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Kinetic simulations of laser-plasma interaction in realistic plasma profiles[1] A. BRUCE LANGDON, DENISE E. HINKEL, Lawrence Livermore National Laboratory — Kinetic (particle-in-cell) simulations of laser-plasma interaction have been performed using density and velocity profiles obtained from radiation-hydro calculations. Because the size of the system, and the density range, are unusually large for PIC simulations, it is possible to see the competition of many processes across the profile. For one, light from Raman scatter propagates down the gradient to its quarter-critical density and there undergoes a second Raman decay. This depletes the light available experimentally to diagnose the initial Raman process. Roles of ion response in evolution of Raman scatter are illustrated via synthetic streak diagnostics and animations.

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