## Abstract Submitted for the HAW09 Meeting of The American Physical Society

Development of polarized HD target for LEPS experiment (1) KEISUKE UEDA, TAKESHI OHTA, MAMORU FUJIWARA, KOUJI FUKUDA, HIDEKI KOHRI, TOMOAKI HOTTA, TAKAYUKI KUNIMATSU, CHIHARU MORISAKI, MICHIO URAKI, MASAHIKO UTSUTRO, MASARU YOSOI, RCNP, Osaka University, Japan, SYLVAIN BOUCHIGNY, JEAN-PIERRE DIDELEZ, GERARD ROUILLE, IN2P3, France, MASA TANAKA, Kobe Tokiwa University, Japan, SU-YIN WANG, Institute of Physics, Academia Sinica, Taiwan, HD-LEPS TEAM — We develop the method to obtain the polarized proton and deuteron target using the cryogenic technique. In 2008, we firstly completed the cryogenic system to polarize proton in the HD sample and produced firstly the polarized HD sample. The HD sample was cooled down to 15 mK in the period of 2 months with a magnetic field of 17 T, and the polarization and the relaxation time for H and D were measured at 300 mK and at 1 T. We measured the first experimental data at various temperatures and magnetic fields. The H polarization degree is  $41.4\pm 3.1\%$ , and the D polarized degree is  $13.1\pm 1.9\%$ . The polarization degrees measured are lower than those expected, but the reason of the low polarization is considered to be due to non-linear relation between the NMR signal height and the polarization degree. The H relaxation time is 2550± 380 hours, and the D relaxation time is  $1740\pm170$  hours. The relaxation time is found to be acceptable to produce a new polarized HD target for replacement in continuous experiments.

Keisuke Ueda RCNP, Osaka University, Japan

Date submitted: 04 Aug 2009 Electronic form version 1.4