



Contribution ID: 144

Type: Poster

## Mysterious heating source inside an erupting prominence as observed by Solar Orbiter/Metis and ASO-S/SDI instruments

A prominence eruption associated with a limb CME was observed on April 12, 2023 by the multi-channel Metis Coronagraph on board the Solar Orbiter mission. The prominence, seen in the Metis UV Lyman-alpha images as a very bright and elongated arch propagating southward, is instead much weaker in Metis visible light (VL) images. In our work, we studied the 3D position of the prominence to understand the reason for such a significant difference between these two channels. By considering the different processes responsible for the emissions, we obtained the time evolution of the electron density and the temperature of two prominence portions from VL and UV images, respectively. The derived thermodynamic evolution suggests the existence of unknown physical processes providing additional heating source during the plasma expansion. The Lyman-alpha Solar Telescope (LST) on-board the Advanced Space-based Solar Observatory (ASO-S) mission also observed this eruption along the Earth-Sun view. The solar disk imager (SDI) on board the LST observed the prominence lifting from the south-west solar limb, with the south leg fixed onto the Sun as the prominence expand. The SDI Carrington map in Lyman-alpha line was applied to constrain the radiative component of the Lyman-alpha emission.

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**Session Classification:** Coffee break and poster session 2

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