

Abstract Submitted  
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**A Simulation Study of Hall Effect on Double Tearing Modes<sup>1</sup>** ZHIWEI MA, Institute of Plasma Physics & Zhejiang Univ., CHENGLONG ZHANG, Zhejiang Univ., JIAQI DONG, Southwestern Institute of Physics — The Hall magnetohydrodynamics (MHD) simulation is carried out to study the dynamic process of a double tearing mode. The results indicated that the growth rates in the earlier nonlinear and transition phases agree with previous results. With further development of reconnection, the current sheet thickness is much smaller than the ion inertia length, which leads to a strong influence of the Hall effects. As a result, the reconnection in the late nonlinear phase exhibits an explosive nature with a time scale nearly independent of resistivity. A localized and severely intensified current density is observed and the maximum kinetic energy is over one order of magnitude higher in Hall MHD than in resistive MHD.

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