

Abstract Submitted
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An investigation of short glow discharge in helium and the development of its applications for the analysis of gases.¹ SERGEY SISOEV, ITMO University, Kronverkskiy pr. 49, St. Petersburg 197101, Russia, ALMAZ SAIFUTDINOV, ANATOLY KUDRYAVTSEV, Saint Petersburg State University, St. Petersburg, Russia — DC glow discharge is the subject of constant attention, because it is widely used in practical applications. However, the main object of study remained positive column, the negative glow area has not been fully studied. The main objective of this work was to investigate the short glow discharge in helium. In this work current-voltage characteristics of short glow discharge and probe were obtained. Plasma parameters in the negative glow at different discharge currents and gas pressures were measured. It is shown that the temperature of the core group of electrons in negative glow is low and amounts to a few tenths electronvolts. The concentration of the main groups of electrons is typical for this discharge. Electron energy distribution function was calculated by the method of double numerical differentiation. Features in the form of peaks were found in the ion part of EEDF. These peaks correspond to the electrons which were born as a result of Penning ionization. These peaks may be used for identification of gas mixture.

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Sergey Sisoev
ITMO University, Kronverkskiy pr. 49, St. Petersburg 197101, Russia

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