

Abstract Submitted
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A Fast Faraday Cup for Measuring Neutralized Drift Compression¹ ADAM SEFKOW, RONALD DAVIDSON, PHILLIP EFTHIMION, ERIK GILSON, Princeton Plasma Physics Laboratory, SIMON YU, PRABIR ROY, SHMUEL EYLON, FRANK BIENIOSEK, ENRIQUE HENESTROZA, JOSHUA COLEMAN, WILLIAM WALDRON, WAYNE GREENWAY, DAVID VANECEK, Lawrence Berkeley National Laboratory, DALE WELCH, ATK-Mission Research — Heavy ion drivers for high energy density physics applications and inertial fusion energy use space-charge-dominated beams which require longitudinal bunch compression in order to achieve sufficiently high beam intensity at the target. The Neutralized Drift Compression Experiment-1A (NDCX-1A) at Lawrence Berkeley National Laboratory is used to determine the physics limits for neutralized drift compression. NDCX-1A investigates the physics of longitudinal focusing of an intense ion beam, achieved by imposing an initial velocity tilt on the drifting beam and neutralizing the beam's space-charge with background plasma. Accurately measuring the longitudinal compression of the beam pulse with high resolution is critical for NDCX-1A. The design and preliminary experimental results for a fast Faraday cup which measures the total beam current at the focal plane as a function of time are summarized.

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