

P2.3017 Lower-hybrid wave processes during the interaction of the Earth's magnetotail with dusty plasma near the lunar surface

Tuesday, 9 July 2019 14:00 (2 hours)

See full abstract here:

<http://ocs.ciemat.es/EPS2019ABS/pdf/P2.3017.pdf>

The lower-hybrid wave processes that take place under the interaction of the Earth's magnetosphere with dusty plasma near the lunar surface are considered. Lower-hybrid waves are excited in the regions of the transient magnetic and/or boundary magnetospheric layers due to the development of linear hydrodynamic instability. The instability is caused by the relative motion of the magnetospheric electrons and ions with respect to charged dust grains. The dynamics of the development of lower-hybrid turbulence is investigated. Lower-hybrid turbulence is described in terms of strong turbulence theory. The energy density of oscillations, the effective collision frequencies, and the electric fields arising in the system are determined for lower-hybrid turbulence. The obtained effective collision frequencies should be taken into consideration when deriving hydrodynamic equations for dusty plasmas with allowance for turbulent plasma heating. This work was supported by the Russian Science Foundation (project no. 17-12-01458).

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Session Classification: Poster P2

Track Classification: LTPD