M49a **Analysis on Mechanisms of Reconnection Rate Enhancement in 3D MHD simulation of a Current Sheet in a Resonant Box**

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The main purpose of this study is to investigate three-dimensional current sheet evolution under a guide field, initially with stochastically located diffusivity. Because of the huge Reynolds number in the corona, fast reconnection with small diffusion region and shock-heating mechanism are expected. Recent studies could achieve a quick energy conversion if localized resistivity is applied, with assumption of isotropy on the direction perpendicular to the current sheet plane. But the plasma characteristic variables are randomly oriented for the solar cases, thus time-dependent third component is demanded. Therefore, 2-D parallel reconnection is generalized into "component reconnection". Due to the periodic boundary condition, the simulation box quickly exhibits a resonance netlike pattern. Small current sheets survived from strong diffusion in the earlier phase mainly reside in a thin sheet between safety factors q = 1 and q = -1. They are relatively stationary when the push of the plasma on either side is small. As a result of zigzag locations, outflow from one current sheet is fed into a nearby current sheet and accelerate the engine. This positive feedback strengthens the speed of reconnection in the global view. Our result shows that the reconnection rate increases by 2.6 times in the non-linear phase compared with linear phase. Slow-mode compression waves develop eventually on both sides of the upstream and downstream extend from individual current sheet. We have achieved quicker reconnection without permanent localized resistivity in a more universal idea.