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Energy balance in strong shock compressed low density SiO2 foam JAMES HAWRELIAK, RICKY CHAU, JON EGGERT, MARINA BASTEA, LLNL, THOMAS BOEHLY, LLE, GILBERT COLLINS, LLNL — Using a high intensity laser to drive a strong shock through low density silica aerogel foam we performed a series of impedance matching experiments to study the Hugoniot of low density SiO2 foam. Low density foams are being used and planned to be used as materials in complex integrated experiments to model astrophysical phenomena, particularly for the formation and growth of density driven hydrodynamic instabilities. The shock response of the low density foam is very important to the modeling, developing and interpretation of these experiments. We present recent data from shocks in low density SiO2 in which the shock front temperature exceeds >eV where the radiation flux can begin to play an important role in understanding the energy balance of the shock front propagation. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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