

ABBAS SEMNANI

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Purdue University asemnani@purdue.edu
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West Lafayette, IN 47907-2035, USA

RESIDENCY United States Permanent Resident (Green Card holder)

RESEARCH INTERESTS Reconfigurable microwaves, high-power RF electronics, low-temperature plasma, applied/computational electromagnetics, inverse scattering, antennas

RESEARCH EXPERIENCE Purdue University, West Lafayette, IN, USA

- **Research Assistant Professor** 2017-present
reconfigurable antennas, high-power tunable microwaves, electrically-small antennas
- **Senior Research Scientist** 2015-2017
low-temperature plasma for high-power microwaves, wireless power transfer, microwave-induced plasma generation
- **Postdoctoral Research Fellow** (in Prof. Dimitrios Peroulis' group) 2012-2015
physics and modeling of gas micro-breakdown, plasma-microwave interaction

Aristotle University of Thessaloniki, Thessaloniki, Greece

- **Visiting Scholar** (in Prof. Ioannis Rekanos' group) 2008
innovative computational techniques able to exploit at best the *a priori* information in solving time-domain electromagnetic inverse scattering problems

GRANTS AND AWARDS

Grants

- "Plasma-tunable radio-frequency elements," Lockheed Martin Aeronautics Company, 6574009847, \$70k, (Co-PI), 2017.
- "Plasmas for low noise reconfigurable RF systems," National Science Foundation (NSF), ECCS-1619547, \$360k, (Co-PI), 2016-2019.
- "Reconfigurable power amplifier and filter technology for real-time adaptive next generation radar," Army Research Lab (ARL), W911NF-16-2-0054, \$873k, (Co-PI), 2016-2018.
- "Plasma-dynamics in nano/micro-structures for RF to THz applications," National Science Foundation (NSF), ECCS-1202095, \$360k, (Senior Personnel), 2012-2015.
- Sabbatical leave grant by Iran Telecommunication Research Center, \$7,000, 2008.
- M.Sc. and Ph.D. Fellowships by Iran Telecommunication Research Center, \$6,000 and \$12,000, 2000 and 2005.

Travel Awards

- European Microwave Weeks (EuMW) student travel grants, 2007 and 2010.

EDUCATION K. N. Toosi University of Technology, Tehran, Iran

Ph.D., Electrical and Computer Engineering, 2009

- Thesis Topic: Time-Domain Electromagnetic Inverse Scattering

M.Sc., Electrical and Computer Engineering, 2002

University of Tehran, Tehran, Iran

B.Sc., Electrical and Computer Engineering, 2000

TEACHING
EXPERIENCE

Purdue University, West Lafayette, Indiana, USA

- **Guest Lecturer** Fall 2012
“Electrical Circuits” course with 50 students in class
- **Mentor** of the “Wireless Power Transfer” team Fall 2012
Group of students working on power harvesting system based on body motion

K. N. Toosi University of Technology, Tehran, Iran

- **Instructor** 2009-2011
“Differential Equations” and “Engineering Mathematics” courses with 60 students (in average) in each class

Azad University, Tehran, Iran

- **Instructor** 2005-2009
“Electromagnetics”, “Communication Circuits”, and “Analog Communications” courses with 30 students (in average) in each class

INVITED TALKS

- T8. **A. Semnani**, S. Macheret, and D. Peroulis, “Microwave microplasma: From destructive power-limiting effects to promising high-power tuning applications,” *9th International Symposium on Plasma Nanoscience and Nanotechnology (iPlasmaNano-IX)*, New Buffalo, MI, August 2018.
- T7. **A. Semnani**, S. Macheret, and D. Peroulis, “Low-temperature plasma for high-power microwave tuning,” *IEEE International Microwave Workshop Series on Advanced Materials and Processes (IMWS-AMP)*, Pavia, Italy, September 2017.
- T6. **A. Semnani**, and D. Peroulis, “Cold plasma-enabled tunable RF devices,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Clearwater, FL, April 2016.
- T5. **A. Semnani**, “From graduate school to the job market; My story as an IEEE-MTT Member,” *Graduates of the Last Decade (GOLD) Session, IEEE International Microwave symposium (IMS)*, Tampa, FL, June 2014.
- T4. **A. Semnani** and D. Peroulis, “Radio frequency gas breakdown and micro/nano-plasma formation in high-power evanescent-mode cavity resonators,” *General Assembly and Scientific Symposium of the International Union of Radio Science (URSI-GASS)*, Beijing, China, August 2014.
- T3. **A. Semnani** and D. Peroulis, “High frequency gas breakdown and microplasma formation in evanescent-mode cavity resonators,” *Annual Meeting of the Electrostatics Society of America (ESA)*, Notre Dame, IN, June 2014.
- T2. D. Peroulis and **A. Semnani**, “RF discharges phenomena in miniaturized RF MEMS cavity-based filters,” *66th Annual Gaseous Electronics Conference (GEC)*, Princeton, NJ, 2013.
- T1. **A. Semnani**, “Time Domain Inverse Scattering,” Aristotle University of Thessaloniki, Thessaloniki, Greece, November 2008.

INDUSTRY
EXPERIENCE

Several Communication Companies, Tehran, Iran

- **Microwave Engineer** 2004-2011
design, simulation and characterization of antennas, passive and active high-frequency devices/circuits, and wireless systems

Iran Broadcasting Company, Tehran, Iran

• **RF Engineer**

2002-2004

design, simulation and characterization of sub-systems related to satellite communication

PROFESSIONAL
SERVICES

Reviewer for

- *IEEE Transactions on Microwave Theory and Techniques*
- *IEEE Transactions on Plasma Science*
- *IEEE Transactions on Geoscience and Remote Sensing*
- *IEEE Transactions on Very Large Scale Integration Systems*
- *IEEE Transactions on Very Large Scale Integration Circuits and Systems II*
- *IEEE Antennas and Wireless Propagation Letters*
- *IEEE Microwave and Wireless Components Letters*
- *IEEE Geoscience and Remote Sensing Letters*
- *IEEE Electron Device Letters*
- *Journal of Applied Physics*
- *Physics of Plasmas*
- *Optics Letters*
- *Europhysics Letters*
- *Electronics Letters*
- John Wiley & Sons

Guest Editor of the *IEEE Microwave Magazine* December 2016 special issue

Steering Committee Member of the *IEEE Radio & Wireless Week (RWW) 2017*

Technical Committee Member of the *IEEE Radio & Wireless Week (RWW)*

PROFESSIONAL
AFFILIATIONS

- IEEE Antennas and Propagation
- IEEE Microwave Theory and Techniques
- IEEE Geoscience and Remote Sensing
- IEEE Nuclear and Plasma Sciences
- American Physical Society (APS)
- Applied Computational Electromagnetics Society (ACES)

BOOK CHAPTERS

- B2. **A. Semnani** and M. Kamyab, "A hybrid method for solving 2-D inverse scattering problems," *Ultra-Wideband, Short Pulse Electromagnetics 9*, Eds.: F. Sabath, D. V. Giri, F. Rachidi, and A. Kaelin, Springer, Germany, pp. 89-99, 2010, ISBN: 978-0-387-77844-0.
- B1. **A. Semnani** and M. Kamyab, "Solving inverse scattering problems using truncated cosine Fourier series expansion method," *Advanced Microwave Circuits and Systems*, Ed.: V. Zhurbenko, In-Tech, Croatia, pp. 455-470, 2010, ISBN: 978-953-307-087-2.

REFEREED
JOURNAL
PUBLICATIONS

- J23. **A. Semnani**, M. D. Sinanis, and D. Peroulis, "An evanescent-mode cavity-backed high-power tunable slot antenna," *IEEE Transactions on Antennas and Propagation*. (under review)
- J22. **A. Semnani**, G. S. Shaffer, Y.-C. Wu, and D. Peroulis, "A high-power impedance tuner utilizing substrate-integrated evanescent-mode cavity technology and external linear actuators," *IET Microwaves, Antennas and Propagation*. (under review)
- J21. A. Dockendorf, E. Langley, A. Egbert, C. Calabrese, J. Alcalá-Medel, S. Rezaayat, Z. Hays, A. Martone, E. Viveiros, K. Gallagher, **A. Semnani**, and D. Peroulis, "Reconfigurable, frequency-agile amplifier matching circuit for radar spectrum sharing," *IEEE Transactions on Aerospace and Electronic Systems*. (under review)

- J20. **A. Semnani**, S. Macheret, and D. Peroulis, "A quasi-absorptive microwave resonant plasma switch for high-power applications," *IEEE Transactions on Microwave Theory and Techniques*, vol. 66, no. 8, pp. 3798-3806, August 2018.
- J19. C. Qu, P. Tian, **A. Semnani**, M. J. Kushner, "Properties of arrays of microplasmas: application to control of electromagnetic waves," *Plasma Sources Science and Technology*, vol. 26, no. 10, 105006, 2017.
- J18. **A. Semnani**, M. A. Khater, Y. C. Wu, and D. Peroulis, "An electronically-tunable high-power impedance tuner with integrated closed-loop control," *IEEE Microwave and Wireless Components Letters*, vol. 27, no. 8, pp. 754-756, August 2017.
- J17. **A. Semnani**, S. Macheret, and D. Peroulis, "A high-power widely-tunable limiter utilizing an evanescent-mode cavity resonator loaded with a gas discharge tube," *IEEE Transactions on Plasma Science*, vol. 44, no. 12, pp. 3271-3280, December 2016.
- J16. **A. Semnani**, D. Peroulis, and S. Macheret, "Plasma-enabled tuning of a resonant RF circuit," *IEEE Transactions on Plasma Science*, vol. 44, no. 8, pp. 1396-1404, August 2016.
- J15. S. Tholeti, **A. Semnani**, D. Peroulis, and A. Alexeenko, "Dark-to-arc transition in field emission dominated atmospheric microdischarges," *Physics of Plasmas*, 22, 083508, 2015.
- J14. **A. Semnani** and D. Peroulis, "Contribution of ions in radio frequency properties of atmospheric pressure microgaps," *Applied Physics Letters*, 105, 253105, 2014.
- J13. **A. Semnani** and D. Peroulis, "Evaluation of RF micro-discharge regimes in the performance of evanescent-mode cavity resonators," *IET Electronics Letters*, vol. 50, no. 17, pp. 1244-1246, August 2014.
- J12. S. Ebadi and **A. Semnani**, "Mutual coupling reduction in waveguide slot array antennas using electromagnetic band-gap (EBG) structures," *IEEE Antennas and Propagation Magazine*, vol. 56, no. 3, pp. 68-79, June 2014.
- J11. **A. Semnani**, K. Chen, and D. Peroulis, "Microwave gas breakdown in tunable evanescent-mode cavity resonators," *IEEE Microwave and Wireless Components Letters*, vol. 24, no. 5, pp. 351-353, May 2014.
- J10. **A. Semnani**, A. Venkatraman, A. Alexeenko, and D. Peroulis, "Frequency response of atmospheric pressure gas breakdown in micro/nanogap," *Applied Physics Letters*, 103, 063102, 2013.
- J9. **A. Semnani**, A. Venkatraman, A. Alexeenko, and D. Peroulis, "Pre-breakdown evaluation of gas discharge mechanisms in microgaps," *Applied Physics Letters*, 102, 174102, 2013.
- J8. D. Oloumi, S. Ebadi, A. Kordzadeh, **A. Semnani**, P. Mousavi, and X. Gong, "Miniaturized reflectarray unit cell using fractal-shaped patch-slot configuration," *IEEE Antennas and Wireless Propagation Letters*, vol. 11, pp. 10-13, 2012.
- J7. **A. Semnani**, I. T. Rekanos, M. Kamyab, and M. Moghaddam, "Solving inverse scattering problems based on truncated cosine Fourier and cubic B-spline expansions," *IEEE Transactions on Antennas and Propagation*, vol. 60, no. 12, pp. 5914-5923, Dec. 2012.
- J6. **A. Semnani**, I. T. Rekanos, M. Kamyab, and T. G. Papadopoulos, "Two-dimensional microwave imaging based on hybrid scatterer representation and differential evolution," *IEEE Transactions on Antennas and Propagation*, vol. 58, no. 10, pp. 3289-3298, Oct. 2010.
- J5. **A. Semnani**, M. Kamyab, and I. T. Rekanos, "Reconstruction of one-dimensional dielectric scatterers using differential evolution and particle swarm optimization," *IEEE Geoscience and Remote Sensing Letters*, vol. 6, no. 4, pp. 671-675, Oct. 2009.

- J4. **A. Semnani** and M. Kamyab, "An enhanced hybrid method for solving inverse scattering problems," *IEEE Transactions on Magnetics*, vol. 45, no. 3, pp. 1534-1537, March 2009.
- J3. **A. Semnani** and M. Kamyab, "Truncated cosine Fourier series expansion method for solving 2-D inverse scattering problems," *Progress In Electromagnetics Research*, vol. 81, pp. 73-97, 2008.
- J2. **A. Semnani** and M. Kamyab, "An Enhanced Method for Inverse Scattering Problems using Fourier Series Expansion in Conjunction with FDTD and PSO," *Progress In Electromagnetics Research*, vol. 76, pp. 45-64, 2007.
- J1. A. Mahmoudi, **A. Semnani**, R. Alizadeh, and R. Adeli, "Negative refraction of a three-dimensional metallic photonic crystal," *European Physical Journal Applied Physics*, vol. 39, pp. 27-32, 2007.
- C25. Z. Vander Missen, **A. Semnani**, and D. Peroulis, "Microwave-driven CPW microplasma generator for low-power discharge," *IEEE International Microwave Workshop Series on Advanced Materials and Processes (IMWS-AMP)*, Ann Arbor, MI, 2018.
- C24. **A. Semnani**, M. D. Sinanis and D. Peroulis, "High-power and widely-tunable evanescent-mode cavity-backed slot antenna," *IEEE International Symposium on Antennas and Propagation (AP-S)*, Boston, MA, 2018.
- C23. Z. Vander Missen, **A. Semnani**, and D. Peroulis, "High-power wideband low-cost limiters using cold plasma," *IEEE International Microwave Symposium (IMS)*, Philadelphia, PA, 2018.
- C22. S. Rezayat, C. Kappelmann, Z. Hays, L. Hays, C. Baylis, E. Viveiros, **A. Semnani**, and D. Peroulis, "Real-time frequency-agile circuit reconfiguration for S-band radar using a high-power tunable resonant cavity matching network," *IEEE International Microwave Symposium (IMS)*, Philadelphia, PA, 2018.
- C21. Z. Vander Missen, **A. Semnani**, E. Viveiros, and D. Peroulis, "Interaction of high-power microwaves with low-temperature plasma in a gas-discharge-tube-loaded SIW structure," *IEEE Radio and Wireless Symposium (RWS)*, Anaheim, CA, 2018.
- C20. Z. Hays, C. Kappelmann, L. Lamers, C. Baylis, M. Abu Khater, **A. Semnani**, D. Peroulis, E. Viveiros, and J. Penn, "Fast impedance matching using interval halving of resonator position numbers for a high-power evanescent-mode cavity tuner," *IEEE Radio and Wireless Symposium (RWS)*, Anaheim, CA, 2018.
- C19. Y. C. Wu, M. A. Khater, **A. Semnani**, and D. Peroulis, "An S-band 3-W load-reconfigurable power amplifier with 50 ~ 76% efficiency for VSWR up to 4:1," *IEEE International Microwave Symposium (IMS)*, Honolulu, HI, 2017.
- C18. **A. Semnani**, S. Macheret, and D. Peroulis, "A 2-30 W S-band plasma-based switch," *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Cocoa, FL, 2017.
- C17. Z. Hays, C. Baylis, R. J. Marks, M. A. Khater, **A. Semnani**, and D. Peroulis, "Fast amplifier PAE optimization using resonant frequency interval halving with an evanescent-mode cavity tuner," *IEEE Texas Symposium on Wireless and Microwave Circuits and Systems*, Waco, TX, 2017.
- C16. **A. Semnani**, H. J. Yang, M. Sinanis, S-J. Park, J. G. Eden, S. O. Macheret, and D. Peroulis, "Power limiting characteristics of a plasma-loaded evanescent-mode cavity resonator," 46th *European Microwave Conference (EuMC)*, London, United Kingdom, 2016.
- C15. **A. Semnani**, M. Sinanis, G. S. Shaffer, and D. Peroulis, "Field emission mitigation in X-band silicon-etched cavity resonators," *IEEE International Microwave Symposium (IMS)*, San Francisco, CA, 2016.

- C14. **A. Semnani**, H. J. Yang, M. Sinanis, S-J. Park, J. G. Eden, S. O. Macheret, and D. Peroulis, “Low temperature plasma for tunable resonant attenuation,” *IEEE International Microwave Symposium (IMS)*, San Francisco, CA, 2016.
- C13. **A. Semnani**, Z. Vander Missen, S. Macheret, and D. Peroulis, “Gas discharge tube-based variable RF attenuator,” *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Clearwater, FL, 2016.
- C12. **A. Semnani**, S. Macheret, and D. Peroulis, “A tunable VHF gas discharge tube resonator,” *IEEE Radio and Wireless Symposium (RWS)*, Austin, TX, 2016.
- C11. **A. Semnani** and D. Peroulis, “Electromagnetic sensitivity analysis of RF gas micro/nano-breakdown,” *IEEE International Symposium on Antennas and Propagation (AP-S)*, Memphis, TN, 2014.
- C10. **A. Semnani** and D. Peroulis, “Nano-plasma tunable evanescent-mode cavity resonators,” *IEEE International Microwave Symposium (IMS)*, Tampa, FL, 2014.
- C9. **A. Semnani** and D. Peroulis, “Electromagnetic simulation of gas discharge effects in RF microgaps,” *IEEE International Symposium on Antennas and Propagation (AP-S)*, Orlando, FL, 2013.
- C8. **A. Semnani** and D. Peroulis, “The influence of gas discharge in Nano-gap RF conductivity,” *IEEE International Microwave Symposium (IMS)*, Seattle, WA, 2013.
- C7. K. Chen, **A. Semnani**, and D. Peroulis, “High-power microwave gas discharge in high-Q evanescent-mode cavity resonator and its instantaneous/long-term effects,” *IEEE International Microwave Symposium (IMS)*, Seattle, WA, 2013.
- C6. **A. Semnani**, A. Venkatraman, A. Alexeenko, and D. Peroulis, “Numerical evaluation of RF gas ionization effects in micro- and nano-scale devices,” *International Conference on Electromagnetics in Advanced Applications (ICEAA)*, Cape Town, South Africa, 2012.
- C5. **A. Semnani**, I. T. Rekanos, and M. Kamyab, “One-dimensional profile reconstruction using cosine Fourier and cubic B-spline expansions,” *40th European Microwave Conference (EuMC)*, Paris, France, 2010.
- C4. **A. Semnani** and M. Kamyab, “Comparison of Differential evolution and particle swarm optimization in one-dimensional reconstruction problems,” *20th Asia-Pacific Microwave Conference (APMC)*, Hong Kong, China, 2008.
- C3. **A. Semnani** and M. Kamyab, “An enhanced hybrid method for solving inverse scattering problems,” *13th Biennial IEEE Conference on Electromagnetic Field Computations (CEFC)*, Athens, Greece, 2008.
- C2. **A. Semnani** and M. Kamyab, “Cosine Fourier series expansion method for 2-D inverse scattering problems,” *37th European Microwave Conference (EuMC)*, Munich, Germany, 2007.
- C1. **A. Semnani** and M. Kamyab, “A computationally efficient method in inverse scattering using Fourier series expansion in conjunction with FDTD and PSO,” *Workshop on Computational Electromagnetics in Time-Domain (CEM-TD)*, Perugia, Italy, 2007.

CONFERENCE
ABSTRACTS

- A30. **A. Semnani**, M. D. Sinanis, and D. Peroulis, “Evanescent-mode cavity-backed tunable slot antenna,” *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2019.
- A29. **A. Semnani**, B. Baskaran, and D. Peroulis, “Wireless microwave powering of agricultural sensors,” *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2019.
- A28. J. A. Alcalá-Medel, C. Calabrese, C. Baylis, A. Martone, K. Gallagher, E. Viveiros, **A. Semnani**, and D. Peroulis, “Fast reconfiguration of second-generation tunable evanescent-mode cavity matching network for frequency agility in S-band cognitive radar applications,” *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2019.

- A27. A. Dockendorf, E. Langley, A. Egbert, C. Baylis, **A. Semnani**, D. Peroulis, A. Martone, E. Viveiros, and R. J. Marks II, "Frequency-agile reconfiguration for a high-power resonant cavity tuner using previous search results," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2019.
- A26. C. Baylis, A. Martone, K. Gallagher, E. Viveiros, **A. Semnani**, D. Peroulis, and R. J. Marks II, "Software defined, spectrally sensitive radar transmission," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2019.
- A25. **A. Semnani**, S. Macheret, and D. Peroulis, "Plasma-based electrically small antennas," *71th Annual Gaseous Electronics Conference (GEC)*, Portland, OR, 2018.
- A24. S. Macheret, **A. Semnani**, D. Peroulis, S. S. Tholeti, A. Alexeenko, A. Khomenko, and V. Podolsky, "Spatial and temporal manipulation of plasmas for RF electronics," *9th International Symposium on Plasma Nanoscience and Nanotechnology (iPlasmaNano-IX)*, New Buffalo, MI, 2018.
- A23. **A. Semnani**, Z. Vander Missen, and D. Peroulis, "Microplasma generation in low-power microwave coplanar waveguide (CPW) structures," *IEEE International Conference on Plasma Science (ICOPS)*, Denver, CO, 2018.
- A22. **A. Semnani**, D. Peroulis, and S. Macheret, "Analysis of plasma parameters and conditions required for reconfigurable antennas," *IEEE International Conference on Plasma Science (ICOPS)*, Denver, CO, 2018.
- A21. **A. Semnani**, Z. Vander Missen, and D. Peroulis, "A wideband and high-power plasma-based microwave power limiter," *IEEE International Conference on Plasma Science (ICOPS)*, Denver, CO, 2018.
- A20. A. L. Garner, A. M. Loveless, Z. Vander Missen, and **A. Semnani**, "AC gas breakdown: from simple scaling laws to experiments," *IEEE International Conference on Plasma Science (ICOPS)*, Denver, CO, 2018.
- A19. **A. Semnani**, S. Macheret, and D. Peroulis, "Plasma varactor for reconfigurable RF/microwave systems," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2018.
- A18. **A. Semnani**, M. Abu Khater, D. Peroulis, C. Baylis, L. Hays, C. Kappelmann, and Z. Hays, "An evanescent-mode cavity-based high-power impedance tuner for adaptive radar applications," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2018.
- A17. **A. Semnani**, S. Macheret, and D. Peroulis, "High-power microwave tunable resistor based on low-temperature plasma technology," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2018.
- A16. Z. Vander Missen, **A. Semnani**, and D. Peroulis, "Plasma cell loaded transmission line technologies for broadband applications," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2018.
- A15. C. Kappelmann, L. Hays, Z. Hays, S. Rezayat, C. Baylis, R. J. Marks, E. Viveiros, M. Abu Khater, **A. Semnani**, and D. Peroulis, "Frequency-agile power amplifier matching network reconfiguration using a hybrid real-time search," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2018.
- A14. L. Hays, S. Rezayat, Z. Hays, A. Egbert, C. Kappelmann, C. Baylis, R. J. Marks, E. Viveiros, D. Peroulis, M. Abu Khater, and **A. Semnani**, "Direct tuning of cavity position numbers for circuit optimization using an evanescent-mode cavity tuner designed for reconfigurable radar transmission," *USNC-URSI National Radio Science Meeting (NRSM)*, Boulder, CO, 2018.
- A13. **A. Semnani**, S. Macheret, and D. Peroulis, "Tuning of AC sheath thickness by varying plasma excitation frequency," *70th Annual Gaseous Electronics Conference (GEC)*, Pittsburgh, PA, 2017.
- A12. **A. Semnani**, S. Macheret, and D. Peroulis, "High-power microwave switching utilizing low-temperature gas discharge tube," *IEEE International Conference on Plasma Science (ICOPS)*, Atlantic City, NJ, 2017.

- A11. **A. Semnani**, S. Macheret, and D. Peroulis, "Plasma-based tunable high frequency power limiter," *69th Annual Gaseous Electronics Conference (GEC)*, Bochum, Germany, 2016.
- A10. S. Macheret, **A. Semnani**, and D. Peroulis, "Abnormal glow discharge as a variable capacitor for tunable RF systems," *69th Annual Gaseous Electronics Conference (GEC)*, Bochum, Germany, 2016.
- A9. **A. Semnani** S. Macheret, and D. Peroulis, "Tunable RF electronics based on low temperature plasma," *IEEE International Conference on Plasma Science (ICOPS)*, Banff, Alberta, Canada, 2016.
- A8. **A. Semnani** S. Macheret, and D. Peroulis, "Plasma-based reconfigurable RF electronics," *Annual Meeting of the Electrostatics Society of America (ESA)*, West Lafayette, IN, 2016.
- A7. **A. Semnani**, S. Macheret, and D. Peroulis, "Plasma tunable LC resonator for high-power electromagnetic applications," *68th Annual Gaseous Electronics Conference (GEC)*, Honolulu, HI, 2015.
- A6. **A. Semnani**, S. Tholeti, A. Alexeenko, S. Macheret, and D. Peroulis, "Electron energy distribution functions and plasma lifetime in atmospheric pressure microdischarges," *8th International Workshop on Microplasmas (IWM)*, Newark, NJ, 2015.
- A5. **A. Semnani** and D. Peroulis, "Interaction of High-Frequency Electromagnetic Waves with Pre-Breakdown Atmospheric Pressure Micro-Discharge Region," *67th Annual Gaseous Electronics Conference (GEC)*, Raleigh, NC, 2014.
- A4. **A. Semnani** and D. Peroulis, "High frequency tuning mechanism using nano-plasma," *Annual Technical Meeting of Society of Engineering Science (SES)*, West Lafayette, IN, 2014.
- A3. **A. Semnani** and D. Peroulis, "Evaluation of RF micro-discharge regimes in the performance of evanescent-mode cavity resonators," *66th Annual Gaseous Electronics Conference (GEC)*, Princeton, NJ, 2013.
- A2. **A. Semnani**, I. T. Rekanos, M. Kamyab, and C. S. Antonopoulos, "Solving 2-D inverse scattering problems using truncated cosine Fourier and cubic B-spline expansions," *Progress In Electromagnetics Research Symposium (PIERS)*, Marrakesh, Morocco, 2011.
- A1. **A. Semnani** and M. Kamyab, "A hybrid method for solving 2-D inverse scattering problems," *European Electromagnetics Conference (EUROEM)*, Lausanne, Switzerland, 2008.