J. Chem. Phys., Vol 114, No 19, pp 8436-8444, 15 May 2001.
- Kalogerakis, K. S., R. A. Copeland, and T. G. Slanger, "Collisional Removal of $O_2(b^1\Sigma_g^+, v=2,3)$," J. Chem. Phys., Vol 116, No 12, pp 4877-4885, 22 Mar 2002.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Journal of Colloid and Interface Science

Finnegan, W. G., and R. L. Pitter, "Ion-Induced Charge Separations in Growing Single Ice Crystals: Effects on Growth and Interaction Processes," *Journal of Colloid and Interface Science*, Vol 189, pp 322-327, Article No CS974829, 1997.

Journal of Experimental and Theoretical Physics (JETP)
Translated from Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki

Klopovskii, K.S., A. S. Kovalev, D. V. Lopaev, N. A. Popov, A. T. Rakhimov, and T. V. Rakhimova, "New Mechanism of Singlet-Oxygen Production in Processes with Participation of Electronically and Vibrationally Excited Ozone Molecules," Translated from *Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki*, *Journal of Experimental and Theoretical Physics*, Vol 80, No 4, pp 603-613, April, 1995.

Journal of Geophysical Research

Stolarski, R. S., and A. E. S. Green, "Calculations of Auroral Intensities from Electron Impact," *Journal of Geophysical Research*, Vol 72, No 15, pp 3967-3974, 1 Aug, 1967.

Kummler, R. H., and M. H. Bortner, "Singlet Oxygen in Polluted Environments," *Journal of Geophysical Research*, Vol 75, No 15, pp 3115-3122, 20 May, 1970.

Peterson, J. R., "Sunlight Photodestruction of CO_3^- , $\text{CO}_3^- \cdot \text{H}_2\text{O}$, and O_3^- : The Importance of Photodissociation to the D Region Electron Densities at Sunrise," *Journal of Geophysical Research*, Vol 81, No 7, pp 1433-1435, 1 March, 1976.

McAfee, K. B., and R. M. Lum, "Diffusion and Deionization Near the Stratopause From a Meteorlike Reentry," *Journal of Geophysical Research*, Vol 81, No 25, pp 4685-4695, 1 Sept, 1976.

Newton, G. P., J. C. G. Walker, and G. P. Mantas, "Effects of Soft Electron Precipitation on the Distribution of Vibrational Energy of N_2 ," *Journal of Geophysical Research*, Vol 82, No 1, pp 187-190, 1 Jan, 1977.

Morrill, J., and W. Benesch, "Plasma Preconditioning and the Role of Elevated Vibrational Temperature in Production of Excited N_2 Vibrational Distributions," *Journal of Geophysical Research*, Vol 95, No A6, pp 7711-7724, 1 June, 1990.

Kull, A., E. Kopp, C. Granier, and G. Brasseur, "Ions and Electrons of the Lower-Latitude D Region," *Journal of Geophysical Research*, Vol 102, No A5, pp 9705-9716, 1 May, 1997.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Coppens, F., R. Berton, A. Bondiou-Clergerie, and I. Gallimberti, "Theoretical Estimat of NO_x Production in Lightning Corona," Journal of Geophysical Research, Vol 103, No D9, pp 10769-10785, 20 May, 1998.

Lehtinen, N. G., T. F. Bell, and U. S. Inan, "Monte Carlo Simulation of Runaway MeV Electron Breakdown with Application to Red Sprites and Terrestrial Gamma Ray Flashes," Journal of Geophysical Research, Vol 104, No A11, pp 24699-24712, 1 Nov, 1999.

Prölss, G. W., and S. Werner, "Vibrationally Excited Nitrogen and Oxygen and the Origin of Negative Ionospheric Storms," Journal of Geophysical Research, Vol 107, No A2, pp SIA 1-1 to 1-6, 1 Feb, 2002.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Journal of Physical and Chemical Reference Data

Dutton, J., "Electron Swarm Data," J. Phys. Chem. Ref. Data, Vol 4, No 3, pp 577-856, 1975.

Baulch, D. L., R. A. Cox, P. J. Crutzen, R. F. Hampson Jr., J. A. Kerr, J. Troe, and R. T. Watson, "Evaluated Kinetic and Photochemical Data for Atmospheric Chemistry: Supplement I," J. Phys. Chem. Ref. Data, Vol 11, No 2, pp 327-409, 1982.

Gallagher, J. W., E. C. Beaty, J. Dutton, and L. C. Pitchford, "An Annotated Compilation and Appraisal of Electron Swarm Data in Electronegative Gases," J. Phys. Chem. Ref. Data, Vol 12, No 1, pp 109-152, 1983.

Itikawa, Y., M. Hayashi, A. Ichimura, K. Onda, K. Sakimoto, K. Takayanagi, M. Nakamura, H. Nishimura, and T. Takayanagi, "Cross Sections for Collisions of Electrons and Photons with Nitrogen Molecules," J. Phys. Chem. Ref. Data, Vol 15, No 3, pp 985-1010, 1986.

Steinfeld, J. I., S. M. Adler-Golden, and J. W. Gallagher, "Critical Survey of Data on the Spectroscopy and Kinetics of Ozone in the Mesosphere and Thermosphere" J. Phys. Chem. Ref. Data, Vol 16, No 4, pp 911-951, 1987.

The Journal of Physical Chemistry

Singh, J. P., J. Barchar, D. W. Setser, and S. Rosenwaks, "Electronic-to-Vibrational Energy-Transfer Studies of Singlet Molecular Oxygen. 1. $O_2(a^1\Delta_g)$," Journal of Physical Chemistry, Vol 89, No 25, pp 5347-5353, 5 Dec, 1985.

Singh, J. P., and D. W. Setser, "Electronic-to-Vibrational Energy-Transfer Studies of Singlet Molecular Oxygen. 2. $O_2(b^1\Sigma_g^+)$," Journal of Physical Chemistry, Vol 89, No 25, pp 5353-5358, 5 Dec, 1985.

Upschulte, B. L., W. J. Marinelli, and B. D. Green, "Reactions of $O_2(a^1\Delta_g)$ with O^- and O_2^- ," Journal of Physical Chemistry, Vol 98, No 3, pp 837-842, 1994.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Journal of Physics B: Atomic and Molecular Physics (prior to 1988) : Atomic, Molecular and Optical Physics

- Khare, S. P., "Mean Energy Expended Per Ion Pair by Electrons in Atmospheric Gases," J. Phys B: Atom. Molec. Phys., Vol 3, No 7, pp 971-975, July, 1970.
- Eccles, M. J., B. C. O'Neill, and J. D. Craggs, "Electron Detachment in Oxygen," J. Phys B: Atom. Molec. Phys., Vol 3, pp 1724-1731, 1970.
- McCorkle, D. L., L. G. Christophorou, and V. E. Anderson, "Low energy (≤ 1 eV) Electron Attachment to Molecules at Very High Gas Densities: O₂," J. Phys B: Atom. Molec. Phys., Vol 5, pp 1211-1220, June, 1972.
- Ranjan, R., and C. C. Goodyear, "Collisional Detachment from Atmospheric Negative Ions," J. Phys B: Atom. Molec. Phys., Vol 6, No 6, pp 1070-1078, 1973.
- O'Neill, B. C., and J. D. Craggs, "Collisional Detachment of Electrons and Ion Molecule Reactions in Oxygen," J. Phys B: Atom. Molec. Phys., Vol 6, No ??, pp 2625-2633, Dec 1973.
- Fiquet-Fayard, F., "Angular Distributions for Pure Resonant Scattering of Electrons by Diatomic Molecules in Hund's Cases a and b," J. Phys B: Atom. Molec. Phys., Vol 8, No 17, pp 2880-2897, 1975.
- Wakiya, K., "Differential and Integral Cross Sections for the Electron Impact Excitation of O₂ I. Optically Allowed Transitions from the Ground State," J. Phys B: Atom. Molec. Phys., Vol 11, No 22, pp 3913-3930, 1978.
- Crompton, R. W., R. Hegerberg, and H. R. Skullerud, "The Effect of Attachment Cooling in Oxygen and Oxygen-Nitrogen Mixtures," J. Phys B: Atom. Molec. Phys., Vol 13, No 14, pp L455-L459, 28 July, 1980.
- Belić, D. S., and R. I. Hall, "Dissociative Electron Attachment to Metastable Oxygen ($a^1\Delta_g$)," J. Phys B: Atom. Molec. Phys., Vol 14, No 2, pp 365-373, Jan, 1981.
- Schneider, B. I., and C. A. Brau, "Two- and Three-Body Electron Attachment in Air," J. Phys B: Atom. Molec. Phys., Vol 15, No 10, pp 1601-1607, May, 1982.
- Noble, C. J., and P. G. Burke, "Low-Energy Electronic Excitation of O₂ by Electron Impact," J. Phys B: Atom. Molec. Phys., Vol 19, pp L35-L39, 1986.
- Aleksandrov, N. L., and D. A. Novitskii, "Synergistic Effect in the Rate of Three-Body Ion-Ion Recombination in Gas Mixtures," J. Phys B: Atom. Molec. Phys., Vol 30, No 1, pp 125-134, Jan 1997.
- Bahati, E. M., J. J. Jureta, D. S. Belic, S. Rachafi, and P. Defrance, "Electron Impact Ionization and Dissociation of CO₂⁺ to C⁺ and O⁺," J. Phys B: Atom. Opt. Molec. Phys., Vol 34, No 9, pp 1757-1767, May, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Bahati, E. M., J. J. Jureta, D. S. Belic, H. Cherkani-Hassani, M. O. Abdellahi, and P. Defrance, "Electron Impact Dissociation and Ionization of N_2^+ ," J. Phys B: Atom. Opt. Molec. Phys., Vol 34, No ?, pp 2963-2973, ?, 2001.

Bahati, E. M., J. J. Jureta, H. Cherkani-Hassani, and P. Defrance, "Electron Impact Single Ionization and Dissociative Excitation of H_3O^+ , HD_2O^+ and D_3O^+ ," J. Phys B: Atom. Opt. Molec. Phys., Vol 34, No ?, pp L333-L337, ?, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Journal of Physics D: Applied Physics

- Naidu, M. S., and A. N. Prasad, "Mobility, Diffusion and Attachment of electrons in Oxygen," J. Phys D: Appl. Phys., Vol 3, No 6, pp 957-964, June, 1970.
- Lucas, J., D. A. Price, and J. L. Moruzzi, "The Calculation of Electron Energy Distributions and Attachment Coefficient for Electron Swarms in Oxygen," J. Phys D: Appl. Phys., Vol 6, No 12, pp 1503-1513, Aug, 1973.
- Price, D. A., J. Lucas, and J. L. Moruzzi, "Current Growth in Oxygen," J. Phys D: Appl. Phys., Vol 6, No 12, pp 1514-1524, Aug, 1973.
- Moruzzi, J. L., and D. A. Price, "Ionization, Attachment and Detachment in Air and Air-CO₂ Mixtures," J. Phys D: Appl. Phys., Vol 7, No 10, pp 1434-1440, 1 July, 1974.
- Blair, D. T. A., and H. W. Whittington, "Ionization and Breakdown in Oxygen," J. Phys D: Appl. Phys., Vol 8, No 4, pp 405-415, 11 March 1975.
- Mašek, K., L. Láška, and T. Růžička, "Dissociative Attachment Coefficient in Oxygen," J. Phys D: Appl. Phys., Vol 10, No 3, pp L25-L28, Feb, 1977.
- Taniguchi, T., H. Tagashira, and Y. Sakai, "Validity of a Boltzmann Equation Method for Predicting the Effect of Ionization and Attachment," J. Phys D: Appl. Phys., Vol 10, No 16, pp 2301-2306, 11 Nov, 1977.
- Tagashira, H, T. Taniguchi, K. Kitamori, and Y. Sakai, "Development of Electron Avalanches Parallel and Perpendicular to the Electric Field – a Boltzmann Equation Analysis," J. Phys D: Appl. Phys., Vol 11, No 3, pp L43-L47, 21 Feb, 1978.
- Okada, I., Y. Sakai, H. Tagashira, and S. Sakamoto, "Monte Carlo Simulation of the Reaction and Transport of Negative Ions O⁻ and O₂⁻ in Oxygen," J. Phys D: Appl. Phys., Vol 11, No 7, pp 1107-1118, May, 1978.
- Taniguchi, T, H. Tagashira, I. Okada, and Y. Sakai, "Three-Body Attachment in Oxygen," J. Phys D: Appl. Phys., Vol 11, No 16, pp 2281-2284, Nov, 1978.
- Taniguchi, T, K. Kawamura, S. Sakamoto, and H. Tagashira, "Three-Body Attachment in Oxygen and an Air-Like Nitrogen and Oxygen Mixture," J. Phys D: Appl. Phys., Vol 15, No 7, pp 1187-1193, July, 1982.
- Siddagangappa, M. C., C. S. Lakshminarasimha, and M. S. Naidu, "Electron Attachment in Binary Mixtures of Electronegative and Buffer Gases," J. Phys D: Appl. Phys., Vol 15, No 8, pp L83-L86, Aug, 1982.
- Pejović, M. M., and B. Dimitrijević, "Electrical Breakdown Induced by Long Lived Metastable States in Nitrogen," J. Phys D: Appl. Phys., Vol 15, No 8, pp L87-L90, Aug, 1982.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Shimozuma, M., H. Itoh, and H. Tagashira, "Measurement of the Ionization and Attachment Coefficients in SF₆ and Air Mixtures," J. Phys D: Appl. Phys., Vol 15, No 12, pp 2443-2449, Dec, 1982.
- Ono, S., and S. Teii, "Vibrational Temperature in a Weakly Ionised Steady-State Nitrogen Discharge Plasma," J. Phys D: Appl. Phys., Vol 16, No ?, pp 163-170, Month?, 1983.
- Ono, S., and S. Teii, "Negative Ion Formations and Their Effects on the Electron Temperature in CO₂-N₂-He Mixture Gas Discharges," J. Phys D: Appl. Phys., Vol 17, No ?, pp 1999-2008, Month?, 1984.
- Spencer M. N., J. S. Dickinson, and D. J. Eckstrom, "Afterglow Conductivity Measurements of Air and N₂ Following Intense Electron-Beam Excitation," J. Phys D: Appl. Phys., Vol 20, No 7, pp 923-932, July, 1987.
- Gousset, G., C. M. Ferreira, M. Pinheiro, P. A. Sá, M. Touzeau, M. Vialle, and J. Loureiro, "Electron and Heavy-Particle Kinetics in the Low Pressure Oxygen Positive Column," J. Phys D: Appl. Phys., Vol 24, No 3, pp 290-300, March, 1991.
- Vialle, M., M. Touzeau, G. Gousset, and C. M. Ferreira, "Kinetics of O(1S) and O(1D) Metastable Atoms in a DC Oxygen Glow Discharge," J. Phys D: Appl. Phys., Vol 24, No 3, pp 301-308, March, 1991.
- Lowke, J. J., "Theory of Electrical Breakdown in Air - the Role of Metastable Oxygen Molecules," J. Phys D: Appl. Phys., Vol 25, No 2, pp 202-210, Feb, 1992.
- Nahorny, J., C. M. Ferreira, B. Gordiets, D. Pagnon, M. Touzeau, and M. Vialle, "Experimental and Theoretical Investigation of a N₂-O₂ DC Flowing Glow Discharge," J. Phys D: Appl. Phys., Vol 28, No 4, pp 738-747, April, 1995.
- Guerra, V., and J. Loureiro, "Non-Equilibrium Coupled Kinetics in Stationary N₂-O₂ Discharges," J. Phys D: Appl. Phys., Vol 28, No 9, pp 1903-1918, Sept, 1995.
- Aleksandrov, N. L., and E. M. Bazelyan, "Simulation of Long-Streamer Propagation in Air at Atmospheric Pressure," J. Phys D: Appl. Phys., Vol 29, No 3, pp 740-752, March, 1996.
- Aleksandrov, N. L., and E. M. Bazelyan, "Temperature and Density Effects on the Properties of a Long Positive Streamer in Air," J. Phys D: Appl. Phys., Vol 29, No 11, pp 2873-2880, Nov, 1996.
- Morrow, R., and J. J. Lowke, "Streamer Propagation in Air," J. Phys D: Appl. Phys., Vol 30, No 4, pp 614-627, Feb, 1997.
- Shibata, M., N Nakano, and T. Makabe, "The Effect of Laser-Induced Photodetachment in O₂ RF Discharges," J. Phys D: Appl. Phys., Vol 30, No 8, pp 1219-1224, April, 1997.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Aleksandrov, N. L., A. P. Napartovich, and A. M. Okhrimovskyy, "High-Frequency Electrical Breakdown in Electronegative Gases with Fast Electron Attachment and Detachment Processes," *J. Phys D: Appl. Phys.*, Vol 30, No 9, pp 1403-1407, May, 1997.
- Aleksandrov, N. L., E. M. Bazelyan, I. V. Kochetov, and N. A. Dyatko, "The Ionization Kinetics and Electric Field in the Leader Channel in Long Air Gaps," *J. Phys D: Appl. Phys.*, Vol 30, No 11, pp 1616-1624, June, 1997.
- Adamovich, I. V., and J. W. Rich, "The Effect of Superelastic Electron-Molecule Collisions on the Vibrational Energy Distribution Function," *J. Phys D: Appl. Phys.*, Vol 30, No 11, pp 1741-1745, June, 1997.
- Danilov, A. V., S. A. Ilchenko, A. T. Kunavin, A. V. Markov, V. A. Permyakov, D. V. Sapozhnikov, S. N. Tsemko, V. A. Volsky, and Y. Y. Yakovlev, "Electromagnetic Wave Scattering by an Array of Tubes Filled with Plasma," *J. Phys D: Appl. Phys.*, Vol 30, No 16, pp 2313-2319, Aug, 1997.
- Aleksandrov, N. L., and E. M. Bazelyan, "The Mechanism of Re-Breakdown Within a Post-Arc Channel in Long Non-Uniform Air Gaps," *J. Phys D: Appl. Phys.*, Vol 31, No 11, pp 1343-1351, June, 1998.
- Raizer, Yu. P., G. M. Milikh, M. N. Shneider, and S. V. Novakovski, "Long Streamers in the Upper Atmosphere above Thundercloud," *J. Phys D: Appl. Phys.*, Vol 31, No 22, pp 3255-3264, Nov, 1998.
- Aleksandrov, N. L., E. M. Bazelyan, A. Y. Gorunov, and I. V. Kochetov, "A Non-Thermal Mechanism of Spark Breakdown in Ar," *J. Phys D: Appl. Phys.*, Vol 32, No 20, pp 2636-2644, Oct, 1999.
- Naidis, G. V., "Simulation of Streamer-to-Spark Transition in Short Non-Uniform Air Gaps," *J. Phys D: Appl. Phys.*, Vol 32, No 20, pp 2649-2654, Oct, 1999.
- Kitayama, J, and M. Kuzumoto, "Analysis of Ozone Generation from Air in Silent Discharge," *J. Phys D: Appl. Phys.*, Vol 32, No 23, pp 3032-3040, 7 Dec, 1999.
- Franklin, R. N., "Is Oxygen a Detachment-Dominated Gas or Not?," *J. Phys D: Appl. Phys.*, Vol 33, No 22, p 3009, Nov, 2000.
- Gudmundsson, J. T., A. M. Marakhtanov, K. K. Patel, V. P. Gopinath, and M. A. Lieberman, "A Reply to a Comment On: 'On the Plasma Parameters of a Planar Inductive Oxygen Discharge,'" *J. Phys D: Appl. Phys.*, Vol 33, No 22, pp 3110-3012, Nov, 2000.
- Pancheshnyi, S. V., S. M. Starikovskaia, and A. Y. Starikovskii, "Role of Photoionization Process in Propagation of Cathode-Directed Streamer," *J. Phys D: Appl. Phys.*, Vol 34, No 1, pp 105-115, 7 Jan, 2001.
- Anikin, N. B., S. M. Starikovskaia, and A. Y. Starikovskii, "Uniform Nanosecond Gas Breakdown of Negative Polarity: Initiation from Electrode and Propagation in Molecular Gases," *J. Phys D: Appl. Phys.*, Vol 34, No 2, pp 177-188, 21 Jan, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Georghiou, G. E., R. Morrow, and A. C. Metaxas, "The Effect of Photoemission on the Streamer Development and Propagation in Short Uniform Gaps," J. Phys D: Appl. Phys., Vol 34, No 2, pp 200-208, 21 Jan, 2001.
- Pancheshnyi, S. V., and A. Y. Starikovskii, "Comments on 'The Role of Photoionization in Positive Streamer Dynamics'," J. Phys D: Appl. Phys., Vol 34, No 2, pp 248-250, 21 Jan, 2001.
- Kulikovskiy, A. A., "Reply to Comment on 'The Role of Photoionization in Positive Streamer Dynamics'," J. Phys D: Appl. Phys., Vol 34, No 2, pp 251-252, 21 Jan, 2001.
- Adamovich, I. V., "Control of Electron Recombination Rate and Electron Density in Optically-Pumped Non-Equilibrium Plasmas," J. Phys D: Appl. Phys., Vol 34, No 3, pp 319-325, 7 Feb, 2001.
- Serdyuk, Y. V., A. Larsson, S. M. Gubanski, and M. Akyuz, "The Propagation of Positive Streamers in a Weak and Uniform Background Electric Field," J. Phys D: Appl. Phys., Vol 34, No 4, pp 614-623, 21 Feb, 2001.
- Aints, M., K. Kudu, A. Haljaste, and T. Plank, "Orign of Photoionizing Radiation in Corona Discharges in Air," J. Phys D: Appl. Phys., Vol 34, No 6, pp 905-908, 21 March, 2001.
- Kupershtokh, A. L., V. Charalambakos, D. Agoris, and D. I. Karpov, "Simulation of Breakdown in Air Using Cellular Automata with Streamer to Leader Transition," J. Phys D: Appl. Phys., Vol 34, No 6, pp 936-946, 21 March, 2001.
- Gudmundsson, J. T., I. G. Kouznetsov, K. K. Patel, and M. A. Lieberman, "Electronegativity of Low-Pressure High-Density Oxygen Discharges," J. Phys D: Appl. Phys., Vol 34, No 7, pp 1100-1109, April, 2001.
- Franklin, R. N., "Modelling the Electron Temperature Characteristic for Discharges in Electronegative Recombination Dominated Gases," J. Phys D: Appl. Phys., Vol 34, No 8, pp 1243-1247, 21 April, 2001.
- Aleksandrov, N. L., E. M. Bazelyan, and G. A. Novitskii, "The Effect of Small O₂ Addition on the Properties of a Long Positive Streamer in Ar," J. Phys D: Appl. Phys., Vol 34, No 9, pp 1374-1378, May, 2001.
- Aleksandrov, N. L., and A. M. Okhrimovskyy, "Rate Coefficients of Ion-Molecule Processes in Gases Under Varying Electric Field and Ion Density Conditions," J. Phys D: Appl. Phys., Vol 34, No 11, pp 1624-1631, June, 2001.
- Franklin, R. N., "Erratum Modeling the Electron Temperature Characteristic for Discharges in Electronegative Recombination Dominated Gases," J. Phys D: Appl. Phys., Vol 34, No 11, p 1743, 7 June, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Guerra, V., P. A. Sá, and J Loureiro, "Role Played by the $N_2(A^3\Sigma_u^+)$ Metastable in Stationary N_2 and N_2-O_2 Discharges," J. Phys D: Appl. Phys., Vol 34, No 12, pp1745-1755, 21 June, 2001.
- Napartovich, A. P., A. A. Deryugin, and I. V. Kochetov, "Discharge Production of the Singlet Delta Oxygen for an Iodine Laser," J. Phys D: Appl. Phys., Vol 34, No 12, pp 1827-1833, Jun, 2001.
- Franklin, R. N., "The Role of $O_2(a^1\Delta_g)$ Metastables and Associative Detachment in Discharges in Oxygen," J. Phys D: Appl. Phys., Vol 34, No 12, pp 1834-1839, Jun, 2001.
- Franklin, R. N., "The Transition from Collisionless to Collisional in Active Low-Temperature Plasmas with More than One Species of Positive Ion Generated by Electron Impact and the Bohm Criterion," J. Phys D: Appl. Phys., Vol 34, No 13, pp 1959-1962, 7 July, 2001.
- Lu, X., and M. Laroussi, "Ignition Phase and Steady-State Structures of a Non-Thermal Air Plasma," J. Phys D: Appl. Phys., Vol 36, No 6, pp 661-665, 21 Mar 2003.
- Lu, X., F. Leipold, and M. Laroussi, "Optical and Electrical Diagnostics of a Non-Equilibrium Air Plasma," J. Phys D: Appl. Phys., Vol 36, No 21, pp 2662-2666, 7 Nov 2003.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Journal of Plasma Physics

Franklin, R. N., and J. Snell, "The Boltzmann Relation in Electronegative Plasmas: When Is It Permissible to Use It," *J. Plasma Physics*, Vol 64, Part 2, pp 131-153, 2000.

Journal of Soviet Laser Research **Translated primarily from Lebedev Physics Institute**

Glotov, E. P., V. A. Danilychev, and I. V. Kholin, "Adhesion and Recombination in the Plasma of a Discharge Excited by the Electron-Beam Method," *Journal of Soviet Laser Research*, Vol 2, No 1, pp 64-76, Jan-Mar, 1981.

Glotov, E. P., V. A. Danilychev, and V. D. Zvorykin, "Mechanisms of Destruction of the Partition Foil of an Electron Gun, and Methods of Its Protection, in the Case of Streamer Breakdown of the Discharge Gap," *Journal of Soviet Laser Research*, Vol 2, No 1, pp 77-82, Jan-Mar, 1981.

Bobrovskii, V. V., I. M. Bytieva, Y. A. Kulagin, E. A. Prodan, V. A. Sotnikova, V. S. Chernikov, L. A. Shelepin, and V. N. Yarygina, "Investigation of Singlet-Oxygen Formation in Chemical Reactions" *Journal of Soviet Laser Research*, Vol 13, No 2, pp 73-86, March-April, 1992.

Laser and Particle Beams

Schaefer, G., K. H. Schoenbach, H. Krompholz, M. Kristiansen, and A. H. Guenther, "The Use of Attachers in Electron-Beam Sustained Discharge Switches - Theoretical Considerations," *Laser and Particle Beams*, Vol 2, Part 3, pp 273-291, Aug, 1988.

Ali, A. W., "Nanosecond Air Breakdown Parameters for Electron and Microwave Beam Propagation," *Laser and Particle Beams*, Vol 6, Part 1, pp 105-117, Feb, 1988.

Lucey, R. F., R. M. Gilgenbach, J. E. Tucker, and C. L. Enloe, "Propagation of microsecond electron beams in gases and excimer laser-ionized channels in the ion-focused regime," *Laser and Particle Beams*, Vol 6, Part 4, pp 687-697, Nov, 1988.

Batenin, V. M., A. V. Danilov, A. O. Ikonnikov, S. A. Ilchenko, A. T. Kunavin, A. V. Markov, D. V. Sapozhnikov, P. M. Tokar, I. V. Vovk, V. Y. Yakovlev, and V. S. Zhivopistsev, "Observations of Two-Stream Collisional Instability Due to Interaction of Monoenergetic Relativistic Electron Beams with Gas," *Laser and Particle Beams*, Vol 11, No 3, pp 595-609, 1993.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Nature

Pasko, V. P., M. A. Stanley, J. D. Mathews, U. S. Inan, and T. G. Woods, "Electrical Discharge from a Thundercloud Top to the Lower Ionosphere," *Nature*, Vol 416, pp 152-154, 14 March 2002.

Naval Research Laboratory Memorandum Reports

Taylor, R. D., and A. W. Ali, Excitation and Ionization Cross Sections for Electron-Beam Energy Deposition in High Temperature Air, Naval Research Laboratory Memorandum Report 6013, p 53, 9 July 1987.

Ali, A. W., The Electron - Water Vapor (H₂O) Collision Cross Sections, Naval Research Laboratory Memorandum Report 6268, p 38, 26 Aug 1988.

Colombant, D., and M. Lampe, Solution of the Boltzmann Equation Using an Energy Group Method, Naval Research Laboratory Memorandum Report 6554, p 45, 2 Oct 1989.

Slinker, S. P., A. W. Ali, and R. D. Taylor, Production Rates for Electron Beams and Swarms in Nitrogen, Naval Research Laboratory Memorandum Report 6610, p 26, 24 Feb 1990.

New Journal of Physics

An Institute of Physics and Deutsche Physikalische Gesellschaft Journal

Laroussi, M., D. A. Mendis, and M Rosenberg, "Plasma Interactions with Microbes," *New Journal of Physics*, No 5, pp 41.1-41.10, 2003

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

NTIS

National Technical Information Service

Gotchiguian, P., Electron Loss Processes in a Plasma Controlled by a Beam of High-Energy Electrons, (Technical Translation of European Space Agency ESA TT-226) NTIS N7623014, p 31, Dec 1975.

Vidmar, R. J., Generation of Tenuous Plasma Clouds in the Earth's Atmosphere, SRI International, Menlo Park, CA, AFOSRTR-87-0100, ADA1773746, p 49, Feb, 1987.

Vidmar, R. J., Plasma Cloaking: Air Chemistry, Broadband Absorption, and Plasma Generation, SRI International, Menlo Park, CA, AFOSRTR-90-0544, ADA2220440, p 88, Feb, 1990.

Eckstrom, D. J., R. J. Vidmar, and K. R. Stalder, Microwave Interactions with Plasmas, SRI International, Menlo Park, CA, AFOSRTR-92-0343, ADA2503332, p 69, Apr, 1992.

Vidmar, R. J., Efficient Generation of Volumetric Plasmas, SRI International, Menlo Park, CA, AFOSRTR-97-0698, ADA3328176, p 55, Nov, 1997.

Helfritch, D. J., Feldman, P. L., J. R. Roth, T. C. Montie, and K. Kelly-Wintenberg, Decontamination and Sterialization of Surfaces by Means of a One Atmosphere Uniform Glow Discharge Plasma, Environmental Elements Corp, Baltimore, MD, AFRLSR-BL-TR-00-0683, ADA385202, p 49, Oct, 2000.

Vidmar, R. J., and K. R. Stalder, Computations of the Power to Sustain Plasma in Air with Relevance to Aerospace Technology, University of Nevada, Reno, AFRLSR-AR-TR-04-0123, ADA420475, p 61, 19 Feb 2004.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Nuclear Instruments and Methods

Smith, R. C., and B. W. Schumacher, "Extended Working Range for Electron Beams in Atmosphere Part I: Theoretical Calculations," Nuclear Instruments and Methods in Physics Research, Vol 118, pp 73-91, 1974.

Lowry, J. F., and B. W. Schumacher, "Extended Working Range for Electron Beams in the Atmosphere Part II: Experiments and Measurements," Nuclear Instruments and Methods in Physics Research, Vol 130, pp 577-596, 1975.

Nuclear Instruments and Methods in Physics Research Section A (Accelerators, Spectrometers, Detectors and Associated Equipment)

Huk, M., P. Igo-Kemenes, and A. Wagner, "Electron Attachment to Oxygen, Water, and Methanol, in Various Drift Chamber Gas Mixtures," Nuclear Instruments and Methods in Physics Research, Vol A267, pp 107-119, 1988.

Optics and Spectroscopy (Translated from Optika I Spektroskopiya)

Snegurskii, A. V., "Excitation of Metastable States of the Oxygen Molecule by Electron Impact," Optics and Spectroscopy (Translated from Optika I Spektroskopiya), Vol 86, No 4, pp 527-530, 1999.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

The Physical Review (Second Series)

- Bloch, F., and N. E. Bradbury, "On the Mechanism of Unimolecular Electron Capture," Physical Review, Vol 48, No 8, pp 689-695, 15 Oct 1935.
- Gerjuoy, E., and S. Stein, "Rotational Excitation by Slow Electrons," Physical Review, Vol 97, No 6, pp 1671-1679, 15 Mar, 1955.
- Frost, L. S., and A. V. Phelps, "Rotational Excitation and Momentum Transfer Cross Sections for Electrons in H₂ and N₂ from Transport Coefficients," Physical Review, Vol 127, No 5, pp 1621-1633, 1 Sept, 1962.
- Chanin, L. M., A. V. Phelps, and M. A. Biondi, "measurements of the Attachment of Low-Energy Electrons to Oxygen Molecules," Physical Review, Vol 128, No 1, pp 219-230, 1 Oct 1962.
- Engelhardt, A. G., and A. V. Phelps, "Elastic and Inelastic Collision Cross Sections in Hydrogen and Deuterium from Transport Coefficients," Physical Review, Vol 131, No 5, pp 2115-2128, 1 Sept 1963.
- Engelhardt, A. G., A. V. Phelps, and C. G. Risk, "Determination of Momentum Transfer and Inelastic Collision Cross Sections for Electrons in Nitrogen Using Transport Coefficients," Physical Review, Vol 135, No 6A, pp A1566-A1574, 14 Sept 1964.
- Kasner, W. H., and M. A. Biondi, "Electron-Ion Recombination in Nitrogen," Physical Review, Vol 137, No 2A, pp A317-A329, 18 Jan 1965.
- Gunton, R. C., and T. M. Shaw, "Ambipolar Diffusion and Electron Attachment in Nitric Oxide in the Temperature Range 196 to 358°K," Physical Review, Vol 140, No 3A, pp A748-A755, 1 Nov 1965.
- Hake, R. D., and A. V. Phelps, "Momentum-Transfer and Inelastic-Collision Cross Sections for Electrons in O₂, CO, and CO₂," Physical Review, Vol 158, No 1, pp 70-84, 5 June 1967.
- Weller, C. S., and M. A. Biondi, "Recombination, Attachment, and Ambipolar Diffusion of Electrons in Photo-Ionized NO Afterglows," Physical Review, Vol 172, No ??, pp 198-206, ????? (incomplete citation)
- Hirsh, M. N., P. N. Eisner, and J. A. Slevin, "Ionization and Attachment in O₂ and Airlike N₂:O₂ Mixtures Irradiated by 1.5 MeV Electrons," Physical Review, Vol 178, No 1, pp 175-181, 5 Feb 1969.
- Henderson, W. R., W. L. Fite, and R. T. Brackmann, "Dissociative Attachment of Electrons to Hot Oxygen," Physical Review, Vol 183, No 1, pp 157-166, 5 July 1969.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Physical Review A

- Bardsley, J. N., "Temperature Dependence of Dissociative Recombination," Physical Review A, Vol 2, No 4, pp 1359-1365, Oct, 1970.
- Nighan, W. L., "Electron Energy Distributions and Collision Rates in Electrically Excited N₂, CO, and CO₂," Physical Review A, Vol 2, No 5, pp 1989-2000, Nov, 1970.
- Boness, M. J. W., and G. J. Schulz, "Structure of O₂," Physical Review A, Vol 2, No 6, pp 2182-2186, Dec, 1970.
- Trajmar, S., D. C. Cartwright, and W. Williams, "Differential and Integral Cross Sections for the Electron-Impact Excitation of the a¹Δ_g and b¹Σ_g⁺ States of O₂," Physical Review A, Vol 4, No 4, pp 1482-1492, Oct, 1971.
- Spence, D., and G. J. Schulz, "Three-Body Attachment in O₂ Using Electron Beams," Physical Review A, Vol 5, No 2, pp 724-732, Feb, 1972.
- Celotta, R. J., A. Bennett, J. L. Hall, M. W. Siegal, and J. Levine, "Molecular Photodetachment Spectrometry. II. The Electron Affinity of O₂ and the Structure of O₂⁻," Physical Review A, Vol 6, No 2, pp 631-642, Aug, 1972.
- Truby, F. K., "Low-Temperature Measurements of the Three-Body Attachment Coefficient in O₂," Physical Review A, Vol 6, No 2, pp 671-676, Aug, 1972.
- Goodson, D. W., R. J. Corbin, and L. Frommhold, "Electron Avalanches in Oxygen: Detachment from the Diatomic Ion O₂⁻," Physical Review A, Vol 9, No 5, pp 2049-2059, May, 1974.
- Nighan, W. L., and W. J. Wiegand, "Influence of Negative-Ion Processes on Steady-State Properties and Striations in Molecular Gas Discharges," Physical Review A, Vol 10, No 3, pp 922-945, Sep, 1974.
- Cartwright, D. C., S. Trajmar, A. Chutjian, and W. Williams, "Electron Impact Excitation of the Electronic States of N₂. II. Integral Cross Sections at Incident Energies from 10 to 50 eV," Physical Review A, Vol 16, No 3, pp 1041-1051, Sept 1977.
- Nighan, W. L., "Influence of Recombination and Ion Chemistry on the Stability of Externally Sustained Molecular Discharges," Physical Review A, Vol 16, No 3, pp 1209-1223, Sep, 1977.
- Pitchford, L. C., and A. V. Phelps, "Comparative Calculations of Electron-Swarm Properties in N₂, at Moderate E/N Values," Physical Review A, Vol 25, No 1, pp 540-554, Jan, 1982.
- Janev, R. K., "General Classical Scaling of Electron-Loss Cross Sections in Collisions of Atoms with Highly Charged Ions," Physical Review A, Vol 28, No 3, pp 1810-1812, Sept, 1983

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Wolfrum, E., J. Schweinzer, and H. Winter, "Suppressed Electron Capture in Slow $O+(^4S^{\circ}, ^2D^{\circ}, ^2P^{\circ})$ -He Collisions," *Physical Review A*, Vol 45, No 7, pp 4218-4221, April, 1992.
- Ershov, A., E. Augustyniak, and J. Borysow, "Temporal Evolution of the Vibrational Excitation within the $X^1\Sigma_g^+$ state of N_2 in the Positive Column of a Pulsed Electric Discharge," *Physical Review A*, Vol 50, No 3, pp 2341-2346, Sep, 1994.
- Vejby-Christensen, L., D. Kella, D. Mathur, H. B. Pedersen, H. T. Schmidt, and L. H. Andersen, "Electron-Impact Detachment from Negative Ions," *Physical Review A*, Vol 53, No 4, pp 2371-2378, April, 1996.
- Jensen, M. J., R. C. Bilodeau, O. Heber, H. B. Pedersen, C. P. Safvan, X. Urbain, D. Zajfman, and L. H. Andersen, "Dissociative Recombination and Excitation of H_2O^+ and HDO^+ ," *Physical Review A*, Vol 60, No 4, pp 2970-2976, Oct, 1999.
- Campbell, L., M. A. Green, M. J. Brunger, P. J. O. Teubner, and D. C. Cartwright, "Determination of Differential Cross Sections for Electron-Impact Excitation of Electronic States of Molecular Oxygen," *Physical Review A*, Vol 61, No 2, paper 022706, pp 1-7, Feb, 2000.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Physical Review E (Third Series)

Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics

- Vender, D., W. W. Stoffels, E. Stoffels, G. M. W. Kroesen, and F. J. de Hoog, "Charged-Species Profiles in Electronegative Radio-Frequency Plasmas," *Physical Review E*, Vol 51, No 3-B, pp 2436-2444, March, 1995.
- Bourdon A., and P. Verisch, "Electron-Vibration Energy Exchange Models in Nitrogen Plasma Flows," *Physical Review E*, Vol 55, No 4, pp 4634-4641, April, 1997.
- Bourdon, A., Y. Térésiaak, and P. Vervisch, "Ionization and Recombination Rates of Atomic Oxygen in High-Temperature Air Plasma Flows," *Physical Review E*, Vol 57, No 4, pp 4684-4692, April, 1998.
- Nerushev, O. A., S. A. Novopashin, V. V. Radchenko, and G. I. Sukhinin, "Spherical Stratification of a Glow Discharge," *Physical Review E*, Vol 58, No 4, pp 4897-4902, Oct1, 1998.
- Basurto, E., J de Urquijo, I. Alvarez, and C. Cisneros, "Mobility of He⁺, Ne⁺, Ar⁺, N₂⁺, O₂⁺, and CO₂⁺ in Their Parent Gas," *Physical Review E*, Vol 61, No 3, pp 3053-3057, March, 2000.
- Guerra, V., P. A. Sá, J. Loureiro, "Relaxation of the Electron Energy Distribution Function in the Afterglow of a N₂ Microwave Discharge Including Space-Charge Field Effects," *Physical Review E*, Vol 63, Article No 046404, 13 pages, ?, 2001.
- Kaganovich, I. D., B. N. Ramamurthi, and D. J. Economou, "Spatiotemporal Dynamics of Charged Species in the Afterglow of Plasmas Containing Negative Ions," *Physical Review E*, Vol 64, Article No 036402, 12 pages, Sept, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Physical Review Letters

Chanin, L. M., A. V. Phelps, and M. A. Biondi, "Measurement of the Attachment of Slow Electrons in Oxygen," *Physical Review Letters*, Vol 2, No 8, pp 344-346, 15 April 1959.

Burrow, P. D., and P. Davidovits, "Detection of Vibrationally Excited N₂ by Superelastic Electron Impact," *Physical Review Letters*, Vol 21, No 27, pp 1789-1791, 30 Dec 1968.

McArthur, D. A., and J. W. Poukey, "Return Current Induced by a Relativistic Electron Beam Propagating into Neutral Gas," *Physical Review Letters*, Vol 27, No 26, pp 1765-1768, 27 Dec, 1971.

Ekdahl, C. A., J. R. Freeman, G. T. Leifeste, R. B. Miller, W. A. Stygar, and B. B. Godfrey, "Axisymmetric Hollowing Instability of an Intense Relativistic Electron Beam Propagating in Air," *Physical Review Letters*, Vol 55, No 9, pp 935-938, 26 Aug, 1985.

Mathew, J., R. F. Fernsler, R. A. Meger, J. A. Gregor, D. P. Murphy, R. E. Pechacek, and W. M. Manheimer, "Generation of Large Area, Sheet Plasma Mirrors for Redirecting High Frequency Microwave Beams," *Physical Review Letters*, Vol 77, No 10, pp 1982-1985, 2 Sept, 1996.

Matejčík, S., A. Kiendler, P. Stampfli, A. Stamatovic, and T. D. Märk, "Vibrationally Resolved Electron Attachment to Oxygen Clusters," *Physical Review Letters*, Vol 77, No 18, pp 3771-3774, 28 Oct 1996.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Physics Letters A

Mentzoni, M. H., "Thermal Electron Energy Losses in Air," Physics Letters A, Vol 134, No 2, pp 125-126, 19 Dec 1988.

Kuo, S. P., Y. S. Zhang, and A. Ren, "Observation of Frequency Up-Conversion in the Propagation of a High-Power Microwave Pulse in a Self-Generated Plasma," Physics Letters A, Vol 150, No 2, pp 92-96, 29 Oct 1990.

Babich, L. P., I. M. Kutsyk, E. N. Donskoy, and A. Y. Kudryavtsev, "New Data on Space and Time Scales of Relativistic Runaway Electron Avalanche for Thunderstorm Environment: Monte Carlo Calculations," Physics Letters A, Vol 245, Issue 5, pp 460-470, 24 Aug 1998.

Gurevich, A. V., K. P. Zybin, and R. A. Roussel-Dupre, "Lightning Initiation by Simultaneous Effect of Runaway Breakdown and Cosmic Ray Showers," Physics Letters A, Vol 254, Issue 1-2, pp 79-87, 5 April 1999.

Chubenko, A. P., I. V. Amurina, V. P. Antonova, M. M. Kokobaev, S. V. Kryukov, R. A. Nam, N. M. Nesterova, V. V. Oskomov, V. V. Piscal, M. O. Ptitsyn, T. K. Sadykov, A. L. Shepetov, L. I. Vildanova, K. P. Zybin, and A. V. Gurevich, "Effective Growth of s Number of Cosmic Ray Electrons inside Thundercloud," Physics Letters A, Vol 309, Issue 1-2, pp 90-102, 17 Mar 2003.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

The Physics of Fluids

- Whitmer, R. F., and G. F. Herrmann, "Effects of a Velocity-Dependent Collision Frequency on Wave-Plasma Interactions," *Physics of Fluids*, Vol 9, No 4, pp 768-773, April, 1966.
- Itikawa, Y., "Effective Collision Frequency of Electrons in Gases," *Physics of Fluids*, Vol 16, No 6, pp 831-835, June, 1973.
- Lau, Y. Y., M. Lampe, R. F. Fernsler, and B. Hui, "Current Enhancement in a Conducting Channel," *Physics of Fluids*, Vol 28, No 8, pp 2323-2325, Aug, 1985.

Physics of Plasmas

- Meger, R. A., J. Mathew, J. A. Gregor, R. E. Pechacek, R. F. Fernsler, W. Manheimer, and A. E. Robson, "Experimental Investigations of the Formation of a Plasma Mirror for High-Frequency Microwave Beam Steering," *Physics of Plasmas*, Vol 2, No 6, pp 2532-2538, June, 1995.
- Sanford, T. W. L., "High-Power Electron-Beam Transport in Long Gas Cells from 10^{-3} to 10^3 Torr Nitrogen," *Physics of Plasmas*, Vol 2, No 6, pp 2539-2546, June, 1995.
- Fernsler, R. F., W. M. Manheimer, R. A. Meger, J. Mathew, D. P. Murphy, R. E. Pechacek, and J. A. Gregor, "Production of Large-Area Plasmas by Electron Beams," *Physics of Plasmas*, Vol 5, No 5, pp 2137-2143, May, 1998.
- Herrmann, H. W., I. Henins, J. Park, and G. S. Selwyn, "Decontamination of Chemical and Biological Warfare (CBW) Agents Using an Atmospheric Pressure Plasma Jet (APPJ)," *Physics of Plasmas*, Vol 6, No 5, pp 2284-2289, May, 1999.
- Uhm, H. S., "Properties of Plasmas Generated by Electrical Breakdown in Flames," *Physics of Plasmas*, Vol 6, No 11, pp 4366-4374, Nov, 1999.
- Macheret, S. O., M. N. Shneider, and R. B. Miles, "Modeling of Discharges Generated by Electron Beams in Dense Gases: Fountain and Thunderstorm Regimes," *Physics of Plasmas*, Vol 8, No 5, pp 1518-1528, May, 2001.
- Kuo, S. P., and D Bivolaru, "Plasma Effect on Shock Waves in a Supersonic Flow," *Physics of Plasmas*, Vol 8, No 7, pp 3258-3264, July, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Physics Reports

Chutjian, A., A. Garscadden, J. M. Wadehra, "Electron Attachment to Molecules at Low Electron Energies," Physics Reports, Vol 264, Issue 6, pp 393-470, Jan, 1996.

Physics - Uspekhi

Translated from Uspekhi Fizicheskikh Nauk

Aleksandrov, N. L., and A. P. Napartovich, "Phenomena in Gases and Plasmas with Negative Ions," Physics – Uspekhi (Translated from Uspekhi Fizicheskikh Nauk), Vol 36, No 3, pp 107-128, Mar, 1993.

Planetary and Space Science

Hackam, R., "Temperature Dependence of Electron-Ion Recombination and Ion Mobilities in Nitrogen Afterglows," Planetary and Space Science, Vol 13, No 7, pp 667-674, July, 1965.

Fehsenfeld, F. C., A. L. Schmeltekopf, H. I. Schiff, and E. E. Ferguson, "Laboratory Measurements of Negative Ion Reactions of Atmospheric Interest," Planetary and Space Science, Vol 15, No 2, pp 373-379, Feb, 1967.

Wu, R. L. C., and T. O. Tiernan, "Evidence for Excited States of CO_3^* and NO_3^* from Collisional Dissociation Processes," Planetary and Space Science, Vol 29, No 7, pp 735-739, July, 1981.

Plasma Chemistry and Plasma Processing

Bacri, J., and S. Raffanel, "Calculation of Transport Coefficients of Air Plasmas," Plasma Chemistry and Plasma Processing, Vol 9, No 1, pp 133-154, Mar, 1989.

Gousset, G., M. Touzeau, M. Vialle, and C. M. Ferreira, "Kinetic Model of a DC Oxygen Glow Discharge," Plasma Chemistry and Plasma Processing, Vol 9, No 2, pp 189-206, June, 1989.

Yu, L., L. Pierrot, C. O. Laux, and C. H. Kruger, "Effects of Vibrational Nonequilibrium on the Chemistry of Two-Temperature Nitrogen Plasmas," Plasma Chemistry and Plasma Processing, Vol 21, No 4, PP 483-503, Dec, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

**Plasma Physics Reports
Translated from Fizika Plazmy**

- Dyatko, N. A., I. V. Kochetov, and A. P. Napartovich, "Low-Energy Electron Distribution in a Beam Plasma in Air: the Role of Electron-Electron Collisions," *Plasma Phys. Rep.*, Vol 19, No 3, pp 222-226, March, 1993.
- Popov, N. A., "Modelling of Plasma-Chemical Processes Initiated by a High-Power Microwave Discharge in Air," *Plasma Phys. Rep.*, Vol 20, No 3, pp 303-310, March, 1994.
- Akisev, Y. S., A. A. Deryugin, N. N. Elkin, I. V. Kochetov, A. P. Napartovich, and N. I. Trushkin, "Calculation of Air Glow Discharge Spatial Structure," *Plasma Phys. Rep.*, Vol 20, No 5, pp 437-441, May, 1994.
- Aleksandrov, N. L., A. E. Bazelyan, E. M. Bazelyan, and I. V. Kochetov, "Modeling of Long Streamers in Atmospheric-Pressure Air," *Plasma Phys. Rep.*, Vol 21, No 1, pp 57-75, Jan, 1995.
- Aleksandrov, N. L., and A. M. Okhrimovskii, "Charged Particle Transport via Fast Ion-Molecule Processes in a Weakly Ionized Nonequilibrium Plasma," *Plasma Phys. Rep.*, Vol 22, No 1, pp 76-81, Jan, 1996.
- Aleksandrov, N. L., N. A. Dyatko, and I. V. Kochetov, "Longitudinal Diffusion of Electrons in a Weakly Ionized Plasma in the Presence of an Alternating Electric Field," *Plasma Phys. Rep.*, Vol 22, No 1, pp 82-86, Jan, 1996.
- Aleksandrov, N. L., and E. M. Bazelyan, "Simulation of a Long Streamer Taking into Account the Channel Expansion Due to Ionization," *Plasma Phys. Rep.*, Vol 22, No 5, pp 417-427, May, 1996.
- Aleksandrov, N. L., and A. M. Okhrimovskii, "Stability of a Weakly Ionized Ion-Ion Plasma Immersed in a Strong Electric Field," *Plasma Phys. Rep.*, Vol 23, No 1, pp 71-74, Jan, 1997.
- Klopovskii, K. S., N. A. Popov, O. V. Proshina, A. T. Rakhimov, and T. V. Rakhimova, "Influence of the Vibrational Excitation of Ozone on the Rate Constant of Electron Attachment to O₃ Molecules," *Plasma Phys. Rep.*, Vol 23, No 2, pp 166-171, Feb, 1997.
- Aleksandrov, N. L., E. M. Bazelyan, N. A. Dyatko, and I. V. Kochetov, "Streamer Breakdown of Long Air Gaps," *Plasma Phys. Rep.*, Vol 24, No 7, pp 541-555, July, 1998.
- Aleksandrov, N. L., E. M. Bazelyan, I. V. Kochetov, and A. M. Okhrimovskii, "Rates of Inelastic Electron Processes in a Varying Electric Field in Air," *Plasma Phys. Rep.*, Vol 24, No 7, pp 612-616, July, 1998.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Balandin, A. A., D. V. Lopaev, K. S. Klopovskii, N. A. Popov, A. T. Rakhimov, and T. V. Takhimova, "Quenching of O₂(1Δg) Molecules in a Hydrogen-Oxygen Mixture in a Fast-Gas-Flow Reactor," *Plasma Phys. Rep.*, Vol 25, No 11, pp 893-904, Nov, 1999.
- Vagin, N. P., A. A. Deryugin, A. A. Ionin, Y. M. Klimachev, I. V. Kochetov, A. P. Napartovich, D. V. Sinitsin, and N. N. Yuryshev, "Breakdown of Highly Excited Oxygen in a DC Electric Field," *Plasma Phys. Rep.*, Vol 26, No 3, pp 278-282, Mar, 2000.
- Kosarev, I. N., and A. Y. Starikovskii, "Mechanism for Electric Breakdown in a Chemically Nonequilibrium System and the Influence of the Chain Oxidation Reaction in an H₂-Air Mixture on the Breakdown Threshold," *Plasma Phys. Rep.*, Vol 26, No 8, pp 701-709, Aug, 2000.
- Aleksandrov, N. L., É. M. Bazelyan, and M. N. Shneider, "Effect of Continuous Current During Pauses Between Successive Strokes on the Decay of the Lightning Channel," *Plasma Phys. Rep.*, Vol 26, No 10, pp 893-901, Oct, 2000.
- Aleksandrov, N. L., É. M. Bazelyan, and A. M. Konchakov, "Plasma Parameters in the Channel of a Long Leader in Air," *Plasma Phys. Rep.*, Vol 27, No 10, pp 875-885, Oct, 2001.
- Popov, N. A., "Investigation of the Mechanism for Rapid Heating of Nitrogen and Air in Gas Discharges," *Plasma Phys. Rep.*, Vol 27, No 10, pp 886-896, Oct, 2001.
- Aleksandrov, N. L., and E. M. Bazelyan, "Streamer Breakdown of Long Gas Gaps," *Plasma Phys. Rep.*, Vol 27, No 12, pp 1057-1078, Dec, 2001.
- Gorbunov, N. A., N. B. Kolokolov, and F. E. Latyshev, "Electron Temperature in a Decaying Molecular Nitrogen Plasma in the Presence of Weak Electric Fields," *Plasma Phys. Rep.*, Vol 27, No 12, pp 1079-1088, Dec, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Plasma Sources Science and Technology

- Kossyi, I. A., A. Yu. Kostinsky, A. A. Matveyev, and V. P. Silakov, "Kinetic Scheme of the Non-Equilibrium Discharge in Nitrogen-Oxygen Mixtures," *Plasma Sources Sci. Technol.*, Vol 1, No 3, pp 207-220, 1992.
- Schiffer, C., and J. Uhlenbusch, "Negative-Oxygen-Ion Detection by a Crossed-Beam Photodetachment Technique," *Plasma Sources Sci. Technol.*, Vol 4, No 3, pp 345-352, 1995.
- Matejcek, S., A. Kindler, P. Cicman, J. Skalny, P. Stampfli, E. Illenberger, Y. Chu, A. Stamatovic, and T. D. Märk, "Electron Attachment to Molecules and Clusters of Atmospheric Relevance: oxygen and ozone," *Plasma Sources Sci. Technol.*, Vol 6, No 2, pp 140-146, May, 1997.
- Guerra, V., M. J. Pinheiro, B. F. Gordiets, J. Loureiro, and C. M. Ferreira, "Calculated Data on Electron Transport and Excitation Rate Coefficients in N₂-O₂ and N₂-H₂ Discharges," *Plasma Sources Sci. Technol.*, Vol 6, No 2, pp 220-230, May, 1997.
- Guerra, V., and J. Loureiro, "Self-Consistent Electron and Heavy-Particle Kinetics in a Low-Pressure N₂-O₂ Glow Discharge," *Plasma Sources Sci. Technol.*, Vol 6, No 3 pp 373-385, Aug, 1997.
- Gordiets, B., C. M. Ferreira, M. J. Pinheiro, and A. Ricard, "Self-Consistent Kinetic Model of Low-Pressure N₂-H₂ Flowing Discharges: I. Volume Processes," *Plasma Sources Sci. Technol.*, Vol 7, No 3, pp 363-378, Aug, 1998.
- Guerra, V., and J. Loureiro, "Kinetic Model of a Low-Pressure Microwave Discharge in O₂-N₂ Including the Effects of O⁻ Ions on the Characteristics for Plasma Maintenance," *Plasma Sources Sci. Technol.*, Vol 8, No 1, pp 110-124, Feb, 1999.
- Pintassilgo, C. D., J. Loureiro, G. Cernogora, and M. Touzeau, "N₂-CH₄ Glow Discharge at Low Pressures," *Plasma Sources Sci. Technol.*, Vol 8, No 3, pp 463-478, Aug, 1999.
- Aleksandrov, N. L., and E. M. Bazelyan, "Ionization Processes in Spark Discharge Plasmas," *Plasma Sources Sci. Technol.*, Vol 10, No 2, pp 162-167, 2001.
- Ding, W. X., L. A. Pinnaduwege, C. Tav, and D. L. McCorkle, "The role of High Rydberg States in Enhanced O⁻ Formation in a Pulsed O₂ Discharge," *Plasma Sources Sci. Technol.*, Vol 8, No 3, pp 384-391, 1999.
- Potts, H., and J. Hugill, "Studies of High-Pressure, Partially Ionized Plasma Generated by 2.45 GHz Microwaves," *Plasma Sources Sci. Technol.*, Vol 9, No 1, pp 18-24, Feb, 2000.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Baeva, M., X. Luo, B. Pfeizer, T. Repsilber, and J Uhlenbusch, "Experimental Investigation and Modelling of a Low-Pressure Pulsed Microwave Discharge in Oxygen," *Plasma Sources Sci. Technol.*, Vol 9, No 2, pp 128-145, May, 2000.
- Katsch, H. M., T. Sturm, E. Quandt, and H. F. Döbele, "Negative Ions and the Role of Metastable Molecules in a Capacitively Coupled Radiofrequency Excited Discharge in Oxygen," *Plasma Sources Sci. Technol.*, Vol 9, No 3, pp 323-330, Aug, 2000.
- Franklin, R. N., "A Critique of Models of Electronegative Plasmas," *Plasma Sources Sci. Technol.*, Vol 10, No 2, pp 162-167, 2001.
- Laroussi, M., X. Lu, and C. M. Malott, "A Non-Equilibrium Diffuse Discharge in Atmospheric Pressure Air," *Plasma Sources Sci. Technol.*, Vol 12, No 1, pp 53-56, Feb, 2003.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Proceedings of the IEE Proceeding of the Institution of Electrical Engineers

Lakshminarasimha, C. S., J. Lucas, and R. A. Snelson, "Time-of-Flight Electron-Swarm Studies of Ionization and Attachment in Gases," Proc. IEE, Vol 122, No 10, pp 1162-1165, Oct, 1975.

Proceedings of the IRE Proceedings of the Institute of Radio Engineers

Bachynski, M. P., T. W. Johnston, and I. P. Shkarofsky, "Electromagnetic Properties of High-Temperature Air," Proceedings of the IRE, Vol 48, No ??, pp 347-356, 1960.

Proceedings of the Royal Society London Series A. Mathematical and Physical Sciences

Crompton, R. W., and D. J. Sutton, "Experimental Investigation of the Diffusion of Slow Electrons in Nitrogen and Hydrogen," Proceedings of the Royal Society London A, Vol A215, No 1123, pp 467-480, 22 Dec 1952.

Crompton, R. W., L. G. H. Huxley, and D. J. Sutton, "Experimental Studies of the Motion of Slow Electrons in Air with Application to the Ionosphere," Proceedings of the Royal Society London A, Vol A218, No 1135, pp 507-519, 23 July 1953.

Clark, I. D., and R. P. Wayne, "Collisional Quenching of $O_2(^1\Delta_g)$," Proceedings of the Royal Society London A, Vol 314, No ??, pp 111-127, 1969.

Progress in the Physics of Clusters

Scheier, P., G. Senn, P. Stampfli, T. D. Märk, Y. Chu, S. Matejcik, A. Stamatovic, and E. Illenberger, "Electron Attachment to Oxygen and Nitric-Oxide Clusters with High Energy Resolution," Progress in the Physics of Clusters (Editors G. N. Chuev, V. D. Lakhno, and A. P. Nefedov), World Scientific, (incomplete reference).

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Radiophysics and Quantum Electronics
Translated from Izvestiya Vysshikh Uchebnykh Zavedenii

Kapinos, V. N., Y. A. Medvedev, N. N. Morozov, N. M. Stepanov, and V. D. Khokhlov, "Investigation of Nonequilibrium Conductivity of Air Ionized by a Beam of Fast Electrons," Radiophysics and Quantum Electronics (Translated from Izvestiya Vysshikh Uchebnykh Zavedenii), Vol 18, No 8, pp 802-805, Aug, 1975.

Vagin, Y. P., B. S. Punkevich, B. M. Stepanov, and V. D. Khokhlov, "Conductivity, Rate of Ion Formation, and Light Flash of Air Under the Action of a Short Pulse of Relativistic Electrons," Radiophysics and Quantum Electronics (Translated from Izvestiya Vysshikh Uchebnykh Zavedenii), Vol 26, No 5, pp 410-416, May, 1983.

Radio Science

Kuo, S. P., Y. S. Zhang, M. C. Lee, P. Kossey, and R. J. Barker, "Laboratory Chamber Experiments Exploring the Potential Use of Artificially Ionized Layers of Gas as a Bragg Reflector for Over-the-Horizon Signals," Radio Science, Vol 27, No 6, pp 851-865, Nov-Dec, 1992.

The Review of Scientific Instruments

Lint, V. A. J., J. Perez, D. Trueblood, and M. E. Wyatt, "Techniques for Studying Electrons During Ionization Afterglows," The Review of Scientific Instruments, Vol 36, No 4, pp 521-528, April 1965.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

**Soviet Journal of Plasma Physics
Translated from Fizika Plazmy**

- Velikhov, E. P., S. A. Golubev, A. S. Kovalev, I. G. Persiantsev, V. D. Pis'mennyi, A. T. Rakhimov, and T. V. Rakhimova, "Sov J Plas Phy, Vol 1, No 5, pp 463-467, Sept-Oct, 1975.
- Mnatsakanyan, A. K., and G. V. Naidis, "Dependence of Electron Energy Distribution in Molecular Nitrogen on the Vibrational Temperature and Degree of Ionization," Sov J Plas Phy, Vol 2, No 1, pp 84-89, Jan-Feb, 1976.
- Akishev, Y. S., A. P. Naparovich, and S. V. Pashkin, "Attachment Instability in a Glow Discharge in Flowing Air," Sov J Plas Phy, Vol 4, No 1, pp 86-91, Jan-Feb, 1978.
- Kozlov, B. N., "Theory of Ball Lightning," Sov J Plas Phy, Vol 4, No 1, pp 91-97, Jan-Feb, 1978.
- Aleksandrov, N. L, A. M. Konchakov, and É. E. Son, "Electron Distribution Function and Kinetic Coefficients of a Nitrogen Plasma I. Unexcited Molecules," Sov J Plas Phy, Vol 4, No 1, pp 98-102, Jan-Feb, 1978.
- Baranov, V. Y., F. I. Vysikailo, A. P. Napartovich, V. G. Niz'ev, S. V. Pigul'skii, and A. N. Starostin, "Contraction of the Decaying Plasma in a Nitrogen Discharge," Sov J Plas Phy, Vol 4, No 2, pp 201-205, March-April, 1978.
- Aleksandrov, N. L, A. M. Konchakov, and É. E. Son, "Electron Distribution Function and Kinetic Coefficients of a Nitrogen Plasma II. Vibrationally Excited Molecules," Sov J Plas Phy, Vol 4, No 5, pp 663-666, Sept-Oct, 1978.
- Bessarab, A. V., G. V. Dogaleva, N. V. Zhidkov, V. Y. Kainov, S. B. Kormer, D. V. Pavlov, V. D. Urlin, A. I. Funtikov, and B. P. Yakutov, "Decay of a Laser-Produced Air Plasma," Sov J Plas Phy, Vol 5, No 3, pp 312-316, May-June, 1979.
- Aleksandrov, N. L, and A. M. Konchakov, "Electron Transport Coefficients in a Nonequilibrium Weakly Ionized Plasma," Sov J Plas Phy, Vol 7, No 1, pp 103-106, Jan-Feb, 1981.
- Krasyukov, A. G., V. G. Naumov, L. V. Shachkin, and V. M. Shashkov, "Rate of Three-Body Electron Attachment to the Oxygen Molecule in an Externally Sustained Discharge," Sov J Plas Phy, Vol 7, No 3, pp 320-323, May-Jun, 1981.
- Karfidov, D. M., N. A. Lukina, and K. F. Sergeichev, "Breakdown of Air by a Nonuniform Microwave Electric Field," Sov J Plas Phy, Vol 7, No 2, pp 168-170, March-April, 1981.
- Genkin, S. A., Y. D. Korolev, V. G. Rabotkin, and A. P. Khuzeev, "Spatial structure of a Volume Discharge Produced by an Electron Beam in Air at Intermediate Pressures," Sov J Plas Phy, Vol 7, No 3, pp 327-330, May-June, 1981.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Bogdanova, V. I., V. S. Kuznetsov, and R. P. Fidel'skaya, "Externally Sustained Gas Discharge with Inhomogeneous Ionization," *Sov J Plas Phy*, Vol 7, No 4, pp 461-463, Jul-Aug, 1981.
- Aleksandrov, N. L., A. P. Napartovich, and A. N. Starostin, "Electron Transport Equations in a Nonequilibrium Weakly Ionized Plasma in Electric and Magnetic Fields," *Sov J Plas Phy*, Vol 9, No 5, pp 622-626, Sept-Oct, 1983.
- Golubev, S. V., V. G. Zorin, and V. E. Semenov, "Microwave Discharge in Air with Preexcitation of Neutral Molecules," *Sov J Plas Phy*, Vol 9, No 6, pp 746-748, Feb, 1983.
- Vasil'eva, A. N., I. A. Grishina, K. S. Klopovskii, A. S. Kovalev, A. P. Osipov, A. T. Rakhimov, and T. V. Rakhimova, "Kinetics of the Formation of Singlet Oxygen in a Low-Temperature Plasma," *Sov J Plas Phy*, Vol 11, No 2, pp 130-133, Feb, 1985.
- Andreev, S. I., V. L. Bychkov, O. A. Gordeeva, and I. L. Klepando, "Nonequilibrium Conductivity of Air Ionized by a Short Pulse of Fast Electrons," *Sov J Plas Phy*, Vol 11, No 9, pp 647-650, Sept, 1985.
- Aleksandrov, N. L., and A. M. Konchakov, "Electron Transport Coefficients in a Nonequilibrium Weakly Ionized Plasma of Molecular Nitrogen in Electric and Magnetic Fields," *Sov J Plas Phy*, Vol 11, No 9, pp 650-654, Sept, 1985.
- Aleksandrov, N. L., and A. P. Napartovich, "Effect of Autoionization States of Negative Ions on Electron Diffusion in a Weakly Ionized Plasma," *Sov J Plas Phy*, Vol 12, No 9, pp 634-636, Sept, 1986.
- Vikharev, A. L., O. A. Ivanov, O. Y. Kuznetsov, and A. N. Stepanov, "Sustaining a continuous Microwave Discharge in an Electronegative Gas," (Translated from *Fiz. Plazmy*), Vol 13, No 9, pp 648-652, Sept, 1987.
- Zakharov, A. I., K. S. Klopovskii, A. P. Osipov, A. M. Popov, O. B. Popovicheva, T. V. Rakhimova, V. A. Samorodov, and A. P. Sokolov, "Kinetics of Processes Excited by a Self-Sustaining Volume Discharge in Oxygen," *Sov J Plas Phy*, Vol 14, No 3, pp 191-195, March, 1988.
- Aleksandrov, N. L., A. V. Molchek, N. A. Dyatko, I. V. Kochetov, and A. P. Napartovich, "Exact Solutions of the Electron Kinetic Equation in a Nonuniform Electric Field," *Sov J Plas Phy*, Vol 14, No 3, pp 196-199, March, 1988.
- Vasil'eva, A. N., I. A. Grishina, K. S. Klopovskii, A. S. Kovalev, A. P. Osipov, A. M. Popov, O. B. Popovicheva, A. T. Rakhimov, and T. V. Rakhimova, "Excitation of Metastable States in an Oxygen-Nitrogen Plasma," *Sov J Plas Phy*, Vol 15, No 2, pp 108-111, Feb, 1989.
- Blyablin, A. A., A. N. Vasil'eva, A. S. Kovalev, and L. V. Lopaev, "Formation of Singlet Oxygen in Oxygen-Nitrogen Plasma of Beam-Driven Discharge," *Sov J Plas Phy*, Vol 15, No 8, pp 587-589, Aug, 1989.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Aleksandrov, N. L., I. V. Kochetov, and A. L. Kuranov, "Electron Kinetics in a Weakly Ionized Plasma in Air Flowing in a Transverse Magnetic Field," *Sov J Plas Phy*, Vol 17, No 12, pp 837-841, Dec, 1991.
- Korablev, A. S., "Measurement of the Density and Distribution of Negative Oxygen Ions in a Discharge Plasma," *Sov J Plas Phy* (Translated from *Fiz. Plazmy*), Vol 18, No 7, pp 469-474, July, 1992.
- Aleksandrov, N. L., I. V. Kochetov, D. A. Mazalov, A. P. Napartovich, A. F. Pal', V. V. Pichugin, and A. N. Starostin, "Electron Transport Coefficients and Attachment Instability Dynamics in a Gas-Discharge Plasma," *Sov J Plas Phy*, Vol 18, No 11, pp 758-762, Nov, 1992.
- Aleksandrov, N. L., and I. V. Kochetov, "Electron Transport Coefficients in a Weakly Ionized Plasma with Vibrationally Excited Molecules," *Sov J Plas Phy*, Vol 18, No 12, pp 828-833, Dec, 1992.
- Klopovskii, K. S., A. S. Kovalev, D. V. Lopaev, A. T. Rakhimov, and T. V. Rakhimova, "The Role of Vibrationally Excited Ozone in the Formation of Singlet Oxygen in an Oxygen-Nitrogen Plasma," *Sov J Plas Phy*, Vol 18, No 12, pp 834-839, Dec, 1992.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

**Soviet Physics Doklady
Translated from Doklady Akademii Nauk**

Velikhov, E. P., K. S. Klopovskii, A. S. Kovalev, A. P. Osipov, I. G. Persiantsev, V. D. Pis'mennyi, A. T. Rakhimov, and T. V. Rakhimova, "Excitation of Metastable States of Oxygen Molecules in a Gaseous Discharge," *Sov. Phys. Dokl.*, Vol 28, No 11, pp 953-955, Nov, 1983.

**Soviet Physics JETP Letters
Translated from Pis'ma v Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki**

Kiselev, V. A., A. K. Berezin,, Y. B. Faĭnberg, and V. P. Zeĭdlits, "Interaction of a Relativistic Monochromatic Electron Beam with Plasma Produced in the Atmosphere," *Soviet Physics JETP Letters (Translated from Pis'ma Zh. Eksp. Teor. Fiz., Vol 29, No 12, pp 762-766, 20 Jun 1979)), Vol 29, No 12, pp 700-704, 20 June 1979.*

Lisovsky, V. A., and S. D. Yakovin, "Scaling Law for a Low-Pressure Gas Breakdown in a Homogeneous DC Electric Field," (*Translated from Pis'ma Zh. Eksp. Teor. Fiz., Vol 72, No 2, pp 49-53, 2000)), Vol 72, No 2, pp 34-37, 25 July 2000.*

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

**Soviet Physics Technical Physics
Translated from Zhurnal Tekhnicheskoi Fiziki**

- Burtsev, V. A., A. A. Kondakov, V. P. Poponin, V. G. Smirnov, and V. F. Shanskii, "Heating of Molecular Gases in an Externally Maintained Discharge," *Sov. Phys. Tech. Phys.*, Vol 23, No 4, pp 419-421, April, 1978.
- Aleksandrov, N. L., "Electron Detachment from O^- and O_2^- Ions in Excited Molecules in an Air Discharge," *Sov. Phys. Tech. Phys.*, Vol 23, No 7, pp 806-808, July, 1978.
- Medvedev, Y. A., and V. D. Khokhlov, "Modified Electron-Stopping Model and the Secondary-Electron Distribution in a Weakly Ionized Gas," *Sov. Phys. Tech. Phys.*, Vol 24, No 2, pp 181-185, Feb, 1979.
- Medvedev, Y. A., and V. D. Khokhlov, "Secondary-Electron Distribution in Weakly Ionized Gas," *Sov. Phys. Tech. Phys.*, Vol 24, No 2, pp 185-188, Feb, 1979.
- Aleksandrov, N. L., "Three-Body Electron Attachment to O_2 in a Discharge in a CO_2 - N_2 -He- O_2 Mixture," *Sov. Phys. Tech. Phys.*, Vol 24, No 8, pp 917-920, August, 1979.
- Aleksandrov, N. L., "Charge Exchange of a Negative Ion with a Low Binding Energy and a Polyatomic Molecule," *Sov. Phys. Tech. Phys.*, Vol 25, No 1, pp 21-25, Jan, 1980.
- Konovalov, V. P., and É. E. Son, "Electron Distribution and Ion Composition of a Molecular Plasma Excited by an Electron Beam," *Sov. Phys. Tech. Phys.*, Vol 25, No 2, pp 178-183, Feb, 1980.
- Dutov, A. I., V. B. Nikolaev, and M. S. Yur'ev, "Electric Field Distribution in the Discharge of an Electrically Ionized CO_2 Laser," *Sov. Phys. Tech. Phys.*, Vol 25, No 11, pp 1350-1354, Nov, 1980.
- Konovalov, V. P., and É. E. Son, "Electron Energy Distribution Function in a Discharge Controlled by an Electron Beam," *Sov. Phys. Tech. Phys.*, Vol 26, No 3, pp 328-332, March, 1981.
- Kanatenko, M. A., "Method of Separate Determination of Electron and Negative-Ion Densities in a Dense Ionized Gas," *Sov. Phys. Tech. Phys.*, Vol 26, No 6, pp 669-671, June, 1981.
- Buzykin, O. G., and A. V. Burmistrov, "Breakdown of Air in an RF Induction Discharge," *Sov. Phys. Tech. Phys.*, Vol 28, No 1, pp 52-53, Jan, 1983.
- Golubovskii, Y. B., and V. M. Telezko, "Controlling Plasma Characteristics in Nitrogen by Changing the Rate of Vibrational Relaxation," *Sov. Phys. Tech. Phys.*, Vol 29, No 7, pp 727-731, July, 1984.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

- Kochetov, I. V., L. V. Shachkin, and V. M. Shashkov, "Electron Attachment in O₂-CO₂ and O₂-H₂O Mixtures and Its Dependence on the Electron Temperature," *Sov. Phys. Tech. Phys.*, Vol 29, No 7, pp 731-734, July, 1984.
- Baryshnikov, F. F., G. G. Dolgov-Savel'ev, V. A. Zhuk, and A. V. Suslov, "Electric Field of a Gas Discharge Driven by an Electron Beam Accelerated with a Time-Varying Voltage," *Sov. Phys. Tech. Phys.*, Vol 30, No 9, pp 1005-1007, Sept, 1985.
- Aleksandrov, N. L., "Formation and Breakup of O₂⁻ Ions in a Nonequilibrium Plasma at High Temperatures," *Sov. Phys. Tech. Phys.*, Vol 31, No 7, pp 835-838, July, 1986.
- Kolokolov, N. B., A. A. Kudryavtsev, and V. A. Romanenko, "Electron Energy Distribution Function in an Afterglow Plasma with a Radial Electric Field," *Sov. Phys. Tech. Phys.*, Vol 31, No 9, pp 1033-1037, Sept, 1986.
- Kuz'min, A. G., and L. I. Skurin, "Interaction of Microwave with a Layer of Nonequilibrium High-Temperature Air," *Sov. Phys. Tech. Phys.*, Vol 32, No 6, pp 627-631, June, 1987.
- Askar'yan, G. A., G. M. Batanov, S. I. Gritsinin, I. A. Kossyi, and A. Y. Kostinskii, "Plasma Chemical Processes Accompanying Discharges in Air Excited by a Microwave Beam," *Sov. Phys. Tech. Phys.*, Vol 35, No 11, pp 1275-1280, Nov, 1990.
- Vedenin, P. V., "Energy Losses of an Electron Bunch During Transport Through a Collisional Plasma," *Sov. Phys. Tech. Phys.*, Vol 36, No 6, pp 596-601, June, 1991.
- Gorbunov, N. A., N. B. Kolokolov, and A. A. Kudryavtsev, "Development of the Electron Energy Distribution in the Plasma of a Nitrogen Afterglow in the Local Regime," *Sov. Phys. Tech. Phys.*, Vol 36, No 6, pp 616-620, June, 1991.
- Bokhan, P. A., "Mechanism for Generating Intense Electron Beams in an Open Discharge," *Sov. Phys. Tech. Phys.*, Vol 36, No 6, pp 620-625, June, 1991.
- Bekker, A. M., V. S. Kozlov, O. P. Ksenofontov, V. V. Miroshkin, M. V. Stabnikov, and V. I. Tarakanov, "Linear Sparks Guided by High-Energy Particle Beams," *Sov. Phys. Tech. Phys.*, Vol 37, No 8, pp 854-858, Aug, 1992.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

**Soviet Physics - Uspekhi
Translated from Uspekhi Fizicheskikh Nauk**

Aleksandrov, N. L., "Three-Body Attachment to a Molecule," Soviet Physics – Uspekhi (Translated from Uspekhi Fizicheskikh Nauk), Vol 31, No 2, pp 101-118, Feb, 1988.

**Soviet Technical Physics Letters
Translated from Pis'ma v Zhurnal Tekhnicheskoi Fiziki**

Genkin, S. A., Y. D. Korolev, G. A. Mesyats, and V. B. Ponomarev, "Criterion for the Injection Instability of a volume Gas Discharge with External Ionization by an Electron Beam," Sov. Tech. Phys. Lett., Vol 8, No 6, pp 279-280, June, 1982.

Zarin, A. S., V. N. Kulikov, and V. E. Mitsuk, "Observation of a Significant Density of Negative Ions in a Currentless Discharge in Air; the Possibility of an Attachment Instability," Sov. Tech. Phys. Lett., Vol 8, No 11, p 590, Nov, 1982.

Zarin, A. S., V. N. Kulikov, and V. E. Mitsuk, " $O(3p^3P-3s^3S)$ Line and the $N_2(C^3\Pi_u, v=0-B^3\Pi\Sigma_v)$ Band," Sov. Tech. Phys. Lett., Vol 12, No 10, pp 491-492, Oct, 1986.

Bogdan, L. S., Y. V. Zadiraka, S. M. Levitskii, E. V. Martysh, and S. N. Makhno, "Effect of Gas Composition on the Decay of a Long-Lived Plasma Produced by a Ring Discharger," Sov. Tech. Phys. Lett., Vol 15, No 5, pp 331-332, May, 1989.

Aleksandrov, N. L., and A. M. Konchakov, "Dissociation of Oxygen Molecules in a Microwave Discharge in Air," Sov. Tech. Phys. Lett., Vol 16, No 5-6, pp 206-207, (footer in journal in error 35(3) Mar 1990), Mar, 1990.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

**Technical Physics
(continuing Soviet Physics Technical Physics)
Translated from Zhurnal Tekhnicheskoi Fiziki**

- Vasil'eva, R. V., A. V. Erofeev, A. D. Zuev, A. L. Kuranov, T. A. Lapushkina, and D. N. Mirshanov, "Experience in MHD Conversion of the Supersonic Air Flow Energy Into Electric Power," *Tech. Phys.*, Vol 39, No 2, pp 143-150, Feb, 1994.
- Grachev, L. P., I. I. Esakov, G. I. Mishin, and K. V. Khodataev, "Velocity of Ionization-Drift Breakdown Waves," *Tech. Phys.*, Vol 40, No 11, pp 1136-1139, Nov, 1995.
- Akhmadeev, V. V., L. M. Vasilyak, S. V. Kostyuchenko, N. N. Kudryavtsev, and G. A. Kurkin, "Spark Breakdown of Air by Nanosecond Voltage Pulses," *Tech. Phys.*, Vol 41, No 4, pp 327-332, April, 1996.
- Ivanovskii, A. V., "Streamer Breakdown of Air in a Uniform Electric Field," *Tech. Phys.*, Vol 41, No 8, pp 778-784, Aug, 1996.
- Grachev, L. P., I. I. Esakov, and G. I. Mishin, "Diffuse Stage in the Development of an Electrodeless Microwave Discharge in Air at Moderate Pressure," *Tech. Phys.*, Vol 41, No 12, pp 1204-1208, Dec, 1996.
- Aleksandrov, A. F., A. S. Zarin, A. A. Kuzovnikov, V. M. Shibkov, and L. V. Shibkova, "Plasma Parameters of a Nonself-Sustained Microwave Discharge Created by a Programmed Pulse," *Tech. Phys.*, Vol 42, No 7, pp 733-736, July, 1997.
- Boichenko, A. M., "Ball Lightning with a Lifetime $t \leq 1$ s," *Tech. Phys.*, Vol 44, No 10, pp 1247-1249, Oct, 1997.
- Ivanovskii, A. V., "Mechanism for Propagation of a Positive Leader," *Tech. Phys.*, Vol 45, No 6, pp 710-719, June, 2000.
- Danilov, M. F., "Composition of a Non-Self-Sustained Discharge Plasma in an $N_2 : O_2 : H_2O$ Mixture at Atmospheric Pressure," *Tech. Phys.*, Vol 45, No 10, pp 1251-1257, Oct, 2000.
- Kudryavtsev, A. A., A. L. Kuranov, V. G. Mishakov, T. L. Tkachenko, I. N. Skoblo, and M. O. Chaika, "Peculiarities of Plasma Decay in the Afterglow of a Low-Pressure Pulsed Discharge in Oxygen," *Tech. Phys.*, Vol 46, No 3, pp 299-306, 2001.
- Elokhin, A. P., "On the Longitudinal Stability of Technogenic Ionized Formations," *Tech. Phys.*, Vol 46, No 8, pp 1026-1036, Aug, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Technical Physics Letters
Translated from Pis'ma v Zhurnal Tekhnicheskoi Fiziki

- Popov, N. A., "Decay of a Plasma Formed by Pulsed Microwave Discharge in Air," Tech. Phys. Lett., Vol 19, No 4, pp 223-225, April, 1993.
- Aleksandrov, N. L., and D. A. Novitskii, "Three-Body Ion-Ion Recombination in Gaseous Mixtures," Tech. Phys. Lett., Vol 19, No 7, pp 401-402, July, 1993.
- Bedin, A. P., and G. I. Mishin, "Ballistic Studies of the Aerodynamic Drag on a Sphere in Ionized Air," Tech. Phys. Lett., Vol 21, No 1, pp 5-7, Jan, 1995.
- Aleksandrov, N. L., and A. M. Okhrimovskii, "Diffusion of Electrons in a Gas in an Electric Field with the Formation and Destruction of Negative Ions," Tech. Phys. Lett., Vol 21, No 9, pp 700-702, Sept, 1995.
- Aleksandrov, N. L., and É. M. Bazelyan, "Properties of Long Streamers in Hot Air," Tech. Phys. Lett., Vol 22, No 4, pp 301-303, April, 1996.
- Batanov, G. M., I. A. Kossyĭ, N. I. Malykh, A. A. Matveev, A. V. Sapozhnikov, and V. P. Silakov, "Characteristics of Microwave Beam Breakdown in Nitrogen and Oxygen," Tech. Phys. Lett., Vol 23, No 5, pp 405-407, May, 1997.
- Aleksandrov, N. L., É. M. Bazelyan, and D. A. Novitskii, "Influence of Moisture on the Properties of Long Streamers in Air," Tech. Phys. Lett., Vol 24, No 5, pp 367-368, May, 1998.
- Vasilyak, L. M., S. P. Vetchinin, and D. N. Polyakov, "Effect of the Rise Rate of Nanosecond High-Voltage Pulses on the Breakdown of Air Gaps," Tech. Phys. Lett., Vol 25, No 9, pp 749-751, Sept, 1999.
- Kudryavtsev, A. A., and L. D. Tsendin, "On the Possibility of Negative Ion Concentration Growth between Pulses of Discharge Current in Oxygen," Tech. Phys. Lett., Vol 26, No 7, pp 582-587, July, 2000.
- Denisov, G. V., Y. N. Novoselov, and R. M. Tkachenko, "Dissociation of Nitrogen Oxides under the Action of Pulsed Electron Beams," Tech. Phys. Lett., Vol 26, No 8, pp 710-712, Aug, 2000.
- Galechyan, G. A., and A. R. Mkrtychyan, "Experimental Study of the Sound Amplification in a Vibrationally Excited Nonequilibrium Gas Plasma," Tech. Phys. Lett., Vol 27, No 7, pp 605-607, July, 2001.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

Vacuum

Parkes, D. A., "Negative-Ion/Molecule Reactions Under Swarm Conditions," *Vacuum*, Vol 24, No 11/12, pp 561-571, Dec, 1974.

Zeitschrift für Naturforschung

Grünberg, R., "Messungen des Anlagerungskoeffizienten von Elektronen in Sauerstoff," *Zeitschrift für Naturforschung*, Vol 24A, No 7, pp 1039-1048, July, 1969.

Linder, F., and H. Schmidt, "Rotational and Vibrational Excitation of H₂ by Slow Electron Impact," *Zeitschrift für Naturforschung*, Vol 26A, pp 1603-1617, Oct 1971.

Linder, F., and H. Schmidt, "Experimental Study of Low Energy e-O₂ Collision Processes," *Zeitschrift für Naturforschung*, Vol 26A, pp 1617-1625, Oct 1971.

Zeitschrift für Physik

Wagner, K. H., "Ionization, Electron-Attachment, -Detachment, and Charge-Transfer in Oxygen and Air," *Zeitschrift für Physik*, Vol 241, pp 258-270, 1971.

Zeitschrift für Physik: A-D

CONFERENCE PROCEEDINGS

Cherlet, M, and F. Lambert, "Production and Destruction of He(2³S) Metastables in a High Pressure Helium Afterglow," Tenth International Conference on Phenomena in Ionized Gases 1971, Oxford, England, 13-18 Sept 1971, 1.1.3.1 p 13, 1971.

Delpech, J. F., "Low Temperature Helium Plasmas," 11th International Conference on Phenomena in Ionized Gases 1973 (editors L. Pekarek and L. Laska), Prague, Czechoslovakia, 10-14 Sept 1973, pp 103-130, 1973.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

RECENT BOOKS

Capitelli, M., C. M. Ferreira, B. F. Gordiets, and A. I. Osipov, Plasma Kinetics in Atmospheric Gases, Springer Series on Atomic, Optical, and Plasma Physics, Vol 31, Springer-Verlag, Berlin, Germany, p 300, 2000.
(one copy left at Stanford Campus Bookstore)

Biberman, L. M., V. S. Vorob'ev, and I. T. Yakubov, Kinetics of Nonequilibrium Low-Temperature Plasmas, (translated from Russian by S Torstveit) Consultants Bureau, New York, New York, p483, 1987.

Raizer, Y. P., Gas Discharge Physics, Second Printing, Springer-Verlag, Berlin, Germany, p 449, 1997.

OLDER BOOKS

Bortner, M. H., and T. Baurer, Defense Nuclear Agency Reaction Rate Handbook, Second Edition, NTIS AD-763699, April, 1979.

Brown, S. C., Basic Data of Plasma Physics: The Fundamental Data on Electrical Discharges in Gases, p336, AIP Press, Woodbury, NY, 1994.

Crompton, R. W., "The Contribution of Swarm Techniques to the Solution of Some Problems in Low Energy Electron Physics," Advances in Electronics and Electron Physics, Vol 27, pp 1-18, Edited by Marton, L., Academic Press, New York, New York, 1969.

Christophorou, L. G., Electron-Molecule Interactions and Their Applications Volume 1, (Details on mechanism for three-body attachment to O₂, pp 578-588), Academic Press Inc, Orlando, FL, p 699, 1984.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

ELECTROMAGNETIC EFFECTS OF PLASMA

- Borisov, N. D., and A. V. Gurevich, "High-Frequency Pulsed Air Breakdown in Intersecting Radio Beams," *Geomagn. Aeronomy*, Vol 20, pp 587-591, 1980.
- Budden, K. G., *The Propagation of Radio Waves, The Theory of Radio Waves of Low Power in the Ionosphere and Magnetosphere*, Cambridge University Press, New York, NY, pp 669, 1985.
- Epstein, P. S., "Reflection of Waves in an Inhomogeneous Absorbing Medium," *Proceedings of the National Academy of Sciences*, Vol 16, No 10, pp 627-637, 15 Oct, 1930.
- Gunar M., and R. Mennella, "Signature Studies for a Re-Entry System," in *Proceedings of the 2nd Space Congress – New Dimensions in Space Technology*, Canaveral Council of Technical Societies, pp 515-548, 1965.
- Gurevich, A. V., *Nonlinear Phenomena in the Ionosphere, Physics and Chemistry in Space Volume 10*, Springer-Verlag, New York, NY, pp 370, 1978.
- Gurevich, A. V., "An Ionized Layer in a Gas (in the Atmosphere)," *Sov. Phy. Usp.*, Vol 23, pp 862-865, 1980.
- Lanczos, C, "A Precision Approximation of the Gamma Function," *J. SIAM Numer. Anal. Ser. B*, Vol 1, pp 86-96, 1964.
- Macheret, S. O., M. N. Shneider, and R. B. Miles, "Modeling of Discharges Generated by Electron Beams in Dense Gases: Fountain and Thunderstorm Regimes," *Physics of Plasmas*, Vol. 8, No. 5, pp 1518-1528, May, 2001.
- Ruck, G. T., D. E. Barrick, W. D. Stuart, and C. K. Krichbaum, *Radar Cross Section Handbook Volume 2, Chapter 2 Planar Surfaces pp 473-537 and Chapter 10 Ionized Regions pp773-892*, Plenum Press, New York, NY, 1970.

Key references in the area of Non-Equilibrium Air Plasmas at Atmospheric Pressure

$O_2(^1\Delta_g)$ Properties, Production, Detection

- Richardson, R. J., C. E. Wiswall, P. A. G. Carr, F. E. Hovis, and H. V. Lilenfield, "An Efficient Singlet Oxygen Generator for Chemically Pumped Iodine Lasers," *Journal of Applied Physics*, Vol 52, No 8, pp 4962-4969, Aug, 1981.
- Elsayed-Ali, H. E. and G. H. Miley, "Kinetic Model of Photolytic $O_2(^1\Delta)$ Generation," *IEEE Journal of Quantum Electronics*, Vol QE-20, No 8, pp 977-984, Aug, 1984.
- McDermott, W. E., N. R. Pchelkin, D. J. Benard, and R. R. Bousek, "An Electronic Transition Chemical Laser," *Applied Physics Letters*, Vol 32, No 8, pp 469-470, 15 April 1978.
- Vasil'eva, A. N., I. A. Grishina, K. S. Klopovskii, A. S. Kovalev, A. P. Osipov, A. M. Popov, O. B. Popovicheva, A. T. Rakhimov, and T. V. Rakhimova, "Excitation of Metastable States in an Oxygen-Nitrogen Plasma," *Sov J Plas Phy*, Vol 15, No 2, pp 108-111, Feb, 1989.
- Blyablin, A. A., A. N. Vasil'eva, A. S. Kovalev, and L. V. Lopaev, "Formation of Singlet Oxygen in Oxygen-Nitrogen Plasma of Beam-Driven Discharge," *Sov J Plas Phy*, Vol 15, No 8, pp 587-589. Aug, 1989.