Abstract Submitted
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Interaction of radiatively cooled plasma jets with static gas and collimated supersonic gas jets[1] F. SUZUKI-VIDAL, S.V. LEBEDEV, J. SKIDMORE, M. BOCCHI, S.N. BLAND, Imperial College London, G. BURDIAK, J.P. CHITTENDEN, P. DE GROUCHY, G.N. HALL, A.J. HARVEY-THOMPSON, E. KHOORY, L.A. PICKWORTH, L. SUTTLE, G.F. SWADLING, Imperial College London, M. KRISHNAN, R.E. MADDEN, K.W. ELLIOT, Alameda Applied Sciences Corp, P.L. COLEMAN, Consultant, Philomath, OR, USA, A. CIARDI, Ecole Normale Superieure — The MAGPIE generator (1.4 MA, 240 ns) drives an ablative plasma from a thin Al foil. The convergence of the plasma from the foil on its axis leads to the formation of a supersonic plasma jet, with a typical velocity of ∼100 km/s. Jet-ambient interactions are studied either by injecting a highly-collimated, supersonic, cold gas jet above the foil using a nozzle, or by enclosing the foil inside a cell filled with neutral, static gas. In both cases, the plasma jet creates several shock features in the ambient medium. Experimental results from varied ambient parameters such as gas pressure and composition are presented together with 3-D MHD simulations.

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