

# 2022 GHz-THz Electronics Review

Dr. Kenneth Goretta | July 18-21, 2022 | Arlington, VA

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

## Agenda Day 1 | July 18, 2022

Time	Topic	Speaker
9:30	<b>Registration / Login</b>	
10:00	Transforming Antennas Center	Stavros Georgakopoulos / Florida International University
10:30	Linear and non-linear magnetoelectric interactions in multiferroics	Gopal Srinivasan / Oakland University
11:00	Design and development of novel interface mediated thin film multiferroics	Ram Katiyar / University of Puerto Rico
11:30	Decoherence of electronic spin current: weak ferromagnets as model systems	Satoru Emori / Virginia Tech
12:00	<b>BREAK</b>	
12:30	Magnonic material and device for information processing	Luqiao Liu / MIT
1:00	Realizing and controlling unconventional magnetic excitations in non-Bravais magnets	Liuyan Zhao / University of Michigan
1:30	Nanoscale quantum sensing and imaging of unconventional superconductivity	Chunhui Du / University of California at San Diego
2:00	<b>LUNCH</b>	
2:30	Tunneling investigation of the in-plane anisotropy of unconventional superconductors	Shane Cybart / University of California at Riverside
3:00	Study of and search for realistic superconducting and related materials with high performance	Paul Chu / University of Houston
3:30	Optically activated superconducting pulsed array for high fidelity pulsed THz & microwave generation	Anil Patnaik / Air Force Institute of Technology
4:00	Magnetism and superconductivity in several low-dimensional chalcogenides	Bing Lv / University of Texas at Dallas
<b>MEETING ADJOURN FOR THE DAY</b>		

## Agenda Day 2 | July 19, 2022

Time	Topic	Speaker
<b>9:30</b>	<b>Registration / Login</b>	
<b>10:00</b>	Conductors for advanced power systems	Tim Haugan / AFRL Aerospace Systems Directorate
<b>10:30</b>	Exploration and development of advanced superconducting materials	J-P Paglione / University of Marland
<b>11:00</b>	Engineering novel hybrid superconductors	Kyle Shen / Cornell University
<b>11:30</b>	Strain control of topological quantum materials	Jiun-Haw Chu / University of Washington
<b>12:00</b>	<b>BREAK</b>	
<b>12:30</b>	Efficient quantum control of electron states in ballistic waveguides	Vladimir Mitin / University at Buffalo
<b>1:00</b>	Breaking symmetry by phase, helicity & rectification for THz detection, spectroscopy & interferometry	Jimmy Xu / Brown University
<b>1:30</b>	Nanostructures of magnetic Dirac metals for RF electronics	Ramesh Budhani / Morgan State University
<b>2:00</b>	<b>LUNCH</b>	
<b>2:30</b>	Spectroscopic imaging of defects using radiation-actuated scanning electron microscopy	Arun Majumdar / Stanford University
<b>3:00</b>	Hyperspectral nanoimaging of defects & localized excitonic species by multimodal nanoimaging & spectroscopy	Yohannes Abate / University of Georgia
<b>3:30</b>	Time-domain investigation of phonon decay & phonon-plasmon mode properties in wide bandgap semiconductors	Feruz Ganikhanov / University of Rhode Island
<b>4:00</b>	Engineered metal-insulator transition nanoparticles for reconfigurable RF devices	Bayaner Arigong / Florida A&M University
<b>4:30</b>	<b>MEETING ADJOURN FOR THE DAY</b>	

### Agenda Day 3 | July 20, 2022

Time	Topic	Speaker
<b>9:30</b>	<b>Registration / Login</b>	
<b>10:00</b>	High-voltage characterization of next-generation power electronics	Can Bayram / University of Illinois at Urbana-Champaign
<b>10:30</b>	Neutron reflectometry and X-ray scattering studies on dopant injection dynamics into correlated nickelates	Shriram Ramanathan / Purdue University
<b>11:00</b>	Stannate perovskite semiconductor materials for novel high power devices	Bharat Jalan / University of Minnesota
<b>11:30</b>	Metastable oxides for high-mobility and spin-orbit 2D electronics	Ryan Comes / Auburn University
<b>12:00</b>	<b>BREAK</b>	
<b>12:30</b>	Investigation of c-plane, Ga-face GaN surface band bending toward bipolar transistor application	Jack Ma / University of Wisconsin
<b>1:00</b>	Performance enhancement of robust GaN MOSHFETs by ferroelectric dielectric & negative capacitance effect	Peide Ye / Purdue University
<b>1:30</b>	Electronic properties and interactions in emerging electronic systems: fundamentals of phonon effects	Mitra Dutta / University of Illinois at Chicago
<b>2:00</b>	<b>LUNCH</b>	
<b>2:30</b>	Light-mass-atom semiconductor materials and devices	Grace Xing / Cornell University
<b>3:00</b>	Ultra-wide bandgap III-nitride alloys for RF and power electronics	Shin Mou / AFRL Materials & Manufacturing Directorate
<b>3:30</b>	Role of alloy disorder in the physical properties of group III nitrides	Jim Speck / University of California at Santa Barbara
<b>4:00</b>	Applications of local moment counter charge technique to ultra wide bandgap materials	Art Edwards / AFRL Space Vehicles Directorate
<b>4:30</b>	<b>MEETING ADJOURN FOR THE DAY</b>	

## Agenda Day 4 | July 21, 2022

Time	Topic	Speaker
<b>9:15</b>	<b>Registration / Login</b>	
<b>9:30</b>	2-D material platforms for high-speed electronics	Josh Robinson / Penn State University
<b>10:00</b>	Materials and device engineering for high-frequency UWBG AlGaIn electronics	Siddharth Rajan / Ohio State University
<b>10:30</b>	A new extreme semiconductor by ion-beam-assisted chemical vapor deposition	Mike Spencer / Morgan State University
<b>11:00</b>	Epitaxial growth and characterization of cubic boron nitride	David Storm / Naval Research Laboratory
<b>11:30</b>	Scandium-based nitrides for next-generation sensors and microwave and millimeter-wave electronics	Amber Reed / AFRL Materials & Manufacturing Directorate
<b>12:00</b>	<b>BREAK</b>	
<b>12:30</b>	2-D and 3-D membranes for flexible radio frequency electronic devices	Nick Glavine/Mike Snure / AFRL Materials & Manufacturing & Sensors Directorates
<b>1:00</b>	Research on two-dimensional materials and manufacturing	Soumya Vinod / Clarkson Aerospace LLC
<b>1:30</b>	Charge transport across 2D-3D heterointerface junctions	Deep Jariwala / University of Pennsylvania
<b>2:00</b>	<b>BREAK</b>	
<b>2:30</b>	Quantum emitters and Moire superpotentials in van der Waals heterostructures	Berry Jonker / Naval Research Laboratory
<b>3:00</b>	Planar 2-D heterojunctions between atomically thin dissimilar materials	Mauricio Terrones/Pulickel Ajayan / Penn State U/Rice U
<b>3:30</b>	Sensors and infrared photodetectors based on stacked layers of two-dimensional materials	Mukti Rana / Delaware State University
<b>4:00</b>	Multi-body interactions and carrier dynamics in WSe <sub>2</sub> for high-performance quantum-enabled devices	Anupama Kaul / University of North Texas
<b>4:30</b>	<b>MEETING ADJOURN FOR THE DAY</b>	