Mark J. Kushner

Publications and Presentations
(May 2023)

Contents

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).
2. M. J. Kushner and F. E. C. Culick, "A Continuous Discharge Improves the Performance of the Cu/CuCl Double Pulsed Laser," IEEE J. Quant. Elect. **QE-15**, 835 (1979).
3. M. J. Kushner and F. E. C. Culick, "Characteristics of the Pumping Pulse and the Output Laser Pulse of a Cu/CuCl Double Pulsed Laser," J. Quant. Elect. **QE-16**, 677 (1980).
4. M. J. Kushner and F. E. C. Culick, "A Model for the Dissociation Pulse, Afterglow, and Laser Pulse in the Cu/CuCl Double Pulsed Laser," J. Appl. Phys. **51**, 3020 (1980).
5. M. J. Kushner, "Characteristics of a UF_6-H_2/HF Nuclear Pumped Laser," J. Appl. Phys. **51**, 2421 (1980).
6. M. J. Kushner, W. M. Grossman and F. E. C. Culick, "Electron Collision Quenching of CO(v) Chemiluminescence in CS_2/O_2 and $CS_2/O_2/N_2O$ Flames," J. Appl. Phys. **52**, 3776 (1981).
7. M. J. Kushner, "A Self-Consistent Model for High Repetition Rate Copper Vapor Lasers," J. Quant. Elect. **QE-17**, 1555 (1981).
8. M. J. Kushner, "A Kinetic Study of the Plasma Etching Process I: A Model for the Etching of Si and SiO_2 in C_nF_m/H_2 and C_nF_m/O_2 Plasmas," J. Appl. Phys. 52, 2923 (1982) (ERRATA: J. Appl. Phys. **53**, 6491 (1982)).
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16. M. J. Kushner, "A Monte-Carlo Simulation of Electron Properties in Parallel Plate Capacitively Coupled RF Discharges," J. Appl. Phys. **54**, 4958 (1983).

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39. S. Huang, C. Qu, X. Wang, S. Lanham, J. Polito and M. J. Kushner, "Plasma Processing for Microelectronics Fabrication: Will Modeling and Simulation Help Maintain Moores Law?", 34th International Conference on Phenomena in Ionized Gases, Sapporo, Hokkaido, Japan, July 2019 [Plenary Lecture]

40. K. Konina, M. Meyer, S. Kerketta, A. Raisanen, J. Polito and M. J. Kushner, "Controlling Atmospheric Pressure Plasma Interactions with Solids and Liquids", PlasmaTech 2022, Barcelona, Spain, April 2022.

41. K. Konina, S. Rasker, J. Morsell, M. Meyer, S. Kerketta, I. Adamovich, S. Shannon and M. J. Kushner," Are Atmospheric Pressure Plasma Surface Interactions Controllable?", International Symposium on Plasma Catalysis for CO_2 Recylcing", Krakow, Poland, Sept. 2022.

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.

124. W. Tian, S. A. Norberg, A. M. Lietz, N. Yu Babaeva and M. J. Kukshner, "Matching Plasma Sources with Intended Biomedical Outcomes: Open Questions in Modeling of Plasma Surface Interactions", 62nd American Vacuum Society International Symposium, San Jose, CA, October 2015.

125. W. Tian, S. A. Norberg, A. M. Lietz and M. J. Kushner, "Controlling Properties of Plasma Activated Liquids for Life Sciences Through Control of Gas Phase Plasma Sources", Symposium G, Materials Research Society Fall 2015 Meeting, Boston, MA, December 2015.

126. M. J. Kushner, "Plasma Modeling Enabled Technology Development Empowered by Fundamental Scattering Data", 47th Regular Meeting of the American Physical Society Division of Atomic, Molecular and Optical Physics, Providence, Rhode Island, May 2016.

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.

130. J. Kruszelnicki, A. M. Lietz, C. Qu, P. Tian, Z. Xiong, N. Babaeva, J. Wang and M. J. Kushner, "Geometry Makes Plasmas Complex", Quo Vadis-Complex Plasma Workshop, Hamburg, Germany, August 2016.

131. M. J. Kushner, "Future Challenges in Plasma Physics Workshop: The Path Forward", 69th Gaseous Electronics Conference, Bochum, Germany, October 2016.

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.

136. C. M. Huard, Y. Zhang, S. Sriraman, A. Paterson and M. J. Kushner, "Determining the Benefits and Limitations of Atomic Layer Etching: A Modeling Investigation", Atomic Layer Deposition/Atomic Layer Etching Workshop, Denver, CO, July 2017.

137. A. R. Gibson, S. Schroter, D. O"Connell, T. Gans, M. J. Kushner and J. P. Booth, "Understanding particle-surface interactions and their importance in plasma processing: A plasma modeling perspecitve", 64th International Symposium of the American Vacuum Society, Tampa, FL, October 2017.

138. M. J. Kushner, "Translating Fundamental Science to Technology Development in Plasma Assisted Materials Processing", 64th International Symposium of the American Vacuum Society, Tampa, FL, October 2017.

139. M. J. Kushner, "From the Plasma to the Surface: Connecting Plasma Kinetics to Atomic Layer Processing", 10th EU-Japan Joint Symposium on Plasma Processing, Bankoku Shinryokan, Okinawa, Japan, December 2017. (Plenary)

140. M. J. Kushner, "Addressing Challenges in Selectivity and High Aspect Ratio Plasma Etching Through Modeling", Semicon-Korea, Seoul, Korea, February 2018.

141. M. J. Kushner, "From Plasmas Towards Surfaces: How Plasma Simulation Supports Materials Development", 45th International Conferences on Metallurgical Coatings and Thin Films, San Diego, CA, USA, April 2018.

142. A. R. Gibson, S. Schroter, T. Gans, M. J. Kushner and D. O'Connel, "Non-thermal plasma delivery via high aspect ratio needles: electron and chemical kinetics",19th Internatinoal Congress on Plasma Physics, Vancouver, CA, June, 2018.

143. S. Huang, C. Huard, C. Qu, A. M. Lietz, J. Kruszelnicki, S. Mohades, G. Parsey and M. J. Kushner, "The Challenges of Transferring Plasma Produced Chemical Reactivity to Solids and Liquids", Symopsium on Plasma Physics and Technology, Prague, Czech Republic, June 2018.

144. C. Qu, A. M. Lietz, J. Kruszelnicki, S. Mohades, G. Parsey. S. Huang, C. Huard, and M. J. Kushner, "Controlling Plasma Reactive Fluxes from mTorr to Liquid Densities" (Plenary), Joint International Conference of ICMAP (7th International Conference on Microelectronics and Plasma Technology) / APCPST (14th Asia-Pacific Conference on Plasma Science and Technology) / ISPB (8th International Symposium on Plasma Bioscience), Incheon, Korea, July 2018. [Plenary Lecture]

145. S. J. Doyle, A. R. Gibson, J. Flatt, T. S. Ho, R. W. Boswell, C. Charles, M. J. Kushner and J. Dedrick, "Electron Heating in Radio Frequency Hollow Cathods", 29th Summer School and Interational Symposium on The Physics of Ionized Gases, Belgrade, Serbia, August 2018.

146. M. J. Kushner, "Case Studies in Delivering Plasma Produced Activation Energy to Surfaces: Liquids to Microelectronics", Asia-Pacific Conferences on Plasma and Terahertz Science, Xi'an China, August 2018 [Plenary Lecture]

147. M. J. Kushner, "Status of Integrated Reactor and Feature Scale Modeling for Plasma-based Semiconductor Fabrication", 2018 International Conference on Simulation of Semiconductor Processes and Devices (SISPAD), Austin, TX, Sept. 2018 [Plenary Lecture]

148. M. J. Kushner, "Time-Slicing in Multi-Physics Modeling:Using Hybrid Methods in Low Temperature Plasma Simulations to Address Disparate Time Scales", 1st Frontiers in Low-Temperature Plasma Simulations", Bad Honnef, Germany, May 2019.

149. M. J. Kushner, "The Role of Modeling in Maintaining Moore's Law in Microelectronics Processing", Plathinium 2019 (Plasma Thin Film International Union Meeting), Antibes, France, September 2019.

150. M. J. Kushner, “Mastering Interactions of Plasmas with Complex Surfaces”, 73rd Gaseous Electronics Conference, San Diego, CA (Virtual), October 2020.

151. M. J. Kushner and G. Zank, “Plasma 2020 Overview: Plasma Science - Enabling Technology, Sustainability, Security, and Exploration”, 73rd Gaseous Electronics Conference, San Diego, CA (Virtual), October 2020.

152. J. Kruszelnicki, K. Konina, N. Yu Babaeva and M. J. Kushner, “Non-Equilibrium in Plasma Surface Interactions – Does this Occur at Atmospheric Pressure?” 8th International Conference on Microelectronics and Plasma Technology, and 9th International Symposium on Functional Materials”, Incheon, Korea (Virtual), January 2021.

153. K. Konina, M. Meyer, J. Kruszelnicki, J. Polito, S. Kerketta, T. Freeman and M. J. Kushner, "Atmospheric Pressure Plasma Interactions with Complex Biomedical Surfaces", 8th International Conference on Plasma Medicine, Seoul. S. Korea (Virtual), August 2021.

154. M. J. Kushner, "Sheaths, Microelectronics Fabrication and the Founding of PSST", 75th Gaseous Electronics Conference, Huntsville, AL, October 2021 (Virtual)

155. M. J. Kushner, "Integrated Plasma Reactor and Feature Scahle Modeling for Semiconductor Fabrication: A Retrospect and Looking Forward", 14th International Symposium on Advanced Plasma Science and Its Applications for Nitrides and Nanomaterials and 15th International Conference on Plasma-Nano Technology & Science, Nagoya, Japan, March 2022 (Virtual)

156. P. Bruggeman, M. McAlpine, M. J. Kushner, R. Hunter and M. Elias, "Plasma-Biofilm Interactions at the Intersection of Physics, Chemistry, Biology and Engineering", NSF ECLIPSE (ECosystem for Leading Innovation in Plasma Science and Engineering) Workshop, Alexandria, VA, March 2022.

157. M. J. Kushner, "The Role of Plasma Surface Interactions in Achieving Sustainability Goals: Controlling Reactants and Activation Energy", MRS Spring Meeting, Honolulu, HI, May 2022.

158. R. Jacobson, S. Jain, S. Kaarthik, S. Kerketta, S. Mahajan, G. Nayak, M. Penningroth, P. Vadrevu, J. Wang, F. Wang, M. McAlpine, M. Elias, R. Hunter, M. J. Kushner and P. J. Bruggeman, "Plasma Regulated Biology: A Pathway Towards Defining a 'Dose' in Plasma Medicine", 9th International Conference on Plasma Medicine, The Netherlands, June 2022.

159. M. J. Kushner, "Atmospheric Pressure Plasma-Surface Interactions and Sustainability", Hakone XVII Conference, The Netherlands, August 2022.

160. J. Polito, M. Meyer and M. J. Kushner, ""When Plasmas Contact Liquids: Controlling Gas Phase Chemistry to Achieve Liquid Gains", Quantemol Workshop, London, UK, April 2023.

161. F. Krüger, E. Litch, T. Piskin and M. J. Kushner, "Plasma Etching of High Aspect Ratio Semiconductor Features: Challenges and Remedies", PlasmaTech 2023, Lisbon, Portugal, April 2023.

Contributed Conference and Workshop Presentations with Proceedings

1. M. J. Kushner and F. E. C. Culick, "Optimum Laser Pulse Energy and the Interpulse Afterglow in a Cu/CuCl Double Pulse Laser," SOQE International Conference on Lasers, 78, Orlando, FL, 1978.

2. M. J. Kushner and F. E. C. Culick, "Afterglow Kinetics and Operating Characteristics of Double Pulsed Metal Halide Lasers," SOQE International Conference on Lasers, 79, Orlando, FL, 1979.

3. M. J. Kushner, D. D. Lowenthal, J. M. Slater and R. T. Taussig, "Laser Technologies for Laser Accelerators," SOQE International Conference on Lasers, 84, San Francisco, CA, 1984; Conference on Lasers and Electrooptics, Baltimore, MD, 1985.

4. M. J. Kushner, "A Nuclear Pumped Laser Based on Ion-Ion Neutralization," SOQE International Conference on Lasers, 81, New Orleans, LA, 1981 (STS Press, VA, 1982), p. 499.

5. M. J. Kushner, "Controlling Kinetic Parameters of 100W Large Bore Copper Vapor Lasers," SOQE International Conference on Lasers, 81 (STS Press, VA, 1982), p. 845.

6. W. D. Kimura, M. J. Kushner, E. A. Crawford and S. R. Byron, "Investigation of Laser Preionization Triggered High Power Switches Using Interferometric Techniques", in Conference Record of the 16th Power Modulator Symposium, (IEEE, New York, 1984) Arlington, VA, 1984.

7. R. A. Petr, M. J. Kushner, S. R. Byron, C. H. Fisher, J. J. Ewing and D. Turnquist, "A Summary on Linear Thyratron Development," 5th IEEE Pulsed Power Conference, Arlington, VA, 1985; Digest of Technical Papers (IEEE, New York, 1985) p. 227.

8. W. D. Kimura, M. J. Kushner, D. H. Ford and S. R. Byron, "Simultaneous Laser Preionization of Dual Spark Columns," 5th IEEE Pulsed Power Conference, Arlington, VA, 1985; Digest of Technical Papers (IEEE, New York, 1985), p. 91.

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10. D. B. Harris, R. R. Berggren, N. A. Kurnit, D. D. Lowenthal, R. G. Berger, J. M. Eggleston, M. J. Kushner and J. J. Ewing, "KrF Lasers as Inertial Fusion Drivers," 11th Symposium on Fusion Engineering, Austin, TX, 1985.

11. M. A. Gundersen, M. J. Kushner, et al., "Research Issues in Power Conditioning," Conference Record of the 1986 Seventeenth Power Modulator Symposium (IEEE, New York, 1986), p. 21.

12. R. Mead, S. L. Baughcum, C. H. Fisher, M. J. Kushner and J. J. Ewing, "A Hybrid Chemical/Excimer Laser Concept", in Short and Ultrashort Wavelength Lasers, Proc. SPIE 875, pp. 149-162 (1988).

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14. H. Pak and M. J. Kushner, "Modeling Pulse Power Plasma Switches: Hollow Cathodes and Beams", 3rd SDIO/ONR Pulse Power Meeting, Norfolk, VA 1990.

15. W. H. McCulla, L. A. Rosocha, W. C. Neely, E. J. Clothiaux, M. J. Kushner and M. J. Rood, "Treatment of Hazardous Wastes Using Wet Air Plasma Oxidation", INEL Plasma Applications to Waste Treatment Workshop, Idaho Falls, ID, January 1991.

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17. M. B. Chan, M. J. Kushner and M. J. Rood, "Evaluation of the Removal of SO_2 and NO from Gas Streams via Dielectric Barrier Discharges", Air and Waste Management Association, Vancouver, BC, paper 91-157.2, June

1991.

18. H. Pak and M. J. Kushner, "Breakdown Characteristics in Nonplanar Geometries", Proceedings of the 4th SDIO/ONR Pulse Power Meeting, Los Angeles, CA, June 1991

19. A. Scheeline, C. A. Bye, H. Krier, J. Mazumder, X. Chen, T. Duffey, S. Tewari, D. Zerkle and M. J. Kushner, "Transition Probabilities and Line Shapes: Usage and Needs at the University of Illinois", 4th International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas, Gaithersburg, MD, 1992, pp. 37-39.

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21. P. J. Stout and M. J. Kushner, "2-Dimensional Modeling of Optically Switched Semiconductors", Proceedings of the 6th BMDO/ONR Pulse Power Meeting, Chicago, IL, August 1993

22. P. J. Stout and M. J. Kushner, "Two-Dimensional Modeling of High-Power Semiconductor Switches", in Conference Record of the 21st International Power Modulator Symposium, (IEEE, New York, 1994), Costa Mesa, CA, June 1994.

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27. M. J. Grapperhaus, S. Rauf, R. J. Hoekstra and M. J. Kushner, "Update on Plasma Equipment Modeling", TECHON '96, Semiconductor Research Corp., Phoenix, AZ, Sept., 1996.

28. F. Y. Huang and M. J. Kushner "A Molecular Dynamics Simulation of Agglomeration and Transport of Contaminant Particles in Reactive Ion Etching Reactors", TECHCON '96, Semiconductor Research Corp., Phoenix, AZ, Sept., 1996.

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36. A. Sankaran and M. J. Kushner, "Etching and Post Etch Processing of Porous and Conventional SiO_2 in Fluorocarbon Based Chemistries," 16th International Symposium on Plasma Chemistry, Taormina Italy, June 2003.

37. N. Yu Babaeva and M. J. Kushner, International Conference on Phenomena in Ionized Gases, "Streamer Dynamics in a Media Containing Dust Particles," Veldhoven, Netherlands, July 2005.

38. A. Agarwal and M. J. Kushner, "A Computational Investigation of Plasma Doping," TECHCON'05, Semiconductor Research Corp., Portland, OR, October 2005.

39. Y. Yang and M. J. Kushner, " Electron Energy Distributions in Dual Frequency Capacitively Coupled Plasma Etching Tools," TECHCON'07, Austin, TX, September 2007.

40. A. Agarwal and M. J. Kushner, " Strategies for Plasma Atomic Layer Etching", TECHCON'07, Austin, TX, September 2007.

41. M. Wang and M. J. Kushner, "Effects of Charging and Mask Erosion in SiO_2 High Aspect Ratio Etching in Fluorocarbon Plasmas," TECHCON'08, Austin, TX, September 2008.

42. J. Shoeb and M. J. Kushner, "Computational Investigation of the Mechanisms of Porous Low-*k* Dielectric Sealing By Combined He and NH_3 Plasma Treatment,", TECHCON'09, Austin, TX, September 2009.

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51. N. Y. Babaeva and M. J. Kushner, "Interaction of Multiple Atmospheric Pressure Microplasma Jets: He/O_2 into Air", 7th International Workshop on Microplasmas, Beijing, China, May 2013.

52. W. Tian, S. A. Norberg, N. Yu. Babaeva and M. J. Kushner, "Plasma Jets and Plasmas on Liquids over Tissue", 31st International Conference on Phenomena in Ionized Gases, Granada, Spain, July 2013.

53. W. Tian, S. A. Norberg, N. Yu. Babaeva and M. J. Kushner, "The Interaction of Atmospheric Pressure Plasma DBDs and Jets with Liquid Covered Tissues: Fluxes of Reactants to Underlying Cells", 21st International Symposium on Plasma Chemistry, Cairns, Australia, August 2013.

54. A. V. Klockhko, A. Salmon, J. Lemainque, N. A. Popov, J.-P. booth, Z. Xiong, M. J. Kushner and S. M. Starikovskaia, "Experimental and numerical study of fast gas heating and O atom production in a capillary nanosecond discharge", 52nd AIAA Aerospace Sciences Meeting, National Harbor, MD, January 2014. [Best Paper Plasma Dynamics and Lasers]

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58. R. Le Picard, A. H. Markosyan, D. H. Porter, M. J. Kushner and S. L. Girshick, Numerical Simulation of a Capacitively-Coupled RF Plasma Flowing Through a Tube for Synthesis of Silicon Nanocrystals", 22nd International Symposium on Plasma Chemistry, Antwerp, Belgium, July 2015.

59. A. M. Lietz, S. A. Norberg and M. J. Kushner, "Helium Atmospheric Pressure Plasma Jet Dynamics: Consequences of Discharge Tube Diameter and Ground Placement", 22nd International Symposium on Plasma Chemistry, Antwerp, Belgium, July 2015.

60. P. Tian and M. J. Kushner, "Controlling VUV Fluxes in Inductively Coupled Plasmas", 22nd International Symposium on Plasma Chemistry, Antwerp, Belgium, July 2015.

61. S. Huang, J. R. Hamilton, J. Tennyson and M. J. Kushner, "Remote Plasma Sources Sustained in NF_3 Mixtures", 22nd International Symposium on Plasma Chemistry, Antwerp, Belgium, July 2015.

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63. J. Kruszelnicki, K. W. Engeling, J. E. Foster and M. J. Kushner, "Plasma-surface Interactions in Packed Bed Reactors Having Metal-catalyst Impregnated Dielectric Beads", 23rd International Symposium on Plasma Chemistry, Montreal, Canada, July 2017.

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65. X. Damany, A. Lietz, J-M. Pouvesle, M. Kushner and E. Robert, "Atmospheric Pressure Plasma Multi-jet Dynamics", 23rd International Symposium on Plasma Chemistry, Montreal, Canada, July 2017.

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M. Bruns, E. Yoon and J. Seymour, “Microneedle Penetrating Array with Axon-Sized Dimensions for Cuff-less Peripheral Nerve Interfacing”, 9th International IEEE EMBS Conference on Neural Engineering, San Francisco, CA, March 2019.

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70. X. Wang , M. J. Kushner, M. Wang, A. Mosden and P. Biolsi, “Etching of Silicon Dioxide Using a “Remote” Capacitively coupled Plasma Source”, 24th International Symposium on Plasma Chemistry, Naples, Italy, June 2019.

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"Numerical Simulation of a Coaxial Microplasma Jet at Atmospheric Pressure", 39th IEEE Conference on Plasma Science, Edinburg, Scotland, July 2012.

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413. N. Y. Babaeva and M. J. Kushner "Ion Energies Delivered by Dielectric Barrier Discharges To Surfaces Inside High Aspect Ratio Cracks", Gordon Research Conference on Plasma Processing Science, Smithfield, Rhode Island, July 2012.

414. P. Tian and M. J. Kushner, "Controlling Ion and UV/VUV Photon Fluxes in Pulsed Plasmas for Materials Processing", Gordon Research Conference on Plasma Processing Science, Smithfield, Rhode Island, July 2012.

415. S-H. Song and M. J. Kushner, "Electron and Ion Energy Distribution Control using Pulsed Power in Capacitively Coupled Plasmas", Gordon Research Conference on Plasma Processing Science, Smithfield, Rhode Island, July 2012.

416. W. Tian and M. J. Kushner, "Images and Optical Spectra of Discharges Sustained in Bubbles in Water", Gordon Research Conference on Plasma Processing Science, Smithfield, Rhode Island, July 2012.

417. Y. Zhang and M. J. Kushner, " Ion Energy and Angular Distributions at Different Phases from the Bulk Plasma through the Sheath in Dual-Frequency Capacitively Coupled Plasmas", Gordon Research Conference on Plasma Processing Science, Smithfield, Rhode Island, July 2012.

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423. S.-H. Song and M. J. Kushner, "Control of Electron Energy Distributions Through Interaction of Electron Beams and the Bulk in Capacitively Coupled Plasma", 65th Gaseous Electronics Conference, Austin, TX, October 2012.

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425. W. Tian and M. J. Kushner, "Simulations of Images and Optical Spectra of Plasmas Sustained in Bubbles in Water", 65th Gaseous Electronics Conference, Austin, TX, October 2012.

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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.

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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.

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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.

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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.

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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. N. Yu. Babaeva, G. V. Naidis, and M. .J. Kushner, "Simulation of Streamer Interaction with Bubbles on Liquid Surface", 16th International Workshop on Magneto-Plasma Aerodynamics, Moscow, Russia, April 2017.

521. 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)

522. 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.

523. 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)

524. K. W. Engeling, J. E. Foster, J. Kruszelnicki and M. J. Kushner, "The Effects of Pressure Variations on Micro-Discharge Formation and Propagation in at 2-D Packed Bed Reactor, 70th Gaseous Electronics Conference, Pittsburgh, PA, October 2017.

525. J. Kruszelnicki, A. M. Lietz and M. J. Kushner, "Interactions Between Water Droplets and Atmospheric Pressure Plasmas", 70th Gaseous Electronics Conference, Pittsburgh, PA, October 2017.

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581. X. Wang, M. Wang, A. Mosden, P. E. Biolsi and M. J. Kushner, "Effects of Bias on Quasi-Atomic Layer Etching of Silicon Dioxide by Cyclic $Ar/C_4F_8/O_2$ and Ar Plasmas", 66th AVS International Symposium, Columbus, OH, October 2019.

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Impact of System Parameters", 72nd Gaseous Electronics Conference, College Station, TX, October 2019.

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593. K. Konina, J. Kruszelnicki and M. J. Kushner "Atmosphric Pressure Plasma Treatment of Porous Dielectrics", 73rd Gaseous Electronics Conference, San Diego, CA (Virtual), October 2020.

594. M. Meyer, G. Nayak, P. J. Bruggeman and M. J. Kushner, "Modeling Humid Helium Plasmas and Their Interactions with Liquid Water Droplets", 73rd Gaseous Electronics Conference, San Diego, CA (Virtual), October 2020.

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603. S. Kerketta, M. J. Kushner, G. Nayak, S. Mahajan, F. Wang, R. Jacobson, M. Elias, M. McAlpine, R. Hunter and P. Bruggeman, "Treatment of Biofilms by Atmospheric Pressure RF Plasma Jets: Touching and Remote", 48th International Conference on Plasma Science, Reno, NV (Virtual), Sept. 2021.

604. G. Nayak, P. J. Bruggeman, M. Meyer and M. J. Kushner, "Reactive Species Transport to Water Micro-Droplets in Atmoshperic Pressure RF Glow Discharges", 48th International Conference on Plasma Science, Reno, NV (Virtual), Sept. 2021.

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606. T. Piskin, J. Lee, S-K. Nam and M. J. Kushner "EUV Induced Formation of Hydrogen Plasmas at Low Pressure", 67th International Symposium of the American Vacuum Society, Charlotte, NC, November 2021 (Virtual)

607. X. Wang, M. J. Kushner, H. Lee and S-K. Nam, "Focus Ring Erosion During Plasma Etching: Consequences of Dielectric Constant", 67th International Symposium of the American Vacuum Society, Charlotte, NC, November 2021 (Virtual)

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609. S. Kerketta, K. Wolf, R. Hartman and M. J. Kushner "Microplasma Production of Methyl Radicals for Catalytic Conversion of Methan", 75th Gaseous Electronics Conference, Huntsville, AL, October 2021 (Virtual)

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614. T. Piskin, Y. Qian, P. Pribyl, W. Gekelman and M. J. Kushner "E-H Transitions in Inductively Coupled Plasma for Varying Antenna Aspect Ratios – Modeling", 75th Gaseous Electronics Conference, Huntsville, AL, October 2021 (Virtual)

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618. G. J. Smith, P. Diomede, A. R. Gibson, S. J. Doyle, V. Guerra, M. J. Kushner, T. Gans and J. P. Dedrick, "Two Dimensional Simulations of the Vibrational State Distributions in Low Pressure Plasmas with an Isothermal Neutral Gas and Gas Temperature Gradients", 75th Gaseous Electronics Conference, Huntsville, AL, October 2021 (Virtual)

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622. M. E. Meyer, Z. Yang, J. Foster, M. J. Kushner and E. DeLang, "Surface Mechanism for Ozone Destruction in Nitrogen Containing Dielectric Barrier Discharges Sustained in Oxygen", 49th International Conference on Plasma Science, Seattle, WA, May 2022.

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626. W. Gekelman, P. Pribyl, Y. Qian, A. Paterson, T. Piskin and M. J. Kushner, "LIF measurement of the Ion Angular Distribution Near a Biased Wafer- Experiment", 49th International Conference on Plasma Science, Seattle, WA, May 2022.

627. J. Polito, S. Kerketta, K. Stapelmann and M. J. Kushner, "Atmospheric Pressure Plasma Treatment of Organics in Liquid: Extending Reactions Mechanisms into Solution", Hakone XVII Conference, The Netherlands, August 2022.

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636. M. Meyer, X. Huang, A. d. Sivakumar, X. Fan and M. J. Kushner, "Maximizing Photon Flux in a Minaturized Photoionization Detector", 68th International Symposium of the American Vacuum Society, Pittsburgh, PA, November 2022.

637. T. Piskin, V. Volynets, S. K. Nam, H. Lee and M. J. Kushner, "Numerical Investigation of EUV Induced H_2-O_2 Plasmas and Surface Chemistry", 68th International Symposium of the American Vacuum Society, Pittsburgh, PA, November 2022.

638. K. Stapelmann, M. J. Herrera Quesada, B. G. Myers, J. Polito, and M. J. Kushner, "Plasma, Plasma-Liquid and Plasma-Cysteine Solution Chemistry – How the Treated Object Becomes Part of the Chemistry", 20th Plasma Technology Conference, Bochum, Germany, March 2023.

639. J. Polito, M. J. Herrera Quesada, K. Stapelmann and M. J. Kushner, "Reaction Mechanisms for Plasma Assisted Oxidation and Nitrosylation of Cysteine in Solution", 8th International Workshop on Plasma for Cancer Treatment, Raleigh, NC, March 2023.

640. J. Polito and M. J. Kushner, "Prediction of Atmospheric Plasma Jet Dose Needed to Achieve Planktonic Cell Death in Solution", 8th International Workshop on Plasma for Cancer Treatment, Raleigh, NC, March 2023.

641. F. Kruger, D. Zhang and M. J. Kushner, "Clogging of Features in SiO_2 High Aspect Ratio Plasma Etching Using Fluorocarbon and Oxygen Mixtures", 50th International Conference on Plasma Science, Santa Fe, NM May 2023.

642. T. Piskin, Y. Qian, P. Pribyl, W. Gekelman and M. J. Kushner, "Investigation of Electric Field Reversals in Ar/O_2 Inductively Coupled Plasmas with Low Bias Frequency", 50th International Conference on Plasma Science, Santa Fe, NM May 2023.

643. Y. Gui, J. Polito and M. J. Kushner, "Investigation of Ge/Si Core/Shell Nanoparticle Growth in Nonthermal Plasmas", 50th International Conference on Plasma Science, Santa Fe, NM May 2023.

644. K. Konina, J. Morsell, S. Shannon and M. J. Kushner, "Atmospheric Pressure Plasma Jets Treating Dielectric Surfaces with Step Barriers", 50th International Conference on Plasma Science, Santa Fe, NM May 2023.

645. E. Litch, F. Kruger and M. J. Kushner, "Profile Control in HIgh Aspect Ratio Plasma Etching: Low Frequency and Passivation", 25th International Symposium on Plasma Chemistry, Kyoto, Japan, May 2023.

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.

45. M. J. Kushner, “Transport of Dust in Plasmas,” Macquarie University, Sydney, Australia, February 1994.

46. M. J. Kushner, "The Role of Modeling in Solving Two Problems in Plasma Processing: Uniformity and Cleanliness", Physics Colloquium, Los Alamos National Laboratory, March 1994.

47. A. C. Gentile and M. J. Kushner, "Remediation of NO (N_xO_y) from Air Streams Using Dielectric Barrier Discharges", Institut Fur Niedertemperatur-Plasmaphysik, Greifswald, Germany, May 1994

48. A. C. Gentile and M. J. Kushner, "Remediation of NO (N_xO_y) from Air Streams Using Dielectric Barrier Discharges", Siemens, AG, Erlangen, Germany, May 1994

49. M. J. Kushner, "Modeling Inductively Coupled Plasma Tools: Uniformity and Dust Particle Transport", Advanced Micro Devices, Santa Clara, CA, June 1994.

50. M. J. Kushner, "Modeling Inductively Coupled Plasma Tools: Uniformity and Dust Particle Transport", Intel, Inc., Santa Clara, CA, June 1994.

51. M. J. Kushner, "Scaling of Inductively Coupled Plasma Tools", Materials Research Corporation, Congers, NY, July 1994.

52. M. J. Kushner, "Modeling Plasma Processes in Material Processing", Minnesota Supercomputer Institute, University of Minnesota, November, 1994.

53. M. J. Kushner, "Plasma Equipment Modeling", University of Michigan, December 1994.

54. M. J. Kushner, "Computer Modeling of Plasma Processing", Computer Science and Engineering Seminar Series, University of Illinois, February 1995.

55. M. J. Kushner, "Modeling Inductively Coupled Plasma Reactors", Nuclear Engineering Department Seminar, University of Illinois, February 1995.

56. M. J. Kushner, "Integrated Models of Plasma Processing", Semiconductor Research Corporation Board of Directors Meeting, Research Triangle Park, NC, June 1995.

57. M. J. Kushner, W. Z. Collison, M. J. Grapperhaus, and R. J. Hoekstra, "Progress Report on Plasma Equipment Modeling", LAM Research Corp., Fremont, CA, August 1995.

58. M. J. Kushner, W. Z. Collison, M. J. Grapperhaus, and R. J. Hoekstra, "Progress Report on Plasma Equipment Modeling", Applied Materials Corp., Fremont, CA, August 1995.

59. M. J. Kushner, "Simulation Tools for Plasma Processing: Status Report and Future Directions", LSI Logic, Corp., San Jose, CA, October 1995.

60. M. J. Kushner, "Strategies for Leap-Frogging Plasma Etching Technologies for Interconnect: One Person's Vision", SRC STAB Interconnect Meeting, Troy, New York, November 1995.

61. M. J. Kushner, "The ERC for Plasma Aided Manufacturing Confronts Virtual Manufacturing: A New Culture to Meet New Challenges", University of Wisconsin ERC for Plasma Aided Manufacturing Annual Meeting, Madison, WI, November 1995.

62. M. J. Kushner, "Requirements and Applications of Virtual Equipment Modeling in Plasma Processing", University of Kansas, Dept. of Electrical Engineering, March 1996.

63. M. J. Kushner, "Is Industrially Relevant University Research an Oxymoron?", University of Cincinnati, Department of Electrical and Computer Engineering, July 1996.

64. M. J. Kushner, "Status of Plasma Equipment Modeling", Becton-Dickinson Research Center, Research Triangle Park, NC., August 1996.

65. M. J. Kushner, "An Update on Integrated Plasma Equipment and Feature Profile Models", Los Alamos National Laboratory Theory Division, Los Alamos, New Mexico, November, 1996.

66. R. J. Hoekstra and M. J. Kushner, "3-Dimensional Modeling of Plasma Processing", LSI Logic, Inc, February 1997.

67. M. J. Kushner, "Modeling of Low and HIgh Pressure Technologically Important Plasmas", Department of Industrial Electrotechnology, Royal Institute of Technology, Stockholm, Sweden, May 1997.

68. M. J. Kushner, "Future Challenges in Engineering Education", Rutgers University, June 1997.

69. M. J. Kushner, "Tutorial on Low and High Pressure Technologically Important Plasmas", Dupont Central Research and Development, Wilmington, DE, June 1997.

70. M. J. Grapperhaus and M. J. Kushner, "Applications of Plasma Equipment Modeling to Ionized Metal PVD", Materials Research Corp., August, 1997.

71. M. J. Kushner, "Plasma Modeling for Microelectronics Fabrication: Can University Research Impact a Rapidly Evolving Industry", Electrical Engineering Department Seminar, University of Minnesota, January 1998.

72. M. J. Kushner, “A New Agenda for Colleges of Engineering”, University of Arizona, May 1998.

73. M. J. Kushner, “Plasma Remediation of Toxins from Atmospheric Gas Streams: VOCs and NO_x”, Ford Scientific Research Lab, Dearborn, MI, August 1998.

74. M. J. Kushner, “Plasma Equipment Modeling for Microelectronics Fabrication”, Nuclear Engineering Seminar, University of Illinois, September 1998.

75. R. L. Kinder, J. Lu, S. Rauf, D. Zhang, X. Xu and M. J. Kushner, "Update on Integrated Plasma Equipment Modeling", LAM Research, Fremont, CA, January 1999.

76. R. L. Kinder, J. Lu, S. Rauf, D. Zhang, X. Xu and M. J. Kushner, "Update on Integrated Plasma Equipment Modeling", Applied Materials, Santa Clara, CA, January 1999.

77. M. J. Kushner, "Plasma Equipment Modeling for Microelectronics Fabrication" CEPS/ICAP/CCSM 1999 Spring Workshop, University of Illinois, April 1999.

78. M. J. Kushner, "A New Agenda for Schools of Engineering", Rensellaer Polytechnic Institute, June 1999.

79. M. J. Kushner, "Plasma Modeling Update: Gain Scheduling in Real Time Control, Magnetically Enhanced ICP and Si Etching", LAM Research, Fremont, CA, August 1999.

80. R. Dorai and M. J. Kushner, "NO_x Remediation from Diesel Exhaust: Effect of Propene and Propane", Ford Research Labs, Dearborn, MI, August 1999.

81. M. J. Kushner, "Waves, Fluxes and Polymers: Modeling and Simulation for Microelectronics Fabrication", Michigan State University, East Lansing, MI, November 1999.

82. M. J. Kushner, "Towards a Predictive Capability for Plasma Processing", NASA Ames Research Center, Moffet Field, CA, December 1999.

83. M. J. Kushner, “Electromagnetic and Electron Energy Waves in Inductively Coupled Plasmas”, Sandia National Laboratory, January 2002.

84. V. Vyas and M. J. Kushner, “A Three-Dimensional Model to Investigate Dust Particle Transport in Plasma Processing Reactors”, Sandia National Laboratories, March 2002.

85. M. J. Kushner, “Electromagnetic and Electron Energy Waves (and Radiation Transport) in Inductively Coupled Plasmas,” Eindhoven University of Technology, Eindhoven, The Netherlands, May 2002.

86. M. J. Kushner, “Monte Carlo Methods for Electron Transport”, Short Course on Computational Methods for Modeling Plasmas, 29th IEEE International Conference on Plasma Science, Banff, Alberta, Canada, May 2002

87. M. J. Kushner, “Plasmas and Polymers: From Frito Bags to Microelectronics Fabrication.”, Chemical Engineering Department Seminar, University of Texas, Austin, TX, November 2002.

88. M. J. Kushner, “Modeling of Integrated Plasma Processing: Plasma Physics, Plasma Chemsitry and Surface Kinetics,” CFDRC Users Conference, Huntsville, AL, May 2003.

89. M. J. Kushner, “Modeling Electronegative Processes in Plasmas”, International WE-Heraeus Summer School Master Class on Electronegative Plasmas, Bad Honnef, Germany, Sept. 2003.

90. M. J. Kushner, “Update on Plasma Equipment Modeling: An Integrated Approach”, Varian Semiconductor Equipment Associates, Gloucester, MA, Jan. 2004

91. M. J. Kushner, “Overview of New Plasma Applications: High Value to Commodity”, Agilent Technologies, Palo Alto, CA, June 2004.

92. M. J. Kushner, “Overview of New Plasma Applications: High Value to Commodity”, Northern California Chapter AVS Plasma Etching Users Group, Santa Clara, CA, June 2004.M. J. Kushner, “Overview of Modeling of Magnetically Enhanced Capacitively Coupled Plasmas,” Applied Materials, Santa Clara, CA, June 2004.

94. M. J. Kushner, “Overview of Modeling of Magnetically Enhanced Capacitively Coupled Plasmas,” Novellus Systems, San Jose, CA, August 2004.

95. M. J. Kushner, “What Can Modeling Tell You About Lighting Sources”, Lighting Technology Symposium, APL Engineered Materials, Urbana, IL, September 2004.

96. A. Agarwal and M. J. Kushner, “Computational Investigation of Pulsed Plasma Doping”, Varian Semiconductor Equipment Associates, Gloucester, MA, October 2004

97. M. Kushner, “Plasma Material Processing: Creating High Value,” Chemical Engineering Departmental Seminar, Iowa State University, January 2005.

98. M. J. Kushner, “Application of Advanced Modeling Techniques to Optimization of Plasma Processing,” Corporate Technical Symposium, Micron, Inc., February, 2005.

99. M. J. Kushner, “Applications of Low Temperature Plasmas: Status, Scientific Issues and Opportunities,” Pohang Institute of Science and Technology (POSTECH), Pohang, Korea, February 2005.

100. M. J. Kushner, “Modeling of Microdischarge Devices,” Pohang Institute of Science and Technology (POSTECH), Pohang, Korea, February 2005.

101. M. J. Kushner, “Plasmas In and Around Small Spaces: Microplasmas for Photons, Thrust and Materials Processing,” Physics Departmental Seminar, Iowa State University, September 2005.

102. M. J. Kushner, “What Might You Want To Do With Plasmas? Materials Processing!”, Iowa State University Osborn Club, September 2005.

103. M. J. Kushner, “Plasmas in and Around Small Spaces: Microplasmas for Photons, Thrust and Materials Processing,” Drexel Univeristy, Philadelphia, PA, February 2006.

104. M. J. Kushner, “Plasma Equipment and Processing Modeling Update: Getting Reactants with the Right Compositions and Energies Where You Want Them,” Semiconductor Research Corp. Electronic Workshop, February, 2006.

105. M. J. Kushner, “Making Plasmas Do Small Things: Functionalizing Nooks-and-Crannies in Polymers at Low and High Pressure,” University of Montreal, Montreal, Quebec, Canada, March 2006.

106. M. J. Kushner, “Making Plasmas Do Small Things: Functionalizing Nooks-and-Crannies in Polymers at Low and High Pressure,” Department of Chemical and Biomolecular Engineenrig, University of California, Los Angeles, CA, April 2006.

107. M. J. Kushner, "Plasmas for Functionalizing Nooks-and-Crannies in Polymers at Low and High Pressures: High Value Biocompatibility Using Commodity Materials," Department of Chemical Engineering, California Institute of Technology, Pasadena, CA, May 2006.

108. M. J. Kushner, "Controlling Reactive Fluxes During Plasma Processing of Microelectronics," Physics Department, Ruhr-Universität, Bochum, Germany, September 2006.

109. M. J. Kushner, "Delivering Activation Energy to Wafers and Walls in Plasma Processing Reactors," Corporate Seminar, Quimonda AG, Dresden, Germany, March 2007.

110. M. J. Kushner, "Delivering Activation Energy to Wafers and Walls in Plasma Processing Reactors for Microelectronics Fabrication", Chinese Academy of Sciences, Beijing, China, May 2007.

111. M. J. Kushner, "Delivering Activation Energy to Wafers and Walls in Plasma Processing Reactors for Microelectronics Fabrication: Ions, Photons, Fields and Gaps," Corporate Seminar, KLA-Tenchor Inc., Milpitas, CA, August 2007.

112. M. J. Kushner, "Hybrid Modeling Techniques for Low Temperature Plasmas: Surface Interactions in Materials Processing," Sandia National Laboratory, Albuquerque, NM, November 2007.

113. M. J. Kushner, " Optimizing Plasma Surface Interactions for Materials Processing: Microelectronics to Polymers," ECE Futures Seminar Series, Electrical and Computer Engineering, University of Michigan, Ann Arbor, MI, January 2008.

114. M. J. Kushner, "Plasmas for Energy Efficient Materials Processing," A *Transforming Energy* Lecture, UM Energy Research Center, University of Maryland, College Park, MD, January 2008.

115. M. J. Kushner, "Acheiving Selectivity in Plasma Processing: Addressing the Physics While Still Making a Profit," Princeton Plasma Physics Laboratory, February 2008.

116. M. J. Kushner, “Optimizing Plasma Surface Interactions for Materials Processing:Considerations for Plasma Tools to Achieve Nanoscale Resolution”, Ruhr-Universitat Bochum, Bochum, Germany, May 2008.

117. Y. Yang, M. Wang, J. Shoeb, N. Babaeva and M. J. Kushner, "Status of Plasma Modeling for Process Design", Semiconductor Research Corp. e-Workshop, August 2008.

118. M. J. Kushner "Overview of the Low Temperature Plasma Science Workshop: LTPS Priorities and Directions," Briefing to the Plasma Science Committee of Board on Physics and Astronomy, National Research Council, Washington, DC, October 2008.

119. M. J. Kushner "Overview of the Low Temperature Plasma Science Workshop: LTPS Priorities and Directions," Briefing to the Fusion Energy Science Advisory Committee, Office of Fusion Energy Science, Department of Energy, Gaithersberg, MD, November 2008.

120. M. J. Kushner, "Streamers Interacting with Small Objects" Slots, Particles and Bubbles", Center for Plasma Physics, Queens University, Belfast, N. Ireland, December 2008.

121. M. J. Kushner, "Plasmas for Materials Processing and the Environment: Modeling the Nonlinear and the Unknown," Dept. Atmospheric, Oceanic and Space Sciences, University of Michigan, January 2009.

122. M. J. Kushner, "Plasma Streamers Interacting with Small Objects: Slots, Particles and Bubbles", Dept. of Nuclear Engineering and Radiological Science, University of Michigan, March 2009.

123. Y. Yang, M. Wang, J. Shoeb, N. Babaeva and M. J. Kushner, "Update on Plasma Equipment and Process Modeling", Intel Video-Seminar, Sept. 2009.

124. M. J. Kushner, “Modeling for Tool and Process Design in Microelectronics Fabrication”-Short Course, Tokyo Electron, Ltd, TEL-University, Yamanashi, Japan, July 2010.

125. M. Wang, J. Shoeb, S-H. Song, and Mark J. Kushner, “Update on Plasma Equipment Modeling: Controlling Processes at Multiple Scales”, Intel Video Seminar, November 2010.

126. M. J. Kushner, “Controlling Low Temperature Plasmas: From Nanofabrication to Plasma Medicine”, Dept. Mechanical Engineering Seminar, University of Minnesota, January 2011.

127. M. Wang, J. Shoeb, S-H. Song, Y. Yang and M. J. Kushner, “Leveraging Plasma Equipment Modeling to Bridge Technology Gaps”, Intel/SRC Annual Review, Intel, Inc., Hillsborough OR, March 2011.

128. M. J. Kushner "The DOE Plasma Science Centere on Predictive Control of Plasma Kinetics" Briefing to the Plasma Science Committee of Board on Physics and Astronomy, National Research Council, Washington, DC, March 2011.

129. M. J. Kushner, “Controlling Plasmas and Leveraging Technologies in Plasma Materials Processing:

Nanofabrication to Plasma Medicine", Agilent Technologies, Palo Alto, CA, April 2011.

130. M. J. Kushner, "Controlling Low Temperature Plasmas: From Nanofabrication to Plasma Medicine", Electrical Engineering Department Symposium, Clemson University, Clemson, South Carolina, April 2011.

131. M. J. Kushner, "Controlling Low Temperature Plasmas: From Nanofabrication to Plasma Medicine", American Vacuum Society, Michigan Chapter, Ann Arbor, April 2011.

132. M. J. Kushner, "Delivering Activation Energy in Low Temperature Plasmas for Nanofabrication and Plasma Medicine", Chemical Engineering Department Symposium, University of Houston, Sept. 2011.

133. M. J. Kushner, "It is all about Control: Plasmas for Nanofabrication and Plasma Medicine", Applied Physics Program Seminar, University of Michigan, November 2011.

134. M. J. Kushner, "Plasma Equipment Modeling Update: Control, Pulsing, Scaling and Damage", Lam Research, Inc., Fremont, CA, January, 2012.

135. M. J. Kushner, "Controlling Fluxes to Surfaces in Atmospheric Pressure Plasmas: Printing, Polymer Processing, Liquids and Medicine", Hewlett-Packard Research Labs, Palo Alto, CA, February 2012

136. M. J. Kushner, "It is all about Control: Plasmas for Nanofabrication and Plasma Medicine", Plasma Physics Division Symposium, Naval Research Laboratory, Washington, DC, February 2012.

137. M. J. Kushner, "It is all about Control: Plasmas for Nanofabrication and Plasma Medicine", Dept. Seminar, Electrical and Computer Engineering, Michigan State University, February 2012.

138. M. J. Kushner, ""Plasmas for Microchips, Lighting, Medicine, Jet Engines…Just Not Worth Coming to Work Without Plasmas!", ECE Staff Symposium, University of Michigan, May 2012.

139. Y. Zhang and M. J. Kushner, "Ion Energy and Angular Distributions at Different Phases from the Bulk Plasma through the Sheath in Dual-Frequency Capacitively Coupled Plasmas",. Lam Research Inc., Fremont, CA, May 2012.

140. M. J. Kushner, "Low Temperature Plasmas and Surfaces: Microelectronics, Sterilization, Endoscopy and Printer Engines", Distinguished Lecture Series, University of Toronto, Dept. of Mechanical and Industrial Engr., Toronto, CA, Sept. 2012.

141. M. J. Kushner, "Low Temperature Plasmas and Surfaces: Microelectronics, Sterilization, Endoscopy and Printer Engines", Aerospace and Mechanical Engineering Dept. Seminar, University of Notre Dame, South Bend, IN, December 2012.

142. N. Yu. Babaeva, P. Tian, W. Tian and M. J. Kushner, "Low Temperature Plasmas and Photons (Ever Present, Always Important, Sometimes Neglected): Materials Processing, Plasma Medicine, Liquids", Agilent Technologies, Corporate Seminar, Palo Alto, CA, July 2013.

143. M. J. Kushner, "Atmospheric Pressure Discharges", Summer School on Fundamentals of Low Pressure and High Pressure Plasmas", 21st International Symposium on Plasma Chemistry, Cairns, Australia, August 2013.

144. M. J. Kushner, "Plasma Modeling Techniques", Summer School on Fundamentals of Low Pressure and High Pressure Plasmas", 21st International Symposium on Plasma Chemistry, Cairns, Australia, August 2013.

145. M. J. Kushner, "Low Temperature Plasma-Surface Interactions with Complex Materials: Inorganic, Liquid and Organic (Living) Surfaces", Plasma Physics Seminar, University of Wisconsin, March 2014.

146. M. J. Kushner, "Controlling Reactive fluxes in Low and High Pressure Plasmas" Microelectronics Fabrication and Plasma Medicine", Corporate Seminar, Samsung Semiconductors, Suwon, South Korea, January 2015.

147. M. J. Kushner, Short Course on Plasma Technologies, Part 1: "DC Electric Discharges, Coronas, Dielectric Barrier Discharges", Part 2: "Atmospheric Pressure Discharges and Plasma Chemistry", 3M Corporate Workshop, St. Paul, MN, February 2015.

148. S.-H. Song, Y. Zhang, M. D. Logue, P. Tian, W. Tian, S. A. Norberg and M. J. Kushner, "Pulsed Plasmas for Control of Reactive Fluxes in Microelectronics Fabrication (and maybe for plasma medicine), Laboratoire de

Physique de Plasma, Ecole Polytechnique, Palaiseau, France, February 2015.

149. Y. Zhang, S.-H. Song, P. Tian, S. Shannon and M. J. Kushner, "An Update on Process and Source Modeling: Phase to Profile Control", LAM Research Corporate Seminar, March 2015.

150. Y. Zhang, S-H. Song, P. Tian, S. Shannon and M. J. Kushner, "Update on Modelling of Pulsed Plasmas for Physical Vapor Deposition and Etching", SRC eWorkshop, 26 August 2015.

151. M. J. Kushner, "Low Temperature Plasma-Surface Interactions with Complex Materials: Inorganic, Liquid and Organic (Living) Surfaces", Physics Colloquium, Auburn University, 18 September 2015.

152. M. J. Kushner, "Nanodusty Plasmas", Presentation to Complex Plasmas Course, Auburn University, 18 September 2015.

153. M. J. Kushner, "Challenges in the Modeling of Low Temperature Plasmas: Techniques and Examples – A Microcourse", Instituto de Plasmas e Fusao Nuclear, Instituto Superior Tecnico, Lisbon, Portugal, 25 November 2015.

154. Y. Zhang, S.-H. Song, C. Hurad, S. Shannon and M. J. Kushner, "Update on Modeling of Pulsed Plasmas for Etching and Profile Control", Corporate Seminar, Samsung Semiconductors, Suwon, South Korea, January 2016.

155. M. J. Kushner, "Plasma-Surface Interactions with Complex (Inorganic, Liquid, Living) Materials", Bikerman Lecture, Dept. of Chemical and Biomolecular Engineering, Case Western Reserve University, Cleveland, OH, October 2016. (APS Division of Plasma Physics Distinguished Lecturer)

156. M. J. Kushner, "Plasma-Surface Interactions with Complex (Inorganic, Liquid, Living) Materials", Department of Electrical and Computer Engineering, Texas Tech University, Lubbuck, TX, November 2016. (APS Division of Plasma Physics Distinguished Lecturer)

157. C. Hurard, Y. Zhang, and M. J. Kushner, "Insights to Apect Ratio Dependent Etching and Atomic Layer Etching", Corporate Seminar, Samsung Semiconductors, Suwon, South Korea, January 2017.

158. M. J. Kushner, "Plasma-Surface Interactions with Complex (Inorganic, Liquid, Living) Materials", Department of Physics, The College of New Jersey, Ewing Township, New Jersey, February 2017. (APS Division of Plasma Physics Distinguished Lecturer)

159. M. J. Kushner, "Plasma-Surface Interactions with Complex (Inorganic, Liquid, Living) Materials", Distinguished Technical Lecture, Department of Physics, Nuclear Engineering Department, North Carolina State University, Raleigh, North Carolina, March 2017. (APS Division of Plasma Physics Distinguished Lecturer)

160. S. Huang, P. Tian, C. Huard, S. Lanham, J. Kruszelnicki and M. J. Kushner, "Plasma and Feature Scale Modeling Update: Requirements for Insertion of Modeling into the Critical Path", Corporate Seminar, Lam Research, Fremont, CA, May 2017.

161. M. J. Kushner, "Introduction to Plasma Processing", Summer School of the 23rd International Symposium on Plasma Chemistry, Montreal, Canada, July 2017.

162. M. J. Kushner, Enabling Technology Innovation through Plasma Modeling:Sustainability and Biotechnology as the Next Frontiers", Physics Colloquium, University of Colorado, Boulder, CO, September 2017.

163. M. J. Kushner, "Applying the Fundamentals of Plasma Science to Process and Equipment Design", Corporate Seminar, Samsung Semiconductors, Suwon, South Korea, January 2018.

164. M. J. Kushner, "Low Temperature Plasmas – Basics, Status, Opportunities", NSF EPSCoR CPU2AL Management and Center Meeting,, Auburn University, May 2018.

165. M. J. Kushner, "Modeling Enabled Advances in Plasma Processing for Semiconductor Fabrication", TSMC Corporate Seminar, Taiwan Semiconductor Manufacturing Corp., Hsinchu, Taiwan, May, 2018.

166. M. J. Kushner, "From Plasmas Towards Surfaces: How Plasma Simulation Supports Materials Development", Jiao Tong University, Xi'an, China, 15 August 2018.

167. M. J. Kushner, “Status of Integrated Reactor and Feature Scale Modeling for Plasma-Based Semiconductor Fabrication”, Corporate Seminar, Samsung Semiconductors, Suwon, South Korea, January 2019.

168. M. J. Kushner, “Plasma Process Modeling for Discovery and Design”, Lam Research Corporate Seminar, Fremont, CA, February 2019.

169. M. J. Kushner, “Computational Case Studies in Delivering Plasma Produced Activation Energy to Surfaces:Microelectronics to Liquids”, Sandia National Labs, April 2019.

170. M. J. Kushner, “Leveraging Low Temperature Plasmas for Materials, Energy and Environment”, Departmental Seminar, Aerospace Engineering, Purdue University, May 2019.

171. M. J. Kushner, “Introduction to Global Modeling”, International Plasma Chemistry Society Summer School on Plasma Processing Science and Applications, Naples, Italy, June 2019.

172. M. J. Kushner, “Pulsed, Multi-frequency and Custom-Waveform Excitation of Plasma Processing Reactors for Etching and Deposition”, TSMC Corporate Seminar, Taiwan Semiconductor Manufacturing Corp., Hsinchu, Taiwan, July, 2019.

173. M. J. Kushner, “Plasma Processing for Microelectronics Fabrication: Will Modeling and Simulation Help Maintain Moor’s Law”, ECE Department Seminar, University of Michigan, September 2019.

174. “Plasma Science: Enabling Technology, Sustainability, Security, and Exploration”, Report of the Panel for the Plasma 2020 Decadal Assessment of Plasma Science.

    a. Briefing, NRC Board on Physics and Astronomy, Irvine, CA, November 2018.
    b. Town Hall – APS Divison of Plasma Physics/Gaseous Electronics Conference, Portland, OR, November 2018.
    c. Briefing, Fusion Energy Science Advisory Committee, (Virtual) December 2018.
    d. Town Hall – Princeton Plasma Physics Laboratory, Princeton, NJ, April 2019.
    e. Briefing, APS-DPP-Community Planning Process, July 2019.
    f. Briefing, National Nuclear Security Administration, July 2019.
    g. Town Hall - International Conference on Plasma Science, Tampa, FL, June 2019.
    h. Briefing, DOE Office of Fusion Energy Sciences, Germantown, MD, July 2019.
    i. Briefing, Gaseous Electronics Conference, College Station TX, October 2019.
    j. Briefing, NRC Board on Physics and Astronomy, Irvine, CA, November 2019.
    k. Briefing, NSF-AFOSR-DOE Sponsors, (Virtual) May 2020.
    l. Webinar, Plasma 2020 Release, May 2020.
    m. Briefing, APS Division of Plasma Physics Executive Committee, (Virtual) May 2020
    n. Briefing, Office of Management & Budget and Office of Science and Technology Policy, (Virtual) June 2020.
    o. Briefing, Fusion Energy Science Advisory Committee, (Virtual) June 2020.
    p. Briefing, NSF Astronomy and Astrophysics Advisory Council, (Virtual) September 2020.
    q. Briefing, National Science Foundation, Washington, DC (Virtual), October 2020.
    r. Breifing, Gaseous Electronics Conference, San Diego, CA (Virtual), October 2020.
    s. Briefing, NASEM Board on Physics and Astronomy, Irvine, CA (Virtual), November 2020.
    t. Briefing, APS Division of Plasma Physics (Virtual), November 2020.
    u. Briefing, NASEM Board on Physics and Astronomy, Irvine, CA (Virtual), Novmeber 2021
    v. Briefing, NASA Heliophysics Division (Virtual), April 2022
    w. Briefing, NASEM Board on Physics and Astronomy, Irvine, CA (Virtual), April 2022.

175. M. J. Kushner, “Update on Modeling of the Tall and the Short: High Aspect Ratio and Atomic Layer Etching”, Corporate Seminar, Samsung Semiconductors, Suwon, South Korea, January 2020.

176. M. J. Kushner, “Low Temperature Plasmas – Opportunities in Energy Generation and Improved Efficiencies and Emission Reductions in the Chemical and Industry and Agriculture”, Department of Energy – Advanced Research Projects Administration (ARPA-E), Washington, DC, March 2020.

177. M. J. Kushner, “Interactions Between Atmospheric Pressure Plasmas and Complex Surfaces”, International

Online Plasma Seminar, Bochum, Germany (Virtual), July 2020.

178. M. J. Kushner, “Fundamentals of ALE: Optimizing Passivation and Etch”, Tutorial at the AVS 20th International Conference on Atomic Layer Deposition / 7th International Atomic Layer Etching Workshop, Ghent, Belgium (Virtual), June 2020.

179. M. J. Kushner, “Leveraging Low Temperature Plasmas for Materials, Energy and Environment”, Distinguished Lecturer, Mechanical Engineering Department, University of California at Riverside (Virtual), December 2020.

180. M. J. Kushner, “A Discussion: Plasma Reactor Code Development for Microelectronics Fabrication”, Lam Research Corporate Seminar (Virtual), March 2021.

181. M. J. Kushner, “Leveraging Low Temperature Plasmas for Materials, Energy and Environment”, Chemical and Biomolecular Engineering Department, New York University (Virtual), April 2021.

182. M. J. Kushner, "Plasma Activation of Water for Agriculture", GRIPS4PSI Team and Advisory Board Meeting, North Carolina State University, May 2021.

183. M. J. Kushner, “Plasma 2020 – The US National Academies Decadal Assessment of Plasma Physics: Overview and Future Research Opportunities”, Physics Colloquium, Kiel University, Germany (Virtual), June 2021.

184. M. J. Kushner, "Atmospheric Pressure Plasmas for Chemical Conversion and Materials Synthesis", University of Texas, Dept. of Aerospace Engineering and Mechanics, Departmental Symposium, Austin, TX, February 2022.

185. M. J. Kushner, "Atmospheric Pressure Plasmas for Chemical Conversion and Materials Synthesis", Applied Physics Seminar, University of Michigan, March 2022.

186. M. J. Kushner, "Integrated Reactor and Feature Scale Modeling for Plasma-based Microelectronics Fabrication", Electrical Engineering and Computer Science, University of Toledo, April 2022.

187. M. J. Kushner, "Integrated Modeling of Plasma Reactor and Feature Scale Processes for Semiconductor Fabrication", MKS Instruments Tech Forum – Plasma & Reactive Gas Solutions (Virtual), June 2022.

188. 1st US Low Temperature Plasma Summer School, University of Minneapolis, June 2022.

    a. M. J. Kushner, "Introduction to Plasma Modeling (and some plasma chemistry)"
    b. M. J. Kushner, "Atmospheric Pressure Plasma Surface Interactions"

189. D. B. Graves, C. Labelle and M. J. Kushner, "Briefing on the BRN Workshop: Plasma Science for Nanofabrication for Microelectronics", DOE Office of Science (Virtual), March 2023

190. P. J. Bruggeman, J. P. Chang, L. Mangolini, J. P. Trelles and M. J. Kushner, "Low-Temperature Plasma Science and Engineering – an Enabler for Society Impact Across NSF", National Science Foundation ECLIPSE Program Seminar (virtual), March 2023.

191. M. J. Kushner, "Plasma for Microelectronics Fabrication: A Modeling Perspective", University of Lisbon, Department of Physics, Lisbon, Portugal, March 2023.

192. J. Polito, M. Meyer and M. J. Kushner, "When Plasmas Contact Liquids: Controlling Gas Phyase Chemistry to Achieve Liquid Gains", Quantemol Workshop, London, UK, April 2023.

Patents and Registrations

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2. D. Ruzic and M. J. Kushner, "An inductively coupled plasma processing system utilizing a variable resistance chamber to obtain control of plasma parameters," patent disclosure, 1987.
3. M. J. Kushner and M. J. Rood, "Removal of SO_2 and NO_x from Flue Gases by Combined Use of Low Temperature Plasmas and UV Photolysis", patent disclosure, 1989.
4. J. G. Eden and M. J. Kushner, "Miniature Optically Pumped Solid State Laser", 1990. U.S. Patent Number 5,023,877
5. D. Ruzic and M. J. Kushner, "Electron beam produced plasmas for crystalline silicon depositon", patent disclosure, 1996.
6. S. E. Savas, J. Zajac, M. J. Kushner and R. L. Kinder, “Systems and Methods for Enhancing Plasma Processing of a Semiconductor Substrate”, 2004, US Patent Number 6,706,142.
7. S. L. Ciliske, G. F. King, M. A. Strobel, J. A. Getschel, R. L. Walter and M. J. Kushner, “Method of forming multi-layer films using corona treatments”, application 2006.
8. Y. Gianchandani, E. Eun, X. Luo, M. J. Kushner, Z. Xiong and J-C. Wang, “Microdischarge Based Transducer”, 2018, US Patent Number 10,006,823