Opportunity Title: Ultrafast Studies of Nonequilibrium Electronic Carrier Dynamics and Thermal Transport in Wide and Ultra-wide Bandgap Semiconductors
Opportunity Reference Code: ARL-R-ESS-400035-F1

Organization DEVCOM Army Research Laboratory

Reference Code ARL-R-ESS-400035-F1

Application Deadline 9/10/2026 5:00:00 PM Eastern Time Zone

Description This research opportunity is available at the U.S. DEVCOM Army Research Laboratory (ARL), located in Adelphi, MD. In this project, the researcher will have a unique opportunity to employ ultrafast spectroscopy to study various aspects of advancing foundational knowledge of electronic carrier dynamics and thermal transport in Wide and Ultra-wide Bandgap Semiconductors, including the underlying mechanisms of carrier thermalization, radiative and nonradiative recombination, and nonequilibrium transport, as well as the thermal transport properties associated with the generation and propagation of heat in heterostructures. Prior experience with ultrafast laser sources and pump-probe metrology techniques is desired.

ARL Advisor:

LeighAnn Larkin
leighann.s.larkin.civ@army.mil
(301) 394-1430

Gregory Garrett
gregory.a.garrett.civ@army.mil
(301) 394-1966

Adam Wilson
adam.a.wilson6.civ@army.mil
(301) 394-1984

About ARD

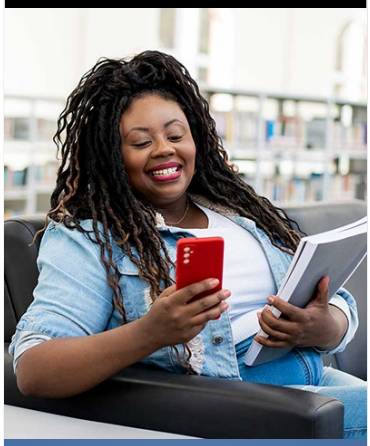
ARL's Army Research Directorate (ARD) focuses on exploiting concept development, discovery, technology development, and transition of the most promising disruptive science and technology to deliver to the Army fundamentally advantageous science-based capabilities through laboratory's 11 research competencies. This intramural research directorate also manages the laboratory's essential research programs, which are flagship research efforts focused on delivering defined outcomes.

About ARL-RAP

The Army Research Laboratory Research Associateship Program (ARL-RAP) is designed to significantly increase the involvement of creative and highly trained scientists and engineers from academia and industry in scientific and technical areas of interest and relevance to the Army. Scientists and Engineers at the CCDC Army Research Laboratory (ARL) help shape and execute the Army's program for meeting the challenge of developing technologies that will support Army forces in meeting future operational needs by pursuing scientific research and technological developments in diverse fields such as: applied mathematics, atmospheric

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characterization, simulation and human modeling, digital/optical signal processing, nanotechnology, material science and technology, multifunctional technology, combustion processes, propulsion and flight physics, communication and networking, and computational and information sciences.

About ELECTROMAGNETIC SPECTRUM SCIENCES (ESS)

Novel approaches to sensing and operating across the entire electromagnetic (EM) environment; counter-sensing across the EM spectrum; protection from EM effects; emerging concepts for RF, radars, and electronic warfare (EW).

A complete application includes:

- **Curriculum Vitae or Resume**
- **Three References Forms**
  - An email with a link to the reference form will be available in Zintellect to the applicant upon completion of the on-line application. Please send this email to persons you have selected to complete a reference.
  - References should be from persons familiar with your educational and professional qualifications (include your thesis or dissertation advisor, if applicable)
- **Transcripts**
  - Transcript verifying receipt of degree must be submitted with the application. Student/unofficial copy is acceptable

If selected by an advisor the participant will also be required to write a **research proposal** to submit to the ARL-RAP review panel for :

- Research topic should relate to a specific opportunity at ARL (see Research Areas)
- The objective of the research topic should be clear and have a defined outcome
- Explain the direction you plan to pursue
- Include expected period for completing the study
- Include a brief background such as preparation and motivation for the research
- References of published efforts may be used to improve the proposal

Questions about this opportunity? Please email ARLFellowship@orau.org.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
- **Academic Level(s):** Bachelor’s Degree (Journeyman Fellow), Master’s Degree (Journeyman Fellow), or Doctoral Degree (Postdoctoral Fellow).
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)

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- **Computer, Information, and Data Sciences** (17 👁)
- **Earth and Geosciences** (21 👁)
- **Engineering** (27 👁)
- **Environmental and Marine Sciences** (14 👁)
- **Life Health and Medical Sciences** (51 👁)
- **Mathematics and Statistics** (11 👁)
- **Physics** (16 👁)
- **Science & Engineering-related** (2 👁)
- **Social and Behavioral Sciences** (29 👁)