

R007-07

Zoom meeting A : 11/1 AM2 (10:45-12:30)

11:30-11:45

## **Compressional magnetohydrodynamic turbulence as a possible origin of magnetic switchbacks observed by Parker Solar Probe**

#Munehito Shoda, Benjamin Chandran<sup>2)</sup>, Steven Cranmer<sup>3)</sup>

SSO, NAOJ,<sup>2)</sup>University of New Hampshire,<sup>3)</sup>University of Colorado Boulder

Origin of local magnetic polarity reversal (magnetic switchback) observed by Parker Solar Probe (PSP) is one of the most challenging mysteries in the solar (and possibly stellar) wind physics. Amongst two candidates of the origin (reconnection event in the solar atmosphere / in-situ generation by large-amplitude Alfvén waves), we seek the possibility of the latter scenario by conducting a direct numerical simulation that reproduces the bulk property of the solar wind observed in the first encounter of PSP. Our model reproduces several observed properties of the Alfvénic slow solar wind, including radial variation of density and velocity, high cross helicity, and magnitude of density fluctuation. Magnetic switchbacks with Alfvénic velocity enhancement are spontaneously generated by magnetohydrodynamic turbulence above 10 solar radii, although the filling factor of them is significantly smaller than observation.