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Axial structure of dc glow discharge negative glow in nitrogen VALERIY LISOVSKIY[1], VERONIKA KOVAL, EKATERINA KRAVCHENKO, VLADIMIR YEGORENKOV, Kharkov National University, Svobody Sq.4, Kharkov 61022, Ukraine — This paper reports the studies with a Langmuir probe technique of axial plasma parameters such as electron temperature, potential, electric field and plasma concentration of dc glow discharge negative glow in nitrogen at different gas pressure values. Electron temperature in the negative glow decreases from the cathode sheath boundary and it approaches the smallest value at the anode end of the negative glow. Along the negative glow the plasma potential lowers by about 5 V. Axial profile of plasma concentration possesses a maximum in the negative glow near the cathode sheath boundary similar to the case of low pressure. Along the negative glow the plasma concentration decreases by about 16 times and it approaches its minimum in the transition region to the Faraday dark space. Note that the plasma concentration decrease by 15-16 times was observed at all nitrogen pressure and discharge current values when the negative glow completely found its place within the inter-electrode gap.

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