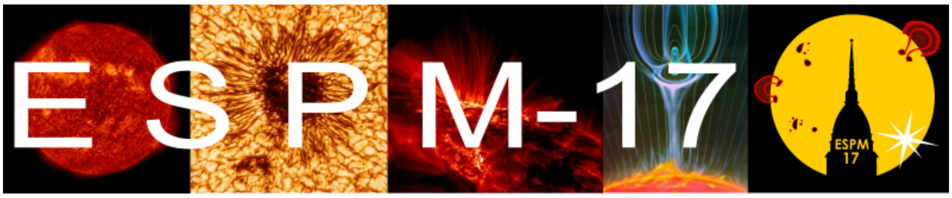

Contribution ID: **73** Type: **Poster**

Forward and MHD modeling of nanojets driven by magnetic reconnection during MHD avalanches

Magnetic reconnection is a leading candidate for the heating of the non-flaring solar corona. Specifically, heating might stem from numerous, localized and impulsive episodes of magnetic energy release. Though potentially intense, those fleeting "Nanoflares"are generally difficult to observe in the corona as the highly efficient thermal conduction and the low emission measure wash out their signatures. The newly discovered phenomenon of fast and swift "Nanojets" has been taken as a direct observational signature of magnetic reconnection as it overcomes the general difficulties in observing nanoflares.

We performed full 3D MHD simulations of interacting and twisted coronal loop strands. In our model the magnetized atmosphere is stratified from the high-beta chromosphere to the corona through the narrow transition region. Photospheric rotation motions stress the flux tubes until they become kink-unstable and determine an avalanche of reconnection episodes. Misaligned magnetic field lines rupture and reconnect, inducing the formation, fragmentation, and dissipation of current sheets akin to a nanoflare storm.
In this work we address the nanojets which develop from these reconnection episodes, at Parker energies (about 1e24 erg) and typical speeds of few 100 km/s, and we investigate their possible detection, in particular in the EUV band with the Atmospheric Image Assembly (AIA/SDO) and the opportunities that spectra and images from the forthcoming MUltislit Solar Explorer (MUSE) will open up. We also perform a statistical analysis of their occurrence and of their correlation with relevant physical ambient parameters, such as the magnetic field, to constrain the best conditions for detection.

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Session Classification: Coffee break and poster session 2

Track Classification: Multi-scale energy release, flares and coronal mass ejections