

Abstract Submitted  
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**Multiply charged ion generation according to magnetic field configurations in Hall thruster plasmas**<sup>1</sup> HOLAK KIM, SEUNGHUN LEE, JUNBUM KIM, YOUBONG LIM, WONHO CHOE, Korea Adv Inst of Sci Tech , KIMS COLLABORATION — Plasma propulsion is the most promising techniques to operate satellites for low earth orbit as well as deep space exploration. A typical plasma propulsion system is Hall thruster (HT) that uses crossed electromagnetic fields to ionize a propellant gas and to accelerate the ionized gas. In HT the tailoring of magnetic fields is significant due to that the electron confinement in the electromagnetic fields affects thruster performances such as thrust force, specific impulse, power efficiency, and life time. We designed an anode layer HT (TAL) with the magnetic field tailoring. The TAL is possible to keep discharge in 1~2 kilovolts, which voltage is useful to obtain high specific impulse The magnetic field tailoring is adapted to minimize undesirable heat dissipations and secondary electron emissions at a wall surrounding plasma In presentation, we will report TAL performances including thrust force, specific impulse, and anode efficiency measured by a pendulum thrust stand. This mechanical measurement will be compared to the plasma diagnostics conducted by angular Faraday probe, retarding potential analyzer, and ExB probe

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