CALL FOR PAPERS

The 2025 U.S. WORKSHOP on
II-VI AND INFRARED MATERIALS
September 29 – October 2, 2025
Embassy Suite Chicago Downtown Magnificent Mile
Chicago, IL
http://www.ii-viworkshop.org

2025 II-VI and INFRARED MATERIALS WORKSHOP

Purpose

The purpose of this workshop is to bring together the industrial, governmental, and academic communities that work with infrared materials. The workshop originated as a venue focused on the physics and chemistry of II-VI materials, and over the years it has broadened its platform to include other materials (for example, III-V compound semiconductors, low dimensional materials, and emerging infrared materials) with applications for infrared opto-electronic devices. These materials are critical for a wide range of detector and emitter technologies spanning significant regions of the electro-magnetic spectrum. Sophisticated electro-optic systems exploiting properties of these materials are critical to many fields including national security, medicine, industrial process monitoring, scientific instrumentation, astronomy, space-based earth observation, and energy production. The workshop advances the understanding of the basic physics and chemistry of these materials, of their synthesis, and of their device physics and performance; thereby, the workshop contributes to the continual improvement of system capabilities.

The 2025 Workshop is the number 44 in a series that began in 1981.

Areas of Interest

Areas of interest include material synthesis, characterization and engineering, intrinsic and extrinsic defects and dopants, the physics and chemistry of surfaces and interfaces, fabrication processes, electronic and optical properties, charge transport, computational methods applied to materials and device modeling, and opto-electronic device physics.

Workshop Format

The workshop program will consist of about 60 oral presentations and possibly a poster session. Invited and contributed papers with a common theme will be grouped for presentation.

To provide ample time for discussion, there are scheduled morning and afternoon breaks. Lunch will be provided, affording additional discussion time. To further promote informal discussion and interaction, the first day will conclude with a wine and cheese reception accompanied by tabletop displays from commercial vendors displaying products and services of interest to the workshop community.

Authors of accepted papers are encouraged to submit full-length manuscripts, which will be peer reviewed and published as part of the workshop proceedings in a Special Issue of the *Journal of Electronic Materials*.

Student participation is strongly encouraged. An award recognizing the best student paper will be presented at the conclusion of the workshop. Funding exists to support student travel to the workshop. Some student financial assistance is available for conference attendees.

Tutorial

This year the II-VI and Infrared Materials Workshop will feature a tutorial presented by Enrico Bellotti, Boston University, on Monday, September 29. The tutorial welcomes all interested and registered II-VI workshop participants. The workshop committee particularly encourages graduate students, post-docs and junior researchers to attend the tutorial and explore the topics in detail and tap into the experience of and network with the well-established researchers. More information about the tutorial such as topic, registration, time, and location will be posted on the II-VI Workshop website and distributed via email in following weeks.

Selected Focus Topics

- II-VI, III-V and other Emerging Infrared Detector Technologies
- Gain-Enhanced Devices
- Multi-Band Detectors
- Near-Room-Temperature IR Devices
- Material Synthesis
- Material Characterization
- Defects and Dopants
- Substrates for Epitaxial Growth
- Integration of II-VI and III-V Materials
- Computational Methods Applied to Materials and Device Modeling
- Radiation Detectors
- Solar Cells
- IR Applications of Metamaterials

Multiple invited speakers will present review talks on these topics. Our preliminary invited speaker list is below. Check the workshop web site for updates.

INVITED SPEAKERS

Oguz Altun
ASELSAN

Fikri Aqariden
Leonardo DRS

J. Dave Benson
U.S. Army DEVCOM C5ISR RTI

Peter Burke
Lockheed Martin

Mike Carmody
Teledyne Imaging Sensors

Nibir Dhar
Virginia Commonwealth University

Olivier Gravrand
CEA-Leti

Anderson Janotti
University of Delaware

Brian Korgel
University of Texas Austin

Julie Logan
Air Force Research Laboratory

Kunal Mukherjee
Stanford University

John Prineas
University of Iowa

Johan Rothman
CEA-Leti

Laurent Rubaldo
Lynred

Xiaoli Sun
NASA

Eric Tervo
University of Wisconsin-Madison

Silviu Velicu
EPIR, Inc

James Wilson
Leonardo

GENERAL TOPICS

The scope of the workshop includes the basic physics and chemistry of infrared materials including II-VI, III-V and emerging IR materials. Research in the following areas is of interest:

- Infrared, visible, UV, X-Ray & gamma-ray detectors
- Materials Synthesis
    - Epitaxial and bulk crystal growth
    - Pseudomorphic and metamorphic epitaxy
    - Emerging infrared materials synthesis
    - Modeling of growth and processing
    - Equilibrium and non-equilibrium growth
- Materials Characterization
    - Electrical
    - Optical
    - Microstructural
- Physics of Failure
    - Characterization
    - Effect on electrical and optical properties
- Radiation Effects in IR Materials
- Doping and Defects in IR Materials
    - Extrinsic and intrinsic defects
    - Diffusion and segregation
    - Activation
- Extended Crystallographic Defects
    - Generation mechanisms
    - Properties
    - Kinetics
    - Characterization
    - Mitigation techniques
- Surfaces and Interfaces
- Fabrication Processes
    - Etching
    - Passivation
    - Metallization
    - Nanofabrication
- Computational Modeling and Simulation
    - Material properties
    - Devices
- II-VI–Based Solar Cells
- III-V and II-VI Thermophotovoltaics
- ZnO and ZnS Materials and Devices
- Magnetic semiconductors
- 2D Materials
- Metamaterials
- Quantum Dots

- Topological Insulators
- Superconducting Detector Technologies

Participating Agencies
Air Force Research Laboratory
Army DEVCOM Army Research Laboratory
NASA Goddard
National Renewable Energy Laboratory
US Army C5ISR Center
US Naval Surface Warfare Center (NSWC)

Supported by:

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CALL FOR PAPERS
Papers describing significant advances in the state of the art of scientific results and understanding in the Workshop issues are solicited. Experimental results or theoretical results addressing experiments are encouraged. Emphasis should be on new fundamental physics and chemistry of materials for detector applications. Abstracts must contain results to be considered.

Papers will be selected on the basis of (1) originality, (2) significance of results, (3) quality and completeness of the research, and (4) breadth of interest.
Extended abstracts of all accepted papers will be published in the Book of Extended Abstracts, which will be distributed at the Workshop. Submitted full-length manuscripts, after peer review, will be published in the *Journal of Electronic Materials*.

ABSTRACTS
1. Abstracts, suitable for publication, should clearly indicate the following:
   a. original aspects of research
   b. objective and approach of work
   c. previous publications or presentations
   d. experimental data
   e. scientific implications of results

2. One-page abstracts should be double spaced on a single 8.5 × 11-in. page. One (1) additional page of supporting figures will be accepted and is encouraged. The title, author(s), and affiliation(s) must be included.

3. A complete mailing address (phone, fax, and e-mail) of the presenter must be included.

4. Abstracts to be considered as student papers must be identified as such, and the name of the advisor must also be included.

5. Abstracts are to be submitted on or before **May 23, 2025.**

Click Here to Submit Your Abstract!

Electronic abstract submission is required and should be submitted as a Microsoft Word file or as a PDF file.

6. Foreign authors requiring a visa are encouraged to submit their abstracts as early as possible. Special consideration will be made to ensure that an early application for a visa can be made.

7. Authors of accepted papers will be notified by June 16, 2025. Authors of accepted papers are requested to submit a revised abstract, not to exceed four pages, for inclusion in the Book of Extended Abstracts by July 31, 2025.

8. Full-length papers for publication in the Workshops Proceedings in a Special issue of the Journal of Electronics Materials must be submitted electronically by using the link on the workshop's web page http://www.ii-viworkshop.org
The authors can submit manuscripts from September 30 – November 28, 2025.

2025 WORKSHOP CALENDAR

Deadline for Submission of Abstracts	May 23, 2025
Notification of Accepts/Rejects	June 16, 2025
Deadline for Late-News Abstracts	June 23, 2025
Deadline for Extended Abstracts	July 31, 2025
JEM Paper Submission Deadline	September 30 – November 28, 2025
2025 II-VI Workshop	September 29 – October 2, 2025

WORKSHOP WEBSITE:
http://www.ii-viworkshop.org

WORKSHOP ORGANIZATION

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WORKSHOP PARTICULARS

Location and Date

The 2025 U.S. II-VI Workshop will be held on September 29 – October 2, 2025, at the Embassy Suites Chicago Downtown Magnificent Mile.

Registration

The Workshop Registration Form will be available in May 2025. Registration fees are not yet set so please check the Workshop web site periodically for updates.

Hotel Accommodations

A block of rooms has been reserved at the Embassy Suites Chicago Downtown Magnificent Mile at special workshop rates. A limited number of rooms will be available to government employees and university staff/students with proper identification. More information on making hotel reservations will be available on the workshop web site in the coming months. Please check the web site frequently for updates.

Student Financial Assistance

To help defray the cost of attending the workshop, full-time students presenting papers will receive partial support of their travel expenses. This support must be requested in advance of the workshop.