Abstract Submitted
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Free boundary simulations of MHD instabilities with a finite volume based full-MHD code YASUHIRO KAGEI, Japan Atomic Energy Agency, YASUAKI KISHIMOTO[1], Kyoto University, TAKAHIRO MIYOSHI, Hiroshima University, MANABU TAKECHI, Japan Atomic Energy Agency — MHFVSP is a finite volume based code for 3D full-MHD simulations in tokamak plasmas using either structured (rectangular) or unstructured (triangular) mesh in the poloidal plane, and fast Fourier transforms in the toroidal direction. The code is being modified to handle issues on the free boundary configurations related to the growth of MHD instabilities. The pseudo-vacuum model is implemented in the code, and then free boundary MHD simulations are carried out for the equilibrium including the vacuum region which is obtained by the MEUDAS code[1]. We describe the algorithm in the MHFVSP code and report on the development and validation of such a modification. The initial results from simulation runs for free boundary configurations are also presented.
[1] T. Takeda and S. Tokuda, J. Comp. Phys. 93, 1 (1991).

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