

Abstract Submitted  
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**Full Wave Parallel Code for Modeling RF Fields in Hot Plasmas<sup>1</sup>**

JOSEPH SPENCER, VLADIMIR SVIDZINSKI, EVSTATI EVSTATIEV, SERGEI GALKIN, JIN-SOO KIM, FAR-TECH, Inc. — FAR-TECH, Inc. is developing a suite of full wave RF codes in hot plasmas. It is based on a formulation in configuration space with grid adaptation capability. The conductivity kernel (which includes a nonlocal dielectric response) is calculated by integrating the linearized Vlasov equation along unperturbed test particle orbits. For Tokamak applications a 2-D version of the code is being developed. Progress of this work will be reported. This suite of codes has the following advantages over existing spectral codes: 1) It utilizes the localized nature of plasma dielectric response to the RF field and calculates this response numerically without approximations. 2) It uses an adaptive grid to better resolve resonances in plasma and antenna structures. 3) It uses an efficient sparse matrix solver to solve the formulated linear equations. The linear wave equation is formulated using two approaches: for cold plasmas the local cold plasma dielectric tensor is used (resolving resonances by particle collisions), while for hot plasmas the conductivity kernel is calculated.

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