



# 2019 Human Performance and Biosystems Portfolio Review

Dr. Patrick Bradshaw | September 4-6, 2019 | Arlington, VA

Basic Research Innovation Collaboration Center  
4100 North Fairfax Drive, Suite 450 | Research Room  
Arlington, VA 22203

## Agenda Day 1 – Wednesday 4 Sept 2019

Time	Topic	Speaker
<b>0800-0830</b>	<b>Registration/Introduction</b>	<b>Pat Bradshaw, AFOSR</b>
<b>0830-0900</b>	Nano-Optoelectrodes Enabled Multimodal Optical-Electrical Interface inside Cells	<b>Wei Zhou, Va Tech</b>
<b>0900-0930</b>	Electrogenetics: Controlling Biological Functions Through Electrically Activated Transcription	<b>Ian Wheeldon, UC Riverside</b>
<b>0930-1000</b>	Structure-Function relationship in Cephalopod-Inspired Materials	<b>Alon Gorodetsky, UC Irvine</b>
<b>1000-1015</b>	<b>BREAK</b>	
<b>1015-1045</b>	Salivary Exosome (nsEV) Analysis to Elucidate Intercellular Signaling Events	<b>Varghese John, UCLA</b>
<b>1045-1115</b>	Bio-molecular Interactions of Nanomaterials: Toxicological Evaluation in AF Operational Environments	<b>Saber Hussain, AFRL/RH</b>
<b>1115-1145</b>	Transcranial Magnetic Stimulation	<b>Edwin Robertson, U Glasgow</b>
<b>1145-1315</b>	<b>LUNCH</b>	
<b>1315-1345</b>	Examining Mechanisms of Transcranial Direct Current Stimulation Through Neurophysiology	<b>Andy McKinley, AFRL/RH</b>
<b>1345-1415</b>	Neurobiological Effects of Direct Current Stimulation	<b>Candice Hatcher, AFRL/RH</b>
<b>1415-1445</b>	Novel In-Operando Molecular Affinity Profiling by Electronic Autonomous Research System; Towards Sensing Biomarkers	<b>Steve Kim, AFRL/RH</b>
<b>1445-1500</b>	<b>BREAK</b>	
<b>1500-1530</b>	Biological Processes for Sensory Function: Insight from Quantum-to-Mesoscale Mod	<b>Ruth Pachter, AFRL/RX</b>
<b>1530-1600</b>	Defining the Intracellular Mediators for Radiofrequency Wave Modulation of Neuro	<b>Ibtissam Echchgadda</b>
<b>1600</b>	<b>Meeting Adjourned for the Day</b>	

**Agenda Day 2 – Thursday 5 Sept 2019**

<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
<b>0800-0815</b>	<b>Comments/Announcements</b>	<b>Pat Bradshaw, AFOSR</b>
<b>0815-0845</b>	Human Scent Detection and Discrimination By Mosquitoes as a Means for the Design of Bio-Inspired Volatile Detection Systems	<b>Jeff Riffell, U Washington</b>
<b>0845-0915</b>	Neural mechanisms coordinating olfactory processing with wing beating during odor guided flight	<b>Kevin Daly, U West Virginia</b>
<b>0915-0945</b>	Decision Making Underlying Successful Aerial Contact in Predatory Flights	<b>Paloma Gonzalez Bellido, U Minnesota</b>
<b>0945-1015</b>	Fundamentals and Control of Electron Transport at Cellular Electronic Interfaces	<b>Moh El Naggar, USC</b>
<b>1015-1030</b>	<b>Break</b>	
<b>1030-1100</b>	Physiological, Genetic, and Synthetic Biological Studies of Extracellular Electron Transport (EET) Redox Machines	<b>Ken Nealson, USC</b>
<b>1100-1130</b>	Physiological, Genetic, and Synthetic Biological Studies of Extracellular Electron Transport (EET) Redox Machines	<b>Steve Finkel, USC</b>
<b>1130-1200</b>	Nanoelectropulse-Induced Changes in Cell Excitability - Neuromodulation	<b>Gale Craviso, U Nevada Reno</b>
<b>1200-1330</b>	<b>LUNCH</b>	
<b>1330-1400</b>	Parsing Continuous Speech: The Role of Neuronal Oscillations and Sentential Context	<b>Oded Ghitza, Boston U</b>
<b>1400-1430</b>	Spatial Hearing, Attention and Informational Masking in Speech Identification	<b>Gerald Kidd, Boston U</b>
<b>1430-1500</b>	Synthetically Tuned Gut-Brain-Axis Communication	<b>Warren Ruder, U Pittsburg</b>
<b>1500-1515</b>	<b>Break</b>	
<b>1515-1530</b>	Synthetically Tuned Gut-Brain-Axis Communication	<b>Phil LeDuc, Carneige Mellon U</b>
<b>1530-1600</b>	Energy, Information, and Power in Cells	<b>Rahul Sarpeshkar, Dartmouth U</b>
<b>1600</b>	<b>Meeting Adjourned for the Day</b>	

**Agenda Day 3 – Friday 6 Sept 2019**

<b>Time</b>	<b>Title</b>	<b>Speaker</b>
<b>0800-0815</b>	<b>Administrative Remarks</b>	<b>Pat Bradshaw, AFOSR</b>
<b>0815-0845</b>	Polarization and Multispectral Vision in Mantis Shrimp: A Model for Information Processing and Biomimetic Imaging	<b>Tom Cronin</b> , U Maryland Baltimore County
<b>0845-0915</b>	Polarization and Multispectral Vision in Mantis Shrimp: A Model for Information Processing and Biomimetic Imaging	<b>Viktor Gruev</b> , U of Illinois
<b>0915-1015</b>	Neuromodulation through Bioelectric and Subcellular Control of Glial Cells	<b>Bozhi Tian</b> , U Chicago
<b>1015-1045</b>	Security and conduction properties of interference human body	<b>Sheryas Sen</b> , Perdue
<b>1045-1115</b>	Atomic layer Semiconductors as Biological Analog Photocells for intrinsic	<b>Nathan Gabor</b> , UC Riverside
<b>1115-1145</b>	Cryptochrome role in magnetic signal transduction	Thorsten Ritz, UC Irvine
<b>1145-1215</b>	Structural Biology of regulatory mechanism of biofilm formation	Andy LiWang, UC Merced
	<b>Discussion</b>	
	<b>MEETING ADJOURN</b>	