Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Optical properties of self-induced plasma structures ROTEM KUPFER, Department of Physics, The University of Texas at Austin, BORIS BARMASHENKO, ILANA BAR, Department of Physics, Ben Gurion University of the Negev — We show, using detailed particle-in-cell simulations and a simplified theoretical model, how to manipulate femtosecond laser produced plasma to form functional structures by using the interference pattern of two or more beams. Two examples will be presented: The use of Moiré pattern of two intersecting beams to create a waveguide array and plasma-made photonic crystal generated by two pairs of counter propagating beam. We will discuss the implications of this phenomenon to the prospect of plasma based lasers.

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Date submitted: 13 Nov 2014 Electronic form version 1.4