Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Ex vivo Characterization of Blast Wave Impact and Spinal Cord Tissue Deformation JUN CHEN, JIAN GAO, SEAN CONNELL, RIYI SHI, Purdue University — Primary blast injury on central nervous system is responsible for many of the war related casualties and mortalities. An ex vivo model system is developed to introduce a blast wave, generated from a shock tube, directly to spinal cord tissue sample. A high-speed shadowgraph system is utilized to visualize the development of the blast wave and its interaction with tissue sample. Surface deformation of the tissue sample is also measured for the analysis of internal stress and possible injury occurred within the tissue sample. Understanding the temporal development of the blast-tissue interaction provides valuable input for modeling blast-induced neurotrauma. Tracking the sample surface deformation as a function of time provides realistic boundary conditions for numerical simulation of injury process.

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Date submitted: 10 Aug 2010 Electronic form version 1.4