Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Particle-in-Cell Simulation of Laser Plasma Interactions in Multiple Speckles with Temporal Bandwidth HAN WEN, BENJAMIN WINJUM, FRANK TSUNG, KYLE MILLER, ADAM TABLEMAN, WARREN MORI, Univ of California - Los Angeles — The widely used laser-smoothing techniques introduce small-scale structures (speckles) with higher-than-average intensities. The stimulated Raman scattering (SRS) instability is more likely to growth in the intense speckles. On the other hand, if the temporal bandwidth of the laser is comparable to the growth rate of SRS, the SRS may be reduced. To study the interaction of SRS and time-varying laser speckles in kinetic regimes, a general laser antenna has been implemented in particle-in-cell (PIC) code OSIRIS. This antenna is capable of modeling smoothing by spectral dispersion (SSD), induced spatial incoherence (ISI), and spike train of uneven duration and delay (STUD) pulse. Preliminary results of SRS affected by different laser-smoothing techniques are discussed. This Work is supported by NSF and DOE.

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Date submitted: 14 Jul 2017 Electronic form version 1.4