Abstract Submitted
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Phase Space Distribution of the University of Maryland Electron Ring (UMER) Source[1] I. HABER, S. BERNAL, B. BEAUDOIN, K. FIUZA, R.A. KISHEK, P.G. O'SHEA, C. PAPADOPOULOS, M. REISER, D. STRATAKIS, C. WU, University of Maryland — Because the downstream characteristics of a space-charge-dominated beam can be sensitive to details of the phase-space distribution of the beam emerging from the electron gun, experimental and simulation studies have been conducted to characterize the UMER source. Measurements of the beam distribution function at the gun exit have been conducted using a pinhole that is scanned across the beam, as well as tomographic reconstruction of the distribution using downstream phosphor screen images. And these have been found to be in good agreement. PIC simulations using the WARP code have also been used to understand the gun characteristics and have correctly predicted measured characteristics, including the substantial reduction in beam halo that resulted from repositioning the cathode.

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