Pacific Northwest National Laboratory

Sequim

Seattle

Portland, OR

Richland
MAIN CAMPUS
Primary Research at PNNL

Research Directorates/User Facilities

- Fundamental & Computational Sciences
- Energy and Environment
- National Security

Scientific Missions

- Strengthen U.S. Scientific Foundations for Innovation
- Increase U.S. Energy Capacity and Reduce Dependence on Imported Oil
- Prevent & Counter Terrorism and the Proliferation of Weapons of Mass Destruction
- Reduce the Environmental Effects of Human Activities and Create Sustainable Systems
What is a Multi-Program Laboratory?

Multiple Research Outputs:

- Experimental
  - Laboratory Sciences
  - Materials Testing/Catalysis
- Computational
  - Pure Computational
  - Simulation & Analysis
- Instrumentation Development
  - New applications on current technologies
  - Build from scratch

Research Foci:

1) Chemical and Molecular Sciences
2) Biological Systems Science
3) Climate Change Science
4) Subsurface Science
5) Chemical Engineering
6) Applied Materials Science and Engineering
7) Applied Nuclear Science and Technology
8) Advanced Computer Science, Visualization, and Data
9) Systems Engineering and Integration
10) Large-Scale User Facilities and Advanced Instrumentation

Research Teams:

- Multi-Disciplinary Teams
  - Utilized in ALL projects
    - ALL = 300+

November 2, 2015
Problem

- How we do safely measure, analyze, and visualize threats as they appear, within controlled environments?

Solution

- Millimeter Wave Technology
  - Millimeter waves harmlessly penetrate clothing and reflect off of the body, sending signals back to a transceiver; the transceiver then sends the signals to a high-speed computer, which reconstructs them to create a final 3-D holographic image.

Additional NSD Projects:

http://www.pnnl.gov/physics/
Instrumentation Example
Non-Invasive Explosives Detection

Problem:
- The US and its allies have a growing need to create weapon detection technologies for non-invasive sensing (locations like stadiums, mass transit hubs, etc) and using vapors instead of complete particles, even at a low volatility in the sample.

Solution:
- If minimal explosive vapors are collected in a non-radioactive ionization tube and fed directly into a mass spectrometer, detection of explosive vapors can be identified in less than five seconds.
- [http://pubs.acs.org/doi/epdf/10.1021/ac402513r](http://pubs.acs.org/doi/epdf/10.1021/ac402513r)
Problem

How do we address the growing concerns regarding the development and transportation of WMD’s around the world?

Solution

Take an active and engaged role in international collaborations:

- CTBTO – PNNL is recognized as International Station RL12, with several staff working on radionuclide analysis, weapon detection technologies, and supporting policy discussions at the direction of Secretary Moniz and President Obama.

- IAEA – PNNL works closely, in collaboration with the NNSA and the State Department to develop new safeguards training and development opportunities for IAEA member states and organizations.
Average length of employment for all job categories combined is 12 years.

Retention rates have historically ranked in the top 25th percentile of industry benchmarks.

Staff and Lab leadership agree that what attracts and retains people is:
- Innovative Work
- Job Interests Alignment
- Collegial / ID Work Environment

FY2015 Student Participants
- Over 240 Postdocs
- Over 500 Students
Program-based positions
- Posted either through PNNL’s external website or through other agencies (DOE, DHS, etc).
- May have special compensation rates / benefits
- May require capstone projects or event participation
  - Community College Internship (CCI)
  - Science Undergraduate Laboratory Internship (SULI)
  - National Security Internship Program (NSIP)

Project-based positions
- Posted individually on the external (https://pnnl.jobs) website ranging from undergrad to Post-Doc.
- Posted and recruited on an ongoing basis as new funding becomes available.

Alternate-Sponsored Fellowships (ASF)
- Opportunity for internships when sponsored by an outside party.

More about Work-Based Learning: http://science-ed.pnnl.gov/
B-Reactor Tour
Summer BBQs
Science Undergraduate Laboratory Internships (SULI)

- SULI provides 10- to 16-week summer and quarter research internships to undergraduate students in the areas of science, mathematics, engineering, technology, and policy.
- Each student is assigned to a Laboratory staff scientist in a specific area of research related to the student's interests and academic major.
- A series of educational enrichment and social activities are provided to enhance the internship experience. One caveat of this program is that students must be working on a research assignment for which they can publish or present findings.

- Duration: Fall, Winter, Spring, or Summer
- Pay: $500 per week
- Benefits: $125 per week for housing and $500 travel reimbursement
- Apply at: [http://science.energy.gov/wdts/suli/how-to-apply/](http://science.energy.gov/wdts/suli/how-to-apply/)

SULI Program Manager: Nicole Castilleja - [nicole.castilleja@pnnl.gov](mailto:nicole.castilleja@pnnl.gov)
NSIP & NGSI
Program-based positions

National Security Internship Program (NSIP) & Next Generation Safeguards Internship (NGSI) Program

► NSIP and NGSI are premier internship programs recruiting and retaining the top talent in national security fields for the next generation workforce.
► Includes both internship and post-graduate opportunities
► Most Candidates must be able to obtain a security clearance (US Citizens)

► 3 Program Tracks
  ■ Signature Sciences & Technology (SST)
  ■ Computational & Statistical Analytics (CSA)
  ■ Systems Engineering & Integration (SEI)

More about:
NSIP - http://science-ed.pnnl.gov/nsip
NGSI - https://www.pnnl.gov/nsd/ngsi/index.stm
NSIP Program Manager: Marisela Linares-Mendoza - Marisela.Linares-Mendoza@pnnl.gov

November 2, 2015
Internships
Project-based positions

Undergraduate Technical Interns
► Students hired to work on specific projects or project teams
► 3-18 month internships per year in school, 20-40 hours per week
► Project pays for all time, students compensated at a premium to cover housing and travel.

PhD and Master’s Interns
► Master’s Interns are hired for a maximum of 3 years to perform work either related to their thesis or research area (short-term), or use PNNL’s resources or a component of a PNNL project as their thesis.
► PhD Interns are hired for a maximum of 5 years to perform work either related to their thesis or research area (short-term), or use PNNL’s resources to use a component of a PNNL project as their thesis.

Internship Contact: Fred Bond – Fred.Bond@pnnl.gov
Post-Graduate Research Associates

Post-Graduate Research Associates
Post-Graduate positions are offered to candidates seeking a work-based learning opportunity to either prepare them for an STEM career or their next step in a graduate degree program. Eligibility: Must have graduated with a degree from an accredited college within the last 2-5 years

Levels

- Post-Bachelor
  - Duration: 1-24 Months
  - Candidates must have received a Bachelor's degree within the past 24 months.

- Post-Masters
  - Duration: 1-24 Months
  - Candidates must have received a Bachelor's degree within the past 24 months.

- Post-Doctorate
  - Duration: 1-36 Months
  - Candidates must have received a PhD within the past five years.

Postdoctoral research associates play a vital role in completing the ongoing research objectives for projects across the Laboratory. Each of the four research directorates has a sizable postdoctoral researcher contingent collaborating on its projects. All postdoctoral researchers are hired as employees with a competitive salary and benefits, and most positions also have paid relocation.

Postdoc Program Expectations

- Postdocs should receive appropriate recognition for the contribution they make to the research enterprise. To ensure that postdoctoral appointments are beneficial to all concerned, all parties to the appointments—the postdoc, the adviser, the line manager, and the Laboratory—should have a clear understanding of the nature of the appointment and expectations.

PNNL Postdocs: Members of NPA

- Postdocs at the Laboratory have a free membership to the National Postdoc Association. PNNL has a sustaining membership, which allows any postdoc at PNNL to sign up for a free affiliate membership using his or her PNNL email address.

http://postdoc.pnnl.gov/
Linus Pauling Distinguished Postdoctoral Fellowship Program
PNNL's Linus Pauling Distinguished Postdoctoral Fellowship is designed for the next generation of scientists and engineers who will push the boundaries of science to world-recognized discoveries. This program is designed to raise the overall value of a postdoctoral experience at PNNL.

http://www.pnl.gov/pauling/

William Wiley Postdoctoral Fellowship
The purpose of the William Wiley Postdoctoral Fellowship is to attract high-performing, newly graduated, junior scientists who have the potential to become scientific staff at EMSL. The fellowship honors the distinguished career of Dr. William Wiley, the former director of the Pacific Northwest National Laboratory and visionary leader of EMSL. Candidates must display superb ability in scientific research and must show definite promise of becoming outstanding leaders in the research they pursue.

https://www.emsl.pnl.gov/emslweb/wiley-distinguished-postdoctoral-fellowship
**NGSI Postdoctoral Fellowship**

The Next Generation has the objective of developing the next generation of technologies, policies, concepts, and experts to address the nuclear safeguards challenges that will faced by the United States and the international community. The Next Generation Safeguards Initiative (NGSI) postdoctoral positions have been established to attract high-caliber researchers to apply their skill set to the multi-disciplinary needs of safeguards and nonproliferation. NGSI post docs will participate in training and experiential activities that provide foundational understanding of safeguards as well as access to a network of safeguards experts.


**NSIP Postdoctoral Fellowship**

The National Security Internship Program (NSIP) offers academically superior undergraduate and graduate students the chance to take part in national security-related science. In addition to serving students, NSIP benefits PNNL and the nation by developing talented, creative researchers the national security experts of tomorrow who will augment the Laboratory's capabilities in key areas that include nuclear science, electrical engineering, computer science, physics and chemistry.


**Project-based Postdocs**

- [http://pnnl.jobs/jobs/?q=Post+Doctorate](http://pnnl.jobs/jobs/?q=Post+Doctorate)
Post-Graduate Project-based positions

Project Load
- 3-5 primary projects (70% of time)
- 5-20 secondary projects (25-30% of time)
- Proposed research

Project Work Options
- Technician Route
  - Works comes in, processed, work goes out, work comes in…
- Research Agenda Route
  - Track and monitor research activities, begin to plan your own agenda for research opportunities in the short and long terms.

Work Scheduling
- Flexible Schedules

Benefits/Compensation
- Competitive with other DOE Office of Science National Laboratories
- May include M/D/V benefits
- May include Relocation benefits

Post-Graduate Contact: Fred Bond – Fred.Bond@pnnl.gov
Questions?

Fred Bond
University Recruiter
fred.bond@pnnl.gov
(509) 372-6735

Pnnl.jobs