

Session 1

## **(Invited) The polarimetric and helioseismic imager of solar orbiter**

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On February 10, 2020, Solar Orbiter, the new ESA's Sun-exploring mission built in collaboration with NASA, was successfully launched atop an ULA Atlas 5 rocket from Cape Canaveral in Florida. Solar Orbiter has been the first to take the closest pictures ever of the Sun at EUV and visible wavelengths, and the first one that has directly imaged magnetic fields of the solar far side. Among their instruments, the Polarimetric and Helioseismic Imager (SOPHI), one of the remote-sensing suite of instruments aboard Solar Orbiter, aims at measuring the vector magnetic field and the line-of-sight velocity at the solar surface. SOPHI is a spectrometer and a polarimeter that measures the four Stokes profiles of the photospheric Fe I line at 617.3 nm. SOPHI is a genuine instrument of huge engineering importance, with the most cutting-edge and innovative technologies. It is the first instrument of its kind that works as a real tachograph and magnetograph because it delivers the solar physical quantities. Solar Orbiter is now in its nominal mission phase after its commissioning and cruise phases ended in December 2021. In this talk, I will briefly introduce Solar Orbiter and describe the PHI instrument and then review current science plans and highlight first SOPHI observations as well as show some of the first results coming from it.