

Abstract Submitted  
for the DFD12 Meeting of  
The American Physical Society

**Density measurements in water using background oriented schlieren technique**<sup>1</sup> SHI QIU, CHUANXI WANG, VERONICA ELIASSON, University of Southern California — Undersea earthquakes, tsunamis and underwater explosions are examples of phenomena that cause compressible wave propagation in oceans leading to changes in density and pressure. Here, a direct impact method is used to generate a shock wave in a water-filled channel and the following changes in the density of the fluid is quantified using an extended background oriented schlieren technique. Background oriented schlieren technique relies on measuring variations in index of refraction in the fluid. A high-speed camera is used to capture multiple frames of the shock wave propagation. A code has been developed to quantify the change in index of refraction, and map it to the change in density. Results of density changes due to shock wave propagation in converging water-filled channels will be presented.

<sup>1</sup>Supported by Office of Naval Research through a MURI Grant Number N00014-06-1-0730 (Dr. Y.D.S. Rajapakse, Program Manager).

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Date submitted: 13 Aug 2012

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