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SRS analyses of direct-drive ICF experiments at the National Ignition Facility[1] P. MICHEL, Lawrence Livermore National Laboratory (LLNL), M. ROSENBERG, Laboratory for Laser Energetics (LLE), University of Rochester, J. MYATT, A. SOLODOV, W. SEKA, LLE, T. CHAPMAN, LLNL, M. HOHENBERGER, LLE, L. MASSE, C. GOYON, D. TURNBULL, LLNL, S. REGAN, LLE, J.D. MOODY, LLNL — A series of planar target experiments was recently conducted at the National Ignition Facility (NIF) to study the laser-plasma interactions processes responsible for the production of suprathermal electrons, and their scaling from experiments at the Omega facility to full-scale ICF experiments at the MJ level on the NIF [1]. We will present experimental analyses and simulations of Stimulated Raman Scattering (SRS) in these planar target experiments. Our work indicates the presence of purely backscattered SRS refracted off nearly one-dimensional density gradients, as well as more complicated features such as side-scatter and scattering from non-1D features (e.g. edges) in the target. Simulations using ray- and paraxial-wave- based simulation codes are used to extrapolate the hot electron fraction from the SRS measurements, and point to SRS being the primary mechanism for the generation of suprathermal electrons in these experiments. We will also present analyses of spherical implosions experiments and provide extrapolations and implications for future full-scale direct-drive experiments at NIF. [1]: M. Rosenberg et al., this conference.

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Pierre Michel
Lawrence Livermore National Laboratory

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