



ASL & Aerospace

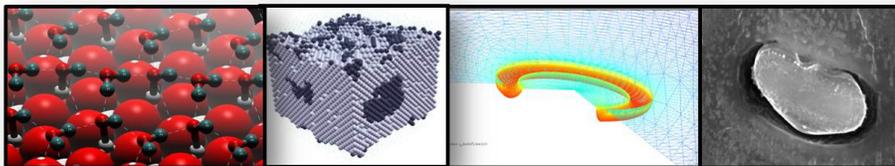
Advancing Innovation in the Region



Composites, Corrosion and Coatings

In partnership with regional aerospace companies, ASL is applying materials science expertise to accelerate innovation using composites and smart coatings for airplanes. By developing corrosion-resistant materials, such as composites, material durability increases and maintenance costs decrease. ASL is also working to enhance existing materials with smart coatings for corrosion resistance, ice suppression, and performance improvement. This effort is led by Dr. Santanu Chaudhuri and utilizes ASL's computational and experimental expertise.

For example, Dr. Shahryar Fotovati is using computer simulations to determine how different cooling rates impact the manufacturing of composite airplane parts. Eventually, Dr. Fotovati's Conjugative Heat Transfer model will be coupled with a solid mechanics model to identify stress concentration and temperature induced shape changes in aerospace composites.



Corrosion Control: New solutions from computer to laboratory

JCATI Support

The research activities described above are supported by the Washington State Joint Center for Aerospace Technology Innovation (JCATI), a multifaceted organization established by the governor to improve aerospace research, innovation and education in Washington State. ASL's first JCATI grant supported a partnership with Triumph Composite Systems in Spokane. In June, the ASL and Triumph partners participated in JCATI's inaugural symposium: "The Future Aerospace Industry in Washington". This summer, Dr. Chaudhuri continues his research with a new JCATI grant focused on corrosion-resistant metal alloy design in partnership with the Boeing Company.

ASL Events

This fall, ASL will host its semiannual update event to inform the Spokane community of ASL activities. We hope that you will join us! To be placed on our invitation list, please contact Robin Durfee (509) 358-7700 or e-mail your contact information to asl@wsu.edu.



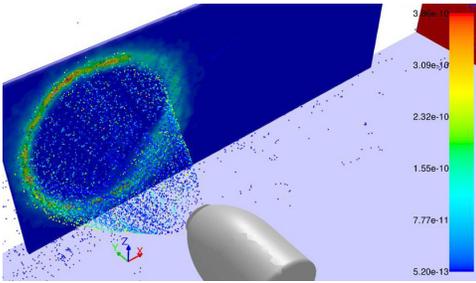
Spring Meeting Recap

On April 25, 2013, ASL welcomed the Spokane community and business leaders for its semiannual update meeting. Participants were provided an overview of current research projects. Additionally, James Mundy, Sr., Manager of New Products and Technology at Triumph Composite Systems (TCS), discussed the TCS-ASL partnership. To conclude the breakfast meeting, Dr. Atakan Peker outlined plans for the development of a new materials processing facility at ASL.



Ongoing at ASL

Continuing Industry Support

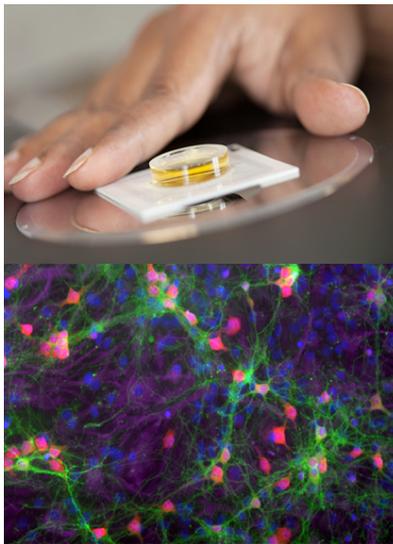


3D Modeling of paint spray technologies

In May, Dr. Santanu Chaudhuri was honored by the Ford Motor Company with the distinctive University Research Program (URP) award. The URP award supports the advancement of automotive paint spray methodologies. The collaboration between Ford Motor Company and ASL will lead to the deployment of state-of-the-art coatings for automobiles and novel paint-spray technologies.

Developing a Drug Screening Surveillance System

As new neurological drugs progress into clinical trials, there is a need to speed up the testing process to prevent the inclusion of unsafe drugs and the exclusion of potentially effective therapeutics. This need drives Dr. Parijat Sengupta's research toward the development of specific, reliable and coupled toxicity-efficacy tests that can be used to improve drug safety and reduce the cost of drug development. The image to the right is an example of an Alzheimer's-like neuronal network capable of light-induced communication -- a new model that will ultimately provide a transformative drug screening surveillance system for the future.



Materials Characterization Equipment Facility

ASL has state-of-the-art materials characterization equipment available for industry use. ASL also offers consulting and testing service packages that can be customized to meet your company's unique needs.

ASL service packages include preparation, testing, and technical support. Available equipment serves the following applications:



- Chemical Bonding and Composition
- Elemental Information
- Imaging
- Material Properties Analysis
- Reliability
- Materials Processing

Visit <http://tinyurl.com/k8r8qk3> for detailed equipment information.

New Hires

Postdoctoral Research

Gerhard Castro, Ph.D.

Dr. Peker's Research Group

Dr. Castro earned his Ph.D. in Materials Science from the University of Southern California. His thesis was focused on synthesis and characterization of syntactic metal foams. Dr. Castro is experienced in metallurgical laboratory operation including high-temperature furnaces.

Aslihan Sumer, Ph.D.

Dr. Chaudhuri's Research Group

Dr. Sumer came to ASL from the Argonne National Laboratory in Illinois. Dr. Sumer has a Ph.D. in Chemical Engineering from Bogazici University, Istanbul, Turkey. Her expertise is in computational materials design, modeling, catalytic activity and selectivity of nanoparticles, and electronic structure calculations.

Engineering

Sara Waters

Dr. Chaudhuri's Research Group

Ms. Waters received her Master of Science degree in Materials Engineering from the New Mexico Institute of Mining and Technology. Ms. Waters joins ASL as an operations engineer specializing in composites and chemical formulations.

Administrative

Morgan Ramey

Ms. Ramey graduated from Washington State University with a Bachelor of Arts in Communication with an emphasis in Public Relations. Ms. Ramey joins ASL as an administrative coordinator.



L to R: Aslihan Sumer, Gerhard Castro, Sara Waters, Morgan Ramey

ASL & Spokane

INWAC - Inland Northwest Aerospace Consortium

In support of Spokane's efforts to advance the aerospace industry in the Inland Northwest, ASL maintains a membership with the Inland Northwest Aerospace Consortium (INWAC). ASL and other INWAC companies in Eastern Washington and Northern Idaho share the vision of positioning aerospace as one of the region's premier industries.



GSI - Greater Spokane, Inc. 2013 Manufacturing Expo

In May, ASL hosted a booth at GSI's 2013 Manufacturing Expo. The event was a combined manufacturing expo and career fair that offered manufacturers and suppliers the opportunity to connect and grow their businesses.

Come Visit Us At ASL

ASL is located on the second floor of the Spokane Technology Center Building at 120 North Pine on the thriving Spokane Riverpoint Campus. The cross street is the picturesque Martin Luther King Boulevard. To schedule a personalized visit and take a tour of the unique research facilities at ASL, contact Robin Durfee at 509-358-7700 or asl@wsu.edu.



Photo courtesy of the University District Development Agency

Summer Interns

Jonathan Merkel

Mechanical Engineering
Gonzaga University

Jonathan was part of the ISP Summer Undergraduate Research Experience (SURE) program funded by the U.S. Department of Energy. He spent his summer working on Dr. Hergen Eilers' optical sensor project. The goal of the project is to develop a method to measure the temperature inside explosive fireballs used for the neutralization of biological agents. Using a non-laser based fluorescence spectroscopy setup, Jonathan collected sample fluorescence data and recorded the optical spectra for future analysis.



L to R: Jonathan Merkel, Samantha Arnot, Daniel Ludwig

Samantha Arnot

Materials Engineering
Washington State University

Daniel Ludwig

Mechanical Engineering
Washington State University

Samantha and Daniel were involved in the JCATI program which focused on aerospace composite research. They assisted with several experiments using salt fog environmental testing, immersion testing, and electrochemical impedance spectroscopy. The purpose of these experiments is to quantify corrosion-induced damage in fiber-reinforced composites.