

## Magnetic reconnection during eruptive magnetic flux ropes

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Using highly resolved magnetohydrodynamic simulations, we follow the eruption of a kink-unstable magnetic flux rope in 3D (see the accompanying Figure as well as References [1,2]). Our grid refinement allows to zoom in on the reconnection sites within the current sheet. At an estimated Lundquist number of 10000, we retrieve the 3D generalization of Petschek slow shocks, tubular substructures indicating tearing disruption, and turbulent interaction of the ejection flows with the closed magnetic structures above and below the extended current sheet. The 3D simulations allow synthetic views from varying line of sight orientations, and show many morphological aspects known from actual observations.

[1] 'Magnetic reconnection during eruptive magnetic flux ropes', Z.X. Mei, R. Keppens, I.I. Roussev & J. Lin, 2017, *Astron. & Astrophys.* **604**, id.L7 (4pp) [Full paper, doi:10.1051/0004-6361/201731146](https://doi.org/10.1051/0004-6361/201731146)

[2] 'Parametric study on kink instabilities of twisted magnetic flux ropes in the solar atmosphere', Z.X. Mei, R. Keppens, I.I. Roussev, & J. Lin, 2018, *Astron. & Astrophys.* **609**, A2 (13pp) [Full paper, doi:10.1051/0004-6361/201730395](https://doi.org/10.1051/0004-6361/201730395)

