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Magnetic reconnection leading to a mini flare and a twisted jet observed with IRIS

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The magnetic reconnection occurs between two magnetic emerging flux (EMF) in a bald patch region observed in HMI vector magnetograms. A transfer of twist was operating between a neighboring flux rope to the jet through the BP.

A spatio-temporal analysis of IRIS spectra of Mg II, C II, and Si IV ions allows us to study the dynamics and the stratification of the flare atmosphere along the line of sight during the magnetic reconnection phase at the jet base in a bald patch region (BP).

The twist was confirmed by tilt of the IRIS spectra well observed in Mg II and Si IV.

Strong asymmetrical Mg II and C II line profiles with extended blue wings observed at the reconnection site are interpreted by the presence of two chromosphere temperature clouds: one explosive cloud with blueshifts at -290 km/s and one cloud with smaller Doppler shift (around -36 km/s). These ejections are in the opposite direction of the jet and explained by trapped cool material between the two EMFs.

The detection of X-ray emission by FERMI/GBM simultaneously with the excess in the Balmer continuum supports the idea of bombardment of non thermal electrons during the reconnection.

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