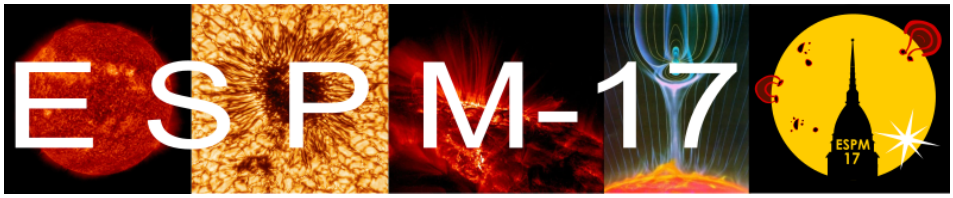

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Unveiling the dynamics and thermal structures of the jet base from SO high-resolution observation

Solar jets, characterized by small-scale plasma ejections along open magnetic field lines or the limbs of large-scale coronal loops, play a crucial role in the dynamics of the solar atmosphere. They are often associated with other solar activities, including campfires, filament eruptions, coronal bright points, flares, and coronal mass ejections. Although spectral and EUV images have been widely used to analyze the formation and evolution of jets, the detailed three-dimensional structure at the base of the jet has not been extensively studied due to the limitations of observation resolution.

The Solar Orbiter (SO) enables us to investigate the structure of solar jets with much higher spatial and temporal resolutions and from different angles. Using the EUI/HRI data, we observed "firework" structures, which are the dynamic manifestations of the jet base. This bright structure is located above the magnetic neutral line, the region where reconnection occurs. Numerous flows spread out from the reconnection point to the surrounding area at speeds exceeding 100 km/s. By analyzing the evolution of the magnetograms from PHI/HRT, we identified a clear flux cancellation process at the footpoint of the jet. Additionally, we studied the thermal structure of the jet base using the SPICE data.

In conclusion, these high-resolution observations provide new insights into the complex dynamics and thermal structures at the base of solar jets, advancing our understanding of their formation and contribution to solar atmospheric phenomena.

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