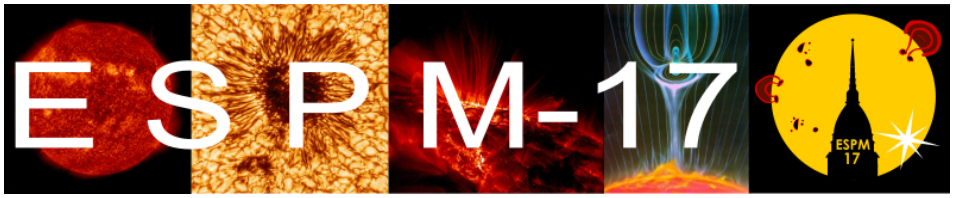

Contribution ID: **208** Type: **Poster**

Metis Solar Wind Speed Maps during the first half of the 25th solar cycle: the role of the assumed electron temperature radial profile

The derivation of the coronal proton bulk speed is one of the main goals of the Metis coronagraph on board the Solar Orbiter S/C. Metis is capable of acquiring both visible-light (VL) broadband (580-640 nm) polarized brightness (pB) images and ultraviolet (UV) HI Lyman-alpha (121.6 nm) images simultaneously with high temporal (up to 1 s for the UV and 60 s for VL/pB) and spatial (down to 4500 km/pixel) resolution. The proton outflow speed is derived from these data through the Doppler-dimming diagnostics. Here solar wind speed maps are presented that are derived for four Solar Orbiter Remote Sensing Windows. This outlines the evolution of the solar wind during half of the 25th solar cycle (from the end 2021 to the end 2023). Different literature electron temperature profiles are used as a parametric input for the Doppler-dimming diagnostics, thus deriving the sensitivity of the Doppler-dimming diagnostics to the knowledge of the electron temperature profile of the coronal plasma in different regions in the field of view (e.g. streamer, coronal holes). For the first time, a novel dynamical (DYN) model from literature was used to better constrain the electron temperature profile adopted in the Doppler-dimming diagnostics. Preliminary results show the role played by the knowledge of the coronal electron temperature in the derivation of the solar wind maps.

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Session Classification: Coffee break and poster session 2

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