Opportunity Title: AFIT - Additive Manufacturing of Refractory Metal Alloys Internship
Opportunity Reference Code: AFIT-2023-0016

Organization U.S. Department of Defense (DOD)

Reference Code AFIT-2023-0016

How to Apply Click on *Apply* at the bottom of the opportunity to start your application.

Description The Air Force Institute of Technology is offering a fellowship at Wright Patterson Air Force Base.

What will I be doing?

As an ORISE participant, you will join a community of scientists and researchers in an effort to explore additive manufacturing of refractory metal alloys by the laser powder bed fusion process, which is also called selective laser melting. The research experience may include the following materials characterization techniques based upon the needs of the project: metallographic preparation, electron and optical microscopy, elemental analysis by energy-dispersive X-ray spectroscopy (EDS), microstructure analysis by various optical and electron techniques, and mechanical testing. Participants will be expected to collaborate, develop their technical writing skills, and present project results publicly at technical conferences.

Why should I apply?

Under the guidance of a mentor, you will engage in a variety of research activities, including:

- operating different additive manufacturing machines
- characterizing printed materials
- studying novel alloy compositions
- utilizing data collection methods on a variety of materials
- analyzing the effects of alloying on printability, mechanical properties, and oxidation behavior

Where will I be located? Dayton, Ohio

What is the anticipated start date?

Exact start dates will be determined at the time of selection and in coordination with the selected candidate. Applications are reviewed on an ongoing basis and fellowships will be filled as qualified candidates are identified.

What is the appointment length?

Appointments are initially for one year with the option to extend the appointment for up to four additional years, contingent upon project needs and funding availability.

What are the benefits?

You will receive a stipend to be determined by AFIT. Stipends are typically based on a 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

About AFIT

The Air Force Institute of Technology, or AFIT, located at Wright-Patterson Air Force Base, Ohio, is

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the Air Force's graduate school of engineering and management as well as its institution for technical professional continuing education. A component of Air University and Air Education and Training Command, AFIT is committed to providing defense-focused graduate and professional continuing education and research to sustain the technological supremacy of America's air, space and cyber forces.

About ORISE

This program, administered by Oak Ridge Associated Universities (ORAU) through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and DoD. Participants do not enter into an employee/employer relationship with ORISE, ORAU, DoD or any other office or agency. Instead, you will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE. For more information, visit the ORISE Research Participation Program at the U.S. Department of Defense.

Qualifications

The qualified candidate will have or be currently pursuing a Bachelor's or Master's degree. The degree must have been received within five years of the appointment start date. U.S. military veterans who have been honorably discharged (or who have been medically discharged because of a service-connected disability) and who received a Bachelor's or Master's degree within ten years of the desired start date are also eligible.

Highly competitive applicants will have education and/or experience in one or more of the following:

- Ability to study and aggregate information on scientific topics independently
- Strong written and verbal communication skills
- Familiarity with MATLAB or Python
- Familiarity with topics in materials science and/or metallurgy

Application Requirements

A complete application consists of:

- Zintellect Profile
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records - Please upload a copy of a transcript for your current or most recent degree program that meets the disciplinary qualifications of the opportunity. Click here for detailed information about acceptable transcripts
- One recommendation. Your application will be considered incomplete and will not be reviewed until one recommendation is submitted. We encourage you to contact your recommender(s) as soon as you start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommenders will be asked to rate your scientific capabilities, personal characteristics, and describe how they know you. You can always log back in to your Zintellect account and check the status of your application.

If you have questions, send an email to AIRFORCE@orise.orau.gov. Please list the reference code of this opportunity [AFIT-2023-0016] in the subject line of the email. Please understand that ORISE

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does not review applications or select applicants; selections are made by the sponsoring agency identified on this opportunity. All application materials should be submitted via the “Apply” button at the bottom of this opportunity listing. Please do not send application materials to the email address above.

Connect with ORISE...on the GO! Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or currently pursuing.
- **Overall GPA:** 3.00
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (8 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (46 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).