

Abstract Submitted
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Computational modeling of HC discharges in the presence of an applied magnetic field¹ SETH VEITZER, PETER STOLTZ, Tech-X Corporation
— We present work on the numerical modeling of hollow cathode discharges using the multi-dimensional, massively parallel, hybrid PIC simulation code VORPAL. We simulate the formation of a plasma in the hollow cathode by modeling the production of ion- and electron-induced secondary electrons from the cathode walls, and electron impact ionization of background Helium gas. We simulate discharge of built-up current through the application of an external magnetic field, effectively shorting out the production of plasma due to secondary electrons, and we compare our results here to published experimental findings. We also discuss the numerical methods that we use to develop the simulations, including the physical models we implement and simulation parameters needed for accurate modeling.

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