Mark J. Kushner

Publications and Presentations
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Refereed Journal Publications

1. M. J. Kushner and F. E. C. Culick, "Extrema of Electron Density and Output Pulse Energy in a CuCl/Ne Discharge and a Cu/CuCl Double Pulsed Laser," Appl. Phys. Lett. **33**, 728 (1978).

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Invited General Public Lectures and Publications

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17. A. Sankaran, A. Vasenkov and M. J. Kushner, "Fluorocarbon Etching of Porous Silicon Dioxide: Plasma Chemistry and Surface Kinetics, " Advanced Metallization Conference, San Diego, CA, October 2002. [in Advanced Metallization Conference 2002, edited by B. M. Melnick, T. S. Cale, S. Zaima and T. Ohta (Material Research Society, Warrendale, PA, 2003), pp. 551-556.]

18. M. Kushner, "Modeling of Microdischarge Devices", 2nd International Workshop on Microdischarges, Stevens Institute of Technology, Hoboken, NJ, October 2004.

19. M. Kushner, "Application of Advanced Modeling Techniques to Plasma Etching," Semicon-Korea, Seoul, Korea, February 2005.

20. A. Bhoj, N. Yu Babaeva, R. Arakoni and M. J. Kushner, "Plasmas In (and around) Small Places," International Conference on Phenomena in Ionized Gases, Veldhoven, Netherlands, July 2005.

21. M. J. Kushner and Y. Yang, "A Case Study of Model Based Development of Plasma Sources: Multi-frequency MERIE Reactors," 27th International Dry Process Symposium, Jeju, Korea, November 2005.

22. Ananth Bhoj, Natalia Babaeva and Mark J. Kushner, "Functionalization of Surfaces at Low and High Pressures," Joint meeting of the 6th International Conference on Reactive Plasmas and 23rd Symposium on Plasma Processing, Matsushima/Sendai, Japan, January, 2006.

23. M. J. Kushner, "The Role of Modeling of Non-equilibrium Plasmas: Scientific Curiosity or Industrial Tool?", Plenary Address, 18th International Sympoisum on Plasma Chemistry, Kyoto, Japan, August 2007.

24. Y. Yang, J. Schoeb, M. Wang and M. J. Kushner, "Progress, Opportunities and Challenges in Modeling of Plasma Etching," International Interconnect Technology Conference, Burlingame, CA, June 2008.

25. N. Y. Babaeva and M. J. Kushner, "Consequences of Inhomogeneities on Branching of Streamers in High Pressure Gases", 19th Europhysics Conference on the Atomic and Molecular Physics of Ionized Gases, Granada, Spain, July 2008.

26. Y. Yang, J. Schoeb, M. Wang and M. J. Kushner, "Plasma Tools for Nanoresolution", 2nd International Workshop on Plasma Etch and Strip in Microelectronics, Leuven, Belgium, February 2009.

27. M. J. Kushner "Fundamentals of Gas Phase Plasmas for Treatment of Human Tissue", MMVR18/NextMed (Medicine Meets Virtual Reality Conference), Newport Beach, CA, February 2011.

28. Zhongmin Xiong, Natalia Yu. Babaeva, Wei Tian and Mark J. Kushner, "Interaction of High Pressure Plasmas with their Boundaries: Channels, Tubes, Liquids and Tissue", 30th Int. Conf. on Phenomena in Ionized Gases, Belfast, N. Ireland, Sept. 2011.

29. S-H. Song , M. D. Logue , Y. Zhang , P. Tian and M. J. Kushner, "Control of Electron, Ion and Photon Distributions in Low Pressure Plasmas Using Pulsed Power", XXI Europhysics Conference on the Atomic and MolecularPhysics of Ionized Gases, Viana de Castelo, Portugal, July 2012.

30. J. P. Booth, N. Sirse, P. Chabert, P. Indelicato, A. Surzhykov and M. J. Kushner, "Dynamics of Cl_2 Inductively Coupled Plasmas: The Role of Electronic and Vibrational Excitation", 10th Frontiers in Low Temperaure Plasma Diagnostics, Rolduc, Kerkrade, The Netherlands, April 2013.

31. J. P. Booth, P. Chabert, N. Sirse, P. Indelicato, A. Surzhykov and M. J. Kushner, "Optical Diagnostics of Low-Pressure Plasmas Sustained in Halogen Gases", 31st International Conference on Phenomena in Ionized Gases, Granada, Spain, July 2013.

32. M. J. Kushner, “Plasma-Surface Interactions with Complex Materials: Inorganic, Liquid and Organic (Living) Surfaces”, 8th International Conference on Reactive Plasmas, Fukuoka, Japan, (Plenary), February 2014.

33. S-H. Song, Y. Zhang, M. D. Logue, P. Tian and M. J. Kushner, “Pulsed Plasmas for Control of Reactive Fluxes in Microelectronics Fabrication”, Plasma Etch and Strip Meeting, Grenoble, France, May 2014.

34. A. M. Lietz, J. Kruszelnicki, Z. Xiong, N. Babaeva, J. Wang and M. J. Kushner, “Confined Atmospheric Plasma Sources for Activating Liquids and Tissues”, 15th International Symposium on High Pressure Low Temperature Plasma Chemistry (HAKONE XV), Brno, Czech Republic, Sept. 2016.

Invited Conference and Workshop Presentations with Abstracts Only

1. M. J. Kushner, "Energy Partitioning and Excitation Rates in RF Parallel Plate Discharges," 37th Gaseous Electronics Conference, Boulder, CO, 1984 (Bull. Amer. Phys. Soc. 30, 143 (1985)).
2. M. J. Kushner, "Modeling Plasma and Surface Chemistry in Deposition Plasmas," Gordon Research Conference on the Chemistry of Electronic Materials, Concord, New Hampshire, 1986.
3. M. J. Kushner, "Modeling of Transient and Multi-Dimensional Effects in Discharge Excimer Lasers", Workshop on Discharge Pumped Excimer Lasers", Los Alamos, New Mexico, 1987.
4. M. J. Kushner and L. E. Kline, "Models of Plasma Deposition and Etching", 1988 Gordon Conference on Plasma Chemistry, Tilton, NH, 1988.
5. M. J. Kushner, "Modeling High Pressure Electric Discharges: Applications to Excimer Lasers", Lecturer at the NATO-ASI on Non-Equilibrium Processes in Partially Ionized Gases, Bari, Italy, June 1989.
6. M. J. Kushner, "Low Pressure Plasma Switches", Lecturer at the NATO-ASI on Non-Equilibrium Processes in Partially Ionized Gases, Bari, Italy, June 1989.
7. M. J. Kushner, "Modeling Electron Kinetics in Low Temperature Partially Ionized Plasmas", 36th National Symposium of the American Vacuum Society, Boston, October 1989.
8. M. J. Kushner, "Current Understanding and Remaining Physics Issues of the Xe:Ar(He,Ne) Laser", 42nd Gaseous Electronics Conference, Palo Alto, October 1989 (Bull. Am. Phys. Soc. 35, 1826, (1990).
9. M. J. Kushner, "A Status Report on the Availability and Needs of Electron Impact Cross Sections for Modeling Plasma Deposition", 42nd Gaseous Electronics Conference, Palo Alto, October 1989 (Bull. Am. Phys. Soc. 35, 1835, (1990).
10. M. J. Kushner and T. J. Sommerer, "The Real Time Control of Plasma Parameters: How Well Can It Be Done?", SPIE Microelectronics Processing Integration Symposium, Santa Clara, CA, Oct. 1990.
11. M. J. Kushner, "Plasma Chemical Aspects of Modeling Low Temperature and Pressure Materials Processing Reactors", AIChE Annual Meeting, Chicago, IL, Nov. 1990.
12. M. J. Kushner, T. J. Sommerer and M. J. McCaughey, "Progress Towards Modeling Remote Plasma CVD", Washington Materials Forum, Washington, DC., Mar. 1991.
13. M. J. Kushner, Y. Weng and M. J. McCaughey, "Silicon Hydride Chemistry in Remote Plasma Activated CVD", American Chemical Society, Symposium on Silicon Hydride Chemistry, Atlanta, GA, April 1991.
14. S. J. Choi, M. J. McCaughey, T. J. Sommerer and M. J. Kushner, "Generation and Transport of Particles in rf and dc Discharges", 38th Annual American Vacuum Society Meeting, Seattle, WA, November 1991.
15. M. J. Kushner, "Progress Towards Modeling Plasma Assisted Materials Processing: Kinetic, Fluid and Hybrid Models", Annual Meeting of the Division of Plasma Physics, American Physics Society, Tampa, FL, November 1991. (Bull. Am. Phys. Soc. **36**, 2372 (1991).
16. M. J. Kushner, S. J. Choi, M. J. Hartig, H. H. Hwang and T. J. Sommerer, "Simulation of Plasma Chemistry and Transport in Remote and Direct Processing Tools", 4th Annual SCOE Coordination Meeting, SemaTech, Austin, TX, March 1992.
17. M. J. Kushner, "Modeling Issues in Remote Plasma Processing", Theory and Modeling Workshop, University of Wisconsin ERC for Plasma Aided Manufacturing, April, 1992.
18. M. J. Kushner, "The Use of Hybrids in Process Modeling: Problems and Benefits", Theory and Modeling Workshop, University of Wisconsin ERC for Plasma Aided Manufacturing, April, 1992.
19. M. J. Kushner, S. J. Choi and T. J. Sommerer, "Modeling Low Pressure Inductively Coupled Plasmas for Etching", SRC-Technical Research Conference on Plasma Etch, Princeton University, May, 1992.

20. M. J. Kushner, "A Review of Models for Plasma Processing", 18th International Symposium on Rarefied Gas Dynamics", Vancouver, Canada, July 1992.

21. M. J. Kushner, "Models and Diagnostics of Plasma Processing Discharges", X International Conference on Gas Discharges and Their Applications", Swansea, Wales, September 1992.

22. M. J. Kushner, "Unifying Aspects of Discharge Physics and Gas Lasers", IEEE Lasers and Electrooptics Society Annual Meeting, Boston, MA, November 1993.

23. D. Evans, D. Storch and M. J. Kushner, "Modeling Studies of the Oxidation of Trichloroethylene and Formaldehyde in Gas Streams Using Dielectric Barrier Discharges", EPRI Symposium on Environmental Applications of Advanced Oxidation Technologies, San Francisco, CA, Feb. 1993.

24. M. J. Kushner, "Modeling Precursor Fluxes in RPECVD", Sematech Coordination Meeting, Austin, TX, April 1993.

25. M. J. Kushner, "Modeling Inductively Coupled Plasma Sources for Etching", High Plasma Density Workshop, Engineering Research Center for Plasma Aided Manufacturing, Madison, WI, June 1993.

26. P. L. G. Ventzek and M . J. Kushner, "A Model for Inductively Coupled Plasma Sources", AVS Symposium on High Plasma Density Sources, San Francisco, August 1993.

27. M. J. Kushner, “Modeling Inductively Coupled Plasmas,” Gaseous Electronics Meeting, Canberra, Australia, February 1994.

28. M. J. Kushner, “Plasma Equipment Modeling,” SRC/Sematech Workshop on Plasma Modeling, Dallas, TX, February 1994.

29. P. J. Stout and M. J. Kushner, "Two Dimensional Modeling of Optically Switched GaAs", IEEE Conference on Plasma Science, Santa Fe, NM, June 1994.

30. P. L. G. Ventzek and M. J. Kushner, "Modeling of Inductively Coupled Plasma Tools", Third World Congress on Computational Mechanics, Chiba, Japan, August 1994.

31. M. J. Kushner, "High Plasma Density Inductively Coupled Etching Tools: Computer Aided Design", 31st Annual Symposium of the New Mexico Chapter of the American Vacuum Society, Albuquerque, NM, April 1995.

32. M. J. Kushner, "Modeling of Plasma Remediation of SO_2, N_xO_y, and VOCs: Progress Report and Databases", NIST Workshop on the Treatment of Gaseous Emissions via Plasma Technology", Washington DC, March 1995.

33. M. J. Kushner, "Database Needs for Ion Processes and Neutral Chemistry in Plasma Processing", National Research Council Workshop on Database Needs in Plasma Processing, Washington DC, April 1995.

34. M. J. Kushner, "Modeling Plasma Chemistry: Present Status and Future Requirements", 12th International Symposium on Plasma Chemistry", Minneapolis, MN, August 1995.

35. M. J. Kushner, "Ion and Neutral Chemistry Databases for Plasma Processing: Current Status and Future Needs", 48th Gaseous Electronics Conference, Berkeley, CA, October 1995 (Bull. Am. Phys. Soc. **40**, 1564 (1995))

36. M. J. Kushner, "The Impact of Databases on Plasma Processing Modeling", 10th APS Topical Conference on Atomic Processes in Plasmas, San Francisco, January 1996

37. M. J. Kushner, J. Holland, W. Collison, M. J. Grapperhaus and M. S. Barnes, "3D Studies of Coil Properties in Transformer Coupled Plasma Etch Reactors-Modeling and Experiment", 1996 Symposium of the New Mexico Chapter of the American Vacuum Society, April 1996.

38. M. J. Kushner, "Particle Transport in Plasma Equipment", Improved Particle Performance in Equipment Through Contamination Modeling", Sematech Technology Transfer Workshop, San Jose, April 1996.

39. M. J. Kushner, "Plasma Equipment Modeling for Semiconductor Fabrication: Requirements and Applications", 1996 Joint American Physical Society/American Association of Physics Teachers Meeting, Indianapolis, IN, May 1996.

40. M. J. Kushner, M. J. Grapperhaus, R. J. Hoekstra and S. Rauf, "One Approach to Resolving Reactor to Sub-Micron Scales in Simulation of Plasma Etching for Microelectronics Fabrication", Conference on Multiscale Phenomena in Science and Engineering, Baton Rouge, LA, February 1997.

41. M. J. Kushner, "Database Requirements for Modeling and Diagnostics of Plasmas Materials Processing", 24th Annual United Kingdom Plasma Physics Conference, Leeds, England, March 1997.

42. S. Rauf, M. J. Grapperhaus, R. J. Hoekstra and M. J. Kushner, "Simulation Tools for the Design and Analysis of Plasma Processing Equipment", International Conference on Plasma Science, San Diego, CA, May 1997.

43. M. J. Kushner, "A History of Modeling and Simulation for Plasma Processing: A Personal Perspective", 23rd Tegal Plasma Processing Symposium, San Francisco, July 1997.

44. M. J. Kushner, "Atomic and Molecular Physics Knowledge-Bases for Modeling of Plasma Processing of Materials", APS-Division of Atomic, Molecular and Optical Physics Annual Meeting, Santa Fe, May 1998.

45. M. J. Kushner, "3-dimensional Plasma Processing Modeling", Gordon Research Conference on Plasma Processing Science, Tilton, NH, August 1998.

46. M. J. Kushner, "Modeling of Plasma Processing and the Needs for Spectroscopic Data", 6th International Colloquium on Atomic Spectra and Oscillator Strengths", Victoria, BC, August 1998.

47. M. J. Kushner, "Modeling and Simulation of Plasma Processing: Status and Database Requirements", CECAM Workshop on Electron-Molecule Collision Data for Modeling and Simulation of Plasma Processing, Lyon, France, September 1998

48. M. J. Kushner, "Electron and Photon Chemistry in Plasma Processing", Electron and Photon Initiated Chemistry Workshop, Department of Energy, Lawrence Berkeley National Laboratory, October 1998.

49. M. J. Kushner, "Plasma Modeling for Design of Equipment, Processes and Real-Time-Control Strategies", AFOSR Computational and Applied Mathematics Meeting, St. Louis, August, 1999.

50. M. J. Kushner, " Strategies for Rapidly Developing Plasma Chemistry Model", 52nd Gaseous Electronics Conference, Norfolk, VA, October, 1999. (Bull. Am. Phys. Soc. **44**, 63 (1999))

51. M. Kushner, "Introduction to the Session in Honor of Will Allis", 52nd Gaseous Electronics Conference, Norfolk, VA, October, 1999. (Bull. Am. Phys. Soc. **44**, 41 (1999))

52. M. J. Kushner, "Plasma Equipment Modeling: Fundamentals and Applications", Applied Materials Engineering and Technology Conference, Whistler, BC, Canada, May 2000.

53. M. J. Kushner, "Modeling of Collisional, Low Temperature Plasmas: Fundamentals and Applications" (Plenary), 27th IEEE International Conference on Plasma Science, New Orleans, LA, June, 2000.

54. M. J. Kushner, "Sustaining Another Decade of Innovation in Equipment and Process Design: Needs and Challenges", 47th International Symposium of the American Vacuum Society, Boston, MA, October 2000.

55. M. J. Kushner, "Dealing with Uncertainty in Modeling Industrial Plasmas: No Data, No Experiments, No Time", DARPA-AIM Uncertainty Workshop, Annapolis, MD, August 2001.

56. M. J. Kushner, "Applying Fundamental Concepts to the Design of Plasma Processes: The Importance of Rigor" Southern California American Vacuum Society Symposium, Anaheim, CA, Sept. 2001.

57. R. Dorai and M. J. Kushner, "Plasma Surface Modification of Polymers", 29th IEEE International Conference on Plasma Science, Banff, Alberta, Canada, May 2002.

58. P. Subramonium and M. J. Kushner, "Consequences of Plasma Chemistry on the Uniformity of Neutral and Ion Temperatures in Inductively Coupled Plasmas", 29th IEEE International Conference on Plasma Science, Banff, Alberta, Canada, May 2002.

59. M. J. Kushner, “Sources of Non-Equilibirum in Plasma Materials Processing,” 16th International Symposium on Plasma Chemistry, Taormina Italy, June 2003.

60. M. J. Kushner, “Continuity in Plasma Processing: Yesterday’s Accomplishments, Today’s Innovations, Tomorrow’s Challenges,” 50th International Symposium of the American Vacuum Society, Baltimore, MD, Nov. 2003.

61. M. J. Kushner, “Optimizing Plasma Processing from \$0.05/m^2 to \$1000/cm^2,” Gaseous Electronics Meeting, Murramarang, Australia, February 2004.

62. D. Shane Stafford and M. J. Kushner, “Scaling of Electrically Excited Chemical Oxygen Iodine Lasers,” Workshop on Electrically Excited COIL Lasers, Albuquerque, NM, May 2004.

63. D. Shane Stafford, June Lu, Ramesh Arakoni and Mark J. Kushner, “Thoughts About Controlling Aerodynamic Flows Using Plasmas,” Workshop on Aerodynamic Control Using Plasmas, Eglin Air Force Base, FL, May 2004.

64. M. J. Kushner, “Applications of Low Temperature Plasmas: Status, Scientific Issues and Opportunities,” 12th International Conference on Plasma Physics, Nice, France, October 2004.

65. A. Bhoj, N. Yu Babaeva, R. Dorai and M. J. Kushner, “New Opportunities in Plasma Surface Interactions for Functionalization of Surfaces,” Annual Meeting of the Division of Atomic, Molecular and Optical Physics, American Physical Society, Lincoln, Nebraska, May 2005.

66. A. Agarwal and M. J. Kushner, “Characteristics of Pulsed Plasma Doping Sources for Ultra Shallow Junction Formation,” 32nd International Conference on Plasma Science, Monterey, CA, June 2005.

67. M. J. Kushner and Y. Yang, “Magnetically Enhanced Multiple Frequency Capacitively Coupled Plasmas: Dynamics and Strategies,” 58th Gaseous Electronics Conference, San Jose, CA, October 2005.

68. N. Yu Babaeva, R. A. Arakoni and M. J. Kushner, “Strategies for Higher Yields of $O_2(^1\Delta)$ at Higher Pressures for Electrical Excited Chemical Oxygen Iodine Lasers," Workshop on Electrically Excited COIL Lasers, Albuquerque, NM, May 2006.

69. A. N. Bhoj and M. J. Kushner, "Radical Generation and Surface Functionalization of Polymers in Flowing Atmospheric Pressure Pulsed Discharges," 33rd International Conference on Plasma Science, Traverse City, MI, June 2006.

70. M. J. Kushner, "Integrated Multi-Scale Modeling of Atmospheric Pressure Plasmas for Surface Modification," Conference on Computational Physics 2006, Gyeongju, South Korea, September 2006.

71. M. J. Kushner, "Plasma Surface Interactions for Atmospheric Pressure Functionalization of Polymers," 5th EU-Japan Joint Symposium on Plasma Processing, Belgrade, Serbia, March 2007.

72. M. J. Kushner, "Progress in Modeling of Plasma Equipment for Implantation and Coating," 50th Society of Vacuum Coaters Technical Conference, Louisville, KY, April 2007.

73. M. J. Kushner, "Model Based Design of Industrial Plasma Technologies," Technological Plasma Workshop, Belfast, N. Ireland, December 2007.

74. M. J. Kushner, "Report on the Decadal Study 'Plasma Science: Advancing Knowledge in the National Interest': Low Temperature Plasma Science and Engineering," Technological Plasma Workshop, Belfast, N. Ireland, December 2007.

75. M. J. Kushner, "Considerations for Plasma Tools to Achieve Nanoscale Resolution," Applications of Plasmas Workshop: Micro-to-Nanoscale, Institute of Physics, London, UK, February 2008.

76. M. J. Kushner, “Modeling Plasma Modification of Surfaces at Low and High Pressure: Achieving High Control of Reactants”, 35th European Physical Society Plasma Physics Conference, Hersonoissos, Crete, Greece, June 2008.

77. M. Wang, J. Schoeb, Y. Yang and M. J. Kushner, "Can Plasma Modeling be a Predictive Tool in Process Development? Etching of Very High Aspect Ratio Features and Gate Stacks", 55th International Symposium of the American Vacuum Society, Boston, MA, October 2008.

78. M. J. Kushner, "Predictability in Low Temperature Plasmas: From Laboratory to Technology" (Plenary), 50th Division of Plasma Physics Annual Meeting, American Physical Society, Dallas, TX, November 2008.

79. N. Yu. Babaeva and M. J. Kushner, "Self Contained Multiphase Plasmas: Bubbles in High Pressure Gases and Liquids", 6th International Workshop on Microplasmas, San Diego, CA, March 2009.

80. M. J. Kushner, "The Plasma 2010 Report and the Low Temperature Plasma Workshop: LTPS Priorities and Directions", 6th International Workshop on Microplasmas, San Diego, CA, March 2009.

81. Y. Yang and M. J. Kushner, "Large Diameter CCPs: Frequency, Pressure, Gas Mixture, Geometry – They All Matter!", 2nd Workshop on Radio-Frequency Discharge, La Badine-Presquile de Giens, France, May 2009.

82. M. J. Kushner, "Report on Low Temperature Plasma Science Initiatives in the USA", 2nd Workshop on Radio-Frequency Discharge, La Badine-Presquile de Giens, France, May 2009.

83. M. J. Kushner, "Maintaining Specifications in Low Pressure Plasma Modification of Materials: Polymers and Semiconductors", Colloque de Plasma-Quebec, University of Montreal, Montreal, Quebec, May 2009.

84. Y. Yang and M. J. Kushner, "Development of Large Area Materials Processing Technologies: High Frequency CCPs for Microelectronics to Web Processing of Polymers" (Plenary), 2nd International Conference on Microelectronics and Plasma Technology (ICMAP 2009), Busan, Korea, Sept. 2009.

85. M. J. Kushner, "Controlling Electron Energy Distributions for Plasma Technologies", 62nd Gaseous Electronics Conference, Saratoga Springs, NY, October 2009.

86. Y. Yang, M. Wang and M. J. Kushner, "Multi-frequency, Finite-wavelength and Dc-augmentation Effects in Large Area Capacitive Sources", 62nd Gaseous Electronics Conference, Saratoga Springs, NY, October 2009.

87. N. Yu Babaeva, Y. Yang, and M. J. Kushner, "Plasma Sources at the Extremes: Large Areas to Liquid Densities", 6th Asia-Pacific International Symposium on the Basics and Applications of Plasma Technology, Hsinchu City, Taiwan, December 2009.

88. N. Yu Babaeva and M. J. Kushner, "Modeling DBD-Plasma Surface Interactions", AFOSR Plasma Actuator Workshop, Gainesville, FL, February 2010.

89. M. J. Kushner, "Controlling the Properties of Low Temperature Plasmas: The Role of Modeling in Investigating the Science and Developing the Technology", APS Division of Atomic, Molecular and Optical Physics Annual Meeting, Houston, TX, May 2010.

90. N. Yu. Babaeva and M. J. Kushner, "A Computational Study of Interactions of Multiple Plasma Filaments in DBDs with Human Skin", IEEE International Conference on Plasma Science, Norfolk, VA, June 2010.

91. M. J. Kushner and N. Yu. Babaeva "Plasmas in Bubbles in Liquids and Streamers Intersecting with Liquids", 20th European Conference on the Atomic and Molecular Physics of Ionized Gases (ESCAMPIG), Novi Sad, Serbia, July 2010.

92. Y. Yang, N. Yu. Babaeva, S-H. Song, J Shoeb and M. J. Kushner, "Controlling Plasmas for Nanofabrication and Plasma Treatment of Living Tissue", 18th International Vacuum Congress, Beijing, China, August 2010.

93. N. Yu Babaeva and M. J. Kushner, "Models for the Interaction of Dielectric Barrier Discharges With Exposed Cells and Tissues Under Liquids", 3rd International Conf. on Plasma Medicine, Griesfwald, Germany, September 2010.

94. M. J. Kushner, "The Role of Modeling in Developing New Plasma Technologies: Microelectronics to Plasma Medicine and Liquids", 63rd Gaseous Electronics Conference, Paris, France, October 2010. (Plenary)

95. N. Yu. Babaeva, S-H. Song, J. Shoeb, M. Wang, J.-C. Wang, and M J. Kushner, "Controlling Plasma Sources: Nano to Bio." 57th American Vacuum Society International Symposium, Albuquerque, NM, October. 2010.

96. N. Y. Babaeva, M. J. Kushner, A. Sato, N. Brates, and S. Yamamoto, "Glow-to-Arc Transition in Mercury-Free HID Lamps: Cathode Phenomena and Salt Evaporation Model", 38th Int. Conf. Plasma Science, Chicago, IL, June 2011.

97. N. Yu. Babaeva, Z. Xiong, W. Tian and M. J. Kushner, "Fundamentals of Plasma Tissue Interactions: Control and Delivery of Radicals, Ions and Electric Fields", 1st International Symposium of Plasma Biosciences, Seoul, Korea, August 2011.

98. M. J. Kushner, "Accomplishing the Difficult with Atmospheric Pressure Plasmas: High Value Depositon (and NBC Cleanup)", DARPA Workshop on Atmospheric Pressure Weakly Ionized Plasmas for Energy Technologies, Flow Control and Materials Processing, Princeton, New Jersey, August 2011.

99. N. Yu. Babaeva and M. J. Kushner, "Challenges in Modeling of Plasma Interactions in Medicine and Biology: What Insights Can You Expect?", 58th American Vacuum Society International Symposium, Memphis, TN, October. 2011

100. N. Yu. Babaeva, Z. Xiong, W. Tian, N. Ning, D. B Graves and M. J Kushner, "Modeling the Interaction of Plasmas with Tissues and Wounds", Materials Research Spring Symposium, San Francisco, CA, April 2012.

101. N. Yu. Babaeva, Z. Xiong, J. Wang and M. J. Kushner, "Modeling Studies of Microplasmas on and Near Surfaces: Surface Hugging, Crack Penetrating, Endoscopy…and Print Engines", Workshop on Stability and Instabilities of Microplasmas, Ruhr-Universität, Bochum, Germany, May 2012.

102. M. J. Kushner", Model Based Design for Non-Equilibrium Plasmas: Reality, Expectation or Fantasy?", 12th European Plasma Conference: High-Tech Plasma Processing, Bologna, Italy, June 2012.

103. N. Yu. Babaeva, Z. Xiong, E. Robert, V. Sarron, J.-M. Pouvesle, and M. J. Kushner, "Conformal Atmospheric Pressure Plasmas for Biomedical Applications: Along Surfaces, Inside Tubes and Penetrating Cracks", 4th International Conference on Plasma Medicine, Orleans, France, June 2012.

104. E. Robert, V. Sarron, L. Brullé, D. Riès, M. Vandamme, S. Dozias, S. Lerondel, A. Le Pape, J.-M. Pouvesle, Z. Xiong and M. J. Kushner, "Pulsed Atmospheric-pressure Plasma Streams produced by Plasma Gun: characterization and application for tumor treatment", 4th International Conference on Plasma Medicine, Orleans, France, June 2012.

105. M. J. Kushner, "Low Temperature Plasmas: Photons Matter - Often Ignored but Always There", Gordon Research Conference on Plasma Processing Science, Smithfield, Rhode Island, July 2012.

106. M. J. Kushner, "Model Based Design of Low Temperature Plasma Reactors", 26th Summer School and International Symposium on the Physics of Ionized Gases, Zrenjanin, Serbia, August 2012.

107. N. Yu. Babaeva, W. Tian, S. A. Norberg and M. J. Kushner, "Modeling the Interaction of Plasma with Exposed Cells and Cells and Under Liquid", Plasma-to-Plasma Workshop, Lorentz Center, University of Leiden, Leiden, The Netherlands, January 2013.

108. W. Tian, S. A. Norberg, N. Y. Babaeva and M. J. Kushner, "Atmospheric Pressure Plasmas Incident onto Thin Liquid Layers", Workshop on Plasma Surface Interactions, 66th Gaseous Electronics Conference, Princeton, NJ, October 2013.

109. M. J. Kushner, "Plasma Surface Interactions at Inorganic, Liquid and Organic (Living) Surfaces: Differences and Similarities", Fundamentals of Plasma Surface Interactions Workshop, University of Antwerp, Antwerp, Belgium, November 2013.

110. M. J. Kushner, "The Virtual World of Modeling Plasma Processes", 60th American Vacuum Society International Symposium, Long Beach, CA, November 2013.

111. P. Tian, Sang-Heon Song and M. J. Kushner, "Case Studies in Plasma Modeling for Device and Equipment Design: Phtons, Ions and Pulsing", Quantemole Workshop Linking Simulation with Experiment, London, April 2014.

112. M. J. Kushner, "Model Aided Plasma Process Development: Met, Unmet and to be Made Promises", SPIE 2014 Advanced Lithography – Advanced Etch Technology for Nanopatterning, San Jose, CA, Feb. 2014.

113. W. Tian, S. A. Norberg, N. Yu. Babaeva, Z. Xiong, J-C. Wang and M. J. Kushner, "Progress and Needs in Modeling of Plasma Interactions with Tissue: Wet, Dry, Direct and Indirect", 5th International Conference on Plasma Medicine, Nara, Japan, May 2014.

114. C. Mark Denning, P. Tian and M. J. Kushner, "Optical and Probe Diagnostics and Computational Modeling of a Low Pressure, Microwave Excited Microplasma Source", 41st IEEE Conference on Plasma Science, Washington DC, May 2014.

115. S. A. Norberg, W. Tian, E. Johnsen and M. J. Kushner, "Variability in Activantion of Thin Water Lyaers by Direct and Remote Plasma Sources", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

116. Y. Zhang, M. J. Kushner and S. Shannon, "Control of Ion Energy Distributions Through the Phase Difference Between Multiple Frequencies in Capacitively Coupled Plasmas", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

117. W. Tien, S. A. Norberg, A. M. Lietz, E. Johnsen and M. J. Kushner, "Liquid Transformed Activation Energy: How Controlling Plasma Properties Translates to Chemically Active Species in Thin Liquid Layers", COST Action TD1208, *Electrical Discharges with Liquids for Future Application*, Barcelona, Spain, February 2015.

118. S. A. Norberg, W. Tian, A. M. Lietz and M. J. Kushner, "Strategies for Customizing Reactive Fluxes in Plasma Treatment of Liquid Covered Tissue", International Workshop of Plasma Treatment of Cancer, Nagoya, Japan, March 2015.

119. S. Reuter, A. Schmidt-Bleker, H. Tresp, S. Iseni, J. Winter, S. A. Norberg, J. S. Sousa, Th. v. Woedtke, V. Puech, M. Kushner and K.-D. Weltmann, "Diagnostics of atmospheric plasmas and plasmas on liquid", 11th Frontiers in Low Temperature Plasma Diagnostics, Porquerolles, Hyeres, Var, France, May 2015.

120. Y. Zhang, S.-H. Song, P. Tian, S. Shannon and M. J. Kushner, "Insights from Modeling of Pulse Power for Control of Deposition and Surface Modification", 42nd International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 2015.

121. M. J. Kushner, "Overview of Research Challenges in Low Temperature Plasma Science and Engineering", Northrup-Grumman Workshop on Plasma Science, Redondo Beach, CA, April 2015.

122. Y. Zhang and M. J. Kushner, "Coupling of Scales in Modeling of Semiconductor Manufacturing", Quantemol Workshop, London, 11 September 2015.

123. M. J. Kushner, "The Empowerment of Plasma Modeling by Fundamental Electron Scattering", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

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127. M. J. Kushner, "Two Stories of Lessons Learned in Developing Reaction Mechanisms: Where Should We (LTPs) Begin", Workshop on Input Data for Plasma Modeling, Eindhoven, The Netherlands, April 2016.

128. M. J. Kushner, "Enabling Technology Innovation through Plasma Modeling: Biotechnology as the Next Frontier", Plenary Lecture, 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

129. M. J. Kushner, "The role of modeling in developing plasma technologies: Environment and biotechnology", 18th International Congress on Plasma Physics, Kaohsiung, Taiwan, June 2016.

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132. M. J. Kushner, "The Role of Plasma Modeling in the Innovation Cycle for Nanofabrication", Lurie Nanofabrication Facility Annual Users Meeting, University of Michigan, Ann Arbor, MI, December 2016.

133. M. J. Kushner, "Creating a Vision and Building Teams for NSF Science and Technology Centers", Workshop on Developing Science and Technology Centers, College of Engineering, University of Michigan, December 2016.

134. M. J. Kushner, "Contributions of Basic Plasma Physics to Technology Development Enabled by Modeling", 20th Anniversary Workshop for the NSF/DOE Partnership in Basic Plasma Science and Engineering, NSF Headquarters, Washington, DC, January 2017.

135. J. Kruszelnicki, A. M. Lietz and M. J. Kushner, "Interaction Between Atmospheric Pressure Plasmas and Liquid Micro-Droplets", International Conference on Plasmas and Liquids, Prague, Czech Republic, March 2017.

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428. D. Szeremley, M. Shihab, S. Steves, P. Awakowicz, R. P. Brinkmann, M. J. Kushner, and T. Mussenbrock, "Ion energy distribution functions at the inner surface of a PET bottle in a microwave driven low pressure plasma" Microwave Workshop 2012, Bochum, Germany, November 2012.

429. D. Szeremley, M. Shihab, S. Steves, P. Awakowicz, R. P. Brinkmann, M. J. Kushner, and T. Mussenbrock, "Ion energy distribution functions at the inner surface of a PET bottle" WELTPP-15 , Kerkrade, The Netherlands, November 2012.

430. M. J. Kushner, "The Heberlein Way: Understanding Plasma Science by Starting with the Fundamentals", Heberlein Symposium on Plasma Science and Technology, University of Minnesota, March 2013.

431. W. Tian, P. Tian, V. M. Donnelly, D. Economou, D. B. Graves, G. Oehrlein and M. J. Kushner, "Photons: Semiconductor Processing and Plasmas-on-Water", 4th Annual Meeting, DOE Center on Control of Plasma Kinetics, University of Maryland, May 2013.

432. M. D. Logue, M. J. Kushner, W. Zhu, H. Shin, L. Liu, S. Sridhar, V. M. Donnelly and D. Economou, "Control of Electron Energy Distributions in Inductively Coupled Plasmas Using Tandem Sources", 4th Annual Meeting, DOE Center on Control of Plasma Kinetics, University of Maryland, May 2013.

433. Z. Xiong, E. Robert, V. Sarron, J-M. Pouvesle and M. J. Kushner, "Atmospheric Pressure Plasma Transfer of Jets and Bullets", 4th Annual Meeting, DOE Center on Control of Plasma Kinetics, University of Maryland, May 2013.

434. N. Yu. Babaeva and M. J. Kushner, "Interaction of Multiple Atmospheric Pressure Microplasma Jets: He/O_2 into Air", 4th Annual Meeting, DOE Center on Control of Plasma Kinetics, University of Maryland, May 2013.

435. S.-H. Song and M. J. Kushner, "Control of Ion Energy Distributions Using Pulsed Power in Capacitively Coupled Plasmas with Variable Blocking Capacitance", 4th Annual Meeting, DOE Center on Control of Plasma Kinetics, University of Maryland, May 2013.

436. C. M. Denning, G. Partridge, R. Urdahl, P. Tian and M. J. Kushner, "Thomson Scattering Diagnostics and Computational Modeling of a Low Pressure Microwave Excited Microplasma Source", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

437. Z. Xiong and M. J. Kushner, "Atmospheric Pressure Plasmas Penetrating Through a Packed Bed Reactor", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

438. W. Tian and M. J. Kushner, "The Interaction of Atmopsheric Pressure Plasmas With Liquid Covered Tissues", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

439. J.-C. Wang, M. J. Kushner, S. Chang, N. Leoni, H. Birecki, M. Lee, T. Anthony and O. Gila, "Glow-like Atmospheric Pressure Micro-Discharges Produced by Charge Rollers", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

440. M. D. Logue, M. J. Kushner, W. Zhu, H. Shin, L. Liu, S. Sridhar, V. M. Donnelly, D. J. Economou, "Control of Electron Energy Distributions in Inductively Coupled Plasmas using Tandem Sources", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

441. N. Yu. Babaeva and M. J. Kushner, "Arrays of Atmospheric Pressure Micro-Plasma Jets: He/O_2 and Ar Jets into Air", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

442. S. A. Norberg, E. Johnsen and M. J. Kushner, "Reactive Oxygen and Nitrogen Species (RONS) Produced by Repetitive Pulses in Atmospheric Pressure Plasma Jets", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

443. P. Tian, S.-H. Song, M. J. Kushner and S. Macheret, "Properties of Bipolar DC-Pulsed Microplasmas at Intermediate Pressures", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

444. S.-H. Song, R. Le Picard, S. L. Girshick, U. R. Kortshagen and M. J. Kushner, "Properties of Nonthermal Capacitively Coupled Plasmas Generated in Narrow Quartz Tubes for Synthesis of Silicon Nanoparticles", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

445. Y. Zhang, M. J. Kushner, S. K. Nam and S. Sriraman, "Computational Investigation of Dual-Frequency Power Transfer in Capacitively Coupled Plasmas", 40TH International Conference on Plasma Science, San Francisco, CA, June 2013.

446. Z. Xiong and M. J. Kushner, "A Statistical Photon Transport Model: Application to Streamer Discharges in Dry Air", 66th Gaseous Electronics Conference, Princeton, NJ, October 2013.

447. W. Tian, S. A. Norberg, N. Y. Babaeva and M. J. Kushner, "Atmospheric Pressure Plasmas Incident onto Thin Liquid Layers", 66th Gaseous Electronics Conference, Princeton, NJ, October 2013.

448. P. Tian, M. Denning, R. Urdhal and M. J. Kushner, "VUV Photon Fluxes from Microwave Excited Microplasmas at Low Pressure", 66th Gaseous Electronics Conference, Princeton, NJ, October 2013.

449. J. P. Booth, P. Chabert, B. Pruvost, M. Foucher, V. Guerra, I. Fabrikant, and M. J. Kushner, "Vibrational kinetics in a Cl_2 inductively-coupled plasma", 66th Gaseous Electronics Conference, Princeton, NJ, October 2013.

450. L. Liu, W. Zhu, S. Sridhar, V. M. Donnelly, D. J. Economou, M. D. Louge and M. J. Kushner, "Synergistic Behavior of a Dual Tandem Plasma Source", 66th Gaseous Electronics Conference, Princeton, NJ, Oct. 2013.

451. S. A. Norberg, A. Schmidt-Bleker, J. Winger, S. Reuter, E. Johnsen and M. J. Kushner, "Controlling Reactive Oxygen and Nitrogen Species (RONS) Production by Atmospheric Pressure Plasma Jets Using Gas Shields", 66th Gaseous Electronics Conference, Princeton, NJ, October 2013.

452. N. Moore, W. Gekelman, P. Prybil, Y. Zhang and M. J. Kushner, "Ion Velocity Distribution Function and Electric Field measurements in a Dual-frequency rf Sheath', APS Division of Plasma Physics Meeting, Denver, CO, November 2013.

453. J.-C. Wang, Z. Xiong, C. Eun, X. Luo, Y. Gianchandani and M. J. Kushner, "Simulation of Microplasma Based Pressure Sensors", 60th American Vacuum Society International Symposium, Long Beach, CA, November 2013.

454. M. D. Logue, W. Zhu, H. Shin, L. Lilu, S. Sridhar, V. M. Donnelly, D. J. Economou and M. J. Kushner, "Control of Energy Distributions in Inductively Coupled Plasmas using Tandem Power Sources", 60th American Vacuum Society International Symposium, Long Beach, CA, November 2013.

455. S-H. Song and M. J. Kushner, "Control of SiO_2 Etch Properties by Pulsed Capacitively Coupled Plasmas Sustained in $Ar/CF_4/O_2$", 60th American Vacuum Society International Symposium, Long Beach, CA, November 2013.

456. Y. Zhang and M. J. Kushner, "Ion Energy-Angular Distributions in Dual Frequency Capacitively Coupled Plasmas Using Phase Control", 60th American Vacuum Society International Symposium, Long Beach, CA, November 2013.

457. J-C. Wang, S. Chang, N. Leoni, H. Birecki, M. Lee, T. Anthony, O. Gila and M. J. Kushner, "The Charging of Photoconductors in Print Engines by Microplasmas", Asia-Pacific International Symposium on the Basics and Applications of Plasma Technology, Hsinchu, Taiwan, December 2013.

458. O. Zatsarinny, K. Bartschat, N. Babaeva and M. Kushner, "Electron Collisions with Cesium Atoms – Benchmark Calculations and Applications to Modeling an Excimer-Pumped Alkali Laser", 45th APS Division of Atomic, Molecular and Optical Physics, Madison, Wisconsin, June 2014.

459. W. Tian and M. J. Kushner, "Atmospheric Pressure Dielectric Barrier Discharge Interaction with Wet Tissue – Modeling Long(er) Term Exposure", 1st International Workshop on Plasma for Cancer Treatment, Washington DC, March 2014.

460. S. A. Norberg and M. J. Kushner, "Plasma Jet Interactions with Dry and Wet Tissue", 1st International Workshop on Plasma for Cancer Treatment, Washington DC, March 2014.

461. S. A. Norberg, W. Tian and M. J. Kushner, "Controlling Plasma Jets with Gas Shields and Their Interactions with Water Covered Tissue", 5th International Conference on Plasma Medicine, Nara, Japan, May 2014.

462. W. Tian and M. J. Kushner, "Long-Term Exposure of Atmospheric Dielectric Barrier Discharges onto Wet Tissue," 41st IEEE Conference on Plasma Science, Washington DC, May 2014.

463. N. Yu. Babaeva, S. A. Norberg and M. J. Kushner, "Dynamics of Repetitively Plasma Bullets in He Plasma Jets into Air", 41st IEEE Conference on Plasma Science, Washington DC, May 2014.

464. P. Tian, M. J. Kushner, M. Denning, M. Vahidpour and R. Urdahl, "Plasma Dynamics of Microwave Excited Microplasmas in a Sub-Millimeter Cavity", 41st IEEE Conference on Plasma Science, Washington DC, May 2014.

465. Y. Zhang, M. J. Kushner and S. Shannon, "Control of Ion Energy Distributions Using Phase Shifting in Multi-Frequency Capacitively Coupled Plasmas", 41st IEEE Conference on Plasma Science, Washington DC, May 2014.

466. N. Yu. Babaeva, A. H. Markosyan, O. Zatsarinny, K. Bartschat and M. J. Kushner, "Plasma Formation during operation of a diode pumped alkali laser", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

467. N. Yu. Babaeva and M. J. Kushner, "Self-Organization in DBDs on a Single Pulse: Period Structcures and Diffuse Discharges", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

468. O. Zatsarinny, K. Bartschat, N. Babaeva and M. Kushner, "Electron collisions with Ceasium atoms – benchmark calculations and applcations to modeling an excimer-pumped alkali laser", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

469. W. Tian and M. J. Kushner, "Long Term Effects of Multiple DBD Pulses on Thin Liquid Layers over Tissue: Fluences and Electric Fields", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

470. R. Le Picard, S-H. Song, D. Porter, M. J. Kushner and S. Girshick, "Numerical Simulation of a capactively coupled RF plasma flowing through a tube for the synthesis of silicon nanocrystals", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

471. S. A. Norberg, W. Tian, E. Johnsen and M. J. Kushner, "Multiple Pulses from Plasma Jets onto Liquid Covered Tissue", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

472. P. Tian, M. Denning, R. Urdahl and M. J. Kushner, "Dynamics of a Microwave Excited Microplasma Flowing into Very Low Pressures", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

473. S.-H. Song and M. J. Kushner, "Profile Control Using Pulsed Power During Plasma Etching in Capacitviely Coupled Plasmas", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

474. S. Sriraman, A. Paterson, Y. Zhang and M. J. Kushner, "Insights into Plasma Etch Profile Evolution with 3D Profile Simulation", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

475. N. Moore, W. Gekelman, P. Pribyl, Y. Zhang and M. J. Kushner, "Ion Velocity Distribution Function Measurements in a Dual-Frequency rf Sheath", 67th Gaseous Electronics Conference, Raleigh, NC, November. 2014.

476. Y. Zhang, M. J. Kushner, S. Srirman and A. Paterson, "Insights to Critical Dimension Control through 3-Dimensional Profile Simulation for Plasma Etching", 61st American Vacuum Society International Symposium, Baltimore, MD, November 2014.

477. A. Zafar, Y. Zhang, T. Kummerer, D. H. Clark, M. J. Kushner, D. Coumou and S. Shannon, "Ion Energy Distribution Control Using Phase Locked Harmonic Drive", 61st American Vacuum Society International Symposium, Baltimore, MD, November 2014.

478. A. M. Lietz, S. A. Norberg and M. J. Kushner, "Ionization Waves and Breakdown in Two-Ring Electrode Atmospheric Pressure Plasma Jets", 8th International Conference on Microplasmas, Newark, NJ, May 2015.

479. P. Tian, C. Qu and M. J. Kushner, "Properties of Bipolar and Unipolar DC-Pulsed Microplasma Arrays at Intermediate Pressures", 8th International Conference on Microplasmas, Newark, NJ, May 2015.

480. S. Huang, V. Volynets, S.-H. Lee, I-C. Song, S. Lu, J. Hamilton, J. Tennyson and M. J. Kushner, "Dry Etching of Si_3N_4, SiO_2 and Si Using Remote Plasma Sources Sustained in NF_3 Mixtures", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

481. P. Tian, C. Qu and M. J. Kushner, "Properties of DC-Pulsed Microplasma Arrays at Intermediate Pressures", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

482. E. Lock, P. Xu, Y. Rosen, T. Kohler, A. Ramanayaka, J. Presigiacomo, M. Osofsky, M. Kushner and K. Osborn, "Controlling Si/SiN Interface by Plasma Induced Functionalization for Quantum Computing Applications", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

483. A. Lietz and M. J. Kushner, "Breakdown in Atmospheric Pressure Plasma Jets" Nearby Grounds and Voltage Rise Time", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

484. W. Gekelman, N. Moore, P. Pribyl and M. Kushner, "Measurement of the Ion Distribution Function in a Dual Frequency Plasma Etch Tool", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

485. C. Qu, P. Tian and M. J. Kushner, "Scaling of Small Arrays of Microplasmas", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

486. W. Tian and M. J. Kushner, "Controlling Fluences of Reactive Species Produced by Multipulse DBDs onto We Tissue: Frequency and Liquid Thickness", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

487. A. H. Markosyan and M. J. Kushner, "Effects of Plasma Formation on the Cesium Diode (DPAL) and Excimer (XPAL) Pumped Alkali iLaser", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

488. A. H. Markosyan, R. Le Picard, D. H. Porter, S. L. Girshick and M. J. Kushner, "Capacitively Coupled RF Plasmas for the Synthesis of Silicon Nanocrystals: Scaling and Mechanisms", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

489. A. R. Gibson, T. Gans, M. Foucher, D. Marinov, P. Chabert, M. Kushner and J-P. Booth, "Modelling the influence of neutral gas heating mechanisms on particle densities in inductively coupled chlorine discharges", 68th Gaseous Electronics Conference, Honolulu, HI, October 2015.

490. S. Huang, V. Volynets, S.-H. Lee, I-C. Song, S. Lu, J. R. Hamilton, J. Tennyson and M. J. Kushner "Insights to Scaling Remote Plasma Sources Sustained in NF_3 Mixtures", 62nd American Vacuum Society International Symposium, San Jose, CA, October 2015.

491. Y. Zhang, S. Sriraman, M. Kushner and A. Paterson, "Pattern Loading in Etch through Profile Simulation", 62nd American Vacuum Society International Symposium, San Jose, CA, October 2015.

492. C. Qu, P. Tian and M. J. Kushner, "Customizing Arrays of Microplasmas for Controlling Properties of Electromagnetic Waves", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

493. C. Huard, M. J. Kushner, Y. Zhang, S. Sriraman, J. R. Belen and A. Paterson, "Origins of Aspect Ratio Dependent Etching in Plasma Materials Processing", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

494. J. Kruszelnicki, K. W. Engeling, J. E. Foster and M. J. Kushner, "Properties of Atmospheric Pressure Plasmas in Packed Bed Reactors", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

495. S. J. Lanham and M. J. Kushner, "Chirped Pulsed Bias-Power in Inductively Coupled Plasma", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

496. A. M. Lietz and M. J. Kushner, "An Array of Atmospheric Pressure Plasma Jets from a Single Ionization Source", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

497. A. H. Markosyan, R. Le Picard, D. H. Porter, S. L. Girshick and M. J. Kushner, "Numerical Studies of Synthesis of Silicon Nanoparticles in Capacitively Coupled Radio Frequency Plasmas", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

498. A. H. Markosyan and M. J. Kushner, "Plasma Formation During Operation of Diode (DPAL) and Excimer (XPAL) Pumped Alkali Lasers", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

499. S. Huang, M. J. Kushner, V. Volynets, S. Lee, I.-C. Song and S. Lu, "Optimizing Remote Plasma Sources for Selective Etching", 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, June 2016.

500. C. Huard, M. J. Kushner, Y. Zhang, S. Sriraman and A. Paterson, "Investigating the role of neutral transport in ALE and RIE processes using a 3-dimensional Monte Carlo Feature Profile Model", Atomic Layer Etching Workshop, Dublin Ireland, July 2016.

501. A. M. Lietz, M. J. Kushner, V. Petrishchev and I. V. Adamovich, "Surface Ionization Waves over Water at Moderate Pressure", Gordon Research Conference on Plasma Processing Science, Plymouth, New Hampshire, July 2016.

502. C. Qu, P. Tian and M. J. Kushner, "Customizing Arrays of Microplasmas for Controlling Properties of Electromagnetic Waves", Gordon Research Conference on Plasma Processing Science, Plymouth, New Hampshire, July 2016.

503. J. Kruszelnicki, K. W. Engeling, J. E. Foster and M. J. Kushner. "Properties Influencing Plasma Discharges in Packed Bed Reactors", Gordon Research Conference on Plasma Processing Science, Plymouth, New Hampshire, July 2016.

504. S. Huang and M. J. Kushner, "Multiple Remote Plasma Sources for Selective Etching", Gordon Research Conference on Plasma Processing Science, Plymouth, New Hampshire, July 2016.

505. S. J. Lanham and M. J. Kushner, "Customized Bias Frequencey Waveforms to Control Ion Energy Distributions in ICP Reactors", Gordon Research Conference on Plasma Processing Science, Plymouth, New Hampshire, July 2016.

506. J.R. Hamilton, S. Huang, M. J. Kushner, S. Rahimi, C. Hill, A. Dzarasova, and J. Tennyson, "Quantemole Database of Validated Chemistry Datasets: Calculated Cross Sections for Electron NFx Collisions as an Example", 10th International Conference on Atomic and Molecular Data and Their Applications", Gusan, Korea, September 2016.

507. A. M. Lietz and M. J. Kushner, "Impact of Electrode Plascement on RONS Production in Atmospheric Pressure Plasma Jets", 6th International Conference on Plasma Medicine, Bratislava, Slovakia, September 2016.

508. A. H. Markosyan, R. Le Picard, S. L. Girshick and M. J. Kushner, "Synthesis of Silicon Nanoparticles in Inductively Coupled Plasmas", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.

509. N. Yu. Babaeva, G. V. Naidis and M. J. Kushner, "Numerical investigation of the interaction of positive streamers with bubbles floating on a liquid surface", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.

510. J. Kruszelnicki, K. W. Engeling, J. E. Foster and M. J. Kushner, "Properties Influencing Plasma Discharges in Packed Bed Reactors", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.

511. J. Kruszelnicki, K. W. Engeling, J. E. Foster and M. J. Kushner, "Effects of pulse-to-pulse residual species on discharges in repetitively pulsed discharges through packed bed reactors", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.

512. A. M. Lietz and M. J. Kushner, "Electrode Configurations in Atmospheric Pressure Plasma Jets", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.

513. K. W. Engeling, J. E. Foster, J. Kruszelnicki, and M. J. Kushner, "Investigation of the Time Evolutino of Microdischarges in a 2-dimensional Packed Bed Reactor", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.

514. Y. Zhu, S. Starikovskaya, N. Yu. Babaeva and M. J. Kushner, "Numerical Investigation of Propagation and Energy Deposition of Fast Ionization Waves Generated by Nanosecond Pulsed Discharge", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.\

515. C. M. Huard, M. J. Kushner, Y. Zhang, S. Sriraman and A. Patterson, "System trade-offs of atomic layer etching (ALE) of high aspect ratio 3D features", 63rd American Vacuum Society International Symposium, Nashville, TN, November 2016.

516. C. Qu, P. Tian and M. J. Kushner, "Customizing arrays of microplasmas for controlling properties of electromagnetic waves", 63rd American Vacuum Society International Symposium, Nashville, TN, November 2016.

517. P. Tian, S. Huang, M. J. Kushner, V. Volynets, S-H. Lee, I-C. Song and S. Lu, "Control of uniformity and ion energy distributions in tri-frequency capacitively coupled plasmas accounting for finite wavelength effects", ", 63rd American Vacuum Society International Symposium, Nashville, TN, November 2016.

518. S. Huang, C. Huard, M. J. Kushner, V. Volynets, S-H. Lee, I-C. Song and S. Lu, "Plasma Etching of High Aspect Ratio Contacts in SiO_2 using $Ar/C_4F_8/O_2$ Mixtures: A Computational Investigation", 63rd American Vacuum Society International Symposium, Nashville, TN, November 2016.

519. S. J. Lanham and M. J. Kushner, "Customizing ion energy distributions in pulsed plasmas with chirped bias power", 63rd American Vacuum Society International Symposium, Nashville, TN, November 2016.

520. K. W. Engeling, J. E. Foster, J. Kruszelnicki and M. J. Kushner, "Micro-Discharge Evolution in a 2-Dimensional Packed Bed Reactor", 44th International Conference on Plasma Science, Atlantic City, NJ, May 2017. (Best Student Paper Award)

521. S. Huang, C. Huard, M. J. Kushner, S. Shim, S-H. Lee, I-C. Song and S. Lu, "Contact Edge Roughness in the Etching of High Aspect Raio Contacts in SiO_2", ", 44th International Conference on Plasma Science, Atlantic City, NJ, May 2017.

522. C. M. Hurard, S. J. Lanham and M. J. Kushner, "Reactor Scale Uniformity Enabled by Atomic Layer Etching", Atomic Layer Deposition/Atomic Layer Etching Workshop, Denver, CO, July 2017 (Best Student Paper Award)

Invited Symposia, Seminar and Short-Course Presentations

1. M. J. Kushner, "A Self Consistent Model for High Repetition Rate Copper Vapor Lasers", Lawrence Livermore National Laboratory, Livermore, CA, 1981.
2. M. J. Kushner, "A Model for Plasma Etching", California Institute of Technology, Pasadena, CA, 1982.
3. M. J. Kushner, "Plasma Etching Studies", Dupont Research Laboratories, Wilmington, Delaware, 1983.
4. M. J. Kushner, "Dimensional Effects in Gas Discharges for Plasma Processing," Non-Equilibrium Phenomena in Pulsed Discharges and Plasma Processing, GTE Laboratories, Waltham, MA, 1983.
5. M. J. Kushner, "Mechanisms for Power Deposition in RF Discharges for Plasma Processing", Standard Oil Research Laboratories, Naperville, IL, 1984.
6. M. J. Kushner, "Particle Simulations in Gaseous Electronics", Dept. of Chemical and Nuclear Engineering, University of New Mexico, Albuquerque, NM, 1986.
7. M. J. Kushner, "E-Beam Sustained Discharge Laser Modeling", Los Alamos National Laboratory, Los Alamos, NM, 1987.
8. M. J. Kushner, "Modeling of Plasma Enhanced Chemical Vapor Deposition", University of Wisconsin, 1987.
9. M. J. Kushner, "Simulation of the Deposition of Amorphous Silicon", Arco Solar Research Inc., Chatsworth, CA 1987.
10. M. J. Kushner, "Transient and Multi-Dimensional Effects in Excimer Lasers", Center for High Technology Materials, University of New Mexico, 1987.
11. M. J. Kushner, "Modeling of Plasma Enhanced Chemical Vapor Deposition", presented at Westinghouse Research and Development Center, Pittsburgh, PA, 1987.
12. M. J. Kushner, "A Computational Perspective of Plasma Enhanced Chemical Vapor Deposition", Department of Chemical Engineering Seminar Series, University of Illinois, 1988.
13. M. J. Kushner and L. E. Kline, "Models of Plasma Deposition and Etching", 1988 Gordon Conference on Plasma Chemistry, Tilton, NH, 1988.
14. M. J. Kushner, "Excimer Laser Technology", Spectra Physics, 1988).
15. M. J. Kushner, H. Pak, and J. DiCarlo, "Modeling Low Pressure Discharges for Pulsed Power Devices", Electrical Engineering Departmental Seminar, Old Dominion University, 1989.
16. M. J. Kushner, "Fission Fragment Excitation of the Ar/Xe Laser", Nuclear Engineering Departmental Seminar, University of Illinois, 1989.
17. M. J. Kushner, H. Pak, J. DiCarlo, and Y. Weng, "Modeling Low Pressure Gas Discharges: Thoughts on a Few Nagging Problems", Weber Institute Departmental Seminar, Polytechnic University, New York, 1989.
18. M. J. Kushner, "Modeling Technologically Relevant Gas Discharges: Nonuniformities, Beams, Walls and Gunk", Seminar at the Engineering Research Center for Plasma Aided Manufacturing, University of Wisconsin, November 1989.
19. M. J. Kushner, "Plasma Deposition of Amorphous Silicon", General Electric Corporate Research and Development Center, Schenectady, New York, November, 1989.
20. M. J. Kushner, "Modeling Electron Kinetics and Plasma Chemistry in Etching and Deposition: An Overview and Assessment", IBM East Fishkill Facility, January 1990.
21. M. J. Kushner, "Modeling Electron Kinetics and Plasma Chemistry in Etching and Deposition: An Overview and Assessment", Department of Chemistry Seminar, Indiana University, March 1990.

22. M. J. Kushner, "Modeling Electron Kinetics and Plasma Chemistry in Etching and Deposition: An Overview and Assessment", Department of Electrical and Computer Engineering, State University of New York at Buffalo, April 1990.

23. M. J. Kushner, "Remote Plasma Activated Chemical Vapor Deposition", Distinguished Lecture Series, North Carolina State University Engineering Research Center, September 1990.

24. M. J. Rood and M. J. Kushner, "Simultaneous Removal of Gaseous Contaminants from (Simulated) Gas Streams", General Electric Research and Development Center, Schenectady, New York, November 1990.

25. M. J. Kushner, "Strategies for Modeling Plasma Processing: From the Ideal to the Real", Mechanical Engineering Department Seminar, California Institute of Technology, March 1991.

26. M. J. Kushner, "Hybrid Models for Plasma Processing Reactors", Expert Panel on Plasma Enhanced Processing, SemaTech Corp., Dallas, TX, September 1991.

27. M. J. Kushner, "Simulation of Direct and Remote Plasma Activated Materials Processing", University of Texas, Austin, TX, October 1991.

28. M. J. Kushner, "Switching, Holdoff and Cathode Heating in the Optically Triggered Pseudospark", University of Maryland, College Park, MD, March 1992.

29. M. J. Kushner, "Current Problems in Modeling Plasma Processing of Semiconductors: Direct and Remote Systems", University of Massachusetts, April 1992.

30. M. J. Kushner, "Scaling Considerations for the Atomic Xenon Laser", Los Alamos National Laboratory, June 1992.

31. M. J. Kushner, "Modeling Plasma Processing of Semiconductors: Remote and Direct Systems", Hokkaido University, Sapporo, Japan, July 1992.

32. M. J. Kushner, "Modeling Plasma Processing of Semiconductors: Remote and Direct Systems", Kyushu University, Fukuoka, Japan, July 1992.

33. M. J. Kushner, "Modeling Transport, Formation and Consequences of Particle Formation in Low Pressure Glow Discharges", Kyoto Institute of Technology, Kyoto, Japan, July 1992.

34. M. J. Kushner, "Modeling Plasma Processing of Semiconductors: Remote and Direct Systems", Nagoya University, Nagoya, Japan, July 1992.

35. M. J. Kushner, "Modeling Transport, Formation and Consequences of Particle Formation in Low Pressure Glow Discharges", Keio University, Yokahoma, Japan, July 1992.

36. M. J. Kushner, "Modeling Transport, Formation and Consequences of Particle Formation in Low Pressure Glow Discharges", Tokyo Institute of Technology, Tokyo, Japan, July 1992.

37. M. J. Kushner, "Status Report on Modeling of Contamination and Plasma Chemistry", Texas Instruments, Dallas TX, September 1992.

38. M. J. Kushner, "Particle Contamination in Etching Discharges", Sandia National Laboratories, Albuquerque, NM, September 1992.

39. M. J. Kushner, "New Techniques for Modeling Inductively Coupled Etching Tools", Lam Research, Fremont, CA, September 1992.

40. M. J. Kushner, "Modeling Techniques for Inductively Coupled Plasmas", Lawrence Livermore National Laboratory, Livermore, CA, September 1992.

41. M. J. Kushner, "Modeling Techniques for Low Pressure Plasmas", SRC Video Lecture Series, Research Triangle Park, NC, December 1992.

42. M. J. Kushner, "Two Problems in Plasma Processing: Selectivity and Particles", National Institute of Science and Technology, Gaithersburg, MD, January 1993.

43. M. J. Kushner, "Advanced Modeling Techniques for Plasma Processing", Texas Tech University, Lubbock, TX, April 1993.

44. M. J. Kushner, "Modeling Inductively Coupled Plasma Sources for Etching", Plasma Physics Division Seminar, Oak Ridge National Laboratory, Oak Ridge, TN, July 1993.

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