

# 2018 Annual Review of Plasma & Electroenergetic Physics

Dr. Jason Marshall | July 24-26, 2018 | Arlington, VA

Basic Research Innovation and Collaboration Center (BRICC)  
4100 Fairfax Drive, Suite 450 | Research Room  
Arlington, VA 22203

## Agenda Day 1 | July 24, 2018

Time	Topic	Speaker
08:00-08:30	Registration	
08:30-08:45	INTRODUCTIONS	Dr. Jason Marshall, AFOSR
<b>Experimental and Theoretical Plasma Physics</b>		
08:45-09:15	Time Evolution of the Wave Function Leading to the Fowler-Nordheim Electron Emission	Dr. Joel Lebowitz, Rutgers
09:15-09:45	A Hybrid Model for Multiscale Laser Plasma Simulations with Detailed Collision	Dr. David Bilyeu, AFRL/RQR
09:45-10:15	Recent Progress in Modeling Nonlinear Kinetic Coherent Waves in High Energy Density Plasmas: The Effects of Collisions on Trapped Particle States	Dr. Archis Joglekar, Polymath Research Inc.
10:15-10:45	<b>BREAK</b>	
10:45-11:15	Physics-Based-Adaptive Plasma Model for High-Fidelity Numerical Simulations	Dr. Uri Shumlak, UW
11:15-11:45	Dynamic Plasma Coupling in Laboratory, Computer, Space	Dr. David Cooke, AFRL/RVB
11:45-13:15	<b>LUNCH</b>	
13:15-13:45	Characterizing Hypervelocity Impact Plasmas and Effects on Spacecraft with PIC	Dr. Sigrid Close, Stanford
13:45-14:15	Pulse Power Implosion Experiments and Simulation Study of the Impact of Lower Hybrid Drift (LHD) Plasma Turbulence on the Propagation Properties of High Frequency Electromagnetic Waves	Dr. Vladimir Sotnikov, AFRL/RYM
14:15-14:45	<b>BREAK</b>	
14:45-15:15	Energy Flow in Dense Off-Equilibrium Plasma	Dr. Seth Putterman, UCLA
15:15-15:45	Threat Detection Using a Modular Cosmic Ray Muon Tomography System	Dr. James Popp, CUNY-York
15:45-16:15	Microwave/Terahertz Generation from Superconductor Antennas	Dr. Tim Haugan, AFRL/RQ
	<b>MEETING ADJOURN</b>	

Agenda Day 2   July 25, 2018		
Time	Topic	Speaker
08:00-08:30	Registration	
08:30-09:00	Studies in Raman Compression	Dr. Nathaniel Fisch, Princeton
09:00-09:30	Adaptable Compressed Jaumann Absorber for Harsh and Dynamic EM Environments	Dr. Jun Choi, SUNY-Buffalo
09:30-10:00	Advanced Spectroscopic Studies of Nanosecond Pulsed Microplasmas	Dr. Chunqi Jiang, ODU
10:00-10:30	BREAK	
10:30-11:00	Studies of Plasma Sheath Physics using Continuum Kinetic Simulations of Plasmas	Dr. Bhuvana Srinivasan, Virginia Tech
High Power Electromagnetic Source Physics		
11:00-11:30	Cathode Materials Research for High Power Microwave Sources	Dr. Don Shiffler, AFRL/RD
11:30-13:00	LUNCH	
13:00-13:30	Optical Cavity Enhanced Electron Emitters	Dr. Rehan Kapadia, USC
13:30-14:00	Investigation of Novel Nanomaterials	Dr. Steven Fairchild, AFRL/RXA
14:00-14:30	BREAK	
14:30-15:00	Volume Mode Traveling Wave Tube Amplifier	Dr. Richard Temkin, MIT
15:00-15:30	Metamaterial Enhanced Resistive Wall Amplifiers	Dr. Nader Behdad, UWisc
15:30-16:00	Near-Zero Effective Media for High-Power Microwave Applications	Dr. Rebecca Seviour, Huddersfield, UK
	MEETING ADJOURN	

Agenda Day 3   July 26, 2018		
Time	Topic	Speaker
08:00-08:30	Registration	
08:30-09:00	Study of High Power Microwave Amplification Driven by Energetic Electron Beams	Dr. Brad Hoff, AFRL/RDH
09:00-09:30	High Power Recirculating Planar Amplifiers	Dr. Ronald Gilgenbach, UMich
09:30-10:00	Phase-Controlled Magnetron Development	Dr. Jim Browning, BSU
10:00-10:30	BREAK	
Energy Transport in Solids		
10:30-11:00	Radiative Thermal Transport with Nanowire-Based Uniaxial Electromagnetic Metamaterials	Dr. Liping Wang, ASU
11:00-11:30	Nonlinear Dielectrics and Magnetics for Compact High Power Electromagnetics	Dr. Susan Heidger & Dr. Renee Van Ginhoven, AFRL/RDH
11:30-13:00	LUNCH	
13:00-13:15	Pulsed Power and the Effectiveness of Transient Plasmas	Dr. Martin Gundersen, USC
13:15-13:45	Nanostructure Techniques to Obtain Enhanced Permittivity Dielectrics	Dr. J. Neil Merrett, AFRL/RQQ
13:45-14:20	Innovative Study of Electrical Contact and Electron Transport	Dr. Y. Y. Lau, UMich
14:20-14:50	BREAK	
14:50-15:20	Electron Dynamics During High-Power, Short-Pulsed Laser Interactions	Dr. Patrick Hopkins, UVA
15:20-15:50	Computational Electromagnetics at Fractional Dimensions	Dr. Ricky Ang, SUTD
15:50-16:05	Closing Remarks	
	MEETING CONCLUDED	