

Abstract Submitted
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Investigation of the interaction between a supersonic, radiatively cooled, plasma jet with metallic foil targets LOUISA PICKWORTH, SERGEY LEBEDEV, FRANCISCO SUZUKI-VIDAL, SIMON BLAND, GARETH HALL, GEORGE SWADLING, MATTEO BOCCHI, GUY BURDIK, JOHN SKIDMORE, PHIL DE GROUCHY, LEE SUTTLE, MATHEW BENNETT, SIDHARTH PATANKAR, JERRY CHITTENDEN, NICOLAS NIASSE, Imperial College London, A. FRANK, University of Rochester — Presenting results from an experimental investigation into the interaction of supersonic, radiatively cooled plasma jets with solid targets. The jet is produced with a converging plasma flow from a radial foil array driven by 1.4MA, 240ns current pulse on the MAGPIE Z-pinch. The produced jet has scalable characteristics (Mach number of 20) that allow exploration of astrophysically relevant shock structures arising from the jets interaction with the target and pre ionized material from the target. The interaction with a foil target of the supersonic jet produces a reverse shock which has been initially documented with several diagnostics. These include; laser imaging and interferometry at 532nm and 355nm, spectroscopic analysis in both the optical and XUV regime, and Thompson probing through the target using the CERBERUS laser beam line to give spatially localized ion/electron plasma temperature in the shock front.

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