

Abstract Submitted
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Self-Consistent Calculation of Half-Harmonic Emission with an Electromagnetic Zakharov Model J. ZHANG, J.F. MYATT, A.V. MAXIMOV, R.W. SHORT, Laboratory for Laser Energetics, U. of Rochester, D.F. DUBOIS, D.A. RUSSELL, Lodestar Research Corp., H.X. VU, U. of California, San Diego — Half-harmonic emission has been regarded as a signal of two-plasmon decay or stimulated Raman scattering (SRS). Experimental observations at the Omega Laser Facility show both blue and red shifts of half-harmonic light. The red shift might be a powerful diagnostic tool to measure electron temperature near quarter-critical density.¹ However, the interpretation of the half-harmonics spectrum is difficult because of its complicated generation mechanism. To resolve this problem, a self-consistent electromagnetic Zakharov code that is able to calculate half harmonics emission has been developed, including all the possible generation mechanisms such as absolute SRS, Thomson down-scattering, linear mode conversion, and nonlinear mode conversion.² This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

¹W. Seka *et al.*, Phys. Fluids **28**, 2570 (1985); W. Seka *et al.*, Phys. Rev. Lett. **112**, 145001 (2014).

²D. F. DuBois, D. A. Russell, and H. A. Rose, Phys. Rev. Lett. **74**, 3983 (1995); D. A. Russell and D. F. DuBois, Phys. Rev. Lett. **86**, 428 (2001).

A.V. Maximov
Laboratory for Laser Energetics, U. of Rochester

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