1. D. Kuwahara *et al.*, Tokyo Univ. of Agri. Tech., Improvement of Thrust Characteristics of Helicon Plasma Thruster using Local Gas Fueling Method.
2. T. Furukawa *et al.*, Tokyo Univ. of Agri. Tech., Plasma Acceleration by Rorating Magnetic Field Method using Helicon Source. (in this presentation)
3. S. Nishimura, *et al.*, Tokyo Univ. of Agri. Tech., Electrodeless Plasma Acceleration Using $m = 0$ Coil.
4. T. Yamase *et al.*, Tokyo Univ. of Agri. Tech., High Frequency, Low Pressure, Plasma Generation using Extremely Small Diameter Tube.

Abstract Submitted
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Plasma Acceleration by Rotating Magnetic Field Method using Helicon Source[1] TAKERU FURUKAWA, KAICHI SHIMURA, DAISUKE KUWAHARA, SHUNJIRO SHINOHARA, Tokyo Univ. of Agri. Tech. — Electrodeless plasma thrusters are very promising due to no electrode damage, leading to realize further deep space exploration. As one of the important proposals, we have been concentrating on Rotating Magnetic Field (RMF) [1] acceleration method [2,3]. High-dense plasma (up to 10^{13} cm^{-3}) can be generated by using a radio frequency (rf) external antenna, and also accelerated by an antenna wound around outside of a discharge tube. In this scheme, thrust increment is achieved by the axial Lorentz force caused by non linear effects. RMF penetration condition into plasma can be more satisfied than our previous experiment [4], by increasing RMF coil current and decreasing the RMF frequency, causing higher thrust and fuel efficiency. Measurements of AC RMF component s have been conducted to investigate the acceleration mechanism and the field penetration experimentally. [1] I. R. jones, *Phys. Plasmas* **6** (1990) 1950. [2] S. Shinohara *et al.*, *IEEE Trans. on Plasma Sci.* **42** (2014) 1245. [3] S. Otsuka *et al.*, *Plasma Fusion Res.* 10 (2015) 3401026. [4] T. Furukawa *et al.*, *Phys. Plasmas* **24** (2017) 043505.

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