

Opportunity Title: Modeling and Simulation, Design, and Testing of Photonic Integrated Circuit (PIC) Materials, Components, or Systems

Opportunity Reference Code: ARL-R-PEQS-400036-F1

Organization DEVCOM Army Research Laboratory

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Description Participant will perform research and development with members of the Integrated Photonics Sensors team. They will be expected to perform modeling and simulation, design, and testing of Photonic Integrated Circuit (PIC) materials, components, or systems. They will perform their work independently under the mentorship of the team leader and will receive on-site training as needed (including cleanroom tools and processes). Topical opportunities include but are not limited to: high-speed modulators; c-band, o-band, and 780 nm PIC components and systems; PIC interface electronics; Free-space Optical Communications; bio or chemical sensors; or other future Army PIC applications. Opportunities include authoring presentations, publications, patents, and contributing to DOD reports, as well as attending conferences and government meetings where appropriate.

ARL Advisor:

Justin Bickford
justin.r.bickford.civ@army.mil
(301) 394-5127

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 PHOTONICS, ELECTRONICS, & QUANTUM SCIENCES (PE&QS)



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

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@ora.u.org.

Qualifications Strong familiarity with Photonic Integrated Circuit (PIC) technology. Passion to independently research and develop novel PIC materials, components, and/or systems for Army use cases. Work well with others (readily accept technical suggestions while providing constructive feedback, actively participate in brainstorming sessions, and offer technical guidance to others). Eager to explore solutions to technically challenging Army needs.

Point of Contact [ARL](#)

- Eligibility**
- **Citizenship:** U.S. Citizen Only
- Requirements**
- **Degree:** Doctoral Degree.
 - **Minimum Overall GPA:** 3.70
 - **Academic Level(s):** Doctoral Degree (Postdoctoral Fellow).
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#) )

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- **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](#))