

National University Consortium Newsletter



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Questions or comments?

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Meet INL's new Laboratory Director

Dr. Peters is the director of Idaho National Laboratory and president of Battelle Energy Alliance LLC (BEA). His credentials and experience include leadership and management of large institutions with substantial efforts focused on technology research and development. Prior to joining BEA, Peters served as the associate laboratory director for Energy and Global Security at Argonne National Laboratory. Peters serves as a senior advisor to the Department of Energy on nuclear energy technologies, research and development programs, and nuclear waste policy.

As a recognized expert in nuclear fuel cycle technologies and nuclear waste management, Peters is called upon frequently to provide expert testimony to Congress and to advise in formulation of policies for nuclear fuel cycles, nonproliferation and nuclear waste disposal. He serves on the ANS Public Policy Committee and also served on the Executive Committee of the ANS Fuel Cycle and Waste Management Division.

In 2015, he was honored as a Fellow of the American Nuclear Society for outstanding accomplishments in the area of nuclear science and technology. In his earlier career, Peters had the opportunity to work in science and research positions at both Los Alamos National Lab and the California Institute of Technology. Peters received his doctorate in geophysical sciences from the University of Chicago and his bachelor's in geology from Auburn University. He has also received extensive management and leadership education and training, including completion of the Strategic Laboratory Leadership Program at the University of Chicago Booth School of Business.



**Mark T. Peters, Ph.D.,
Laboratory Director**

Laboratory Directed Research and Development (LDRD) 2015 Poster Session Winners



Lab Director Mark Peters discusses the third place poster team's project with them at the LDRD Poster Session

The seminal, annual Laboratory Directed Research and Development (LDRD) 2015 poster session was held Oct. 14–15 at the Energy Innovation Laboratory. At the event, the accomplishments of approximately 35 of the LDRD projects completed in fiscal years 2014 and 2015 were displayed.

INL Laboratory Director Mark Peters and many of his management team attended the poster session. Judges from across the laboratory that volunteered their time selected the winners. Peters met with several of the presenting principal investigators and presented the 2015 LDRD poster awards.

The winners of this poster session and links to the winning posters are:

First place – “Coupled-Smoothed Particle Hydrodynamics and Discrete Element Model Simulation of Hydraulic Fracturing and Shale Gas Production” by Hai Huang, Paul Meakin, Eric Robertson, Millind Deo (University of Utah) and Brian McPherson (University of Utah).

Second place – “Induction Based Fluidics Mass Spectrometry for Characterizing Radioactive Extraction Solvents” by Gary Groenewold, Elias Guerra and Bruce Mincher.

Third place – “Developing and Demonstrating Cost-Effective Ballistic Protection for Critical Electrical Assets” by Michael Baka, Todd Johnson, Henry Chu and Colter Angell

The LDRD poster session objectives are to increase

- Visibility of LDRD investments, project accomplishments and outcomes.
- Outreach to local and regional stakeholders.
- Connectivity of principal investigators to potential program managers and other collaborators across the laboratory.
- Recognition for LDRD projects, principal investigators and teams by INL leadership.
- Outreach to the scientific and technical community demonstrating INL’s capability to deliver high-quality science and technology.



University Partnerships

Idaho National Laboratory hosts students in an effort to help train the nation's next generation of scientists and engineers.

INTERN PROGRAM

INL annually hosts students in an effort to help train the nation's next generation of scientists and engineers. The largest concentration of internships occurs during the summer months. Involvement in world-class research provides participants with a set of experiences that support their education and career goals. Internship participants make genuine contributions to program goals. They may publish or co-author papers as well as present their research at INL, at conferences or their institutions. Additional benefits include providing a pipeline to employment, strengthening collaborations with academia and other DOE laboratories and creating opportunities for collaborative research. Interns participate in a wide range of enrichment activities during their assignment.

To be considered for an INL internship, students must:

- Be enrolled in an U.S. accredited college or university and have completed a minimum of 12 credits; graduated from college within six months; or graduated and are applying to a graduate program
- Pass a background check
- Have at least a 3.0 cumulative GPA
- Complete an application

Foreign national students may be eligible for internships if they can obtain a U.S. work authorization.

APPLICATION PROCESS

To apply, go to www.inl.gov/careers

Click on the "INL current career openings" link, locate posting 9244 and upload a single PDF file containing:

1. Current resume or curriculum vitae
2. Unofficial transcripts for all current and past degrees
3. Current class schedule, including number of credits

POSTDOC PROGRAM

Postdoctoral appointments are reserved for individuals that have recently received their qualifying doctorate degree and are provided a mentored research experience that enables these individuals the opportunity to gain hands-on laboratory research and development experience and the highest quality of training to prepare for transition to research independence.

Selected through a competitive bid process, INL postdoctoral research associates complete a one-to-three-year research experience that supports INL's science-based, applied engineering missions in nuclear and energy research. Science and national defense. As a result, INL postdoctoral research appointees contribute to national priorities for the U.S. Department of Energy's missions. These positions are full-time paid appointments and generally range from six to 37 months.

REQUIRED QUALIFICATIONS

- Ph.D. requirements must be completed by commencement of appointment and within the previous 5 years
- Demonstrated oral and published written communication skills
- A developing publication record

To apply for open POSTDOC positions:

[Postdoctoral Research Associate](#)

JOINT APPOINTMENTS

Joint appointees contribute to the mission of both their home and host institutions by developing or conducting research. Through the program, laboratory employees may teach courses and conduct research at partner universities or professors can work with INL on collaborative research projects.

The Joint Appointment Program strengthens INL's strategic objectives by increasing opportunities for research and development collaboration with universities.

Joint Appointees:

- Actively engage and align universities with the INL Research and Development mission and strategic objectives
- Bring recognized, meaningful and productive engagement of university capabilities to bear on the broader spectrum of INL research and development activities
- Extend the external visibility and recognition of the INL Joint Appointment Program to the relevant research communities
- Provide for joint INL and university participation in proposals that might otherwise exclude the involvement of federally funded research and development centers as lead applicants
- Further strategic relationships between INL and another research institution designed to help attract and retain top notch scientists and engineers

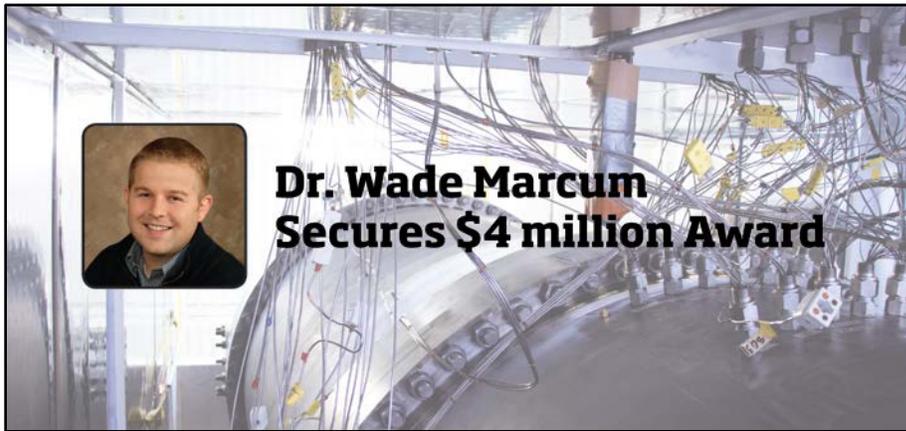
FACT SHEETS

[University Partnerships Fact Sheet](#)

[Internships Fact Sheet](#)

[Joint Appointment Fact Sheet](#)

[Russell L. Heath Distinguished Postdoctoral Appointment](#)



Dr. Wade Marcum Secures Funding for New Experimental Facility

Through a three-year, \$4 million [Integrated Research Project Award](#) from the U.S. Department of Energy, [Dr. Wade Marcum](#) will head a multidisciplinary team of researchers from academics, government, and industry in an effort to help restart the [Transient Reactor Test Facility \(TREAT\)](#) at the Idaho National Laboratory. As part of this effort, a new experimental facility will be built at Oregon State University's School of Nuclear Science and Engineering (NSE) where Marcum is an assistant professor.

Shut down since 1994, TREAT has the capability of testing fuel for both traditional light-water and sodium-cooled next-generation reactors through the use of fueled-experimental loops inserted within its core. Before the TREAT restarts it's necessary to evaluate existing data and to design and test the safety of proposed loop assemblies.

Marcum's team is composed of researchers from the University of Michigan, Massachusetts Institute of Technology (MIT), TerraPower, Harris Thermal Transport Products, and Oak Ridge, Idaho, and Argonne National Laboratories. Utilizing new computational tools, experimental instrumentation, and hardware advancements made in the nuclear field since 1994, they are "developing world-class experimental data which will be used to support evolutionary developments and advancements in safer, more efficient nuclear fuel options," said Marcum.

To accomplish this work, the team will be split into three groups led by Oregon State University, Massachusetts Institute of Technology, and the University of Michigan.

Marcum's Oregon State group, including NSE Professor [Brian Woods](#), will conduct a complete thermal hydraulic study focusing on the experimental loops placed within the TREAT Facility. This project will require construction of a new, one-of-a-kind, large-scale thermal hydraulic experimental facility at NSE.

Design work will start October of 2015 with fabrication slated for summer 2016. The new experimental facility is scheduled for delivery and installation in one of the NSE's thermal-hydraulic high-bay spaces by September 2016. With this facility, Marcum's team will be able to test a TREAT Facility loop prototype and yield experimental data that has never been collected.

The University of Michigan group led by Thomas Downar and William Martin, professors of Nuclear Engineering and Radiological Sciences, will focus on a comprehensive neutronics benchmarking analysis of both steady-state and transient conditions.

Following both the neutronics benchmarking and Oregon State's prototype experimentation, the MIT team in conjunction with Oregon State will design and develop a TREAT Facility instrumentation plan. The MIT group will be led by Lin-Wen Hu, the associate director of research development and utilization at the MIT Nuclear Reactor Laboratory, and research scientist David Carpenter.

Throughout the project, all three groups will work closely with representatives from the national labs and industry working on the TREAT Facility restart, to facilitate the most relevant and impactful outcomes possible. These outcomes will support the licensing of next generation reactors that will provide baseload power more efficiently and safely.