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Scaling of the Time Dependent Stimulated Raman Scattering (SRS) with Incident Power in Ignition Target R.K. KIRKWOOD, J. MOODY, D. HINKEL, P. MICHEL, L. DIVOL, D. CALLAHAN, J. KAY, N. MEEZAN, E. WILLIAMS, S. GLENZER, L. SUTER, O. LANDEN, B. MACGOWAN, LLNL, Y. LIN, J. KLINE, H. ROSE, B. ALBRIGHT, LANL — SRS saturates at a level that allows $> 85\%$ energy coupling to targets in the National Ignition Campaign (NIC) with up to 1.3 MJ incident. When energy is increased from 1.0 to 1.3 MJ in hohlraums with Symcap capsules the SRS energy reflectivity changes little. But in early and late time periods, for which the plasma conditions are significantly different, the power reflectivity (R) is also different and a nearly linear increase of R with incident power is seen at late time. These data are compared with VPIC and Hydra simulations and models of the power transfer between the beams that predict the SRS R [1,2]. Simulations over a 0.07 x 0.5 mm region of the late time profile that is expected to have rapid SRS growth show R rising rapidly and becoming nearly independent of intensity under NIC conditions. Simulations over a wider 0.5 x 0.5 mm region of the profile show R increasing nearly linearly with intensity as less active regions of the plasma are also driven into saturation. Multi-beam SRS experiments at Omega with similar normalized plasma conditions will also be described.

[1] R. K. Kirkwood et al, Phys. Plasmas, 18, 056311 (2011)
[2] L. Yin, et al Phys. Plasmas, 15, 013109 (2008), and invited.

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