

Nitrogen Glow Discharge by a DC Virtual Cathode

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A DC glow discharge operating with a virtual cathode is studied. The system consists of a solid disc cathode and mesh anode. The discharge occurs in nitrogen gas at the left-hand side of Paschen's curve. The plasma electron density in the axial direction has been found to be $0.2 \cdot 10^8 \text{ cm}^{-3}$ at 2 cm from the mesh. The electron temperature peak value has been found to be 3.5 eV at 6 cm from the mesh. The radial distribution of the plasma electron density and temperature are discussed. The variation of the plasma parameters are in good agreement with the experimental results.

Key words: Glow Discharge; DC Virtual Cathode Oscillator; Vircator.