William R. Wiley
EMSL
Environmental Molecular Sciences Laboratory

The W.R. Wiley Environmental Molecular Sciences Laboratory, a national scientific user facility at Pacific Northwest National Laboratory, provides integrated experimental and computational resources for discovery and technological innovation in the environmental molecular sciences to support the needs of the U.S. Department of Energy and the nation.

Through its mission, EMSL staff and capabilities enable multidisciplinary approaches to complex scientific problems and provide a climate for advancement and education in the molecular and computational sciences. The user facility offers the research community, at one location, a comprehensive array of leading-edge resources available to users on a peer-reviewed proposal basis.

To submit a proposal for use of EMSL or to learn more about the science conducted at EMSL and the instruments and expertise available to users, visit http://www.emsl.pnl.gov. If you have any questions, please contact EMSL User Services at emsl@pnl.gov.

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The W.R. Wiley Environmental Molecular Sciences Laboratory (EMSL) is a U.S. Department of Energy (DOE) national scientific user facility located at Pacific Northwest National Laboratory (PNNL) in Richland, Washington. EMSL is operated by PNNL for the DOE Office of Biological and Environmental Research.

Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy

Office of Science
U.S. DEPARTMENT OF ENERGY

Instrument Development Laboratory

A Perfect Fit

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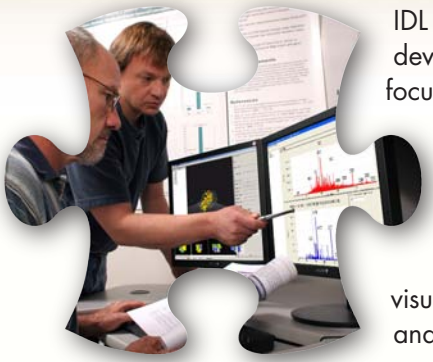
Instrument Development Laboratory

The Instrument Development Laboratory (IDL) designs, develops, and deploys advanced state-of-the-art instrument systems and custom application software in support of the ongoing experimental research efforts within the W.R. Wiley Environmental Molecular Sciences Laboratory, across the Pacific Northwest National Laboratory, and beyond. Capabilities include:

- **Engineering**
  - Design from circuits to systems
  - Custom electronics and instrumentation
  - Embedded systems
  - Robotics
- **Software development**
  - Image processing and pattern analysis
  - Laboratory automation
  - Remote operation
  - Data acquisition
  - Large-scale data management
- **Fabrication**
  - Circuit boards
  - Component integration
  - Custom enclosures
- **Facilities and equipment**
  - Fully equipped electronics development lab
  - Equipment checkout
  - Parts and supplies

Software



IDL software development focuses on data acquisition, laboratory instrument control, remote operation, visualization, data analysis, and modeling. The IDL designs modular, reusable software for rapid application development.

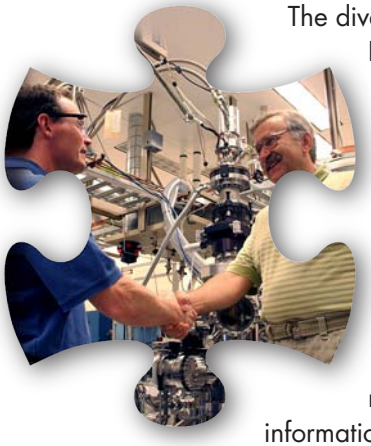
Hardware

The IDL has experts in analog and digital electronics as well as circuit fabrication. Devices can utilize radio frequency technologies and incorporate microcontrollers and field-programmable gate arrays. IDL hardware experts specialize in high-speed data acquisition, embedded systems, and robotics, but can meet almost any instrumentation need.

Design

EMSL staff and users can engage IDL staff from initial design through fabrication, testing, and final deployment. In addition, IDL staff can assist researchers in integrating their own experimental components into existing instrument systems.

Science



The diverse talents of the IDL ensure a perfect fit with the unique technological challenges that abound. IDL's experienced hardware and software experts have enabled research in fields ranging from informatics and proteomics to interfacial chemistry and fisheries sciences.

For additional details about the IDL, visit:
http://idl.emsl.pnl.gov.