Abstract Submitted for the HAW05 Meeting of The American Physical Society

Production of Very Neutron-rich Nuclei with Low Energy Beam MASAHIRO NOTANI, K. BAILEY, J. GREENE, D. HENDERSON, R.J. HOLT, R.V.F. JANSSENS, C.L. JIANG, Z.-T. LU, P. MUELLER, T.P. O'CONNOR, R.C. PARDO, K.E. REHM, J.P. SCHIFFER, X. TANG, ANL, M. PAUL, Hebrew Univ., G.W.F. DRAKE, Univ. of Windsor, L.-B. WANG, Univ. of Illinois — The production cross section of very neutron-rich nuclei, ⁸He, has been investigated using multi-nucleon transfer reaction with a ⁹Be beam at 14 MeV/nucleon. The cross section data will be used to optimize the produced neutron-rich nuclei beam for the study of nuclear structure. The experiment was performed at ATLAS facility at Argonne, where the ⁹Be beam bombarded production targets of Be, BN, C, and U. Particle identification of reaction products was carried out by means of the magnetic split-pole-spectrograph with a focal plane detector that consists of PPACs and ion chambers. The momentum distribution of 8He yield was measured by varying the magnetic field. The angular distribution was measured at 0 and 5 degree. The production cross section was obtained for integration of the observed yield for each target. The production cross section of the ⁹Be (⁹Be, ⁸He) X reaction is smaller than that of the ²³⁸U (⁹Be, ⁸He) X by one order of magnitude. In the present talk, we will report details of the experiment and discuss the production mechanism of neutron-rich nuclei with low energy beams.

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Date submitted: 26 May 2005 Electronic form version 1.4