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Education:

PhD Electrical Engineering, Iowa State University, 2010
MS Nuclear Engineering, Shanghai Jiaotong University, China, 2002
BS Nuclear Engineering, Shanghai Jiaotong University, China, 1999

Industrial Experience:

April, 2010 – Now Process Engineer, Applied Materials Inc.

Awards and Honors:

- John Coburn and Harold Winters Student Award in Plasma Science and Technology, 56th International Symposium of the American Vacuum Society, San Jose, CA, Nov., 2009.
- Student Merit Award, 56th International Symposium of the American Vacuum Society, San Jose, CA, Nov., 2009.
- Excellent graduate student of Shanghai Jiaotong University, 1999.
- Excellent student of Shanghai Jiaotong University, 1998.

Areas of Professional Interest:

Low Temperature Plasmas, Plasma Chemistry, Plasma Materials Processing, Plasma Space Propulsion, Plasma Medicine, Fusion Systems, Two-phase Flow and Heat Transfer.

Refereed Journal Publications:

1. Y. Yang, R. H. Zhang, W. Yao, B. Kuang, Y. H. Yang and J. J. Xu, "Investigation on the Static Flow Excursion in Two-phase Natural Circulation System Using the Drift-flux Model", Atomic Energy Sci. and Tech. (China) **37**, (2003).
2. H. Chen, B. Kuang, Y. Yang and J. J. Xu, "Measurement of Void Fraction in Air-water Two-phase Flow System and Investigation on Identification of Flow Pattern", Nuclear Engineering (China), **S2**, (2003).
3. Y. Yang and M. J. Kushner "Modeling of Magnetically Enhanced Capacitively Coupled Plasma Sources: Two Frequency Discharges", J. Vac. Sci. Technol. A **25**, 1420 (2007).
4. Y. Yang, M. Strobel, S. Kirk, M. J. Kushner, "Fluorine Plasma Treatments of PP Films Part II: Modeling Reaction Mechanisms and Scaling", Plasma Process. Polym. **7**, 123 (2010).
5. S. Kirk, M. Strobel, C. Lee, S. J. Pachuta, M. Prokosch, H. Lechuga, M. E. Jone, C. S. Lyons, S. Degner, Y. Yang, M. J. Kushner, "Fluorine Plasma Treatments of Polypropylene Films Part I: Surface Characterization", Plasma Process. Polym. **7**, 107 (2010).
6. Y. Yang and M. J. Kushner, "Graded Conductivity Electrodes as a Means to Improve Plasma Uniformity in Dual Frequency Capacitively Coupled Plasma Sources", J. Phys. D: Appl. Phys. **43**, 152001 (2010).
7. Y. Yang and M. J. Kushner, "Modeling of Dual Frequency Capacitively Coupled Plasma Sources Utilizing a Full-Wave Maxwell Solver. Part I: Scaling with High Frequency", Plasma Sources Sci. Technol. **19**, 055011 (2010).
8. Y. Yang and M. J. Kushner, "Modeling of Dual Frequency Capacitively Coupled Plasma Sources Utilizing a Full-Wave Maxwell Solver. Part II: Scaling with Pressure, Power and Electronegativity", Plasma Sources Sci. Technol. **19**, 055012 (2010).

9. Y. Yang and M. J. Kushner, "Modeling of 450 mm Dual Frequency Capacitively Coupled Plasma Sources: Conventional and Graded/Segmented Electrodes", J. Phys. D., **108**, 113306 (2010).

Publications in Preparation:

1. Y. Yang and M. J. Kushner, "Elimination of Peripheral Discharge in Reactive Ion Etching Reactors Using Azimuthal Magnetic Field", in preparation.
2. Y. Yang and M. J. Kushner, "An Implicit Algorithm for Electron Momentum Transport", in preparation.

Conference Presentations with Proceedings:

1. Y. Yang and M. J. Kushner, "Electron Energy Distributions in DF-CCP Etching Tools", TECHCON'07, Semiconductor Research Corp., Austin, TX, Sep., 2007.

Contributed Conference Presentations with Proceedings:

1. R. Thomas, Y. Yang, G. H. Miley, F. B. Mead, "Advancements in Dense Plasma Focus for Space Propulsion", Space Tech. and App. Int'l Forum, Albuquerque, NM, 536, Feb., 2005.
2. M. J. Kushner and Y. Yang, "A Case Study of Model Based Development of Plasma Sources: Multifrequency MERIE Reactors", 27th International Dry Process Symposium, Jeju, Korea, Nov., 2005.
3. Y. Yang, M. Wang and M. J. Kushner, "Progress, Opportunities and Challenges in Modeling of Plasma Etching", 11th International Interconnect Technology Conference, Burlingame, CA, Jun., 2008.
4. Y. Yang, J. Shueb, M. Wang and M. J. Kushner, "Plasma Tools for Nanoresolution", 2nd International Workshop on Plasma Etch and Strip in Microelectronics, Leuven, Belgium, Feb., 2009.

Conference Presentations and Posters with Abstracts Only:

1. Y. Yang and M. J. Kushner, "Low Pressure Plasma Fluorination of Polypropylene", 59th Gaseous Electronics Conference, Columbus, OH, Oct., 2006.
2. Y. Yang and M. J. Kushner, "Simulations of Dual Frequency Etching Reactors: Influence of the Higher Frequency on the Plasma Properties", 53th International Symposium of the American Vacuum Society, San Francisco, CA, Nov., 2006.
3. Y. Yang and M. J. Kushner, "Consequences of Ion and Photon Fluxes on the Low-Pressure Plasma Fluorination of Polypropylene", IEEE Pulsed Power and Plasma Science Conference, Albuquerque, NW, Oct., 2007.
4. Y. Yang, M. Strobel, S. Kirk and M. J. Kushner, "Effect of VUV Radiation on Fluorination of Polypropylene in Low Pressure Plasmas", 60th Gaseous Electronics Conference, Washington, DC, Oct., 2007.
5. Y. Yang and M. J. Kushner, "Numerical Investigation of Wave Effects in High-Frequency Capacitively Coupled Plasma Tools ", 54th International Symposium of the American Vacuum Society, Seattle, WA, Oct., 2007.
6. Y. Yang and M. J. Kushner, "Modeling of Wave Effects in High Frequency CCP Tools", Gordon Research Conferences, South Hadley, MA, Jul., 2008.
7. Y. Yang and M. J. Kushner, "Wave and Electrostatic Coupling in 2-Frequency CCP Sources Utilizing a Full Maxwell Solver", 55th International Symposium of the American Vacuum Society, Boston, MA, Oct., 2008.
8. Y. Yang and M. J. Kushner, "Electron and Ion Energy Distributions in 2-Frequency CCP Sources Considering Wave Effects", 61st Gaseous Electronics Conference, Dallas, TX, Oct., 2008.

9. Y. Yang and M. J. Kushner, "Effect of Electrode Separation and Material Properties on Plasma Uniformity in 2-Frequency CCP Tools", 36th IEEE Pulsed Power and Plasma Science Conference, San Diego, CA, Jun., 2009.
10. Y. Yang and M. J. Kushner, "High Frequency Capacitively Coupled Plasmas: Implicit Electron Momentum Transport with A Full-Wave Maxwell Solver", 62nd Gaseous Electronics Conference, Saratoga Springs, NY, Oct., 2009.
11. Y. Yang and M. J. Kushner, "Simulation of 450 mm Dual Frequency Capacitively Coupled Plasma Tools: Conventional and Graded/Segmented Electrodes", 56th International Symposium of the American Vacuum Society, San Jose, CA, Nov., 2009.

Contributed Short Course, Invited Symposia.. Conference and Workshop Presentations:

1. Y. Yang, G. H. Miley, A. Lipson, N. Luo, and A. Karabut, "Intense Soft X-ray Production by Plasma Discharge Bombardment of a Deuterated Target", 46th Annual Meeting of the Div. of Plasma Physics, Savannah, GA, Nov., 2004.
2. M. J. Kushner and Y. Yang, "Magnetically Enhanced Multiple Frequency Capacitively Coupled Plasmas: Dynamics and Strategies," 58th Gaseous Electronics Conference, San Jose, CA, Oct., 2005.
3. M. Wang, A. Agarwal, Y. Yang and M. J. Kushner, "Plasma Etching of Extremely High Aspect Ratio Features: Twisting Effects", 60th Gaseous Electronics Conference, Washington DC, Oct., 2007.
4. 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, Oct., 2008.
5. Y. Yang, M. Wang, J. Shoeb, N. Babaeva and M. J. Kushner, "Status of Plasma Modeling for Process Design", Semiconductor Research Corp. e-Workshop, Aug., 2008.
6. 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.
7. Y. Yang, N. Babaeva and M. J. Kushner, "Supporting Technology Development Through Modeling Fundamental Plasma Processes", 19th International Symposium on Plasma Chemistry, Bochum, Germany, Jul., 2009.
8. Y. Yang, M. Wang, J. Shoeb 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, Busan, Korea, Sep., 2009.
9. Y. Yang, M. Wang, J. Shoeb, N. Babaeva and M. J. Kushner, "Update on Plasma Equipment and Process Modeling", Intel Video-Seminar, Sep., 2009.
10. Y. Yang and M. J. Kushner, "Multi-frequency, finite-wavelength and dc-augmentation effects in large area capacitive sources", 62nd Gaseous Electronics Conference, Saratoga Springs, NY, Oct., 2009.
11. 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, Dec., 2009.

Professional References:

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