Abstract Submitted
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Simulation of Double Tearing Modes with plasmoids in High Lundquist Number Regim[1] J. MA, W. GUO, ASIPP — A conservative perturbed MHD model [1] and a flux vector splitting (FVS) based high order of accuracy finite difference method [2] was applied to investigate the nonlinear evolution of double tearing modes(DTM) in 2D geometry with Lundquist number higher than 1.0e+4. With high spatial resolution approach, the results show the existence of multiple plasmoids generation. The effects of current sheets separation and guiding field upon secondary islands are investigated [2]. It is also find [3] that while the symmetry is well preserved during the simulation, a new quasi-stationary state with two pairs of islands can form after the explosive stage. For larger distance between rational surfaces two fast reconnections during one evolution can take place. Recently work, the numerical capability is extended to cylindrical geometry and validation during the linear and nonlinear DTM simulation in helical symmetry are performed. 1.J. Ma et al, Comunn. Comput. Phys. 21(5), 1429 (2017). 2.W. Guo et al, Phys. Plasmas 24, 032115 (2017). 3.J. Ma, et al Nucl. Fusion, (2017) Accepted.

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