

Abstract Submitted
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Mechanisms of stimulated Raman scattering in direct-drive plasmas¹ JASON MYATT, STEVEN HIRONAKA, Univ of Alberta, ANDREY SOLODOV, MICHAEL ROSENBERG, RUSSELL FOLLETT, Laboratory for Laser Energetics, University of Rochester, NY, WOLF SEKA, Retired — Planar target experiments performed at the National Ignition Facility (NIF) suggest that stimulated Raman scattering (SRS) is dominant at the ignition scale [M.J. Rosenberg *et al.*, PRL **120** 055001 (2018)], and that the subsequent preheat can be near levels which degrade the performance of directly driven implosions [A.A. Solodov *et al.*, Phys. Plasmas **27** 052706 (2020)]. Definitive conclusions require a valid extrapolation of the observed scattered light and a detailed understanding of the contributions of several instability processes. To help resolve this, recent experiments on the OMEGA EP laser in which similar SRS signatures were observed at scale-lengths intermediate between NIF and OMEGA were analyzed using a new ray-tracing model. The model allows the various SRS contributions to the observed scattered light spectrum to be determined. The relevance to ignition-scale plasmas and implications for preheat will be presented.

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