Opportunity Title: Biological Effects of Electromagnetic Fields
Opportunity Reference Code: AFRL711HPW-2019-0023

Organization U.S. Department of Defense (DOD)

Reference Code AFRL711HPW-2019-0023

How to Apply Components of the online application are as follows:

- Profile Information
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records - For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click here for detailed information about acceptable transcripts.
- <Number of Recommendations required> Recommendation(s)

Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blanked out, blackened out, made illegible, etc.) prior to uploading into the application system.

If you have questions, send an email to AIRFORCE@orise.orau.gov . Please list the reference code of this opportunity in the subject line of the email.

All documents must be in English or include an official English translation.

Description As part of the Air Force Research Laboratory, the Bioeffects Division (RHD) has played a key role in understanding the biological effects of directed energy (DE) for more than 50 years. Our mission is to understand the risks associated with warfighter exposure to DE sources. Specific objectives of the division include preventing mission degradation due to DE exposure and enabling our forces to function safely, effectively, and efficiently on the DE battlefield. For more information please visit: https://www.wpafb.af.mil/afrl/711hpw/rh/

Emerging research has suggested that within the human body a portion of the neurotransmitter pathways is receiving signals that are biosynthesized and excreted from gastrointestinal (GI) microbes. Once excreted, GI synthesized neurotransmitters can affect the mammalian enteric nervous system by direct stimulation of afferent neurons or the central nervous system by sending signals to the brain via the vagus nerve. This project is specifically interested in exploring the biological mechanisms by which DE exposure may alter microbial function within the body impacting warfighter performance. This research opportunity will allow the participant to gain experience in an active Department of Defense Biosafety Level 2 laboratory. The participant will help to plan, design and conduct interdisciplinary research in the fields of cellular, micro and neurobiology in which they will help to investigate the utilization of electromagnetic fields to enhance the extracellular concentrations of various neurotransmitters. Furthermore, the participant will be expected to help collect and analyze data as well as articulate their results in written and oral presentations.

Appointment Length

This appointment is a twelve month research appointment, with the possibility to be renewed for

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additional research periods. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

Participant Benefits

Participants will receive a stipend to be determined by **AFRL**. Stipends are typically based on the participant's academic standing, discipline, experience, and research facility location. Other benefits may include the following:

- Health Insurance Supplement. *Participants are eligible to purchase health insurance through ORISE.*
- Relocation Allowance
- Training and Travel Allowance

Nature of Appointment

The participant will not enter into an employee/employer relationship with ORISE, ORAU, DOD, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

Qualifications

The participant should have completed or about to complete a Masters degree and/or PhD in the fields of cellular biology, neurobiology and/or microbiology.
Knowledge of basic laboratory practices and universal laboratory safety precautions is required.
Knowledge of microbiology techniques (bacterial culture, aseptic technique, pipetting, serial dilutions) is preferred.
Knowledge of neurobiological techniques (primary neuron culture) is preferred.
Knowledge of cellular biology techniques (ELISA) is preferred.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 12 months or currently pursuing.
- **Overall GPA:** 3.00
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)
  - **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 👁)
  - **Other Non-Science & Engineering** (2 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (27 👁)

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