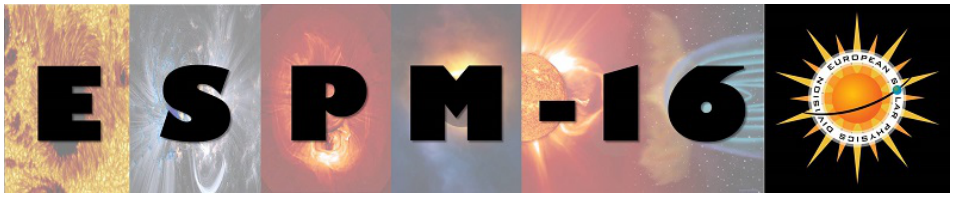

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Magnetically coupled atmosphere, the MHD waves transfer, and possible contribution to the outer atmosphere heating

Tuesday, 7 September 2021 09:39 (13 minutes)

We studied physical properties of the magnetic field above the sunspot which was observed on September 10, 2014 near the center of the solar disk during the time period 16:20-18:20 UT by the SDO/AIA/HMI and IRIS instruments. We detected a magnetic field flux tube above a sunspot umbra where vertical magnetic field lines formed a connection between the inner layers of the solar atmosphere and the solar corona. We studied a mechanism of MHD waves transfer from the photosphere without dissipation or reflection before reaching the corona. We also discuss a significance of such events in terms of the possible propagation and scattering of magnetic energy in the Sun's atmosphere, including solar corona. We can explain how the magnetic field flux tubes connecting the individual atmospheric layers can distribute the photospheric and chromospheric magnetic field energy across the active region. This mechanism can contribute to the coronal energy balance and improve our knowledge how the coronal heating is maintained.

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