GRAIN CHARGING AND SHIELDING PROCESSES IN COLLISIONAL PLASMAS

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S u m m a r y

Effects of the volume processes of plasma ionization and recombination are usually disregarding for the simplification of analytical models of charging and shielding of dust grains in complex plasmas. However, these effects can be important in many cases, and they should be taken into account in self-consistent theories of dust grain charging and shielding in bulk structures. In this paper, we generalize our theoretical model for highly collisional plasma (D'yachkov L.G. *et al.*, Phys. Plasmas **14**, 042102 (2007)) with regard for the volume ionization and recombination.