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**Dependence of Cross-Beam Energy Transfer on Plasma Density and Beam Crossing Angle**[1] DAVID STARK, LIN YIN, B. J. ALBRIGHT, ALEX SEATON, ROBERT BIRD, Los Alamos National Laboratory — Cross-beam energy transfer (CBET) is the process by which two crossing laser beams transfer energy between one another through stimulated Brillouin scattering (SBS). Understanding the nonlinear saturation of CBET, including the effects of wave-particle interaction, the excitation of secondary instabilities such as stimulated Raman scattering (SRS) and forward SRS (FSRS), and speckle geometry, is important to controlling low-mode asymmetry in ICF implosions. In this work, particle-in-cell simulations using VPIC are performed to characterize the SRS and FSRS in a CBET-amplified multi-speckled beam across a range of plasma densities that commonly occur in ICF experiments. Furthermore, variations in crossing angle between the pump and probe beams alter ion trapping in the ion acoustic wave as well as ponderomotive effects. The influence of the above kinetic and fluid processes on CBET saturation will be presented.

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David Stark
Los Alamos National Laboratory

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