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Electrical diagnostic of a magnetized RF discharge in CH₄ created by a multihole cathode used for a-C:H deposition films. DJER-OUROU SAMIRA, OURCHABANE MOHEMED, HENDA KARIM, Centre de Développement des Techniques Avancées — The present work is carried out in the context of the electrical study of a reactor used for a-C:H deposition. We have studied the influence of the operation system parameters (incident power, pressure and magnetic field) on the self- bias voltage and on the saturation ion current density. These measurements have been made over a wide range of incident power inputs of 50-300 W and pressures of 20-100 mTorr. For electrical diagnostic, the results obtained showed that the energy and ion flow bombarding the substrate presented a maximum values at high incident power and decreased with pressure. A comparative study between confined and unconfined discharges showed that the magnetic field had a significant influence on the electric parameters of the discharge. The first correlation between electrical parameters and a-C:H deposition was found, polymerlike thin films with high deposition rates can be obtained at low pressure and with grounded substrate holder.

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