Abstract Submitted
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Study of the Electric Field Screening Effect on Low Number of Carbon Fiber Field Emitters[1] WILKIN TANG, DON SHIFFLER, Air Force Rsch Lab-Albuquerque, MATTHEW LACOUR, KEN GOLBY, Leidos Inc., TIM KNOWLES, Energy Science Laboratories Inc. — Field emitter arrays have the potential to provide high current density, low voltage operation, and high pulse repetition for radar and communication. It is well known that packing density of the field emitter arrays significantly affects the emission current.[1] Previously we conducted experiments using two- and four-cathode configurations. Here we extend our previous work and present experimental results for nine cathodes in a square and cylindrical configuration. The experiments used nine cathodes with variable spacing to investigate the effect of electric field screening on current emission. Emission characteristic is compared for the case of two, four and nine field emitters with different spacing. Particle-in-cell simulations are performed to compare with the experiments.

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