

# 2023 6<sup>th</sup> US Government Workshop on 2D Materials

Drs. Kenneth Goretta and Nick Glavin | July 25-27, 2023 | Virtual

## Virtual Workshop via Zoomgov

### Agenda Day 1 | Tuesday, July 25, 2023

Time	Topic	Speaker
9:45	Login	
10:00-10:10	Welcome and Opening Remarks	Nick Glavin (AFRL)
<b>Day 1 Morning Session – Chair Organization: NIST</b>		
10:10-11:00	<b>Invited Talk: Non-epitaxial growth of single-crystalline TMDs on a Si wafer at &lt;400°C and its application for monolithic 3D integration</b>	<b>Prof. Jeehwan Kim (MIT)</b>
11:00-11:20	Flat bands and in-plane strain in twisted MoSe <sub>2</sub> /WSe <sub>2</sub> bilayers	Madeleine Phillips (NRL)
11:20-11:40	Optoacoustics meets Valleytronics: control over coherent phonons through bangap renormalization in TMDs	Jeremy Robinson (NRL)
11:40-12:00	Plexcitonic Enhancement of Optoelectronic Properties in 2D Heterostructures	Christopher Kuhs (ARL)
<b>12:00 PM – 1:00 PM Lunch Break</b>		
<b>Day 1 Afternoon Session – Chair Organization: NIST</b>		
1:00-1:50	<b>Invited Talk: Is the Future 2D?</b>	<b>Dr. Carl Naylor (Intel)</b>
1:50-2:10	Emerging Large Area CVD Grown 2-D Graphene and Device Challenges	Eugene Zakar (ARL)
2:10-2:30	Hafnium Zirconium Oxide in 2D Neuromorphic Synaptic Devices: Integration and Ferroelectric Phase Evolution	Wendy Sarney (ARL)
2:30-2:50	Thickness-Dependent Properties of Ferroelectric CuInP <sub>2</sub> S <sub>6</sub> (CIPS)	Ryan Selhorst (AFRL)
2:50-3:10	JARVIS-2D: Database and tools for two-dimensional materials design	Kamal Choudhary (NIST)
3:10-3:30	High-throughput discovery of 2D superconductors and magnets from first principles	Daniel Wines (NIST)
<b>Workshop Adjourn</b>		

# 2023 6<sup>th</sup> US Government Workshop on 2D Materials

Drs. Kenneth Goretta and Nick Glavin | July 25-27, 2023 | Virtual

## Virtual Workshop via Zoomgov

### Agenda Day 2 | Wednesday, July 26, 2023

Time	Topic	Speaker
9:45	Login	
<b>Day 2 Morning Session – Chair Organization: ARL</b>		
10:10-10:40	Invited Talk: CHIPS Act and 2D Materials	Marla Dowell (NIST)
10:40-11:00	Invited Talk: National Nanotechnology Initiative (NNI) Programs and Resources	Brandon Brough (NNI)
11:00-11:20	Hexagonal boron nitride slab waveguides for TMD photoluminescence	Sam LaGasse (NRL)
11:20-11:40	Heterogeneous Integration of GaN thin films via 2D BN liftoff	Nick Glavin (AFRL)
11:40-12:00	Material selection modeling and the Thermo-mechanical reliability testing of Copper Interconnect with 2-D thin film	Yaw Obeng (NIST)
<b>12:00 PM – 1:00 PM Lunch Break</b>		
<b>Day 2 Afternoon Session – Chair Organization: ARL</b>		
1:00-1:50	Invited Talk: Large Scale Arrays of Ultrathin All-2D Opto-Electronic Heterostructure Devices using Monolayer Components	Jamie Warner (U. of Texas at Austin)
1:50-2:10	Exciton/phonon bound states in Bi <sub>2</sub> Se <sub>3</sub> /WS <sub>2</sub> van der Waals heterostructures	Berry Jonker (NRL)
2:10-2:30	Enhancing single photon emission purity via design of van der Waals heterostructures	Ben Chuang (NRL)
2:30-2:50	A toolset to design, build, and probe peptide biorecognition elements on CNTs and graphene for gas sensing	Daniel Sim (AFRL)
2:50-3:10	Label-free Neuropeptide Detection beyond the Debye Length Limit	Biddut Sarkar (AFRL)
3:10-3:30	High-Resolution Biochemical Measurements with 2D Electronic Sensors	Arvind Balijepalli (NIST)
<b>Workshop Adjourn</b>		

# 2023 6<sup>th</sup> US Government Workshop on 2D Materials

Drs. Kenneth Goretta and Nick Glavin | July 25-27, 2023 | Virtual

## Virtual Workshop via Zoomgov

### Agenda Day 3 | Thursday, July 27, 2023

Time	Topic	Speaker
9:45	Login	
<b>Day 3 Morning Session – Chair Organization: NRL</b>		
10:10-11:00	<b>Invited Talk: Efficient control of 2D magnets</b>	<b>Cheng Gong (Univ. of Maryland)</b>
11:00-11:20	Spin-orbit torque facilitated switching of Bi <sub>2</sub> Se <sub>3</sub> /NiFe heterostructures	Mehmet Noyan (NRL)
11:20-11:40	In-Operando Magneto-Raman Study of A Graphene Device in the Quantum Hall Regime	Thuc Mai (NIST)
11:40-12:00	Vitrimers and Vitriemer Nanocomposites: Thermomechanical and Self-Healing Properties	Dhriti Nepal (AFRL)
<b>12:00 PM – 1:00 PM Lunch Break</b>		
<b>Day 3 Afternoon Session – Chair Organization: NRL</b>		
1:00-1:50	<b>Invited Talk: Van der Waals Integration beyond 2D Materials: Boundless Opportunities at Bondless Boundaries</b>	<b>Xiangfeng Duan (UCLA)</b>
1:50-2:10	Study of Contact Metals to Transition Metal Dichalcogenides	Alex Mazzoni (ARL)
2:10-2:30	Transition Metal Dichalcogenides Dipole Emission Coupling into hBN Slab Waveguides	Cory Cress (NRL)
2:10-2:30	Enhanced and highly directional light emission from TMDs coupled to plasmonic surface lattice resonance	Stas Tsoi (NRL)
2:50-3:10	Excitonic transitions and phonon replicas in WS <sub>2</sub>	Eli Adler (ARL)
<b>Workshop Adjourn</b>		