

DAMOP07-2007-000293

Abstract for an Invited Paper
for the DAMOP07 Meeting of
the American Physical Society

First light from the Diocles laser: Relativistic laser-plasmas and beams¹

DONALD UMSTADTER, University of Nebraska, Lincoln

Reported are first experimental results from a new high-power (150 TW) laser, Diocles, now in operation at the University of Nebraska, Lincoln. Discussed are novel approaches to using the ultra-high-intensity light from this laser to study relativistic laser plasma interactions. Bright, ultrashort duration (femtosecond) pulses of energetic (keV – MeV) x-ray and charged-particle beams are generated through these interactions. Also covered in this talk will be applications of these unique radiation sources for research in the physical sciences, as well as biomedicine, defense and homeland security.

¹In collaboration with S. Banerjee, N. Chandler-Smith, S. Chen, A. Ehlert, N. Powers, M. Rever, S. Sepke and K. Zhao. Supported by NSF, DOE, and DARPA.