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**Dust charge and potential in a two ion temperature dusty plasma**
DAVOUD DORRANIAN, FARIDEH SHAHBAZ TAHMASEBI, YASAMAN GOLIAN, Plasma Physics Research Center, Science and Research Branch, Islamic Azad University, Tehran, Iran — Dusty plasma consists of macroscopic particles of nanometer to micrometer size immersed in a gaseous plasma environment. It can be observed by introducing a flow of molecular impurity in a double plasma device. The impurity particles will be charged quickly, while keeping relatively in low temperature. The particles typically attain several hundred or thousand elementary charges due to the inflow of plasma electron and ions. The dust particles potential and electrical charge in plasma with two ions at different temperatures is calculated. Electrical charge of dust particles is self consistently determined by local plasma electron and ion currents. It is found out that the dust particle potential is strongly affected by the mass and temperature difference of plasma ions.

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