

Opportunity Title: High power composite thermal energy storage

Opportunity Reference Code: ARL-R-ES-400030-F1

Organization DEVCOM Army Research Laboratory

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Description The Thermal Sciences & Engineering Team in the Energy Sciences Division of DEVCOM Army Research Laboratory (ARL) has an exciting internship opportunity tailored for PhD students in Mechanical Engineering, Aerospace Engineering, Physics, Chemistry, and related fields. The focus of this internship is on phase change composites with high thermal conductivity—an emerging field with immense potential for innovation and advancement.

As an intern, you'll collaborate with top researchers (both within ARL and across the research community), contributing to the development and discovery of materials, composites, and use cases that could revolutionize thermal management systems and energy storage solutions.

Your experiences in this internship will be diverse, ranging from modeling, to fabrication, to testing. You'll conduct experiments to explore the thermal properties of these composites under various conditions, synthesizing and fabricating materials using advanced techniques such as nanomaterial integration, additive manufacturing, photolithography, and advanced machining.

This internship offers a unique opportunity to apply your Mechanical Engineering studies to Army-relevant challenges, whether it's understanding heat transfer mechanisms or designing experiments to test hypotheses.

And importantly, you'll be part of an interdisciplinary team, collaborating with experts from diverse fields to push the boundaries of materials science and engineering.

If you're ready to contribute to groundbreaking research and make a meaningful impact, we encourage you to apply to join our team!

ARL Advisor:

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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 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 ENERGY SCIENCES (ES)

Science of mechanical and electrical power generation, storage, conditioning and distribution; energy conversion; and emerging concepts for lasers, directed energy (DE), DE protection and propagation.

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

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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

A link to upload the proposal will be provided to the applicant once the advisor has made their selection.

Questions about this opportunity? Please email ARLFellowship@ora.u.org.

Point of Contact [ARL-RAP](#)

- Eligibility Requirements**
- **Citizenship:** LPR or U.S. Citizen
 - **Degree:** Associate's Degree, Bachelor's Degree, Master's Degree, or Doctoral Degree.
 - **Academic Level(s):** Associate's Degree (Journeyman Fellow), Bachelor's Degree (Journeyman Fellow), Master's Degree (Journeyman Fellow), Master's Degree 7+ years (Senior Fellow), or Doctoral Degree (Postdoctoral Fellow).
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#))
 - **Communications and Graphics Design** ([2](#))
 - **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](#))