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Experiments with argon-fueled Hall thruster[1] AMNON FRUCHTMAN, GENNADY MAKRINICH, Holon Institute of Technology — Argon-fueled thruster is attractive because of the low cost of argon. However, because argon is hard to ionize, a thruster that uses argon has low efficiency. We examine the use of argon in a Hall thruster. The thrust, the thrust to power ratio, the specific impulse, and the efficiency are presented for varying magnetic field, discharge voltage, and gas flow rates. Measurements in a configuration of crossed electric and magnetic fields, in which there is no closed-drift trajectory for the electrons, yield, as expected, a much lower performance. The use of rotating magnetic field together with a DC electric field and without such a DC electric field is examined theoretically. Preliminary experimental results with a rotating magnetic field are shown.

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