

NOTICE OF VACANCY
Postdoctoral Research Position:
Materials Science – Alloy Processing
ISP/Applied Sciences Laboratory



WASHINGTON STATE UNIVERSITY
Institute for Shock Physics

Description of Position

The Spokane-based Applied Sciences Laboratory (ASL) of the Institute for Shock Physics (ISP) at Washington State University is a contract research organization which conducts a broad range of projects for government agencies and corporations, including technology transfer for commercial applications. We have an immediate opening for a Postdoctoral Research Associate to conduct applied research in experimental alloy development and processing.



ASL research activities span the physical sciences, engineering, and biomedical sciences. Within the physical sciences, one focus area is the development and processing of advanced materials, particularly multi-functional high-performance metallic alloys. We utilize a variety of processing and fabrication methods, including vacuum induction melting and permanent mold casting, in addition to material testing and characterization techniques such as optical microscopy, SEM, and mechanical testing.



The successful candidate will work on various aspects of the research project, including alloy development, process development, scale-up fabrication, and process modeling. We are looking to hire an experimentalist who enjoys hands-on work and problem-solving in a fast-paced research environment. Occasional travel with access to Department of Defense (DoD) facilities is required.

Responsibilities include, but are not limited to:

1. Hands-on design and execution of a broad range of experimental projects including processing, fabrication, and characterization of metallic alloys.
2. Explore new alloy processing routes and conceive/design appropriate equipment.
3. Perform material characterization and testing on a variety of alloy samples.
4. Analyze data, identify and solve key issues, and optimize processes using DOE and related statistical tools
5. Lead in the design, development, and use of alloy processing equipment, casting set-ups, and test sample fabrication.
6. Independently define and complete experimental projects and tasks
7. Participate on cross-functional teams to integrate the activities of multiple disciplines.

Required Qualifications

A strong, hands-on experimental background is essential for this position. The required professional qualifications and personal attributes are:

- A recent Ph.D. degree in Materials Science, Physical Metallurgy, Mechanical Engineering or related field with a strong experimental background
- Strong academic and research background related to material processing or electro-mechanical systems
- Hands-on experience with material processing and characterization, or electro-mechanical systems
- Graduate or post-graduate experience at a U.S. Academic Institution or National Laboratory
- Good oral and written communication skills (i.e., ability to engage in deep scientific discussions, technical problems and clearly express and understand ideas, and ability to summarize research results in a succinct written manner)
- Ability to perform independent research
- Critical thinking, good judgment, clear sense of purpose, attention to detail, and accountability
- Must be able to obtain a badge at U.S. Department of Defense facilities to gain access to restricted areas/information.

Preferred Qualifications

The ideal candidate will also have one or more of:

- Experimental background in processing of titanium alloys
- Proficiency in microstructure characterization and phase identification
- Hands-on experience on SEM, optical microscopy and X-ray diffraction
- Hands-on experience on vacuum equipment and high vacuum systems.
- A solid theoretical background in the thermodynamics and kinetics of solidification.
- Experience on induction melting, laboratory arc-melting, and plasma melting.
- Experience with modeling of heat transfer/fluid flow with a solid theoretical background.
- Experience with FLOW-3D or similar casting simulation software.
- Proficiency in CAD software (e.g., SolidWorks, AutoCAD) and laboratory software (e.g., LabVIEW, MatLab)
- Experience in data mining, machine learning using systems such as Python/Minitab.
- Ability to perform statistical analyses and apply statistical calculations.

The salary range is \$66,000- \$72,000 per year, commensurate with experience and qualifications. Other benefits include health/dental insurance, vacation/sick leave, retirement plans, and access to University facilities. The position is located on the WSU Campus in Spokane, Washington.

Applications

To apply, please submit applications to [WSU Jobs \(Position R-10085\)](#). As a part of the application process, applicants are asked to submit a cover letter addressing the required and preferred qualifications for this position, a detailed resume, and the names and contact information for three professional references.

Questions may be submitted to Ms. Sheila Heyns, Assistant Director, Administration and External Relations, Institute for Shock Physics, 509-335-5345 asl.jobs@wsu.edu.

Due to the large volume of applications, we will contact only those selected for next steps.

Additional information about the Institute for Shock Physics and Washington State University follows:

The Institute has ongoing research activities at the following three locations:

- [Institute for Shock Physics](#) - Pullman, WA: Combining research innovations and rigorous education.
- [Dynamic Compression Sector](#) - Argonne, IL: Frontier of dynamic compression science (first-of-a-kind worldwide user facility) located at the Advanced Photon Source, Argonne National Laboratory.
- [Applied Sciences Laboratory](#) - Spokane, WA: Transforming science into practical solutions.

Washington State University

Washington State University, one of the two research universities in the state, was founded in 1890 as the state's land-grant institution and is located in Pullman with regional campuses in Spokane, Vancouver and the Tri-Cities. Due to its strong emphasis on excellence in research and education, the Carnegie Classification™ has designated WSU as R1: Doctoral University – Highest Research Activity. Current enrollment is approximately 31,500 undergraduate, graduate, and professional students. The University offers more than 200 fields of study, with 95 majors for undergraduates, 79 master's degree programs, 63 doctoral degree programs, and 4 professional degree programs. Academically, the University is organized into 11 colleges (Agriculture, Human, and Natural Resource Sciences; Arts and Sciences; Business; Communication; Education; Engineering and Architecture; Honors; Medicine; Nursing; Pharmacy; and Veterinary Medicine) and a Graduate School. The Colleges of Medicine, Nursing, and Pharmacy are located on the WSU Health Sciences Spokane campus. For more information, please visit www.wsu.edu.



WSU is an EO/AA Educator and Employer.