

RESEARCH INTO A NEON
SPECTRAL LINE PROFILE OF DUSTY PLASMA

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S u m m a r y

Ordered dusty structures influence plasma conditions. This influence can be revealed, when plasma spectral characteristics change, as dusty particles are injected. For example, a variation in the atomic temperature leads to a variation in the profiles of spectral lines. We studied the profile of a 585 nm neon spectral line in the dusty structures. The structures levitated in a positive column of a glow discharge at a pressure of 50–150 Pa and with a current of 1–9 mA. We scanned the profile with the use of a Fabry–Perot interferometer, by changing the air pressure between the interferometer mirrors. To process the data, a special algorithm was developed. The algorithm is resistant to a noise and a scanning speed instability. We have found an upper bound of the impact of dusty structures on the profile width. The appearance of macroparticles changes the atomic plasma temperature less than by 10 K.