

Joseph R. Gladden, Ph.D.

Associate Professor of Physics and Astronomy (2011-present)

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Dr. Joseph Gladden is group leader for the Resonant Ultrasound Spectroscopy lab at the National Center for Physical Acoustics and an Associate Professor of Physics and Astronomy at the University of Mississippi. He holds a M.S. in Physics from the University of Montana (1994) and a Ph.D. degree in Physics from Pennsylvania State University (2003).

While at Penn State University, Dr. Gladden worked under Dr. J.D. Maynard, where he focused on novel techniques in resonant ultrasound spectroscopy, gained extensive experience working with PVDF transducer design and resonance measurements and developed a new method for measuring the elastic tensor of a crystalline thin film. Dr. Gladden spent 2003 – 2005 as a postdoc in the Math Dept. at Penn State performing experiments on dynamic buckling of slender beams which are axially struck at high speeds by a rigid projectile and mechanical failure mechanisms of highly viscoelastic gels and living polymers. Since 2005, he has led the RUS lab at the National Center for Physical Acoustics at the University of Mississippi, where he is an Assistant Professor of Physics. Dr. Gladden is also the Faculty Advisor to the STEM Living Learning Community and a Faculty Fellow at the Residential College on the UM campus.

The current research interests of Dr. Gladden are high temperature and pressure (room temperature to 1000°C, vacuum to 150 atms.) elastic constant measurements and phase transitions in novel materials such as Zintl phase thermoelectrics and strongly correlated transition metal oxides. His lab recently found the first experimental evidence for a new theory on the thermodynamics of hydrogen in metallic hydrides. Other research interests include acoustics and self assembly dynamics in complex wormlike micellar fluids, and dynamic phases of granular systems.

Among Dr. Gladden's 19 published technical papers, four papers are in high impact journals such as *Physical Review Letters* and *Langmuir* and his work on micellar fluids was recognized in the *Physics News of 2007* which highlights about 20 important papers over the course of the year. He has also given 8 invited presentations at the Acoustical Society of America meetings including a keynote presentation on "Hot Topics in Physical Acoustics" in Nov. 2008. He has also delivered invited colloquia at Indiana University, The Naval Academy, the University of Mississippi, the University of the South, and Centre College.

Professional History

1994-1996 Physics Instructor, Virginia Episcopal School, Lynchburg, VA

1996-1999 Physics Instructor, The United World College, Montezuma, NM

2003-2005 Postdoctoral Fellowship at The Pennsylvania State University, Department of Mathematics.

2005-present Group leader of the RUS Lab at the National Center for Physical Acoustics and Assistant Professor of Physics, University of Mississippi