

# 2019 GHz-THz Electronics and Materials and Superconductivity Programs Joint Review

Dr. Kenneth Goretta | July 23-25, 2019 | Arlington, VA

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

## Agenda Day 1 | Tuesday, July 23, 2019

Time	Topic	Speaker
8:00	<b>Registration</b>	
8:25	Welcome & logistics	Ken Goretta, AFOSR
8:30	Center for physically reconfigurable and deployable multifunctional antennas	Stavros Georgakopoulos, Florida International U
9:00	Carrier doping and dynamics in correlated oxides	Sriram Ramanathan, Purdue U
9:30	Electrically detected electron nuclear double resonance in solid state electronics	Pat Lenahan, Pennsylvania State U
10:00	<b>BREAK</b>	
10:20	Defects in ultrawide bandgap semiconductors	Art Edwards, AFRL/Space Vehicles
10:50	Heat & carrier transport in wide-bandgap heterostructure devices by proper treatment of boundary effects	Mitra Dutta / Mike Stroschio, U Illinois at Chicago
11:20	Investigation of transition metal nitrides for electronics and sensing	John Cetnar / Amber Reed, AFRL/Sensors / Materials and Manufacturing
11:50	<b>LUNCH</b>	
13:00	Overcoming the DX doping challenge in ultra wide bandgap semiconductors	Zlatko Sitar, North Carolina State U
13:30	Epitaxial growth and characterization of cubic BN	David Storm, Naval Research Laboratory
14:00	Cubic BN by ion-beam-assisted chemical vapor deposition	Mike Spencer, Morgan State U
14:30	Role of alloy disorder in the physical properties of group III nitrides	Jim Speck, U California Santa Barbara
15:00	<b>BREAK</b>	
15:20	Light-mass-atom semiconductor materials and devices	Grace Xing / DJ Jena, Cornell U

<b>15:50</b>	Ultra-wide-bandgap III-nitride alloys for high-power RF electronics	Shin Mou / Kent Averett, AFRL/Materials and Manufacturing
<b>16:20</b>	AlGaIn & AlGaIn-based quantum wells: towards high-power high-frequency electronics	Berardi Sensale-Rodriguez, U Utah
<b>MEETING ADJOURN</b>		

<b>Agenda Day 2   Wednesday, July 24, 2019</b>		
<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
<b>8:00</b>	<b>Registration</b>	
<b>8:20</b>	Welcome & logistics	Ken Goretta, AFOSR
<b>8:30</b>	Thermal/mechanical investigation of ultra-wide-bandgap materials & devices	Sukwon Choi, Pennsylvania State U
<b>9:00</b>	2D and 3D membranes for flexible RF electronic devices	Nick Glavin / Mike Snure, AFRL/Materials and Manufacturing / Sensors
<b>9:30</b>	Scalability & reliability of contacts to 2-D layered semiconductors	Saptarshi Das, Pennsylvania State U
<b>10:00</b>	<b>BREAK</b>	
<b>10:20</b>	Exploiting ultrafast carrier transfer in van der Waals heterostructures	Sufei Shi, Rensselaer Polytechnic Institute
<b>10:50</b>	Hybrid graphene/semiconductor plasmonic nano-transceiver & nano-antenna for THz communications	Josep Jornet / Erik Einarsson, University at Buffalo
<b>11:20</b>	Tuning metal-insulator transitions in ultra-thin correlated materials	Yuri Suzuki, Stanford U
<b>11:50</b>	<b>LUNCH</b>	
<b>13:00</b>	Dynamics of mesoscopic structures	Ivan Schuller, U California San Diego
<b>13:30</b>	Inversion symmetry breaking cobaltates and vanadates for orbital FETs	Charles Ahn, Yale U
<b>14:00</b>	Tunable oxide power electronics with 2-D electron gas interface	Chang-Beom Eom, U Wisconsin

<b>14:30</b>	Towards ballistic transport in complex oxides	Jayakanth Ravichandran, U Southern California
<b>15:00</b>	<b>BREAK</b>	
<b>15:20</b>	Enhancing superconductivity at atomically precise interfaces	Kyle Shen, Cornell U
<b>15:50</b>	Exploring structured multiferroic materials for frequency agility	Mike Page, AFRL/Materials and Manufacturing
<b>16:20</b>	Ferroelectricity, multiferroics & enhanced magnetoelectric effect in single-atomic layers	Li Yang, Washington U
	<b>MEETING ADJOURN</b>	

<b>Agenda Day 3   Thursday, July 25, 2019</b>		
<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
<b>8:00</b>	<b>Registration</b>	
<b>8:25</b>	Welcome & logistics	Ken Goretta, AFOSR
<b>8:30</b>	Nanostructures of magnetic Dirac metals for RF electronics	Ramesh Budhani, Morgan State U
<b>9:00</b>	Harnessing magnons for hybrid quantum information systems	Luqiao Liu, MIT
<b>9:30</b>	Exploration and development of advanced superconducting materials	J.P. Paglione, U Maryland
<b>10:00</b>	<b>BREAK</b>	
<b>10:20</b>	Direct-write nano Josephson superconducting tunnel junctions	Shane Cybart, U California Riverside
<b>10:50</b>	Compact sub-mm wave oscillator for THz receiver	Igor Vernick, Hypres Inc
<b>11:20</b>	Theoretical/computational studies of high-temperature superconductivity from quantum magnetism	Jose Rodriguez, Cal State Los Angeles
<b>11:50</b>	<b>LUNCH</b>	

<b>13:00</b>	New superconductors near broken rotational symmetry instabilities	Jiun-Haw Chu, U Washington
<b>13:30</b>	Search for novel superconductors, thermoelectrics, and super-thermal-conductors	Paul Chu, U Houston
<b>14:00</b>	Search for superconductivity in complex layered chalcogenide & topological systems	Bing Lv, U Texas at Dallas
<b>14:30</b>	Probing fundamental interactions of electrons & quasiparticles from optical to THz frequencies	Yohannes Abate, U Georgia
<b>15:00</b>	<b>BREAK</b>	
<b>15:20</b>	Room-temperature quantum ballistic transport in strain-controlled nanowire devices	Ashwani Sharma, AFRL/Space Vehicles
<b>15:50</b>	Hybrid SThM-SEM system with high spatiotemporal resolution for transient thermal characterization	Yanbao Ma, U California Merced
<b>16:20</b>		
<b>MEETING ADJOURN</b>		