

Abstract Submitted  
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**Development of a compact 30 T magnetic field system for OMEGA**<sup>1</sup> G. FIKSEL, R. BACKHUS, P. MCNALLY, E. VIGES, M. VILLALTA, University of Michigan, Ann Arbor, MI, D. JACOBS-PERKINS, R. BETTI, LLE, University of Rochester, NY — Aiming at conducting studies of magnetized high-energy density plasmas in a high magnetic field, we are developing a compact system capable of creating a pulsed magnetic field of about 30T in a volume of several cubic centimeters. The system prototype will be tested at the University of Michigan and will be adopted afterwards for use at the OMEGA facility of the Laboratory for Laser Energetics (LLE) of the University of Rochester, NY. The system consists of a pulsed power supply situated outside of the Omega vacuum chamber and a magnetic coil inserted into the chamber with a diagnostic inserter. The power supply is based on a  $50\mu\text{F}/20\text{kV}$  storage capacitor and is capable of driving a pulse of current of up to 50kA through the coil. The power supply is connected with the coil via a low-inductive chain of power cables and a strip transmission line. The system electrical, magnetic, and thermal analysis will be presented along with the results of initial testing.

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