

Physics & Astronomy Colloquium

Presents

Marcus Knudson

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Tuesday, October 31, 2017
4:10 pm, Webster Room 17

“Dynamic Compression as a Tool to Study Fundamental Problems of Matter at Extremes”

Dynamic compression experiments – involving extremely rapid, macroscopically well-defined compressions – provide a unique approach to examine the time-dependent response of condensed materials to extreme stress states. The well-defined timescales associated with dynamic loading enable investigation of the kinetics of processes such as stress induced structural changes, deformation and fracture, and chemical reactions.

Further, recent advances in dynamic compression capabilities are vastly expanding the density and temperature states accessible in laboratory experiments. These advancements are enabling experimental investigation of some outstanding, and scientifically very challenging, issues related to high energy density physics / warm dense matter. This talk will provide two specific examples of how dynamic compression can be used as a tool to study fundamental problems of matter at extremes: (i) a shock-induced phase transformation in cadmium sulfide single crystals and (ii) metallization of dense liquid hydrogen at planetary relevant conditions.

*Please meet our guest speaker and share in refreshments,
3:45-4:10 p.m. in the foyer on floor G above the lecture hall*

Host: Dr. Brian Saam