

**Opportunity Title:** Diffraction Analysis of Energetic and Propellant Materials

**Opportunity Reference Code:** ARL-R-WMRD-4262858313

**Organization** DEVCOM Army Research Laboratory

**Reference Code** ARL-R-WMRD-4262858313

### **Description About the Research**

The US Army Research Laboratory, located at Aberdeen Proving Grounds, MD, seeks applications for a postdoctoral fellow for an experimental scientist in the field of crystallography. Primary responsibilities include measurement of material behavior utilizing x-ray and/or neutron diffraction. We are seeking a mature, competent, self-motivated scientist who shows ingenuity and proficiency in using state-of-the-art experimental techniques and innovative, integrated strategies to pursue challenging, interdisciplinary problems.

Applicants should have received a Doctoral Degree in Physical Chemistry, Condensed Matter Physics, Crystallography, Materials Science or a closely related discipline within the last five years or should be completing the requirements to receive a degree by the start of the appointment. This opportunity requires good communication skills via scientific publications, regular technical presentations and the ability to collaborate with a team in a variety of settings.

Successful candidates would have familiarity with the following:

- Various techniques for growth of crystals suitable for diffraction
- The use of various lab based instruments to obtain x-ray diffraction
- The use of synchrotron and/or neutron sources to obtain x-ray/neutron diffraction data
- Interpretation of powder and single-crystal x-ray/neutron diffraction patterns, including full Reitveld refinements on known/unknown structures.
- Familiarity with various software packages for analysis of diffraction data

*ARL Advisor:* Jennifer Ciezak-Jenkins

*ARL Advisor Email:* jennifer.a.ciezak-jenkins.civ@mail.mil

### **About WMRD**

The goals of the Weapons and Materials Research Directorate (WMRD) are to enhance the lethality and survivability of weapons systems, and to meet the soldier's technology needs for advanced weaponry and protection. Research is pursued in energetic materials dynamics, propulsion/flight physics, projectile warhead mechanics, terminal effects phenomena, armor/survivability technologies, environmental chemistry, and advanced materials (energetic, metals, ceramics, polymers, composite/hybrids, and mechanics) for armor, armament, missiles, ground vehicles, helicopters, and individual soldier applications necessary for maintaining and ensuring supremacy in future land warfare.

### **About ARL-RAP**

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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.

**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

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](mailto:ARLFellowship@ora.u.org)

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
  - **Degree:** Any degree .

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- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** ([12](#))
  - **Computer, Information, and Data Sciences** ([16](#))
  - **Earth and Geosciences** ([21](#))
  - **Engineering** ([27](#))
  - **Environmental and Marine Sciences** ([14](#))
  - **Life Health and Medical Sciences** ([45](#))
  - **Mathematics and Statistics** ([10](#))
  - **Physics** ([16](#))
  - **Science & Engineering-related** ([1](#))
- **Age:** Must be 18 years of age