Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Particle-In-Cell Simulations of Efficient Raman Amplification in High Intensity Regime QING JIA, NATHANIEL J. FISCH, Department of Astrophysical Sciences, Princeton University — Backward Raman amplification (BRA) in plasma makes it possible to obtain the short pulse with higher output intensity beyond the existing CPA systems. Numerous analytic and simulation studies have been focused on this, together with some proof-of-principle experiments reported. However, most of the theoretical studies are done for one-dimensional geometry, which neglect the possible filamentation and diffraction of the pump and seed pulse. Here, by using the two-dimensional three-velocity particle-in-cell simulations, we explore in a very preliminary way to study certain higher dimensional aspects of the amplification process.

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Date submitted: 24 Jul 2015 Electronic form version 1.4