Contribution ID: **8** Type: **Oral**

Local clusters of internal magnetic field structures in a filament related CME event

Thursday, 25 January 2024 12:10 (15 minutes)

Parker Solar Probe (PSP; launched in 2018) and Solar Orbiter (SoLO; launched in 2020) observe the Sun from unprecedented close-in and out-of-ecliptic orbits. This unique and high-resolution data give us new insights about the initiation and early evolution of coronal mass ejections (CMEs) in the inner heliosphere. We investigate the morphology and propagation behavior of distinct small-scale structures belonging to the coronal mass ejection (CME) caused by a filament eruption, together with the CME-aftermath. We aim to shed more light on the evolution of internal small-scale magnetic field structures of a CME and how these behave in the global CME context. We are interested on how they get formed, how they change in shape over time and how they are related to the erupting filament and flux rope, respectively. Due to the fast PSP motion in its orbit, we apply a single-spacecraft triangulation technique to derive coordinates and kinematics of each tracked feature and to relate them to the erupting filament structures as observed in EUV. We find distinct groups of small-scale features clustered in longitude that constitute the global CME. We obtained a large range of longitude among the different blobs related to the post-CME current sheet. Thread-bundles are identified in the inner heliosphere, which can be related to so-called vertical threads which evolved during the filament eruption. We notice how the global appearance of the CME appears to be different from 1~AU and PSP at 0.18~AU, as the global outer front is not well observed in PSP.

Primary author: CAPPELLO, Greta (University of Graz)

Presenter: CAPPELLO, Greta (University of Graz)

Session Classification: Session 4