

SPACE PROPULSION SYMPOSIUM (C4)  
Electric Propulsion (4)

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DEVELOPMENT AND CHARACTERISATION OF CATHODE FOR HALL EFFECT THRUSTER

**Abstract**

Hollow cathodes are the critical components of any Hall Effect Thruster. A dispenser type oxide based cathode providing an emission current up to 5A is developed. The cathode has demonstrated its capability to provide required emission current for the thrusters operating in the power range from 300 watts up to 2kW. Extensive characterization tests of the cathode are carried out in diode mode for various flow rates and emission currents. Further characterization tests were carried out by varying the distance of the anode simulator. Also experiments are carried out to establish the correlation between the cathode to ground potential and the mode of operation of cathode. This paper presents the overview of the extensive characterization tests carried out on the hollow cathode developed for the purpose operation of Hall Effect Thruster. Also an attempt is made to establish the correlation between the cathode to ground potential and mode of operation of cathode.