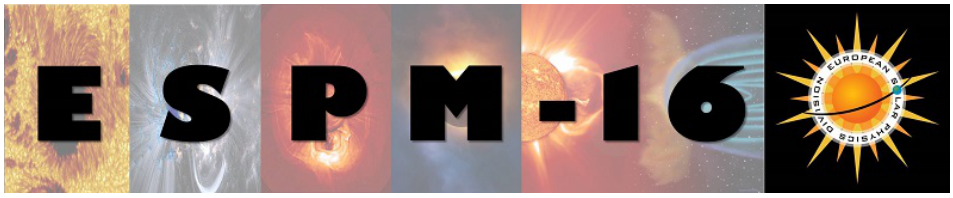

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Observations of nanojets in multi-structures from different drivers: from KHI-driven reconnection in a blowout jet to coronal rain loops

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The recently discovered nanojets in a coronal loop (Antolin et al., 2021) were characterised in part by small (500-1500 km) and rapid (150-250 km/s) bursts of plasma ejected perpendicular to the field line of origin and accompanied by nanoflare-like intensity bursts in the UV and EUV. These nanojets were interpreted as a product of magnetic reconnection from small misalignments between the braided field lines, thus allowing to clearly identify the reconnection-driven nanoflare, and more generally, distinguish reconnection-driven coronal heating from wave-based coronal heating. The reconnection driver was found to be the partial loss of equilibrium of a nearby prominence but it was speculated that the nanojet should be largely independent from it. Furthermore, it is unclear how pervasive this phenomenon is. In this talk, we present new IRIS and SDO observations of nanojets found in multiple structures, namely in a solar blowout jet and in coronal rain loops. Their dynamics and morphology are in parallel with the previous findings. The reconnection events are further identified by the splitting of the field line origin. In multiple circumstances, we also observe that they occur in clusters, less than 1500km apart. While in the blowout jet case the Kelvin-Helmholtz instability is identified as the reconnection driver, the other 2 cases have a yet unclear origin. These observations in a variety of structures and environments suggest that nanojets are a general result of reconnection, and therefore, that they may play an important role in coronal heating.

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