Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Enhancing the SRS model in pF3d to simulate off-resonant backscatter in NIC targets C.H. STILL, E.A. WILLIAMS, D.E. HINKEL, A.B. LANGDON, P.A. MICHEL, LLNL — Of particular interest to the National Ignition Campaign (NIC) is the amplification of laser backscatter, which is generated near the target wall, by crossing laser beams in the plasma region near the laser entrance hole (LEH)[1] of an ignition target. We study here the amplification of stimulated Raman scatter (SRS), where laser light scatters off self-generated electron plasma waves. Recently, we have incorporated an SRS model that supports two electron plasma waves at different frequencies (and hence two reflected light waves) into the laser beam propagation code pF3d.[2] This enables simulations which include a secondary SRS wave matched to the least damped mode in the LEH as determined by post-processing radiation-hydrodynamics simulations. Such a simulation also entails calculating the off-resonant amplification. Thus, we have enhanced the SRS model in pF3d to improve the accuracy of modeling the off-resonant response. We report on the enhancements to the SRS model, implementation, and the results of two SRS group simulations with one mode the primary SRS backscatter and one matched in the LEH plasma. LLNL-ABS-414822 prepared by LLNL under contract DE-AC52-07.

[1]P. A. Michel, private communication.
[2]C. H. Still, *et al.* IFSA Proceedings (2009)

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Date submitted: 19 Jul 2009 Electronic form version 1.4