Abstract Submitted
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**Supersonic radiatively cooled rotating flows and jets produced by wire array z-pinches**[1] D.J. AMPLEFORD, Sandia National Laboratories , A. CIARDI, Observatoire de Paris, S.V. LEBEDEV, S.N. BLAND, S.C. BOTT, Imperial College London — A modification of the wire array z-pinch is used to produce a rotating shock and jet in the laboratory. The wires in a wire array z-pinch undergo a steady ablation as the Lorentz force acts to accelerate plasma from the wire cores, which remain stationary, towards the array axis. In a twisted conical array both a radial component to the current and an axial component to the magnetic field are present, which provides an azimuthal component to the Lorentz force (in addition to axial and radial components). These streams collide on axis, however both the angular and axial momentum are conserved in the standing conical shock which is formed. The presence of angular momentum leads to a shock with large diameter and hollow mass profile. A jet is accelerated out of the top of the conical shock. This jet has a high degree of radiative cooling, retains angular momentum and also has a hollow density profile.

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