

Emission of the second positive system of molecular nitrogen in a discharge with a liquid electrolyte cathode near the cathode surface in air at atmospheric pressure

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The emission intensity of the second positive nitrogen system near the surface of the solution was measured in a discharge with a liquid electrolyte cathode at atmospheric pressure in air for aqueous solutions of different compositions. It was shown that the emission intensity for all investigated solutions decreases strongly with an increase in the discharge current from 20 to 100 mA. It is shown that for these solutions at all discharge currents the rotational and vibrational temperatures determined from molecular nitrogen are identical and equal to 2400 and 3800 K, respectively. Possible reasons for the difference in the emission intensity of the second positive nitrogen system at the same temperatures are discussed.

Keywords: liquid cathode, plasma, electric discharge, air, atmospheric pressure, spectroscopy, emission intensity, second positive nitrogen system, rotational and vibrational temperatures.

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