Dynamics of dust structures in a striation in a magnetic field in various gases

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Dust structures formed in the glow discharge stratum begin to rotate in a longitudinal magnetic field. A dust structure consisting of calibrated particles of the same size levitates in different phases of the stratum in various plasma-forming gases. This is caused by a difference in the ion mass, a change in the ion flux density and the charge of the dust particle. Thus, when changing the plasma-forming gas, it is possible to study the effect of variations in the ion flux (ion drag force) on the mechanical state of the dust plasma in a longitudinal magnetic field.

The paper presents experimental data on the dynamics of a dust structure formed from particles of the same size in a glow discharge stratum in various plasma-forming gases in a weak magnetic field. The angular velocity of rotation of dust formations and the position of the structure in the stratum phase were determined, depending on the mass of the ion (type of gas).

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