

STUDY OF A DUST TRAP BY OBSERVATION THE DISCHARGE GLOW IN A MAGNETIC FIELD

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In our previous works, we studied the dynamics of dust structures in a stratified discharge in strong magnetic fields. The studies were carried out in a cryomagnet, where it was technically impossible to observe the change in a configuration and a luminosity of the gas discharge. Data on changes in the shape and brightness of the discharge would provide a more complete picture of the processes occurring in the discharge in strong magnetic fields.

In this work we investigated the change in the configuration of striations in the glow discharge in the longitudinal magnetic field up to 2700 G in neon. With the help of a periscopic video camera, the glow of the gas discharge was recorded with a parallel display of the resulting image on a monitor. After processing the experimental data with a special program, the dependences of the discharge glow intensity on the height were obtained for several values of the magnetic field. Studies have shown that as the magnetic field increases, the first striation narrowed and lengthened, and the distance between the striations changed. A further increase in the magnetic field led to the coalescence of the striations and to a decrease in the discharge glow intensity. This work was supported by the Russian Science Foundation, grant No. 18-72-10019.