A Model for Magnetic Reconnexion

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A two-dimensional model for the reconnexion of two curved flux tubes, driven towards each other by a strain field is considered. For vanishing diffusivity, the system becomes singular. For non-vanishing diffusivity, as reconnexion progresses, the Lorentz force accelerates the process. The exact MHD equations are reduced to a system of three evolution equations in one space variable (normal to the tubes) and time. Preliminary numerical experiments on this system show promising results.