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pF3D Simulations of SBS and SRS in NIF Hohlräum Experiments

STEVEN LANGER, DAVID STROZZI, PETER AMENDT, THOMAS CHAPMAN, LAURA HOPKINS, ANDREA KRITCHER, SCOTT SEPKE, Lawrence Livermore Natl Lab — We present simulations of stimulated Brillouin scattering (SBS) and stimulated Raman scattering (SRS) for NIF experiments using high foot pulses in cylindrical hohlraums and for low foot pulses in rugby-shaped hohlraums. We use pF3D [R. L. Berger et al., *Phys. Plasmas* **5**, 4337 (1998)], a massively-parallel, paraxial-envelope laser plasma interaction code, with plasma profiles obtained from the radiation-hydrodynamics codes Lasnex and HYDRA. We compare the simulations to experimental data for SBS and SRS power and spectrum. We also show simulated SRS and SBS intensities at the target chamber wall and report the fraction of the backscattered light that passes through and misses the lenses. Work performed under the auspices of the U.S. Department of Energy by LLNL under Contract DE-AC52-07NA27344. Release number LLNL-ABS-697482.

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