

Abstract Submitted
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Characterizing Filamentary Magnetic Structures in Counter-Streaming Plasmas by Fourier Analysis of Proton Images¹ JOSEPH LEVESQUE, CAROLYN KURANZ, Univ of Michigan - Ann Arbor, TIMOTHY HANDY, None, MARIO MANUEL, General Atomics, FREDERICO FIUZA, SLAC National Accelerator Laboratory — Proton imaging is a powerful tool for probing electromagnetic fields in high-energy-density plasmas, providing a path-integrated map of the field topology. However, inferring the underlying field structure from proton images of the filamentary magnetic fields produced by the Weibel instability in counterstreaming plasmas has been challenging. In this talk we show that, in general, proton image features directly correspond to the size of the individual magnetic structures and not to the spacing between them (unless they are correlated). For the Weibel instability, the size of the magnetic filaments can be accurately determined via Fourier analysis of the proton images. This work has been published in Phys. Plasmas 26, 102303 (2019); doi: 10.1063/1.5100728

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