

Abstract Submitted
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Formation of a reconnection layer in colliding supersonic magnetized HED plasmas LEE SUTTLE, SERGEY LEBEDEV, JACK HARE, GEORGE SWADLING, FRANCISCO SUZUKI-VIDAL, GUY BURDIAK, Imperial College London, JIAN WU, QINGGUO YANG, State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, THOMAS CLAYSON, SIMON BLAND, NICOLAS NIASSE, JEREMY CHITTENDEN, NICHOLAS STUART, SIDDHARTH PATANKAR, TIMOTHY ROBINSON, ROLAND SMITH, Imperial College London — We present experimental results showing the formation and structural development of a magnetic reconnection layer produced by the collision of two counter-streaming, supersonic plasma flows in a quasi-1D geometry. The flows, which are produced by the ablation from a pair of pulsed-power driven inverse wire arrays, are magnetized - carrying oppositely aligned embedded magnetic fields ($B \sim 2T$) perpendicular to the direction of the flow. Measurements show spatially resolved distributions of the electron density, magnetic field, ion temperature and flow velocity inside the interaction region at several stages throughout its evolution, via laser interferometry, Faraday rotation and Thomson Scattering techniques.

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