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Dependence of the emission intensities with the flow in pulsed N_2 dc discharges LUCIO ISOLA, BERNARDO J.A. GOMEZ, JORGE N. FEUGEAS, Instituto de Física Rosario (CONICET-UNR), Bv. 27 de Febrero 210 Bis., S2000EZP Rosario, Argentina, VASCO GUERRA, Centro de Fisica dos Plasmas Instituto Superior Tecnico 1049-001 Lisboa Portugal +351-21.841.93.22 — This work presents an experimental investigation of the behavior of the emission bands of the first negative and second positive systems of nitrogen in the negative glow of a pulsed dc discharge. The discharge current, applied voltage and gas temperature were measured as well. The experiments were carried out at a fixed cathode temperature equal to 705 °K, the pressure was varied between 2.6 and 3.4 Torr, whereas the gas flow was in the range 30-100 ml/min. At constant pressure, the emission intensities pass through a minimum as the gas flow increases. On the other hand, at fixed gas flow all the emissions decrease as the pressure increases. It is shown that the increase in the flow contributes to a departure from quasi- neutrality conditions in the negative glow. Moreover, a decrease in the ionization degree with pressure is observed, as expected.

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