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Innovation.



**Pacific Northwest  
National Laboratory**

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U.S. Department of Energy



**Office of  
Science**  
U.S. DEPARTMENT OF ENERGY

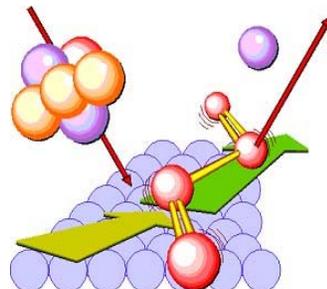
## Summer Research Institute

The Pacific Northwest National Laboratory (PNNL) in Richland, Washington, is inviting qualified applicants for an intensive summer research experience in Interfacial and Condensed Phase Chemical Physics.<sup>1</sup> This is an advanced program that focuses on

- Graduate students (M.S. and PhD)
- Postdoctoral Fellows
- University Faculty
- Students entering graduate school and promising seniors

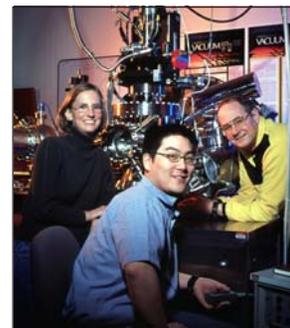
Participants will work alongside internationally known scientists on research projects. Projects will be structured to maximize the participant's training and experience with advanced theoretical and experimental techniques.

Interfacial and Condensed Phase Chemical Physics is inherently a multidisciplinary field. Thus participants with a wide range of backgrounds will be considered, including those in chemistry, physics, materials science and related biological sciences.



## Structure of Projects

As part of the selection process, the applicant and a prospective PNNL mentor will jointly create a proposed research project for the summer. This research may be part of a larger, existing program or it may become a new collaborative effort between PNNL staff and faculty at the participant's home institution.



*Research and mentoring tailored to each participant will help educate students and scientists to meet the demanding multi-disciplinary challenges of the future.*

## Interfacial and Condensed Phase Chemical Physics

Examples of Interfacial and Condensed Phase Chemical Physics research underway at PNNL include

- Molecular processes at the interfaces between solids, liquids, and gases
- High-energy processes at environmental interfaces
- Cluster models of the condensed phase
- Single-molecule spectroscopy and biological imaging
- Ultrasensitive and environmental analysis
- Chemical transformation and heterogeneous catalysis studies at the molecular level
- New experimental and theoretical approaches to geochemistry
- Biological, chemical, and materials aspects of nanosciences
- Models of solvation and molecular processes in aqueous systems
- Models of radiation processes and structural response in glasses and ceramics

## State-of-the-Art Research Facilities

The Summer Research Institute provides access to state-of-the-art research facilities and highly qualified staff such as in the world-class William R. Wiley Environmental Molecular Sciences Laboratory<sup>2</sup>

(EMSL), a U.S. Department of Energy national scientific user facility located on the campus of PNNL. Participants will also become familiar with other research opportunities provided in a national laboratory. Examples include those offered through the PNNL Science and Engineering Education Program<sup>3</sup> and the PNNL/University of Washington Joint Institute for Nanoscience.<sup>4</sup>

## Activities

The typical student research experience consists of 400 hours over a 10-week period. This includes 300 hours of research and laboratory time, 50 hours in research seminars and small group meetings, and 50 hours of special assignments, such as developing a white paper or poster. For established scientists, the special assignments typically involve additional collaboration time. Various social functions with other institute attendees, other students at PNNL, and research staff will be held during the summer.



*The William R. Wiley Environmental Molecular Sciences Laboratory (EMSL) at Pacific Northwest National Laboratory is the U.S. Department of Energy's newest scientific user facility.*

## Institute Dates and Application Deadline

Appointments in the Summer Research Institute will occur from May 2004 through September 2004. Start and end dates are flexible depending on the applicant's school or work schedule. Application deadline is March 15, 2004. Early applications are

encouraged. A maximum of 15 applicants will be accepted. Participants are expected to complete their entire program and demonstrate research skills commensurate with their education and professional experience. Researchers in PNNL's Chemical Sciences Division will review all applications and proposed research.

## Financial Aid

Participants may apply for financial support including research stipends, travel grants, and local housing expenses. Information about financial aid is provided on the Institute's homepage.

## Living Arrangements

Information about living arrangements in the community is provided on the Institute's homepage.



## Eligibility

Candidates will be evaluated based on their applications, letters of recommendation, proposed research, and resumes. Interested candidates are encouraged to contact Dr. Stephan Barlow, Director of the Institute. Participants must be U.S. citizens or foreign nationals with appropriate visa documentation.

As a condition of acceptance, all participants will sign an agreement documenting program and other expectations.

## Application Procedure

An application to the Summer Research Institute is available at <http://www.pnl.gov/si/>. Applications will be submitted online and screened, and candidates notified. Telephone interviews with some candidates will be conducted.

PNNL researchers can submit the names of potential candidates plus a short research proposal directly to the Institute.

An application can also be accessed through the PNNL Science and Engineering Education homepage found at <http://science-ed.pnl.gov>.

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### Footnotes

<sup>1</sup> (<http://www.pnl.gov/si/>)

<sup>2</sup> (<http://emsl.pnl.gov/>)

<sup>3</sup> (<http://science-ed.pnl.gov>)

<sup>4</sup> (<http://www.nano.washington.edu/pnnl/jin.asp>)

### For more information contact:

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