Influence of gas composition on rotation of dusty structures in glow discharge in magnetic field

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Some aspects of the dynamics of rotation of dusty plasma in mixtures of inert gases in a magnetic field are experimentally studied. A method of ion drag force control, based on the fact that the ion drag force increases when a few hundredths of a heavier gas with a lower ionization potential are added to the mixture while maintaining the same discharge conditions. The dependences of the angular velocity of rotation on magnetic field and pressure for discharge conditions under which it is possible to observe stable structures and their rotation in a mixture of helium with a small admixture of xenon are obtained. It is shown that the presence of a small xenon additive significantly enhances the effect of the ion drag on dust particles. In the experiment, new data on the pressure and the proportion in the mixture effect on the angular velocity of rotation of the dusty plasma structure in the magnetic field were obtained.

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