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**Cavity Formation and Collapse in Stimulated Brillouin Scattering**[1] JAY FAHLEN, F.S. TSUNG, W.B. MORI, University of California, Los Angeles — Linear theory of stimulated Brillouin scattering (SBS) predicts higher laser reflectivities than are observed in experiments. Recently, Weber, Riconda, and Tikhonchuk (PRL **94**, 055005 (2005)) showed that one dimensional particle-in-cell (PIC) simulations of SBS in the strongly coupled regime develop long-lived density cavities after the occurrence of X-type wavebreaking. These density cavities are several laser wavelengths long and are capable of trapping laser energy within them. This poster presents one and two dimensional OSIRIS simulation results on strongly coupled SBS. The 1D results are in general agreement with the results of Weber et al.; however the 2D results indicate that in multi-dimensions the cavities exist for shorter times and their collapse strongly heats the plasma. These simulations demonstrate that cavity formation and collapse from SBS generates fast electrons and may be partly responsible for the reduction in laser reflectivity. The importance of electron kinetics to SBS for NIF conditions will also be discussed.

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Jay Fahlen
University of California, Los Angeles

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