

Abstract Submitted
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Verification studies of the three-dimensional high order finite (spectral) element HiFi code and mesh generator integration WESTON LOWRIE, VYACHESLAV LUKIN, URI SHUMLAK, University of Washington, PLASMA SCIENCE AND INNOVATION CENTER COLLABORATION — Verification studies of the recently developed three-dimensional (3D) high order finite (spectral) element HiFi code are presented. The code is based on the two-dimensional (2D) SEL code [1]. A semi-structured CUBIT mesh generator has been interfaced with the code, such that CAD based drawings can easily be used to specify simulation geometries. Various logical to physical grid mappings with severe distortions are tested to better understand the limits of the grid mapping. Resistive MHD is used in these studies. Further developments of the 3D HiFi code are also discussed. In particular, the use of new linear and non-linear solvers is investigated to improve the efficiency and scalability of the code. [1] V.S. Lukin, Ph.D. Dissertation, Princeton University (2007)

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