

Abstract Submitted  
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**Stimulated Raman Scattering (SRS) Driven by 30 fs Laser Pulse in Underdense Plasmas**<sup>1</sup> T. MATSUOKA, Y. HOROVITZ, C. MCGUFFEY, P.G. CUMMINGS, V. CHVYKOV, G. KALINTCHENKO, P. ROUSSEAU, F. DOLLAR, S.S. BULANOV, V. YANOVSKY, A.G.R. THOMAS, A. MAKSIMCHUK, K. KRUSHELNICK, CUOS U. of M. — Propagation of an ultra-short laser pulse in underdense plasma was studied in the parameter range relevant for laser wakefield accelerators (LWFA) at 100 TW laser power. Filamentation of the transmitted laser pulse observed with the transverse interferometry was well correlated with stimulated side Raman scattering (SSRS). Experimentally measured scattered light angle relative to the laser axis is well reproduced by an analytic formula for SSRS in the range of the experimental plasma densities. Spectra orthogonal to the laser pulse showed spatially modulated intensity profile and laser intensity dependent shift for Stokes light. 2D-PIC simulation showed the evolution of the laser pulse due to SSRS.

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