Mark J. Kushner

Publications and Presentations
(September 2020)

Contents

Refereed Journal Publications ........................................ 1
Book Chapters, Monographs, Major Reports, Trade Publications, Special Issue Editorials ...... 20
Invited General Public Lectures and Publications ........................................ 21
Invited Conference and Workshop Presentations with Proceedings ...................... 23
Invited Conference and Workshop Presentations ........................................ 24
Contributed Conference and Workshop Presentation with Proceedings ............... 27
Contributed Conference and Workshop Presentations ........................................ 41
Invited Symposia, Seminar and Short Course Presentations ........................................ 74
Patents and Registrations ........................................ 83

Refereed Journal Publications

10. P. J. Hargis and M. J. Kushner, "Detection of CF2 Radicals in a Plasma Etching Reactor by KrF Laser-


Refereed Journal Publications


92. M. J. Kushner, "Pulsed Plasma-Pulsed Injection Sources for Remote Plasma Activated Chemical Vapor
Refereed Journal Publications


112. A. C. Gentile and M. J. Kushner "Reaction Chemistry and Optimization of Plasma Remediation of N_x O_y
Refereed Journal Publications


133. P. N. Barnes and M. J. Kushner, "Ion-ion Neutralization of Iodine in rf Inductive Discharges of Xe and I₂ Mixtures", J. Appl. Phys. 82, 2150 (1997)


174. P. Subramonium and M. J. Kushner, "Two-dimensional Modeling of Long-term transients in Inductively


Refereed Journal Publications

Refereed Journal Publications


Refereed Journal Publications


17


Plasmas at Different Specific Energy Deposition”, submitted to Plasma Source Sci. Technol.


Book Chapters, Monographs, Major Reports and Trade Publications, Special Issue Editorials


17. “Enabling a Future Based on Electricity Through Non-Equilibrium Plasma Chemistry”, Report of the National Science Foundation Workshop on Science Challenges in Low-Temperature Plasma Science and Engineering, August 2016. (Lead author and editor.)

Invited General Public Lectures and Publications


Invited Conference and Workshop Presentations with Proceedings


32. M. J. Kushner, “Plasma-Surface Interactions with Complex Materials: Inorganic, Liquid and Organic (Living)


Invited Conference and Workshop Presentations with Abstracts Only


Indianapolis, IN, May 1996.


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


78. M. J. Kushner, "Predictability in Low Temperature Plasmas: From Laboratory to Technology" (Plenary), 50th


Control and Delivery of Radicals, Ions and Electric Fields”, 1st International Symposium of Plasma Biosciences, Seoul, Korea, August 2011.


Contributed Conference and Workshop Presentations with Proceedings


33. J. Lu and M. J. Kushner, “Plasma Source and Feature Profile Modeling for Deposition of Cu into Trenches”,
Contributed Conference and Workshop Presentations with Proceedings


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


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.


44. J. Shoeb and M. J. Kushner, “Computational Investigation of the Mechanisms of Porous Low-$k$ Dielectric Damage By Ar/O$_2$ And He/H$_2$ Plasmas During Clean and PR Strip,”, TECHCON’11, Austin, TX, September 2011.


51. N. Y. Babaeva and M. J. Kushner, “Interaction of Multiple Atmospheric Pressure Microplasma Jets: He/O\textsubscript{2} into Air”, 7\textsuperscript{th} International Workshop on Microplasmas, Beijing, China, May 2013.


Contributed Conference and Workshop Presentations with Abstracts Only


40. T. L. Peck and M. J. Kushner, "Mechanisms Leading to Flashover of Dielectric Surfaces in UV Illuminated


59. M. J. McCaughey and M. J. Kushner, "The Effects of Particulate Contamination on Electron Transport in


Contributed Conference and Workshop Presentations with Abstracts Only


214. M. J. Grapperhaus and M. J. Kushner, "A Meso-scale Model for Bulk Plasma and Surface Chemistry in Cl\textsubscript{2} Etching of poly-Si", 44\textsuperscript{th} National Symposium of the American Vacuum Society, San Jose, October 1997.


244. R. Dorai and M. J. Kushner, "Effects of Propene on the Remediation of NO\textsubscript{x} from Diesel Exhausts", Society of Automotive Engineers (SAE) Fall 1999 F&L Meeting, Toronto, Ontario, Canada, Oct. 1999.


320. A. Agarwal and M. J. Kushner, “Effect of Reactor Geometry on Ion Energy Distributions for Pulsed Plasma Doping (P\textsuperscript{2}LAD),” 52\textsuperscript{nd} International Symposium of the American Vacuum Society, Boston, MA, October 2005.


331. Y. Yang, Mark Strobel, Seth Kirk, Hyacinth Cabibilb and Mark J. Kushner, "Low Pressure Plasma Fluorination of Polypropylene," 59th Gaseous Electronics Conference, Columbus, OH, October 2006.


352. N. Y. Babaeva and M. J. Kushner "Branching Patterns in Multi-atmosphere Pressure Corona Discharges with Positive and Negative Bubbles", 61st Gaseous Electronics Conference, Dallas, TX, October 2008.


364. J. Shoeb and M. J. Kushner, "Factors Affecting the Sealing Efficiency of Low-k Dielectric Surface Pores Using Successive He and Ar/NH₃ Plasma Treatment", 62nd Gaseous Electronics Conference, Saratoga


397. Z. Xiong and M. J. Kushner, “Simulation of Atmospheric Pressure Ionization Waves Propagating Through Flexible Capillary Tubes and Impinging onto a Target”, 38th Int. Conf. on Plasma Science, Chicago, IL, June 2011.


402. J.-C. Wang, N. Leoni, H. Birecki, O. Gila and M. J. Kushner, “Characteristics of Arrays of Independently Controlled RF Micro-Dielectric Barrier Discharges“, 64th Gaseous Electronics Conf., Salt Lake City, UT,


Contributed Conference and Workshop Presentations with Abstracts Only

455. S-H. Song and M. J. Kushner, “Control of SiO\textsubscript{2} Etch Properties by Pulsed Capacitively Coupled Plasmas Sustained in Ar/CF\textsubscript{4}/O\textsubscript{2}”, 60\textsuperscript{th} American Vacuum Society International Symposium, Long Beach, CA, November 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”, 45\textsuperscript{th} APS Division of Atomic, Molecular and Optical Physics, Madison, Wisconsin, June 2014.


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


62nd American Vacuum Society International Symposium, San Jose, CA, October 2015.


523. C. M. Huard, 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)


Contributed Conference and Workshop Presentations with Abstracts Only


564. W. Gekelman, J. Han, J. Han, P. Pribyl, A. Paterson, M. J. Kushner and S. J. Lanham, “Three-dimensional Measurements of plasma properties in an industrial etch tool”, 71st Gaseous Electronics Conference, Portland, OR, November 2018.


583. S. Huang, S.-K. Nam, S. Shim and M. J. Kushner, “Pattern Dependent Profile Distortion in High Aspect Ratio Plasma Etching of SiO₂ and SiO₂-Si₃N₄-SiO₂ Stacks”, 72nd Gaseous Electronics Conference, College Station, TX, October 2019.


585. J. Kruszelnicki, G. Parsey and M. J. Kushner, “Production of Reactive Species in 2-D Packed Bed Reactors -- Impact of System Parameters”, 72nd Gaseous Electronics Conference, College Station, TX, October 2019.


Invited Symposia, Seminar and Short-Course Presentations

6. M. J. Kushner, "Particle Simulations in Gaseous Electronics", Dept. of Chemical and Nuclear Engineering, University of New Mexico, Albuquerque, NM, 1986.
Buffalo, April 1990.


47. A. C. Gentile and M. J. Kushner, "Remediation of NO (N₂O) 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 (N₂O) from Air Streams Using Dielectric Barrier Discharges", Siemens, AG, Erlangen, Germany, May 1994


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


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


Seminar, Quimonda AG, Dresden, Germany, March 2007.


Invited Symposia, Seminar and Short Course Presentations


Invited Symposia, Seminar and Short Course Presentations

Control of Reactive Fluxes in Microelectronics Fabrication (and maybe for plasma medicine), Laboratoire de Physique de Plasma, Ecole Polytechnique, Palaiseau, France, February 2015.


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, Lubbock, TX, November 2016. (APS Division of Plasma Physics Distinguished Lecturer)


Jiao Tong University, Xi’an, China, 15 August 2018.


**Patents and Registrations**


