

Opportunity Title: Physics Post-Doctoral Research Participant - Bulk Explosives

Detection Technology

Opportunity Reference Code: TSL-BEDT-2015-2601

Organization U.S. Department of Homeland Security (DHS)

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How to Apply A complete application package consists of:

- A complete application
- A resume
- Thesis/dissertation abstract
- Official Transcript

An official transcript is defined as a transcript issued by the Registrar's Office that includes all of the following:

- Official university markings such as the registrar's signature, university logo or stamp, letterhead or watermark, etc.;
- Name of the academic institution;
- Name of the student;
- For current students, the official transcript must include recent coursework and grades. For postgraduate candidates, the official transcript should include the graduation date and degree awarded.

If you have questions, send an email to DHSed@oraui.org. Please list the reference code of this opportunity in the subject line of the email.

Description The mission of the U.S. Department of Homeland Security (DHS) Transportation Security Laboratory (TSL) is to serve as the leading federal laboratory for the applied research, development, integration, and validation of cutting edge science and technology solutions for the detection and mitigation of explosives and conventional weapons threats in order to secure the homeland. The TSL has approximately 140 full time employees split amongst federal and contract staff members, with a wide variety of backgrounds, including chemists, physicists, engineers, research physiologists, and explosive specialists.

Established in 1992 at the William J. Hughes Technical Center, Atlantic City International Airport, the TSL's 12 acre secure campus includes specialized explosive storage and handling areas and a multi-laboratory infrastructure designed for research, development, and test and evaluation of technology for explosives and weapon detection and blast mitigation. TSL's team of physicists, chemists, engineers, research psychologists and mathematicians is internationally recognized for its unique ability to advance technology from conception to deployment through applied research, development, prototyping, test and evaluation, assessment, certification, and systems qualifications, and laboratory assessment testing. TSL is also internationally recognized for its role in the development of standards, protocols, and test articles for detection technology assessments.

The RDT&E programs conducted at the TSL have provided deployment ready explosive detection equipment, including explosive detection systems (EDS), explosive trace detectors (ETD), enhanced metal detectors, suicide



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bomb detection technology, hardened cargo containers for aircraft, RFID (radio frequency identification) tags, biometric standards, and a variety of ancillary products, such as modular bomb set training kits, high fidelity simulants for explosives, and quality control aides for EDSs, and K-9s.

TSL's product areas include:

- Independent Test and Evaluation
- Personnel Inspection
- Commerce Inspection
- Conveyance Protection
- Infrastructure Protection

Postdoctoral researchers will collaborate closely with federal and contractor staff, sharing laboratories and office space. Postdocs will be knowledgeable of projects on the periphery of their main project, as well as have opportunities to travel and attend all appropriate internal and external meetings. In general, the postdoc will be treated as if they are a permanent member of staff at the TSL. However, particular attention will be paid to the career development of the postdoc to insure that they can move forward with a successful career once their time at the TSL is complete.

These appointments have a flexible start date with an end date/renewal date set for one year after start date. Apartments and single family homes are available for rent or purchase in the area.

For additional information about the Transportation Security Laboratory (TSL) Visiting Scientist Program, please visit

<http://orau.gov/TransportationLabProgram/>

Project Details:

The Bulk Explosives Detection Technology area has several areas of research that could be of interest, including: advanced image reconstruction and image quality optimization, microstructural explosive simulant development, active and passive electromagnetic imaging of people, X-ray diffraction imaging, and high-energy (450 keV) X-ray tomography. These areas are applicable to screening of passenger baggage, small cargo, or people. Emphasis is on understanding and advancing the state-of-the-art in these technologies to improve security and operational implementation.

The appointment will be full-time for one year and may be renewed for up to two additional years upon recommendation of DHS/TSL and subject to availability of funds. The participant will receive a monthly stipend depending on educational level and experience, starting at \$70,000/year. The participant must show proof of medical/health insurance. Funding may be made available to offset the cost of medical/health insurance, for in-bound travel to Atlantic City, NY and for reimbursement of professional travel expenses.

The program is open to all qualified individuals without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran. U.S. citizenship is required for

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application. A minimum of a Secret Clearance and DHS Suitability is required before beginning an appointment at TSL. The participant does not become an employee of DHS/TSL or the program administrator and there are no fringe benefits paid.

Research Advisor:

Dr. Ronald Krauss

Bulk Technology Lead

U.S. Department of Homeland Security

Science and Technology Directorate

Transportation Security Laboratory




William J. Hughes Technical Center

Pomona, NJ 08405

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Phone: (609) 813-2752

Qualifications Applicants must have received a doctoral degree within five years of the desired starting date in physics or a related field of study. Applicants must be U.S. Citizens.

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Doctoral Degree received within the last 60 month(s).
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#) )
 - **Engineering** ([27](#) )
 - **Physics** ([16](#) )