

Abstract Submitted
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Direct Quantification of Insulator Breakdown and Plasma Sheath Formation on Pinch Quality in a 10 kJ Dense Plasma Focus.¹ ERIC HAHN, DAVID HOUSLEY, FABIO CONTI, JEFF NARKIS, FARHAT BEG, University of California, San Diego — Dense plasma foci (DPF) are intense sources of X-rays and energetic particles including neutrons. Shot-to-shot variation in yield, pulse shape, and pulse duration remain prominent outstanding issues for many DPF applications. The breakdown phase presumably plays an important role in the reproducibility and quality of the final pinch, but limited effort has quantitatively correlated the magnitude thereof. Here we report on simultaneous laser probing of breakdown and radial pinch phases on a 10-kJ DPF to systematically study how different sleeve materials and lengths affect these phases. A comparison of experimental results with MHD modeling will be presented.

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