Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Colliding plasmas in laser irradiated cavities studied with soft x-ray interferometry[1] JORGE FILEVICH, Colorado State University, MIKE PURVIS, JONATHAN GRAVA, MARIO C. MARCONI, JORGE ROCCA, CSU, JAMES DUNN, STEPHEN J. MOON, LLNL, VYACHESLAV SHLYAPTSEV, UC Davis, ELA JANKOWSKA, WUT, NSF ERC FOR EXTREME ULTRAVIOLET SCIENCE AND TECHNOLOGY, COLORADO STATE UNIVERSITY COLLABORATION, LAWRENCE LIVERMORE NATIONAL LABORATORY COLLABORATION, UNIVERSITY OF CALIFORNIA DAVIS AT LIVERMORE COLLABORATION, WROCLAW UNIVERSITY OF TECHNOLOGY, WROCLAW, POLAND COLLABORATION — Electron density maps of dense converging plasmas created by laser irradiation of semi-cylindrical and V–shaped targets at I = 1 x 10^{12} W/cm^2 were obtained with soft x-ray laser interferometry (λ = 46.9 nm). In the case of the cylinders, the plasma expands off the target surface converging in a focal region, creating a concentrated plasma where the electron density build-up exceeds 1 x 10^{20} cm^{-3}. The plasma in the V-shaped targets concentrates along the symmetry plane of the target where collisions redirect the plasma forming, early on in the evolution, a narrow jet-like plasma. The measurements were compared with simulations obtained using the code HYDRA.

[1]Work sponsored by the NNSA-SSAA program through DOE Grant # DE-FG52-060NA26152 and the U.S. DOE Lawrence Livermore National Laboratory through ILSA, under contract No. W-7405-Eng-48.

Jorge Filevich
Colorado State University

Date submitted: 24 Jul 2007 Electronic form version 1.4