



*Michigan Institute  
for Plasma Sci-  
ence and Engi-  
neering Seminar*

## **From High Energy Density Laboratory Astrophysics to Extreme Materials Science: Pushing the Frontiers of Experimental Science**

**Dr. Bruce A. Remington**

**Lawrence Livermore National Laboratory**

**Wednesday, 29 September 2010 - 3:00 pm  
Room 1200 EECS Building**



### **Abstract**

Modern high power lasers and magnetic pinch facilities (“Z pinches”) have opened up a new class of experimental science, generically called high energy density physics (HEDP). The range of HED science currently under investigation or planned is very broad. Examples include the study of supernova explosion hydrodynamics; collisionless shocks in interstellar space; relativistic electron-positron pair plasmas; gamma-ray burst dynamics; x-ray photoionized plasmas in accreting black holes; planetary physics; and material dynamics under extreme conditions. I will describe several examples from this new class of experimental science, and suggest some interesting possibilities for the future.

*About the Speaker:* Bruce Remington has been a staff physicist at LLNL in the Inertial Confinement Fusion (ICF) Program since 1988, and a Group Leader since 1996. He and his group work on laser driven, high energy density (HED) fluid instabilities, HED laboratory astrophysics, and solid-state dynamics at high pressures and strain rates. He received his BS degree from Northern Michigan University in 1975 and his PhD degree in nuclear physics from Michigan State University in 1986. He is a recipient of the APS-DPP Excellence in Plasma Physics Award for his work on ablation-front Rayleigh-Taylor instabilities, and he is a Fellow of the American Physical Society.

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**Featured Speaker for the 1<sup>st</sup> Annual MIPSE Graduate Student Symposium**  
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