Title: Charging of dust grains in ionized media

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Abstract: Total mass of dust grains is about 1% of mass of our galaxy and can be found in the interstellar and interplanetary media as well as on the surface of planets and moons and in different industrial applications. Interaction of grains with the plasma leads to their charging. The dynamics of these grains can be influenced not only by a gravity but also by their charge. The presented thesis discusses some aspects of charging of dust grains from materials related to space environments and fusion reactors. A connection between these environments is a presence of energetic electrons and ions leading to modification of charging processes. The model of dust grain charging based on experimental studies is presented and used for various dust grains and conditions in the Earth magnetosphere and fusion devices.

Keywords: dust, dusty plasmas, charging proceses, field ion emission, secondary electron emission, floating potential