Amanda M. Lietz *Curriculum vitae*

Contact Information

1906 Cooley Bldg.
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Ann Arbor, MI 48109

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Research Interests

Plasma modeling, plasma chemistry, plasma liquid interactions, atmospheric pressure plasmas, low temperature plasmas

Education

University of Michigan, Ann Arbor, MI GPA: 4.00
Ph.D., Nuclear Engineering and Radiological Sciences, Expected: Summer 2019
Plasmas and Nuclear Fusion Option
Advisor: Mark J. Kushner, Ph.D

University of Illinois at Urbana-Champaign, Urbana, IL GPA: 3.91
B.S., Nuclear, Plasma and Radiological Engineering, May 2014
Concentration in Plasma and Fusion Science and Engineering
Physics Minor

Research Experience

University of Michigan Aug. 2014 - present
Graduate Research Assistant, Computational Plasma Science and Engineering Group
- 2-dimensional modeling of helium atmospheric pressure plasma jets
- Developed methods to study plasma activated liquid with a 0-D plasma kinetics model

Sandia National Laboratories January 2018 - May 2018
Visiting Student Researcher, Applied Optical and Plasma Sciences
- Designed and constructed an atmospheric pressure plasma jet
- Used ultrafast laser collisional induced fluorescence to measure electron density of a jet interacting with dielectric and liquid surfaces

University of Illinois at Urbana Champaign September 2011 - June 2014
Undergraduate Researcher, Center for Plasma-Material Interactions
- Designed and constructed atmospheric pressure plasma jets
- Evaluated chamber surface treatments for EUV mask blank defect reduction

General Atomics Summer 2012
Undergraduate Intern
- Modeled the ablation of lithium pellets in a tokamak using Matlab

Refereed Journal Publications

1. S. A. Norberg, G. Parsey, **A. M. Lietz**, E. Johnsen, and M. J. Kushner. "Multiple pulses of an atmospheric pressure plasma jet onto a reactive liquid layer." *Journal of Physics D: Applied Physics*, in press (2018).
2. **A. M. Lietz** and M. J. Kushner. "Molecular admixtures and impurities in atmospheric pressure plasma jets." *Journal of Applied Physics*, in press (2018). [Editor's pick]
3. Y. Luo, **A. M. Lietz**, S. Yatom, M. J. Kushner, and P. J. Bruggeman. "Plasma kinetics in a nanosecond pulsed filamentary discharge sustained in Ar-H_2O and H_2O." Submitted to *Journal of Physics D: Applied Physics* (2018).
4. **A. M. Lietz** and M. J. Kushner. "Electrode Configurations in Atmospheric Pressure Plasma Jets: Production of Reactive Species." *Plasma Sources Science and Technology*, in press (2018).

5. **A. M. Lietz**, E. Johnsen, and M. J. Kushner. "Plasma-induced flow instabilities in atmospheric pressure plasma jets." *Applied Physics Letters* **111**, 114101 (2017). [Featured article]

6. **A. M. Lietz**, and M. J. Kushner. "Air plasma treatment of liquid covered tissue: long timescale chemistry." *Journal of Physics D: Applied Physics* **49**, 425204 (2016).

7. W. Tian, **A. M. Lietz**, and M. J. Kushner. "The consequences of air flow on the distribution of aqueous species during dielectric barrier discharge treatment of thin water layers." *Plasma Sources Science and Technology* **25**, 055020 (2016).

8. G. L. Jackson, C. P. Chrobak, A. G. McLean, R. Maingi, D. D. Mansfield, A. L. Roquemore, P. Diwakar, A. Hassanein, **A. M. Lietz**, D. L. Rudakov, T. Sizyuk, and J. Tripathi. "Effect of lithium in the DIII-D SOL and plasma-facing surfaces." *Journal of Nuclear Materials* **463**, 1160 (2015).

Conference Proceedings

1. **A. M. Lietz** and M. J. Kushner. "Mechanisms of Induced Turbulence in Atmospheric Pressure Plasma Jets" Oral Presentation, *International Symposium on Plasma Chemistry*, Montreal, Canada. August 1, 2017.

2. X. Damany, **A. M. Lietz**, J.-M. Pouvesle, M. J. Kushner, and E. Robert. "Atmospheric pressure plasma multi-jet dynamics" Poster, *International Symposium on Plasma Chemistry*, Montreal, Canada. July 30, 2017.

3. **A. M. Lietz** and M. J. Kushner. "Addressing Plasma-Liquid Interactions in a Global Model: Capabilities and Limitations" Oral Presentation, *International Symposium on Plasma Chemistry*, Antwerp, Belgium. July 6, 2015.

4. **A. M. Lietz**, S. A. Norberg, and M. J. Kushner. "Helium Atmospheric Pressure Plasma Jet Dynamics: Consequences of Ground Placement" Poster Presentation, *International Symposium on Plasma Chemistry*, Antwerp, Belgium. July 6 2015.

Awards

National Awards

Department of Energy Office of Science Graduate Student Research Program	2017
National Science Foundation Graduate Research Fellowship	2015
National Defense Science and Engineering Graduate Fellowship (declined)	2015
NSF Graduate Research Fellowship - Honorable Mention	2014

Conference Awards

International Symposium on Plasma Chemistry Student Oral Presentation Award	2017
International Symposium on Plasma Chemistry Poster Award	2015
American Vacuum Society Vacuum Technology Division Award	2014

Other Awards

Richard and Eleanor Towner Prize for Distinguished Academic Achievement	2017
University of Michigan Engineering Graduate Symposium Poster Award	2015
Michigan Institute of Plasma Science and Engineering Fellowship	2014

Conference Presentations

1. **A. M. Lietz**, and M. J. Kushner."Molecular Admixtures in Atmospheric Pressure Plasma Jets" Poster, *GRC Plasma Processing Conference*, Smithfield, RI, USA. August 6, 2018.

2. **A. M. Lietz**, E. V. Barnat, J. E. Foster, and M. J. Kushner."Ionization Wave Propagation and Surface Interactions in a He Plasma Jet" Oral Presentation, *45th International Conference on Plasma Science*, Denver, CO, USA. June 27, 2018.

3. **A. M. Lietz**, X. Damany, J.-M. Pouvesle, E. Robert, and M. J. Kushner."Student Excellence Award Finalist: Atmospheric Pressure Plasma Multi-jets: Fundamental Properties" Oral Presentation, *70th Gaseous Electronics Conference*, Pittsburgh, PA, USA. November 9, 2017.

4. **A. M. Lietz** and M. J. Kushner."Electrode Configuration in Atmospheric Pressure Plasma Jets" Oral Presentation, *69th Gaseous Electronics Conference*, Bochum, Germany. October 13, 2016.

5. **A. M. Lietz** and M. J. Kushner."Impact of Electrode Placement on RONS Production in Atmospheric Pressure Plasma Jets" Oral Presentation, *6th International Conference on Plasma Medicine*, Bratislava, Slovakia. September 9, 2016.

6. **A. M. Lietz**, V. Petrischchev, I. V. Adamovich, and M. J. Kushner."Argon Dielectric Barrier Discharges Over Water at Moderate Pressure" Poster, *GRC Plasma Processing Conference*, Andover, NH, USA. July 25, 2016.

7. **A. M. Lietz** and M. J. Kushner."An Array of Atmospheric Pressure Plasma Jets from a Single Ionization Wave" Oral Presentation, *43rd International Conference on Plasma Science*, Banff, Alberta, Canada. June 20, 2016.

8. **A. M. Lietz** and M. J. Kushner. "Breakdown in Atmospheric Pressure Plasma Jets: Nearby Grounds and Voltage Rise" Oral Presentation, *Gaseous Electronics Conference*, Honolulu, HI, USA. October 15, 2015.

9. **A. M. Lietz**, S. A. Norberg, and M.J. Kushner. "Ionization Waves and Breakdown in Two-Ring Electrode Atmospheric Pressure Plasma Jets" Oral Presentation, *6th International Workshop on Microplasmas*, Newark, NJ, USA. May 14, 2015.

10. **A. M. Lietz**, I. A. Shchelkanov, A. V. Hayes, S. M. Keniley, J. L. Pachicano, A. F. Press, and D. N. Ruzic. "Particle Defect Reduction in EUV Mask Blank Production Devices" Oral Presentation, *American Vacuum Society 61st International Symposium and Exhibition.* Baltimore, MD, USA. November 9-14, 2014.

11. **A. M. Lietz**, M. J. Kushner. "Dielectric Barrier Discharges in Humid Air" Poster, *Michigan Institute of Plasma Science and Engineering Graduate Student Symposium*, Ann Arbor, MI, USA. October 8, 2014.

12. **A. M. Lietz**, I. A. Shchelkanov, A. V. Hayes, S. M. Keniley, J. L. Pachicano, and D. N. Ruzic. "Particle Defect Reduction in EUV Mask Blank Production Devices" Poster, *GRC Plasma Processing Conference*, Smithfield, RI, USA. July 27 - August 1, 2014.

13. **A. M. Lietz**, D. Curreli, Hayes, A. Devashayam, D. N. Ruzic. "Selection of Materials and Surface Finishes for Reduced Particle Formation Upon Ion Beam Bombardment in EUV Mask Blank Production Devices" Poster, *AVS 60th International Symposium and Exhibition.* Long Beach, CA, USA. October 27-November 1, 2013.

14. **A. M. Lietz**, G. L. Jackson, W. Wu, L. R. Baylor, N. Commaux. "Modeling of Pellet Ablation and Deposition on Plasma Facing Surfaces" Poster, *54th APS Division of Plasma Physics Conference*, Providence, RI, USA, October 29 - November 2, 2012.

Volunteer Activities	Dissertation Writing Group Leader	2018
	Detroit Area Pre-College Engineering Program	2016-2017

- Instructed for a 6-week Saturday program that provides high school students with an introduction to Nuclear Engineering

Science Olympiad of Southeast Michigan 2015-2016
- Judged and scored events at competitions for middle school teams

Professional Service

Conference Chair
- Gordon Research Seminar on Plasma Processing Science (co-chiar) 2018

Session Chair
- 69th Annual Gaseous Electronics Conference 2016

Manuscript Referee
- The European Physical Journal Techniques and Instrumentation 2016
- Journal of Applied Physics 2017, 2018
- Chemical Engineering Journal 2017
- Physics of Plasmas 2017
- Journal of Vacuum Science and Technology A 2018
- Biological Chemistry 2018
- Plasma Sources Science and Technology 2018

Grant Referee
- Czech Science Foundation

Guest Lecturer
- NERS 578 - Physical Processes in Plasmas 2017