

Abstract Submitted  
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**Influence of binary particle collisions on trapped particle nonlinearities and the onset of stimulated Raman backscatter in the kinetic regime**<sup>1</sup> S.M. FINNEGAN, L. YIN, B.J. ALBRIGHT, K.J. BOWERS<sup>2</sup>, J.L. KLINE, Los Alamos National Laboratory — The onset of stimulated Raman backscatter (SRBS) in a single laser speckle is examined in the kinetic regime using 1D and 2D VPIC [K. J. Bowers et *al.*, *Phys. Plasmas* **15**, 055702] simulations. A binary particle collision model [T. Takizuka and H. Abe, *J. Comput. Phys.* **25**, 205] is used to isolate and independently study the effects of like-particle (e-e) and pair-particle (e-i) collisions on trapped particle nonlinearities (e.g., frequency shift) in relation to SRBS onset, under conditions relevant to short-pulse ( $\sim 3$  ps at FWHM), single-speckle experiments at Trident [J. L. Kline et *al.*, *J. Phys.: Conf. Series* **112**, 022042]. Regimes of weak and strong collisionality are identified and collisional results are compared with those obtained in the collisionless limit [L. Yin et *al.*, *J. Phys.: Conf. Ser.* **112**, 022033].

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