

Abstract Submitted
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Radial foil Z-pinch experiments on the MAGPIE generator¹ P. DE GROUCHY, F. SUZUKI-VIDAL, S.V. LEBEDEV, G. SWADLING, G. BURDIK, S.N. BLAND, G.N. HALL, A.J. HARVEY-THOMPSON, E. KHOORY, L. PICKWORTH, J. SKIDMORE, J.P. CHITTENDEN, M. BOCCHI, Imperial College London, A. CIARDI, Ecole Normale Supérieure, M. KRISHNAN, Alameda Applied Sciences Corporation — The dynamics of plasma formation in a radial foil Z-pinch are presented. The experimental setup consists of a μm -thick aluminum disc held between two concentric electrodes and subjected to a 1.4 MA, 250 ns current pulse from the MAGPIE generator. The $J \times B$ force acts on the ablated plasma from the foil forming a region of enhanced density on the axis. This precedes the pinching of plasma from current-driven magnetic “bubbles”. The interaction of these features with an argon ambient ($N \sim 10^{16-17} \text{ cm}^{-3}$) from a supersonic gas nozzle (Mach ~ 9), particularly the formation of several shock structures will be presented and discussed.

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P. de Grouchy
Imperial College London

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