



The role of the interplanetary magnetic field on charged dust dynamics

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We investigate the role of different models of the interplanetary magnetic field on the different kinds of motion of micron sized, charged dust grains in the heliosphere. The influence of the interplanetary magnetic field on the orbital motion of dust is usually neglected assuming uncharged dust grains. However, dust in space gets immediately charged by means of the interaction with the ambient plasmas, i.e. the solar wind. It is shown that for special charge over mass ratios of dust particles the interaction with the magnetic field can therefore not be neglected, and non-gravitational forces like the solar wind drag and the Poynting-Robertson effect alone are not sufficient to model the secular dynamics of charged dust grains any more. Our conclusions are drawn on the basis of analytical estimates and numerical simulations. In this presentation we investigate the role of different models of the interplanetary magnetic field on the stability of motions of charged dust grains for special sets of charge over mass ratios.