

The glow of the second positive molecular nitrogen system in a discharge with a liquid electrolyte cathode in the air near the surface of the liquid cathode

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The intensity of the glow of the second positive nitrogen system near the surface of the solution in a discharge with a liquid electrolyte cathode at atmospheric pressure in the air for aqueous solutions of different compositions is studied. It is shown that the luminescence intensity of the second positive nitrogen system near the surface of the solution in a liquid cathode discharge at atmospheric pressure in the air for solutions with different compositions, different pH values and electrical conductivity decreases significantly with an increase in the discharge current in the current range from 20 to 100 mA. The rotational and vibrational temperatures determined by molecular nitrogen near the surface of the solution turn out to be identical for all these solutions at all studied discharge currents and equal to 2400 and 3800 K, respectively, with accuracy up to the error of determination. It is assumed that the decrease in the intensity of the glow of the second positive nitrogen system with an increase in the discharge current may be due to a decrease in the concentration of nitrogen near the surface of the solution due to an increase in the flow of water vapor from the surface of the solution with an increase in the discharge current.

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