

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Modeling a Gyrotron Cavity Using a 3D CFDTD PIC Method¹

M.C. LIN, D.N. SMITHE, Tech-X Corporation — Modeling a gyrotron cavity in 3D and time-domain is very challenging due to the open-end features of cavity structure and higher-order mode excitation employed to achieve high efficiency. In this work, a conformal finite-difference time-domain (CFDTD) method is proposed to simulate a gyrotron cavity and a particle-in-cell (PIC) algorithm is used to describe a gyro electron beam. Our preliminary result shows that the 3D CFDTD PIC method could provide an alternative modeling tool for gyrotron research and design.

¹This work is supported by the U.S. Department of Energy under Grant No. DE-SC0004436. One of the authors (M.C. Lin) would like to acknowledge the helpful discussions with Prof. E. Choi at UNIST, Prof. K. R. Chu at NTU, and Prof. R. J. Temkin at MIT.

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Date submitted: 12 Jul 2013

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