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Colliding shock waves induced by supersonic to subsonic transition of radiation in silica aerogel[1] ROBERTO COLON QUINONES, STEPHEN MURRAY, SHON PRISBREY, Lawrence Livermore National Laboratory — We have designed an experiment to be carried out at the Omega EP laser facility to study the behavior of colliding shock waves in SiO_2 aerogel. The target package is comprised of a silica foam cylinder with tantala (Ta_2O_5) foam caps, which is exposed to a radiation drive of ˜100 eV created by a laser-driven hohlraum. The tantala caps limit the radiation flux to enter the SiO_2 foam cylinder radially, generating a converging Marshak wave in the cylinder. As the supersonic radiation wave slows down to the silica's speed of sound, a radially converging shock wave is generated. The interaction of the converging shock wave with itself at the center of the cylinder generating the conditions of interest. The goal of this experiment is to demonstrate that the interaction of shock waves produced by the supersonic-to-subsonic radiation transition can be accurately simulated with the radiation hydrodynamic code KULL.

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