

**ION-TEMPERATURE EFFECT ON COLLISIONAL MAGNETIZED DUSTY PLASMA SHEATH**

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Dusty plasma is completely or partially ionized gas consisting of electrons, protons, neutral particles and dust grains. The effect of ion temperature and ion-neutral collision on a magnetized dusty plasma sheath has been investigated using fluid model. The plasma is considered to have nano-sized dust grains, hot electrons, helium ions and neutral particles. The compiled fluid equations are solved numerically for the given initial and boundary conditions. The results show that the ion temperature has a significant effect on the dust velocity profile and effect is prominent for collisional case rather than collisionless case. The ion velocity increases towards the wall with increasing value of ion temperature. Furthermore, the potential increases towards the wall with increasing value of ion temperature while magnitude of an electric field decreases on the wall. The dusty plasma sheath has several applications like in etching, sputtering, powder synthesis, surface modification process, space plasmas and the mesosphere of the Earth.

References:

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