

Dr. Jacob Leachman



Jacob (Jake) Leachman is an Assistant Professor in the School of Mechanical and Materials Engineering at Washington State University (WSU). He received a B.S. degree in Mechanical Engineering from the University of Idaho in 2005 and a M.S. degree in 2007. His Master's Thesis has been adopted as the foundation for hydrogen fueling standards and custody exchange, in addition to winning the Western Association of Graduate Schools Distinguished Thesis Award for 2008. He completed his Ph.D. in the Cryogenic Engineering Laboratory at the University of Wisconsin-Madison in 2010 on the visco-plastic flow of hydrogenic materials for the fueling of fusion energy machines. He initiated the HYdrogen Properties for Energy Research (HYPER) laboratory at WSU in 2010 with the mission to maximize the utility of hydrogen in energy applications. Current HYPER laboratory projects include:

- Diagnostic twin-screw extrusion facility for the characterization of solidified thermonuclear fuel,
- Cryo-catalysis Hydrogen Experimental Facility (CHEF) to investigate techniques for orthohydrogen-parahydrogen manipulation,
- Cryogenic Rubotherm Isosorp 2000 for precision density and sorption measurements from 3–300 K,
- Crystal growing cryostat for antimatter (positron) moderation studies,
- Fundamental equations of state for the hydrogen isotopologues and cryogenic mixtures, and
- Construction of HYPER-L, a liquid hydrogen fueled Unmanned Aerial Vehicle (UAV).

He has conducted guest research in the Physical and Chemical Properties of Fluids Group at the National Institute of Standards and Technology (NIST), and the Pellet Fueling of Fusion Plasmas Group at Oak Ridge National Laboratory (ORNL). He is a member of the American Nuclear Society's Fusion Energy Division Executive Committee and the K7 Committee on Thermophysical Properties of the American Society of Mechanical Engineering.