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Effects of Cross-Beam Transfer on the Competition between Stimulated Brillouin and Raman Scatter RICHARD BERGER, J. MOODY, P. MICHEL, Lawrence Livermore National Lab, R. TOWN, C. THOMAS, L. DIVOL, D. CALLAHAN, N. MEEZAN, S. GLENZER, E. WILLIAMS, D. STROZZI, Lawrence Livermore National Lab, J. KLINE, Los Alamos National Laboratory — Stimulated Brillouin backcatter (SBS) measurements in NIF hohlraum targets are shown to scale with the calculated SBS gain with a threshold for significant SBS from the 30° beam for a gain of about 20 or a laser intensity of 6-7 x10^{14} W/cm^2 for the simulated plasma conditions. This SBS gain threshold is consistent with previous measurements of SBS from laser beams that had polarization smoothing and SSD. The SBS measurements are interpreted as scatter from the slow ion-acoustic mode in the CH-capsule-ablator plasma. Previous experiments with similar laser intensity and plasma parameters but lower ion temperature generated SBS from the fast ion-acoustic mode. (Froula PRL **101**, 115002 (2008), Neumayer PRL **100** 105001 (2008)). We will review and interpret the dependence of SBS on gas-fill density, air condensation on the laser entrance hole, peak laser power, and cross-beam power transfer. This last process (Michel, PRL **102**, 025004 (2009)) causes the power at focus to have large scale nonuniformity that favors stimulated Raman scatter over SBS. F3D simulations will be presented with models of cross beam power transfer that affect the relative amounts of SRS and SBS.

Richard Berger
Lawrence Livermore National Lab

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