

P5.3019 Waves and instabilities in dusty plasmas at Phobos and Deimos

Friday, 12 July 2019 14:00 (2 hours)

See full abstract here <http://ocs.ciemat.es/EPS2019ABS/pdf/P5.3019.pdf>

Waves and instabilities in a near-surface plasma above Phobos and Deimos are discussed. It is shown that the disturbance of the isotropy of the distribution function of electrons in dusty plasma above the surface of Mars satellites is associated with the movement of the solar wind relative to photoelectrons and charged dust particles. It leads to the development of instability and excitation of high-frequency waves with frequencies in the range of Langmuir and electromagnetic waves. In addition, the propagation of dust acoustic waves is possible. Dust acoustic waves can be excited, for example, in the vicinity of the terminators of the Mars satellites. Solutions in the form of dust acoustic solitons corresponding to the parameters of dusty plasma systems over the illuminated parts of Phobos and Deimos are found. The regions of possible Mach numbers and amplitudes of solitons are determined. This work was supported by the Program No. 28 of Basic Research of the Presidium of the Russian Academy of Sciences «Cosmos: Studies of Fundamental Processes and Their Interconnections», as well as the Russian Foundation for Basic Research (Project No. 18-02-00341-a). T.I. Morozova acknowledges the support of the Foundation for the advancement of theoretical physics and mathematics "BASIS".

pppo

Presenter: MOROZOVA, T.I. (EPS 2019)

Session Classification: Poster P5