SPACE SCIENCE, TECHNOLOGY, AND POLICY
@PNNL

Advancing Solutions to the Challenges of Space Exploration

Space presents extraordinary opportunities. It holds resources to sustain life on Earth, advances scientific discovery that propels economic growth, and inspires technologies that change lives.

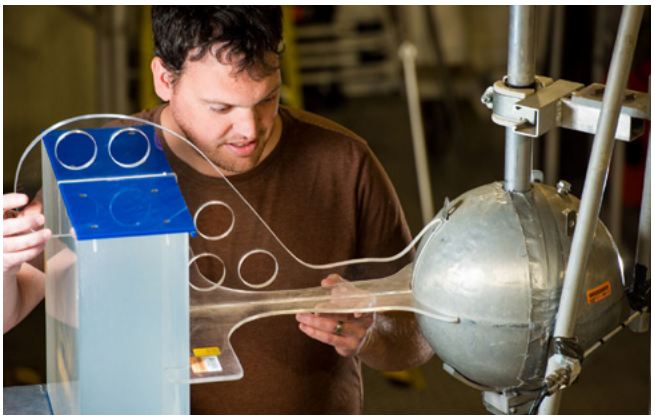
Space is a grand challenge requiring the nation's top minds, research, and innovations. And it's a challenge Pacific Northwest National Laboratory (PNNL) stands ready to tackle.

Research Capabilities

PNNL is poised to lead creative and multidisciplinary solutions to the complex, rapidly evolving challenges of space exploration. Our diverse technical expertise and capabilities can be applied to advance the frontiers of technology and research in space to include areas such as:

- Advanced communications
- Biological sciences, Earth and coastal sciences, and physical sciences
- Computing, automation, data analytics, and artificial intelligence
- Digital (cyber) security and resilience
- Environmental monitoring, control, and remediation
- Materials science and advanced manufacturing
- Policy and law: international nonproliferation and emerging technologies
- Power and energy systems/space nuclear power
- Radiation hardness testing
- Sensors and sensing instruments/intelligence

PNNL's radiological facilities, including the Radiochemical Processing Laboratory, are well suited to nuclear R&D activities needed to develop radioisotope and fission systems designed for space.



PNNL's Radiological Exposures and Metrology Laboratory houses ionizing radiation laboratories for irradiating artifacts with beta, neutron, and gamma radiation of various energies. These facilities can be used for radiation hardness testing of space system components.

Facilities

PNNL is home to many state-of-the-art facilities that are well suited to space-related research and development:

- **Specialized radiological facilities:** Our specialized spaces include the Radiochemical Processing Laboratory, a category II non-reactor nuclear research facility, and the Radiological Exposures and Metrology Laboratory, a facility dedicated to radiation measurement and irradiation science.
- **Environmental Molecular Sciences Laboratory:** This Department of Energy user facility features premier expertise and tools for biological and environmental science research.
- **Testbed capabilities:** Our testbed platforms enable researchers to evaluate and enhance technologies in realistic operational environments.
- **Energy research facilities:** We operate research and development facilities dedicated to modernizing the power grid and advancing renewable energy and storage technologies.

Collaborations

PNNL seeks partnerships with universities, industry, and government agencies to increase opportunities for joint research and develo-pment in space science, technology, and policy. Our collaborators include the University of Washington, and we are actively engaged in the Seattle and greater Pacific Northwest space research community.

Working with PNNL

Sponsors come to PNNL because of our flexibility and ability to build multidisciplinary teams with the right set of experts for the project. We frequently bring together diverse technical expertise and capabilities from across PNNL to research, develop, evaluate, and deploy cross-domain solutions to the highly complex challenges of today and the future.

Sandy Finan, Maj. Gen. (retired), U.S. Air Force
PNNL Space Science, Technology, and Policy Lead
sandra.finan@pnnl.gov | 509-371-7733

www.pnnl.gov/space

PNNL-SA-172054