Draft

Basic Research Innovation and Collaboration Center
900 Glebe Road, 2nd Floor
Arlington, VA 22203

Day 1 - Monday, 16 April 2018

Time	Topic	Speaker
0800-0850	**REGISTRATION**	
0850-0900	Introduction	**Dr. Sofi Bin-Salamon** Air Force Office of Scientific Research
0900-0930	Optical Magnetic Imaging of Neuronal Currents and Impedance Using Quantum Defects in Diamond	**Prof. Ronald Walsworth** Harvard University
0930-1000	Tools for Understanding Molecular Scale Mechanisms in LGICs: Single Molecule Kinetics, Super-Resolution Imaging, and Hidden Markov Walks	**Prof. James Brozik** Washington State University
1000-1030	Sub-Diffraction Temperature Mapping of Protein Interconversions	**Prof. Somin Lee** University of Michigan
1030-1100	**BREAK**	
1100-1130	Improving Optical Measurement and Trapping using Quantum Mechanics	**Prof. Warwick Bowen** University of Queensland
1130-1200	Watching Biology: Breaking Imaging Limits to Observe Fundamental Intracellular Dynamics in Real Time	**Dr. Joel Bixler** Air Force Research Laboratory 711th HPW
1200-1230	Smart Sensor Systems for Human Health Applications: Steps Toward Distributed Intelligence	**Dr. Gary Hunter** NASA Glenn Research Center
1230-1330	**LUNCH**	
1330-1400	TBA	**Prof. Philip Hemmer** Texas A&M University
1400-1430	When Noise is the Signal	**Prof. Francesco Zerbetto** University of Bologna
1430-1500	Understanding the “Mission Versatility” of Membrane Proteins via Nanoscopic Imaging	**Prof. Qian Chen** University of Illinois Urbana-Champaign
1500-1530	**BREAK**	
1530-1600	Molecular Modeling of Bio-nano Interfaces for Possibilities in Bio-sensing and Bio-imaging	**Prof. Tiffany Walsh** Deakin University
1600-1630	Application of Cutting-Edge Technologies to Understand Biomolecular Interaction of Engineered Nanomaterials: Safety Issues and Challenges	**Dr. Saber Hussain** Air Force Research Laboratory 711th HPW

1630-1700	New Approaches to Magnetometry and Sensing with Single Crystal Diamond	**Prof. Andrew Geentree** Royal Melbourne Institute of Technology University
1700	**MEETING ADJOURNED FOR THE DAY**	

Draft

Basic Research Innovation and Collaboration Center
900 Glebe Road, 2nd Floor
Arlington, VA 22203

Day 2 - Tuesday, 17 April 2018

Time	Topic	Speaker
0800-0900	**REGISTRATION**	
0900-0915	The Importance of International Collaboration in Basic Research for Supporting the Needs of Mission Agencies, Advancing the Scientific Frontier, and Contributing to Diplomacy	**Dr. E. William Colglazier** American Association for the Advancement of Science
0915-0935	The Role of Research Infrastructure in Supporting Research Collaborations	**Ms. Rosie Hicks** Australian National Fabrication Facility
0935-0955	The National Research Council of Italy – Smart Materials and Bio Interfaces	**Prof. Luigi Ambrosio** National Research Council of Italy
0955-1015	Overview of Mintek's Research and Development	**Dr. Makhapa Makhafola** MINTEK National Science Council of South Africa
1015-1030	AFOSR International Initiatives	**Dr. Misoon Mah** Air Force Office of Scientific Research
1030-1100	**BREAK**	
1100-1130	Elucidating the Cellular and Sub-Cellular Dynamics during Electromagnetic Modulation of the Nervous System	**Prof. Anita Mahadevan-Jansen** Vanderbilt University
1130-1200	Shedding Light in Brain Microdomains	**Dr. Valentina Benfenati** National Research Council of Italy
1200-1230	Shining Light on the Neuroimmune Interface	**Prof. Mark Hutchinson** University of Adelaide
1230-1330	**LUNCH**	
1330-1400	Towards Human Performance Enhancement through Radiogenetically-Controlled Signaling Elements	**Dr. Morgan Schmidt** Air Force Research Laboratory 711th HPW
1400-1430	Transducers as Remote Photoactivators to Aid in Functional Cell Imaging and Photobiomodulation	**Prof. Kelly Nash** University of Texas San Antonio
1430-1500	Multimodal Sensing with Hybrid Fluorescent Nanodiamond Complexes for Quantum Biological Measurements	**Prof. Brant Gibson** Royal Melbourne Institute of Technology University
1500-1530	**BREAK**	

1530-1600	Cell Membrane Dynamics in Infrared Nerve Stimulation and Blocking	**Prof. Michelle Sander** Boston University
1600-1630	Forest of Disordered Gold Covered Silicon Nanowires: A Versatile Platform for Interfacing Cells	**Dr. Annalisa Convertino** National Research Council of Italy
1630-1700	Nano-Biosensing Program	**Dr. Chenzhong Li** National Science Foundation
1700	**MEETING ADJOURNED FOR THE DAY**	

Draft

Basic Research Innovation and Collaboration Center
900 Glebe Road, 2nd Floor
Arlington, VA 22203

Day 3 - Wednesday, 18 April 2018

Time	Topic	Speaker
0800-0850	**REGISTRATION**	
0850-0905	Multi-Disciplinary University Research Initiative: Nanoelectropulse-Induced Electromachanical Signaling and Control of Biological Systems	**Prof. Andrei Pakhomov** Old Dominion University
0905-0920	Universality of Bipolar Cancellation for Nanoporation and Nanoelectropulse Stimulation	**Prof. Andrei Pakhomov** Old Dominion University
0920-0940	Instrumentation for Studying Cancellation Effects Caused by Nanosecond Pulses	**Prof. Shu Xiao** Old Dominion University
0940-1000	Membrane Biophysics of Biphasic Electrostimulated Molecular Transport	**Prof. Thomas Vernier** Old Dominion University
1000-1020	A New Biophysical Model Can Explain Bipolar Cancellation of Molecule Transport	**Prof. James Weaver** Massachusetts Institute of Technology
1020-1040	Nascent Biophysical Tools to Elucidate Nanoelectropulse-Induced Electromechanical Interactions	**Prof. Vladislav Yakovlev** Texas A&M University
1040-1055	**BREAK**	
1100-1120	Nanoelectropulse and Excitable Membranes: Uncovering Mechanisms of Activation of Voltage-Gated Ca2+ Channels	**Prof. Olga Pakhomova** Old Dominion University
1120-1140	Toward the Application of CAN-CAN Technology – Attenuation of Ca2+ Signaling by Bipolar nsPEFs in a Neurosecretory Cell Type Involved in the “Flight or Fight” Response	**Prof. Gale Craviso** University of Reno Nevada
1140-1200	Summary of the Project Status: Principal Accomplishments, Scientific Impact, and Future Developments	**Prof. Andrei Pakhomov** Old Dominion University
1200-1300	**LUNCH**	
1300-1310	Multi-Disciplinary University Research Initiative: Cells and Cell Groups as Coupled Biochemical, Electrical, and Mechanical Systems	**Prof. Wolfgang Losert** University of Maryland
1310-1335	Electric Field Effects in Cells and Cell Groups	**Prof. Min Zhao** University of California Davis
1335-1400	Excitable Systems in Cells	**Prof. Peter Devreotes** Johns Hopkins University
1400-1410	Quantifying Excitable Systems	**Mr. Leonard Campanello** University of Maryland
1410-1420	Electric Field Effects on Excitable Systems	**Ms. Abby Bull** University of Maryland

1420-1430	Non-Invasive Measurements of Excitable Systems and Electric Field	**Dr. Kate O'Neil** University of Maryland
1430-1445	**BREAK**	
1445-1510	Integrating AC-Electric Fields into the Cell Microenvironment	**Prof. Quan Qing** Arizona State University
1510-1535	ErK Activation – An Example of Coupled Biochemical, Mechanical, and Electrical Systems	**Dr. Liang Guo** University of California Davis **Mr. Houpu Li** Arizona State University
1535-1600	In Vivo Neuronal Imaging	**Prof. Patrick Kanold** University of Maryland
1600-1615	Summary and Outlook	**Prof. Wolfgang Losert** University of Maryland
1615-1630	**BREAK**	
1630-1700	Nanomanufacturing Program	**Dr. Khershed Cooper** National Science Foundation
1700	**MEETING ADJOURNED FOR THE DAY**	

Draft

Basic Research Innovation and Collaboration Center
900 Glebe Road, 2nd Floor
Arlington, VA 22203

Day 4 - Thursday, 19 April 2018

Time	Topic	Speaker
0800-0830	**REGISTRATION**	
0830-0900	AFOSR Principal Investigators and U.S. Government Only	**Dr. Sofi Bin-Salamon** Air Force Office of Scientific Research
0900-0930	NIH's Investments in Research Innovation: Program Snapshots	**Dr. Stephanie Morris** National Institutes of Health
0930-1000	Fe Doping-Induced Magnetism in Nano-Apatite: Application in Regenerative Medicine and Nanomedicine	**Dr. Anna Tampieri** National Research Council of Italy
1000-1030	MINTEK Biomedical Research within the Advanced Materials Division: Inhibitors of the HIV-1 Integrase – LEDGF Interactions	**Dr. Mabel Coyanis** MINTEK National Science Council of South Africa
1030-1100	**BREAK**	
1100-1130	Non-Invasive Detection of Unique Molecular Signatures in Laser-Induced Retinal Injuries: Future Battle Field Applications	**Dr. Rafat Ansari** NASA Glenn Research Center
1130-1200	Quantum Coherence and Dynamics in Biological Processes: Molecular Isomerization in Vision	**Prof. Paul Brumer** University of Toronto
1200-1230	Probing Quantum Coherence in Bacterial Photosynthesis at the Ensemble and Single Complex Level	**Prof. Jennifer Ogilvie** University of Michigan
1230-1330	**LUNCH**	
1330-1400	Detail Mechanism of the Visual Process	**Prof. Peter Rentzepis** Texas A&M University
1400-1430	DNA-Wrapped Carbon Nanotubes for Multiplex Sensing and Imaging	**Dr. Ming Zheng** National Institute of Standards and Technology
1430-1500	Bio-Templated Metal Nanoclusters: A New Class of Multifunctional Platform	**Dr. Shashi Karna** Army Research Laboratory
1500-1530	**BREAK**	
1530-1600	Interactions of Electromagnetic Fields with Biosystems	**Dr. Ibtissam Echchgadda** Air Force Research Laboratory 711th HPW
1600-1630	The Chilean Neuromorphic Computer Initiative (CLNCI)	**Dr. Tomas Perez** Life and Science Foundation **Dr. Samuel Hevia** Catholic University of Chile

1630-1700	TBA	**Prof. Dimitris Lagoudas** Texas A&M University
1700	**MEETING ADJOURNED FOR THE DAY**	

Draft

Basic Research Innovation and Collaboration Center
900 Glebe Road, 2nd Floor
Arlington, VA 22203

Day 5 - Friday, 20 April 2018

Time	Topic	Speaker
0800-0900	**REGISTRATION**	
0900-0930	Biophysics of Neuromodulation by Rapid Deposition of Energy	**Dr. Bennett Ibey** Air Force Research Laboratory 711th HPW
0930-1000	Experimental and Theoretical Investigation of the Mechanisms of Free-Electron-Mediated Modification of Biomolecules in Nonlinear Spectroscopy	**Prof. Alfred Vogel** University of Luebeck
1000-1030	Polariton Enabled Spectroscopy and Dynamics	**Dr. Jeffrey Owrutsky** Naval Research Laboratory
1030-1100	**BREAK**	
1100-1130	Biological Approaches to Nuclear Security; the Bionuclear Working Group	**Dr. Heather Meeks** Defense Threat Reduction Agency
1130-1200	Imaging 3D Cell Culture Systems, Challenges and Opportunities for the Biophysics Community	**Prof. Sally McArthur** Swinburne University of Technology
1200-1230	Potentiality and First Steps in the Design of Electrochemical Nano Sensors	**Dr. Felice Simeone** National Research Council of Italy
1230-1330	**LUNCH**	
1330-1400	Quantum Coherence in Reactive Oxygen Species (ROS) Biology	**Prof. Robert Usselman** Montana State University
1400-1430	Electron Paramagnetic Resonance (EPR) for Bionanomaterial Measurements	**Dr. Veronika Szalai** National Institute of Standards and Technology
1430-1500	Bioinspired Nanomaterials	**Dr. Kenan Fears** Naval Research Laboratory
1500-1530	**BREAK**	
1530-1600	Photovoltaic Approach for Quantifying Electronic Transport in Biological Materials	**Prof. Shashank Priya** Penn State University
1600-1630	Blending Engineering and Physics into Biomedical Research	**Dr. Larry Nagahara** Johns Hopkins University
1630-1700	AFOSR Principal Investigators and U.S. Government Only	**Dr. Sofi Bin-Salamon**

		Air Force Office of Scientific Research
1700	**MEETING CONCLUSION**	