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10000 HOURS ORIFICED LANTHANUM HEXABORIDE HOLLOW CATHODE LIFE TEST

Abstract

To satisfy the requirements of LIPS-200 ion thruster and LHT-100 hall thruster, lanthanum hexaboride (LaB₆) hollow cathodes have been developed in Lanzhou Institute of Physics (LIP), China. This paper describes the design, application and life test of these LaB₆ hollow cathodes. Two LaB₆ cathodes have been discharging over 10000 hours. The discharge current of one cathode is 5A, and the other is 0.8A. Both of them were fed with Xe mass flow rate 0.14-0.2 mg/s. The operating discharge voltages of these cathodes have been stable, and no severe degradation has been found on the electrodes.