

# **Computer studies on plasmoids and TCRs by the spontaneous fast reconnection model**

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The temporal dynamics of plasmoids propagating tailward and the associated traveling compression regions (TCRs) in the surrounding magnetic lobe region are studied by using high-resolution three-dimensional MHD simulations on the basis of the spontaneous fast reconnection model. Once the fast reconnection mechanism is triggered, a large-scale plasmoid develops and propagates at the end of the fast reconnection (Alfvénic) jet between a pair of standing slow shocks. Accordingly, the TCR is caused in the tail lobe region by the interaction between the plasmoid and the ambient magnetic field. The complicated inner structure of the plasmoid and the dynamics of TCR are analyzed in details, and it is demonstrated that the simulation results are in good agreement with the satellite observations.