

## NOTICE OF VACANCY

### Laser Engineer for the Dynamic Compression Sector at the Advanced Photon Source, Argonne, Illinois



Institute for

# Shock Physics

WASHINGTON STATE UNIVERSITY

#### Description of Position

Washington State University (WSU) is seeking to hire a strongly self-motivated talented Laser Engineer to support the laser-shock experiments at a first-of-a-kind experimental capability: The Dynamic Compression Sector (DCS) at the Advanced Photon Source (APS), Argonne National Laboratory. The DCS constitutes a new paradigm for understanding the dynamic compression and deformation response of materials under extreme conditions. Real-time, atomistic-scale investigations of condensed matter phenomena can be undertaken in single event experiments through time-resolved, in-situ measurements utilizing the tunable, high energy X-ray capabilities at the APS.



Advanced Photon Source

The location for this WSU position is the Advanced Photon Source, Argonne National Laboratory, Argonne, IL. The DCS research activities involve state-of-the-art, dynamic compression experiments, including experiments that utilize a pulsed 100-Joule high energy laser system to dynamically compress materials to millions of atmospheres of pressure.



Responsibilities for this position include, but are not limited to:

1. Participate in the operation of the 100-Joule laser for laser-shock research activities. This includes quantifying and archiving the laser performance for each shot.
2. Working with the Laser Physicist, document, and maintain safe operating procedures related to the laser and its control areas at the DCS.
3. Configure and operate the X-ray detector systems, and other optical diagnostics, as needed for laser-shock experiments.
4. Work with the DCS users to prepare for experiments in advance. This includes providing guidelines for experimental design, as well as personnel safety and equipment operating procedures.
5. Contribute effectively to all aspects of the various research projects including optimal and safe operations of the experimental facilities; ensure availability of experimental components,

equipment and supplies; and working effectively in a team setting to advance the DCS research activities.

6. Independently define and complete experimental projects and tasks; conduct and analyze research experiments, and prepare reports and publications as appropriate.
7. Propose modifications to the laser to enhance its performance, capabilities, and operations. Upon approval, ensure these are implemented in a timely manner.

The 100J laser at the DCS is a state-of-the-art laser built to routinely perform well-characterized, dynamic compression experiments involving X-ray measurements. The optimal performance of the laser system is a key element of the DCS research objectives. The flexibility of laser-driven dynamic compression experiments will present unique and exciting challenges and opportunities.

### **Qualifications**

**Only applicants who are currently in the U.S.** and meet the following minimum qualifications will be considered for the position.

- A recent Ph.D. degree in Physics or a related field with a strong background in lasers and optics.
- Demonstrated strong hands-on ability with design and fabrication of instruments and experimental components related to the position responsibilities.
- Strong interest in being involved in all aspects of laser-shock experiments.
- Good familiarity with hardware and software required to support user experiments on a large scale laser.
- Good computer skills, including experience with technical/design/scientific programs, such as LabView, SolidWorks, and Matlab.
- Excellent communication skills, both oral and written.
- Personal attributes should include critical thinking, good judgment, clear sense of purpose, attention to detail, ability to work effectively in a team, and accountability.
- Must be able to obtain a badge at U.S. Department of Energy National Laboratories to gain access to restricted areas.

The salary structure is both attractive and nationally competitive. Other benefits include health/dental insurance, vacation/sick leave, and retirement plans.

### **Applications**

Applicants should submit a letter of application explicitly addressing the required qualifications for this position and date of availability; detailed curriculum vitae; and the contact information for three professional references to the attention of Professor Y. M. Gupta via email at [ispsjobs@wsu.edu](mailto:ispsjobs@wsu.edu).

To ensure consideration, please specify the position (DCS Laser Engineer) for which you are applying. We will begin reviewing applications immediately and will continue to do so until the position is filled. Please contact Ms. Sheila Heyns with inquiries regarding this position ([ispsjobs@wsu.edu](mailto:ispsjobs@wsu.edu), 509-335-1861). For more information, please visit <https://dcs-aps.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 ([shock.wsu.edu](http://shock.wsu.edu))
- *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 ([dcs-aps.wsu.edu](http://dcs-aps.wsu.edu))
- *Applied Sciences Laboratory - Spokane, WA:* Transforming science into practical solutions ([asl.wsu.edu](http://asl.wsu.edu))

**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 RU/VH: Research Universities (very high research activity). Current enrollment is approximately 29,686 undergraduate, graduate, and professional students. The University offers more than 200 fields of study, with 90 majors for undergraduates, 76 master's degree programs, 64 doctoral degree programs, and 3 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; Medical Sciences, Nursing; Pharmacy; Veterinary Medicine) and a Graduate School. WSU has established a medical school with preliminary accreditation received in Fall 2016. For more information, please visit [www.wsu.edu](http://www.wsu.edu).



*WSU is an EO/AA Educator and Employer.*