EMSL

Environmental Molecular Sciences Laboratory

The William R. Wiley Environmental Molecular Sciences Laboratory (EMSL) is a U.S. Department of Energy (DOE) national scientific user facility. EMSL is the centerpiece of DOE's commitment to provide world-class research capabilities for enabling fundamental research on the physical, chemical, and biological processes that underpin critical scientific issues.

EMSL capabilities are used to address the fundamental science that will be the basis for finding solutions to national environmental issues such as cleaning up contaminated areas at DOE sites across the country and developing "green" technologies to reduce or eliminate future pollution production. The capabilities also are used to further our understanding of global climate change, environmental issues relevant to energy production and use, and health effects resulting from exposure to contaminated environments.

If you are interested in collaborating with our scientists or using the facility's resources, more information and specific procedures for becoming an EMSL user can be found at http://www.emsl.pnl.gov.

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Instrument Development Laboratory

DESIGN HARDWARE SOFTWARE SCIENCE

PERFECT FIT

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

U.S. DEPARTMENT OF ENERGY

Office of Science
U.S. DEPARTMENT OF ENERGY

William R. Wiley

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Instrument Development Laboratory

The mission of the Instrument Development Laboratory (IDL) is to design, develop, and deploy advanced state-of-the-art instrument systems and custom application software in support of the on-going experimental research efforts within the W.R. Wiley Environmental Molecular Sciences Laboratory. Capabilities include

- System design

- Circuit design

- Software development

- Instrument design

- Data analysis

- Data management

- Fabrication

- Electronic workbenches

- Instrument modification

- Automation

- Robotics

- Equipment checkout

- Parts and supplies

Software work in the IDL focuses on application development for data acquisition, laboratory instrument control, and programs to analyze and model experimental data. The approach is to develop modular, reusable software components which allow for rapid application development and modification that also integrate into the overall EMSL computing environment.

The IDL includes staff with expertise in electronic circuit design and fabrication. Designs include analog, high-speed digital and radio frequency technologies. Staff members work with researchers to provide key components and circuits that are unique or not otherwise available. IDL support on a project includes all steps from initial design through fabrication, testing and deployment. A growing fraction of this work involves helping users of the facility integrate experimental components they may bring with them into existing EMSL instrument systems.

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The diverse talents of the IDL are a *perfect fit* with the many unique scientific challenges to be found in the EMSL laboratory. Specific data acquisition or hardware control software is often needed to enhance an experimenter's project. IDL has an excellent software team. Unique circuits and instruments can be developed to interface with the software or stand alone as one of the researcher's tools. An experienced hardware team is available in IDL. Complete system design is also available from IDL for the users of the EMSL laboratory.

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