

AIAD #10848

Research Opportunity (Cadet)

ORGANIZATION/PROJECT SPONSOR

Organization: ARL-ARO

Organization POC: Russell Harmon

Organization POC email: russell.harmon@us.army.mil

Organization POC Phone: 919-549-4326

Organization POC FAX: 919-549-4310

Location of Sponsoring Directorate or Division: Research Triangle Park, NC

PROJECT

Title: Laser-Induced Breakdown Spectroscopy of Conflict Minerals

Description: The research, to be conducted at Juniata College in Huntingdon, PA, will focus on using laser-induced breakdown spectroscopy (LIBS) to determine the source area of conflict minerals - those ores, gems, and other natural materials that are mined and sold illicitly in conditions of armed **conflict** and human rights abuses to fund various armed rebel groups engaged in civil conflict. LIBS is an emerging technique for real-time chemical analysis with potential for field deployment. In LIBS, a laser beam is directed at a sample to create a high-temperature microplasma and a spectrometer/array detector is used to disperse the light emission and detect its intensity at specific wavelengths. LIBS has many attributes that make it an attractive tool for chemical analysis, including the fact that it is sensitive simultaneously to all chemical elements. This project will focus on the mineral pair columbite-tantalite, which has widespread commercial use in consumer electronics.

ARL/Army Benefit: Support for current ARL efforts in LIBS analysis.

Background Required: Some training in mathematics, chemistry, physics.

Security clearance required: None.

Capacity: 1 Cadet

Duration: 3 weeks.

Block Preference: Timeframes that DO NOT WORK for the organization: 19-25 June.