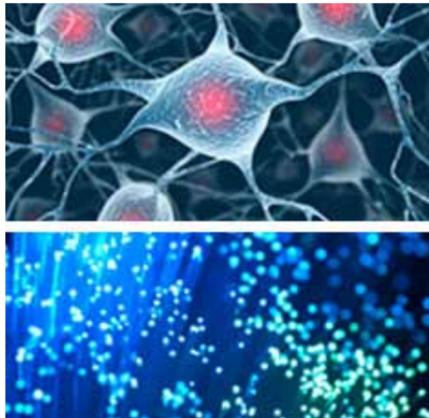




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ASL Expands Research Team

Ever wonder what you could learn from a "Brain in a Dish"?



The Applied Sciences Laboratory is pleased to welcome our newest Research Scientist, Dr. Parijat (Pari) Sengupta, an accomplished biophysicist. Dr. Sengupta's research is focused on the discovery of unique solutions for psychiatric and neurodegenerative disorders. Building on her expertise in both the biological sciences and the physical sciences, she is developing tools to better understand and treat Alzheimer's and Parkinson's disease, blast-induced traumatic brain injury, and depression. To study brain function, Dr. Sengupta grows a model neuronal network in a petri dish, in essence a "brain in a dish". The newly established ASL *Biophysics* and *Neurophotonics* research program combines ASL's unique expertise in the physical sciences with the health sciences to build an innovative biomedical research program.

Dr. Sengupta's move to ASL increases opportunities for strategic industry-academic partnerships in biomedical research and innovation in the greater Spokane area. Thus, engaging technology and information transfer to the community to spur economic growth



ASL and Avista Partnership

Producing Energy in a Healthy Environment

The ASL and Avista partnership continues to flourish. ASL is developing tools for Avista to enhance their work in protecting and preserving our natural resources. Current projects, led by Dr. Thomas Chastek, include identifying environmentally friendly hydraulic fluids and using emerging technology to detect pollutants.

"At Avista, our goal is to provide energy for today's customers while preserving the ability of future generations to meet their own energy needs. We work daily for the health and viability of our rivers, natural resources, and the environment where we do business. We are constantly looking for more effective and efficient tools to meet these needs and believe that our partnership with WSU's Applied Sciences Laboratory will play a significant role in our future success."

David Holmes, Avista Manager of Applied Research and Development

ASL researchers rigorously test and compare commercially available, eco-friendly hydraulic fluids to provide evidence that strict performance requirements are being met. Moreover, the polymer chemistry expertise at ASL is being used to formulate new hydraulic fluids that better address Avista's environmental and performance needs.

In addition, ASL researchers are working with Avista to develop instrumentation that can detect polychlorinated biphenyls (PCBs). PCBs are persistent pollutants that can accumulate in our environment causing damage to aquatic wildlife and leading to a variety of health problems in humans. As such, it is imperative to identify PCBs in the environment to help alleviate exposure to wildlife and humans. ASL is using emerging technology to improve PCB detection, even at low concentrations.

New Projects



Clean Energy Production

In recent years, Dr. Chastek has made strong progress in evaluating and developing environmentally friendly hydraulic fluids for Avista. Based on this early success, CEATI International, a consortium of utility companies, has partnered with ASL to further examine "green" lubricants. Various environmental and performance aspects of lubricants will be explored. Developments from this research will be shared with utility companies worldwide to improve sustainable energy practices.



Improved Technologies for National Security

ASL is developing next-generation systems and technologies for National Security through the support of the Office of Naval Research (ONR). A new project explores transformative technologies for developing improved energetic materials. Using lasers, Dr. Hergen Eilers will devise novel pathways of breaking up energetic molecules into smaller parts and measure the energy released. The ability to identify and tailor the amount of energy released leads to performance improvements necessary to meet the Navy's future mission requirements.

Events

ASL Breakfast Meeting

What's New at ASL?

In early Fall, ASL will hold a breakfast meeting to provide an update on ASL's research projects, breakthroughs, and new areas of expertise. If you would like to be added to the breakfast guest list, please contact Vonneta Byington at 509-358-7700 or asl@wsu.edu.

2012 Greater Spokane Incorporated (GSI) Manufacturing Summit

ASL was pleased to be a Supporting Sponsor of the 2012 Greater Spokane Incorporated (GSI) Manufacturing Summit. The summit was attended by over 150 manufacturers and community partners throughout the region. ASL researchers showcased their expertise in corrosion prevention, materials characterization, and specialized polymer applications. This event provided a great opportunity to interact with dynamic manufacturers. We look forward to building these relationships to provide regional manufacturing companies access to state-of-the-art equipment and to technical expertise to increase their competitiveness.

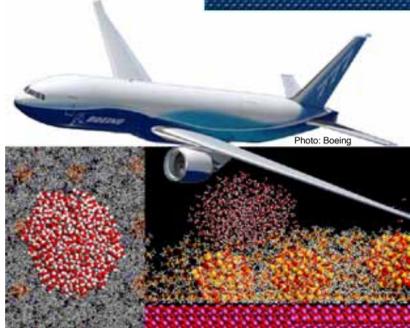


Local Students Explore the World of Nanomaterials

Local university students are gaining valuable summer research experience through participation in projects ranging from nanomaterial formulation to paint spray simulations.

- Josué Calderon, a Spokane native and recent Whitworth University graduate. This fall he will begin graduate studies in Aeronautical Engineering at the University of Washington.
- Ismael Perez, a Gonzaga University student, from Long Beach, Washington.
- Taylor Powell, a Whitworth University student, from Bellevue, Washington.
- Riley Stevens, a Spokane native and West Virginia University student.

Research Update



Next Generation Materials for Boeing

The ASL and Boeing partnership, led by Dr. Santanu Chaudhuri, is aimed at developing novel materials for the aerospace industry. The areas of ongoing research include:

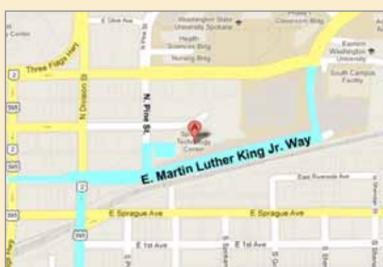
- eco-friendly corrosion prevention solutions
- identification of anti-icing surfaces
- design of next-generation paints and coatings

Currently, ASL is developing new materials from conceptualization to deployment using high-performance computing and multiscale, multiphysics platforms. These new material solutions will change the pace of innovation in the aerospace industry, provide more environmentally friendly planes and create competitive advantages in an increasingly global aerospace market.



IED Detection

Dr. Hergen Eilers and his team are continuing the development of a laser-based technique to detect improvised explosive devices (IEDs). Explosive compounds release extremely small amounts of characteristic molecules into the air. ASL is using laser-based optical methods to pump energy into nitrogen molecules in the air to detect IED molecules from a safe distance. This detection method, once perfected, will be used by ONR to develop technologies to keep U.S. soldiers safe.



Visiting ASL

ASL is easy to find! Martin Luther King Jr. Way offers a connection between downtown Spokane and the WSU Riverpoint campus, creating greater visibility for ASL in the community and providing additional access to the ASL capabilities. ASL is located on the second floor of the Spokane Technology Center Building at 120 North Pine.

Take a tour of ASL's unique research facility by contacting Vonneta Byington at 509-358-7700 or asl@wsu.edu to schedule a personalized visit.

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