Washington State University (WSU) is seeking to hire a strongly self-motivated, talented experimentalist to work with scientists and engineers at a first-of-a-kind experimental user facility: 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 subjected to extreme conditions on short time-scales. Real-time, atomistic-scale investigations of condensed matter phenomena are undertaken in single event, dynamic compression experiments through time-resolved, in-situ measurements utilizing the tunable, high energy X-ray capabilities at the APS.

We are looking to hire a Laser Physicist/Engineer who enjoys hands-on work and problem solving in a fast-paced, research environment. The DCS research activities involve state-of-the-art, dynamic compression experiments that utilize x-ray and optical measurements to understand the response of materials on nanosecond time-scales at high dynamic stresses. The location for this WSU position is the Advanced Photon Source, Argonne National Laboratory (ANL), Argonne, IL. As such, DCS staff are considered to be “resident users” and must adhere to ANL policies and procedures, including the completion of required training courses.

The Laser-Shock capabilities at the DCS include a state-of-the-art 100J laser and a custom-built target chamber system to perform well-characterized, high stress (up to ~400 GPa), short duration (5 – 15 ns) experiments involving x-ray and optical measurements. The optimal performance of the laser system for a broad range of research objectives is a key element of the DCS scientific mission. The flexibility of laser-driven dynamic compression experiments will present unique and exciting challenges and opportunities. Further information about DCS Laser-Shock Station may be found within this journal article: X. Wang, et al., “The Laser Shock Station in the Dynamic Compression Sector,” *Review of Scientific Instruments*, 90(5): 053901(2019).
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, contribute to the design and conduct of laser-shock experiments, and work with scientific users. This also includes quantifying and archiving the laser performance for each shot.

2. Working with other laser experts, document and maintain safe operating procedures related to the laser and its control areas at the DCS.

3. 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.

4. 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.

5. Independently define and complete experimental projects and tasks; conduct and analyze research experiments and prepare reports and publications as appropriate.

6. Propose modifications to the laser to enhance its performance, capabilities, and operations. Upon approval, ensure these are implemented in a timely manner.

Qualifications

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

A background in dynamic compression research is not required for this position. However, strong, hands-on experimental background and skills relevant to the position responsibilities indicated above are essential. The required professional qualifications and personal attributes are:

- A Ph.D. degree in Physics or a related field with a strong background in lasers and optics.
- High-energy laser system experience preferred.
- Demonstrated strong hands-on ability with the design and optimization of nonlinear optical systems and associated diagnostic equipment.
- 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, Zemax, and Matlab.
- Excellent communication skills, both oral and written.
- Ability to work independently and in a team environment, as needed.
- 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 ispjobs@wsu.edu.

To ensure consideration, please specify the position (DCS Laser Physicist/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 (ispjobs@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 R1: Doctoral University – Highest Research Activity. Current enrollment is approximately 31,478 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. For more information, please visit [www.wsu.edu](http://www.wsu.edu).

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