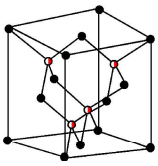

The 2025 US Workshop on the Physics and Chemistry of II VI and Infrared Materials
September 29 – October 2, 2025
Embassy Suites Chicago, Chicago, IL, US

MONDAY, SEPTEMBER 29, 2025

Registration
5:00 PM - 7:00 PM / Ballroom Foyer

Tutorial
5:00 PM - 7:00 PM / Ballroom ABCD

Title TBD
Enrico Bellotti, Boston University, Boston, MA, US

TUESDAY, SEPTEMBER 30, 2025

Registration
7:30 AM - 6:00 PM / Ballroom Foyer

Continental Breakfast
7:30 AM - 9:30 AM / Ballroom Foyer

Welcoming Remarks
8:30 AM - 8:45 AM / Ballroom ABCD

Plenary Session
8:45 AM - 9:15 AM / Ballroom ABCD

P.1: **Title TBD**
Author TBD

Session 1: Industrial Overview I
9:15 AM - 10:15 AM / Ballroom ABCD
Chair: *Siva Sivananthan, Sivanathan Laboratories, Inc.*

1.1: ***Invited Paper:*** **HgCdTe IR Technology at Teledyne – A Production Perspective (9:15 AM)**
Mike Carmody, Teledyne Imaging Sensors, Camarillo, CA, US

1.2: ***Invited Paper:*** **Current Status of HgCdTe Infrared Technology at EPIR (9:45 AM)**
Silviu Velicu, EPIR, Inc, Bolingbrook, IL, US

BREAK (10:15 AM)

Session 2: Superlattice
10:30 AM - 12:15 PM / Ballroom ABCD
Chair: *Chad Fulk, HRL Laboratories, LLC*

2.1: ***Invited Paper:*** **Sensitivity Uniformity Comparison of High Performance III-V and II-VI Semiconductors for Long Wavelength Infrared Sensing (10:30 AM)**
Peter Burke, Lockheed Martin, Goleta, CA, US

2.2: ***Invited Paper:*** **Towards Higher Power/Efficiency Multispectral Mid-Infrared Type-II III-V Superlattice LEDs (11:00 AM)**
John Prineas, University of Iowa, Iowa City, IA, US

2.3: **Optical Characterization of Vertical Transport of Minority Carriers in Gallium-Free Type-II Superlattices for Infrared Detectors (11:30 AM)**
Baptiste Gonon-Mathieu, CEA-LETI. Grenoble, France

2.4: **Auger Recombination in Type-II Superlattices: a Nonequilibrium Green's Function Study (11:45 AM)**
Jesus Gonzalez Montoya, Politecnico di Torino, Turin, Italy

LUNCH (12:15 PM)

Session 3: Avalanche Photodiodess
1:30 PM - 3:30 PM / Ballroom ABCD
Chair: *Pradip Mitra, Leonardo DRS, Electro-Optical and Infrared Systems (EOIS)*

3.1: ***Invited Paper:*** **HgCdTe APD Arrays for Spectroscopic Lidars from SWIR to MWIR (1:30 PM)**
Xiaoli Sun, NASA Goddard Space Flight Center, Greenbelt, MD, US

3.2: ***Invited Paper:*** **Linear Mode Photon Counting with HgCdTe APDs : The Scalable Solution for Quantum Optics and Deep Space Communications (2:00 PM)**
Johan Rothman, CEA-Leti, Grenoble, France

3.3: ***Invited Paper:*** **Antimonide Based Avalanche Photodiodes (2:30 PM)**

Michael Grzesik, HRL, Malibu, CA, US

3.4: **Monte Carlo Design of High-Performance HgCdTe Avalanche Photodiode (APD) (3:00 PM)**
Timothy Guerra, CEA-Leti, Grenoble, France

3.5: **Characterization of High Speed SAPHIRA HgCdTe Avalanche Photodiodes for Space Lidar Applications (3:15 PM)**
Guangning Yang, NASA Goddard Space Flight Center, Greenbelt, MD, US

BREAK (3:30 PM)

Session 4: Devices
3:45 PM - 5:30 PM / Ballroom ABCD
Chair: *Priyalal Wijewarnasuriya, Raytheon VIsion Systems*

4.1: ***Invited Paper:*** **Optimization of FPA-Dewar Integration Process of HgCdTe Infrared Detectors (3:45 PM)**
Burak Asici, ASELSAN, Ankara, Turkey

4.2: **A Thermal Stress-Aware Framework for IRFPA Packaging (4:15 PM)**
Sushant Sonde, EPIR, Bolingbrook, IL, US

4.3: **Toward Scalable 3D IRFPA Design: Optimized Meshing and Structural Stress Control in MoDiBI-Integrated MCT-Based IRFPAs (4:30 PM)**
Vineet Kumar, University of Illinois, Chicago, IL, US

4.4: **Laplace DLTS Studies and Trap Assisted Tunneling in HgCdTe MWIR RED Photodiodes (4:45 PM)**
Nicolas Morisset, Lynred, Veurey-Voroize, France

4.5: **Electrical and Physicochemi, cal Study of the Metal / p-HgCdTe Interface for MCT-Based Infrared Detectors (5:00 PM)**
Alexandra Colas--Reuilon, CEA-Leti, Grenoble, France

TABLETOP EXHIBITS/WINE & CHEESE RECEPTION (5:30 – 7:00 PM)

WEDNESDAY, OCTOBER 1, 2025

Registration
7:30 AM - 4:30 PM / Ballroom Foyer

Continental Breakfast
7:30 AM - 9:30 AM / Ballroom Foyer

Welcoming Remarks
8:30 AM - 8:45 AM / Ballroom ABCD

Session 5: Industrial Overview II
8:45 AM - 9:45 AM / Ballroom ABCD
Chair: *Eric Piquette, Teledyne Imaging Sensors*

5.1: ***Invited Paper:*** **TBD (8:45 AM)**
Fikri Aqariden, Leonardo DRS, Bolingbrook, IL, US

5.2: ***Invited Paper:*** **HOT and Small Pitch Infrared Detectors Development at LYNRED (9:15 AM)**
Laurent Rubaldo, Lynred, Veurey-Voroize, France

BREAK (9:45 AM)

Session 6: Heteroepitaxy
10:00 AM - 11:45 AM / Ballroom ABCD
Chair: *Fikri Aqariden, DRS Electro-Optical & Infrared Systems (EOIS)*

6.1: ***Invited Paper:*** **Uniform HgCdTe Growth on Large Area Substrates by Molecular Beam Epitaxy (10:00 AM)**
Kevin Doyle, Raytheon Technologies Exchange, Goleta, CA, US

6.2: ***Invited Paper:*** **Advanced MBE for High Volume Production of Large-Area HgCdTe Wafers (10:30 AM)**
Madhu Reddy, RTX, Goleta, CA, US

6.3: **Studies of Epitaxial Regrowth of Hg1-xCdxTe (11:00 AM)**
Bo Shojaei, Teledyne Imaging Sensors, Camarillo, CA, US

6.4: **II-VI Compound Crystals from Vertical Bridgman technique for Diverse Applications (11:15 AM)**
Magesh Murugesan, Washington State University, Pullman, WA, US

LUNCH (11:45 AM)

Session 7: Radiation
1:00 PM - 2:15 PM / Ballroom ABCD
Chair: *Eric Piquette, Teledyne Imaging Sensors*

7.1: ***Invited Paper:*** **Experimental Evaluation of the Proton Non-Ionizing Energy Loss in II-V and III-V Materials (1:00 PM)**
Julie Logan, Air Force Research Lab, Kirtland AFB, NY, US

7.2: **Study of Proton Radiation-Induced Dark Current Degradation on HgCdTe P-on-N LWIR and VLWIR Image Sensors (1:30 PM)**
Thibaud Friess, CEA Leti, Grenoble, France

7.3: **Modeling of HgCdTe Material and Devices under High-Energy Particle Irradiation (1:45 PM)**
Yong Chang, EPIR, Bolingbrook, IL, US

7.4: **Study of RTS Characteristic on a FPA Under Proton Radiation Stress in the LWIR and VLWIR Spectral Range (2:00 PM)**

Antoine Claret, CEA Leti, Grenoble, France

BREAK (2:15 PM)

Session 8: Emerging Infrared Materials
2:30 PM - 5:15 PM / Ballroom ABCD
Chair: *Bo Shojaei, Teledyne Imaging Sensors*

8.1: ***Invited Paper:*** **Emerging Energy Applications of Infrared Optoelectronic Devices (2:30 PM)**
Eric Tervo, University of Wisconsin-Madison, Madison, WI, US

8.2: ***Invited Paper:*** **Application of HgTe Colloidal Quantum Dots in Infrared Photodetectors (3:00 PM)**
Brian Korgel, University of Texas Austin, Austin, TX, US

BREAK (3:30 PM)

Session 8: Emerging Infrared Materials (cont.)
2:30 PM - 5:15 PM / Ballroom ABCD
Chair: *Bo Shojaei, Teledyne Imaging Sensors*

8.3: ***Invited Paper:*** **MCT-Graphene Heterostructure for Room Temperature LWIR Imaging (3:45 PM)**
Debashis Chanda, University of Central Florida, Orlando, FL, US

8.4: ***Invited Paper:*** **Epitaxially Integrated IV-VI Semiconductors on GaAs for Infrared Optoelectronics (4:15 PM)**
Kunal Mukherjee, Stanford University, Stanford, CA, US

8.5: **HgTe/ZnS and HgTe/ZnS/ZnTe Core/Shell Colloidal Quantum Dots for Room Temperature SWIR Photodetection (4:45 PM)**
Shea Sanvordenker, The University of Texas at Austin, Austin, TX, US

8.6: **II-VI Surface Passivation via Sub-Stoichiometric Native Oxides (5:00 PM)**
Noah Kamm, University of Illinois in Chicago. Chicago, IL, US

THURSDAY, OCTOBER 2, 2025

Registration
8:00 AM - 12:00 PM / Ballroom Foyer

Continental Breakfast
7:30 AM - 9:30 AM / Ballroom Foyer

Welcoming Remarks
8:30 AM - 8:45 AM / Ballroom ABCD

Session 9: Industrial Overview III
8:45 AM - 9:45 AM / Ballroom ABCD
Chair: *Bo Shojaei, Teledyne Imaging Sensors*

9.1: ***Invited Paper:*** **Cooled IR Imaging Developments at CEA-LETI and Associated Characterizations (8:45 AM)**
Olivier Gravrand, CEA-LETI, Grenoble, France

9.2: ***Invited Paper:*** **Infrared Detector Development at Leonardo, UK (9:15 AM)**
James Wilson, Leonardo, Southampton, UK

BREAK (9:45 AM)

Session 10: Defects and Doping
10:00 AM - 11:15 AM / Ballroom ABCD
Chair: *Madhu Reddy, Raytheon VIsion Systems*

10.1: ***Invited Paper:*** **HgCdTe/CdZnTe Defect Analysis (10:00 AM)**
J. David Benson, U.S. Army Combat Capabilities Development Command (DEVCOM) C5ISR Center, Ft. Belvoir, VA, US

10.2: **Residual Defect Characterization in Arsenic-Doped HgCdTe via FIB-SEM Nano-Tomography (10:30 AM)**
Clement Lobre, CEA/Leti, Grenoble, France

10.3: **Study of Trapping - Detrapping Events on MWIR T2SL Focal Plane Array Using Electrical Stimulation (10:45 AM)**
Titouan Le Goff, CEA – LETI, Grenoble, France

BREAK (11:15 AM)

Session 11: Modeling
11:30 AM - 12:30 PM / Ballroom ABCD
Chair: *Enrico Bellotti, Boston University*

11.1: ***Invited Paper:*** **Advances in II-V and III-V Semiconductors: Band Engineering, Doping Limits, and Nanoparticle-Induced Electronic Modifications (11:30 AM)**
Anderson Janotti, University of Delaware, Newark, DE, US

11.2: **Modeling Temperature and Field Dependent Charge Transport in Colloidal Quantum Dot Solids (12:00 PM)**
Zaheer Ahmad, Sivananthan Laboratories Inc., Bolingbrook, IL, US

11.3: **Modeling of Radiation Damage in Unipolar Barrier Devices (12:15 PM)**

Anthony Ciani, Sivananthan Laboratories, Inc., Bolingbrook, IL, US

CASSELMAN/SPICER BEST STUDENT PAPER AWARD (12:30 PM)