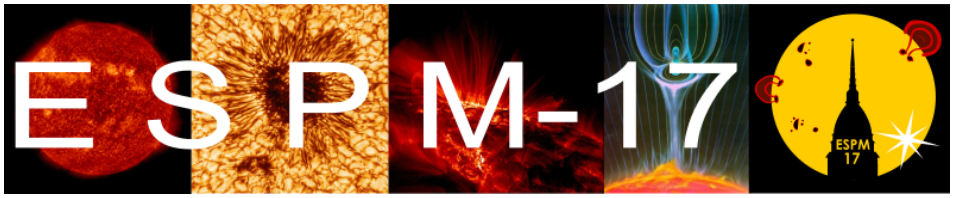

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Beam-driven evaporation in 2.5D flare simulations with an asymmetric magnetic field configuration

The standard flare model is in generally depicted and studied in 2D simulations with an anti-symmetrical magnetic field configuration, symmetrical in magnitude, either side of the polarity inversion line. However, flare observations confirm that most flare have a significantly asymmetrical values of the magnetic field strength.

Here we present the first multi-dimensional magnetohydrodynamic flare simulation featuring evaporation driven by energetic electron beams in an asymmetrical magnetic field configuration. The simulation conditions that we use are known to rely significantly on those beams of electrons to drive the evaporated plasma upwards from the lower atmosphere (Druett et al. 2023). We study the impact of an asymmetrical configuration on the evolution and geometry of the flare-loop system as well as the impacts on the beam-driven evaporation using the MPI-AMRVAC model.

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