

**Opportunity Title:** 2025 DEVCOM ARL Summer Student Experience: Exploring Different Forms of Molybdenum Precursors in the Growth and Materials Quality of MoS<sub>2</sub> Layers

**Opportunity Reference Code:** ARL-SSE-2025-PEQS-0006

**Organization** DEVCOM Army Research Laboratory

**Reference Code** ARL-SSE-2025-PEQS-0006

**How to Apply** **Application Deadline: January 12, 2025**

Applications must be submitted in [Zintellect](#).

A complete application includes:

1. **Resume** listing your relevant coursework and lab experience as well as all papers, presentations, or publications you may have authored or co-authored. Include any reprints or abstracts if they are available.
2. **Transcripts** verifying current enrollment in an undergraduate or graduate program at an accredited university or technical institute. Original student copies are acceptable.
3. **Statement of Interest** describing your scientific research experience including lab experience and relevant academic coursework. State how this experience intersects with your personal and professional goals.
4. **Three References** formal reference forms are not required for the Summer Student Experience, but names and contact information for references must be provided. During the review process, ARL Selecting Officials may contact references.

**Application Deadline** 1/12/2025 11:55:55 PM Eastern Time Zone

**Description** **Research Project**

Molybdenum containing compounds will be explored as precursors for the growth of MoS<sub>2</sub> that forms mono and multiple layers of 2-D materials on substrate. Type of the molybdenum compounds, quantity of Mo to be used, and reaction conditions will play important roles with respect to reaction kinetics, mass transfer, and heat transfer. Optimization of the growth reaction parameters may generate larger sized MoS<sub>2</sub> layer(s), and with lower levels of structural defects. Other related topics and methodologies will also be possible to explore.

*Advisor Name: Charles Rong*

*Advisor Email: [charles.c.rong.civ@army.mil](mailto:charles.c.rong.civ@army.mil)*

*Advisor Name: Madan Dubey*

*Advisor Email: [madan.dubey.civ@army.mil](mailto:madan.dubey.civ@army.mil)*

**About Photonics, Electronics, & Quantum Sciences (PE&QS)**

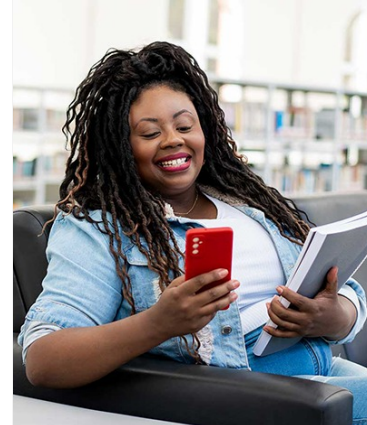
Materials (and related manufacturing methods) and devices intended for achieving photonic, electronic, and quantum-based effects.

**About the ARL-RAP Summer Student Experience (SSE)**

The DEVCOM Army Research Laboratory (ARL) Research Associateship Program (RAP) [Summer Student Experience \(SSE\)](#) is an educational program that allows undergraduate through PhD students and recent bachelor's and master's degree graduates to participate in a paid research experience at a Department of Defense laboratory over the summer break. Participants are paired with scientists and engineers at ARL who are



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helping to shape and execute the Army's program for meeting the challenge of developing technologies that will support Army forces future operational needs. As a participant in the ARL-RAP SSE, you will be part of high priority research efforts that are broadly supported by [11 research competencies](#). While ARL has identified several specific research topics, the opportunity for general research may also exist under each competency.

**About DEVCOM Army Research Laboratory (ARL) Research Associateship Program (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 DEVCOM 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 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 Army Research Directorate (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 ARL'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.

**Location(s) of Appointment**

- Adelphi Laboratory Center, Maryland (ALC)

*Tentative Summer Program Dates: May 12, 2025 - August 29, 2025. If selected, you will coordinate your exact participation dates with your Research Advisor.*

For questions about the Summer Student Experience Program, please email [ARLFellowship@ora.u.org](mailto:ARLFellowship@ora.u.org).

**Qualifications Preferred Technical Skills**

Physics, Chemistry, Materials Science, and all disciplines of Engineering

- |                                 |  |
|---------------------------------|--|
| <b>Eligibility Requirements</b> | <ul style="list-style-type: none"><li>• <b>Citizenship:</b> LPR or U.S. Citizen</li><li>• <b>Degree:</b> High School Diploma/GED, Associate's Degree, Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 12 months or currently pursuing.</li></ul> |
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- **Overall GPA:** 2.00
- **Academic Level(s):** Associate's Degree (Journeyman Fellow), Bachelor's Degree (Journeyman Fellow), Master's Degree (Journeyman Fellow), or Doctoral Degree (Postdoctoral Fellow).
- **Discipline(s):**
  - **Chemistry and Materials Sciences** ([4](#) 👁)
  - **Engineering** ([27](#) 👁)
  - **Physics** ([1](#) 👁)
- **Age:** Must be 18 years old by 5/1/2025