

Observation of a dusty plasma structure in a glow discharge striation in a magnetic field up to 2.2 T

Novikov L A[®], Dzlieva E S, Karasev V Yu and Pavlov S I

Saint-Petersburg State University, Universitetskaya Naberezhnaya 7/9,
Saint-Petersburg 199034, Russia

[®] leontiy.novikov@gmail.com

The paper describes the observation of a dusty plasma structure formed in striation in glow discharge when a longitudinal magnetic field is applied. The dependence of the angular velocity of rotation of the dusty structure on the value of the magnetic field in two independent experiments in a range of magnetic field from 0 to 1 T and from 1 to 2.2 T has been obtained. A plot of dependence is presented and combines the two experiments. The mechanisms causing the rotation of the dusty structure in different regions of the magnetic field are described.

Study of the dynamics of rotation of a dusty structure in a magnetic field up to 1 T was carried out with the support of Russian Science Foundation grant No. 18-12-00009, the research of the dynamics of rotation of a dusty structure in a magnetic field from 1 up to 2.2 T carried out with the support of Russian Science Foundation grant No. 18-72-10019.