

Abstract Submitted
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Laser Backscatter and Propagation in Low-Density Ta₂O₅ and SiO₂ Foams¹ DEREK MARISCAL, SIDDARTH PATANKAR, CLEMENT GOYON, KEVIN BAKER, STEPHAN MACLAREN, JIM HAMMER, TED BAUMANN, PETER AMENDT, JOSEPH MENAPACE, ROBERT BERGER, LLNL, BEDROS AFEYAN, Polymath Research Inc., MAX TABAK, SUNG HO KIM, SHAM DIXIT, JOHN MOODY, OGDEN JONES, LLNL, LLNL TEAM, POLYMATH RESEARCH INC. COLLABORATION — Recent experiments at the Jupiter Laser Facility at LLNL have investigated the propagation and backscatter of a laser in low-density foams (2-30 mg/cc) comprised of Ta₂O₅ and SiO₂. The foams fill the volume of thin polyimide tubes (2 mm diameter, 0.5-2 mm length), while the laser is directed down the axis of the tubes. Time-resolved Stimulated Brillouin Scattering (SBS) spectrum, time-integrated Stimulated Raman Scattering (SRS) spectrum and power were measured in the focusing cone. In addition Near Backscatter Imaging (NBI) assessed SBS outside the focusing cone while X-ray diagnostics were used to assess laser propagation through the foams. While this experiment uses a 2-omega laser drive, the pulse shape, irradiance, and the ratio n_e/n_c are scaled to be similar to future tests using Ta₂O₅ foams at the NIF. Experimental results are directly compared to calculations of laser propagation and backscattered spectra.

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