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Magnetically-Driven Radiative Shock Experiments for Laboratory Astrophysics THOMAS CLAYSON, SERGEY LEBEDEV, FRANCISCO SUZUKI-VIDAL, GUY BURDIAK, JONATHON HALLIDAY, JACK HARE, LEE SUTTLE, ELLIE TUBMAN, Imperial College London — We present results from new experiments, aimed at producing radiative shocks, using an "inverse liner" configuration on the MAGPIE pulsed power facility (1.4 MA in 240 ns) at Imperial College London in the UK. In these experiments current passes through a thin walled metal tube and is returned through a central rod on the axis, generating a strong (40 Tesla) toroidal magnetic field. This drives a shock through the tube which launches a cylindrically symmetric, radially expanding radiative shock in to gas surrounding the tube. Unlike previous converging shock experiments [1], where the shock is located within the imploding liner and thus only permits end on probing, this experimental setup is much more open for diagnostic access and allows shocks to propagate further instead of colliding of axis. Multi-frame self-emission imaging, laser interferometry, emission spectrometry and magnetic probes were used to provide a better understanding of the shock dynamics. Results are shown from experiments performed in a variety of gases (Ne, Ar, Kr, Xe 1-50 mbar). In addition, methods for seeding perturbations are discussed which may allow for the study of several shock instabilities such as the Vishniac instability. [1] G. Burdiak et al. Journal of Plasma Physics, **81(3)**, 365810301 (2015)

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