



**OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION
RESEARCH PARTICIPATION PROGRAM
U.S. ARMY AVIATION AND MISSILE RESEARCH, DEVELOPMENT,
AND ENGINEERING CENTER (AMRDEC)
REDSTONE ARSENAL, ALABAMA**

Optical Characterization Project at Redstone Arsenal, Alabama

Project # AMRDEC-LC-2011-008

The Research Participation Program for The U. S. Army Aviation and Missile Research Development and Engineering Center (AMRDEC), a subordinate laboratory to the Research, Development and Engineering Command (RDECOM), is the Army's focal point for providing research, development, and engineering technology and services for aviation and missile platforms across the lifecycle. AMRDEC has a long history of providing unparalleled service to its aviation and missile customers, while always striving to provide the greatest service to its ultimate customer, the warfighter, by providing technology and weapon system solutions to ensure his/her victory on the battlefield. AMRDEC provides a wide array of technologies, hardware and software applications, and products and services that run the gamut from game-changing technologies to detect and destroy threats, enhance performance, lethality, survivability and reliability of aviation and missile systems, along with programs to miniaturize missile and aircraft components, provide modeling and simulation applications for these technologies and systems, and the associated training applications. Project areas disciplines include Physics, Engineering (Aerospace, Computer, Electrical, Mechanical), and Physical Chemistry.

PROJECT DETAILS

An appointment is available at AMRDEC, Redstone Arsenal, Alabama.

This appointment includes, but is not limited to, the following:

- Research will focus on the ultrafast optical characterization of excitation and relaxation dynamics in wide bandgap semiconductor heterostructures.
- Areas of research will include: ultraviolet and visible wavelength continuous-wave and time-resolved optical characterization of III-nitride and II-oxide heterostructures and nanostructures; investigations of energy transfer in rare earth-doped wide bandgap semiconductors; cavity, plasmonic, and photonic band engineered modification of emission properties; and selected investigations of infrared materials with narrow bandgaps.
- Research will involve time-resolved photoluminescence and pump-probe techniques from 1.5-300K using a broadly tunable (200 nm - 12 micron) optical parametric amplifier driven by a 1 kHz regenerative amplifier seeded by a mode locked Ti:Sapphire laser.

ELIGIBILITY REQUIREMENTS

Applicants should have a **Doctoral Degree** in **Physics, Electrical Engineering, or Physical Chemistry** within the last five years, or completion of all requirements for the degree should be expected on or about the starting date. Other applicants will be considered on a case-by-case basis. The program is open to all qualified U.S. citizens without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran.

The participants will be selected based on academic records, recommendations, applied research interests and compatibility of background with applied research programs and projects at Redstone Arsenal, AL.

The initial appointment is for **one-year** and may be renewed for up to a total of five years based upon recommendation of AMRDEC and subject to availability of funds. The appointment is **full time** at Redstone Arsenal, AL.

The participant will receive a monthly stipend. The stipend rate is determined based upon level of education, training, and experience. Inbound travel and moving expenses are reimbursed according to established policies. Travel and other costs will also be reimbursed for training related to the project and approved by ORISE and the host installation.



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The participant must show proof of health and medical insurance. Health plans are available through the Oak Ridge Institute for Science and Education for Postgraduate Internship participants. The appointment is full time at the host installation.

APPLICATION and DEADLINE

Applications are accepted and processed on a continuing basis. The Research Participation Program for AMRDEC is administered by the Oak Ridge Institute for Science and Education. Please reference **Project #AMRDEC-LC-2010-008** when calling, emailing, or writing for information. For immediate consideration applicants may forward resumes or vitas to the email address listed below. Additional information and application material can be found on the following website www.oraug.org/Maryland.