



## **The magnetic reconnection in 3D structurally unstable solar plasma configuration**

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The term magnetic reconnection refers to a broad range of problems that are of great interest for the space, solar and fusion plasma. Magnetic reconnection is accompanied by an ultra-fast release of magnetic energy that is transformed into different form such as fast particles and radiation.

Here we numerically and analytically study the nonlinear evolution of magnetic field reconnection in 3D plasma configuration in the neighborhood of a critical point. The special attention is devoted to the case of structurally unstable magnetic field. First we present exact solutions of the MHD equations which describe the self-similar evolution of a magnetic configuration near a critical point. Second we simulate the nonlinear plasma evolution with a help of 3D MHD code. The transformation of structurally unstable magnetic configurations in structurally stable ones is described in the frame of Morse theory.