

Abstract Submitted
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Implementation of a Stimulated Raman Amplifier/Compressor in Plasma NIKOLAI YAMPOLSKY, NATHANIEL FISCH, SHUANGLEI LI, VLADIMIR MALKIN, ANATOLI MOROZOV, JUN REN, SZYMON SUCKEWER, ERNEST VALEO, Princeton University, RYAN LINDBERG, JONATHAN WURTELE , UC Berkeley — A plasma-based resonant backward Raman amplifier/compressor for high power amplification of short laser pulses should, in principle, convert almost all of the pump energy to the seed pulse.¹ However, while the theoretically possible efficiency of this scheme has not yet been achieved, accompanied by strong pulse compression larger efficiencies than ever before obtained experimentally are now being reported.² These higher experimental efficiencies may be due to favorable compensation between laser parameters, including the chirp of the laser, and the density variations of the mediating plasma. This compensation may extend the region of resonance. The physical mechanisms, which might produce these effects, will be considered in light of the experimental data. This work is supported by DOE grant DE-FG52-07NA28122.

¹V. M. Malkin, G. Shvets, and N. J. Fisch, Phys. Rev. Lett. 82, 4448 (1999).

²J. Ren et al, invited talk, this Bulletin

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