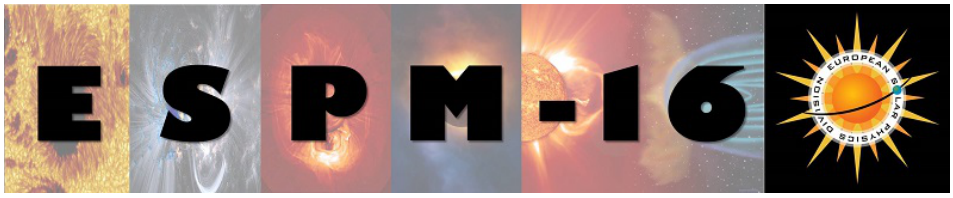

Contribution ID: **366** Type: **Poster**

Spectroscopic Observation of a Transition Region Network Jet

Tuesday, 7 September 2021 12:18 (13 minutes)

Network jets at transition region temperatures of ca. 0.1 MK have been observed to be widespread enough to provide substantial mass and energy to the upper solar atmosphere. Previous studies of this phenomena have mostly focused on near-limb and broadband imagery data and ascribed propagating intensity disturbances as mass motions. Thus, the nature of plasma flows in these jets and their driving mechanism remain unclear. Using co-aligned IRIS and SDO/HMI data, we present observations of a small-scale jet located within a coronal hole at disc-center. The analysis of the event spectra of the Si IV line at 1394 Å showed clear blue-shifts at transition region temperatures along the upper portion of the jet. The jet can be traced to its base where heightened chromospheric activity in Mg II overlaps areas of strong line-of-sight magnetic field concentrations. While single-gaussian fits only show obvious blue-shifts near the top of the jet, closer inspection of the individual spectra reveals a double-peaked profile along the spire of the jet. Near the base of the jet, a weak, blue-shifted secondary component exists. This secondary component, exhibiting flow speeds of 30-60 km/s, becomes stronger farther along the jet from its base, eventually influencing the single-gaussian fits to show blue-shifts of the Si IV spectral line profiles. This observation allows for a unique investigation of the true mass motions of a jet clearly identified in the transition region and down into the chromosphere, where it can be connected to changes in the underlying magnetic field.

Primary author: GORMAN, Jamie (Max Planck Institute for Solar System Research)

Co-authors: CHITTA, Lakshmi Pradeep (Max Planck Institute for Solar System Research); PETER, Hardi (Max Planck Institute for Solar System Research, Göttingen, Germany)

Presenter: GORMAN, Jamie (Max Planck Institute for Solar System Research)

Session Classification: Poster Session 4.2

Track Classification: Session 2 - The Solar Atmosphere: Heating, Dynamics and Coupling