

Study of the Hall thruster discharge with an intermediate electrode

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An intermediate emissive cathode inside the Hall thruster has been proposed to control and optimize the plasma discharge and thruster efficiency. The 1D axial model of the plasma discharge developed by our group is here adapted to include this intermediate cathode. We assume that the cathode is in the supersonic region of the plasma flow, downstream of the ionization region. Voltage discharges between anode and the two cathodes are fixed, whereas the distribution of the discharge currents between the cathodes will be determined from control and design conditions. Parametric investigation will be carried out to determine optimum designs.