

Abstract Submitted
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Slow shock formation and its structure with sub-Alfvénic shear flow in magnetic reconnection¹ ZHI-WEI MA, Zhejiang University — Slow shock formation and its structures associated with magnetic reconnection are investigated in the presence of sub-Alfvénic shear flow based on compressible resistive MHD model and compressible Hall MHD model. It is found for the first time that one or two pairs of the slow shocks are formed in the inflow region away from the reconnection separatrices in the compressible resistive MHD. The distributions of the slow shocks largely depend on the plasma beta and the shear flow velocity. One pair of the slow shocks is formed for the case $\beta = 0.2$ and two pairs of the low shocks are generated for the case $\beta = 1.0$ with the shear flow velocity around the range from $0.6V_A$ to $0.9 V_A$. In the case of the high plasma beta ($\beta = 5.0$), there is no slow shock formed outside the reconnection separatrices. In the compressible Hall MHD, the slow shocks are gradually evolved into wave trains as increase of the ion inertial length d_i .

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