

Abstract Submitted
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Fast magnetic reconnection in collisionless plasmas with velocity shear FRANCESCO PEGORARO, MATTEO FAGANELLO, FRANCESCO CALIFANO, University of Pisa — In plasma configurations with a velocity shear qualitatively different magnetic structures are produced depending on how fast the reconnection process develops and competes with the pairing process of the vortices produced by the Kelvin-Helmholtz instability. In a magnetized plasma if the Alfvén velocity associated to the in-plane magnetic field is sufficiently weak, the K-H instability generates fully rolled-up vortices which advect the magnetic field lines into a complex configuration, causing the formation of current layers along the inversion curves of the in-plane magnetic field component. We investigate the development of magnetic reconnection during the vortex pairing process and show that completely different magnetic structures are produced depending on how fast the reconnection process develops on the time scale set by the pairing process. develops on the time scale set by the pairing process.

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