

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Magnetized Plasma Experiments Using Thermionic- Thermoelectronic Plasma Emitter EIICHIROU KAWAMORI, C.Z. CHENG, NOBUKO FUJIKAWA, JYUN-YI LEE, ALBERT PENG, Institute of Space, Astrophysical and Plasma Sciences, National Cheng Kung University — We are developing a magnetic mirror device, which is the first magnetized plasma device in Taiwan, to explore basic plasma sciences relevant to fusion, space and astrophysical plasmas. Our research subjects include electromagnetically induced transparency (EIT), Alfvén wave physics, and plasma turbulence. A large diameter (> 200 mm) plasma emitter¹, which utilizes thermionic- thermoelectronic emission from a mixture of LaB₆ (Lanthanum-hexaboride) and beta-eucryptite (lithium type aluminosilicate) powders, is employed as a plasma source because of its production ability of fully ionized plasma and controllability of plasma emission rate. The plasma emitter has been installed recently and investigation of its characteristics will be started. The employment of beta-eucryptite in plasma emitter is the first experimental test because such investigation of beta-eucryptite has previously been used only for Li⁺-ion source². Our plan for magnetized plasma experiments and results of the plasma emitter investigation will be presented. 1. K. Saeki, S. Iizuka, N. Sato, and Y. Hatta, Appl. Phys. Lett., 37, 1980, pp. 37-38. 2. M. Ueda, R. R. Silva, R. M. Oliveira, H. Iguchi, J. Fujita and K. Kadota, J. Phys. D: Appl. Phys. 30 1997, pp. 2711–2716.

Eiichirou Kawamori
Institute of Space, Astrophysical and Plasma Sciences,
National Cheng Kung University

Date submitted: 16 Jul 2008

Electronic form version 1.4