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Soft x-ray interferometry study of radiation cooling and jet collimation in dense laboratory plasmas DUNCAN RYAN, Colorado State University, MICHAEL PURVIS, JONATHAN GRAVA, JORGE FILEVICH, JORGE ROCCA, ERC EUV TEAM — Collimated jets were observed in Al, Cu and Mo laboratory plasmas with peak densities of 10^{20} cm^{-3}. Short laser pulses of 10^{12} W cm^{-2}, 120 ps duration and 0.5-1.0 J at 800 nm were used to create dense plasmas from solid targets. Expansion of the plasmas from 90° triangular-grooved targets was probed using soft x-ray interferometry. Results were compared to simulations from the hydrodynamic code HYDRA. Radiation cooling was found to significantly increase the collimation of the jets. The collimation was furthermore observed to increase with higher Z materials. Preliminary results are also reported on similar studies of 90° concave conical targets at laser intensities of 3×10^{13} W cm^{-2} with peak densities of $> 10^{21}$ cm^{-3}.

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