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Collimation of laboratory plasma jets studied with soft x-ray laser interferometry MICHAEL PURVIS, JONATHAN GRAVA, JORGE FILEVICH, JORGE ROCCA, NSF ERC for Extreme Ultraviolet Science and Technology, Colorado State University, JAMES DUNN, STEPHEN MOON, Lawrence Livermore National Laboratory, VYACHESLAV SHLYAPTSEV, University of California Davis — The collimation of dense laboratory plasma jets created by laser irradiation of triangular grooves on Al, Cu, and Mo targets at I = 1 x 10 ^{12} W/cm^2 was studied combining 2-D electron density maps produced by soft x-ray interferometry and simulations. The jet is initiated by accelerated plasma from the vertex and is augmented by the sequential arrival of wall material along the symmetry plane, where it collides and is re-directed outward. The collimation of the jets is observed to significantly increase with the target's atomic number. The code HYDRA reveals that increased radiation cooling early in the plasma evolution and inertial effects are responsible for the increased collimation of the high Z jets. Work supported by the NNSA SSAA program through DOE Grant # DE-FG52-060NA26152 and the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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