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Development of a dual-gain multiplication in CNS Active Target for high-intensity heavy-ion beam injection CHEONGSOO LEE, SHINSUKE OTA, YOKI ARAMAKI, CNS, The University of Tokyo, RAPHAEL SAISEAU, University of Paris-Sud, HIROSHI TOKIEDA, CNS, The University of Tokyo, YUNI WATANABE, Department of Physics, The University of Tokyo — We are developing a gaseous deuterium active target, called CAT, for the purpose of the detection of deuteron inelastic scattering off near Sn, especially, the deduction of Isoscalar Giant Monopole Resonance by measuring the forward angle scatterings. The CAT consists of Time Projection Chamber (TPC) where Gas Electron Multipliers (GEMs) is employed as a multiplication device and Silicon detectors and detects the beam and recoiled particles at the same time. When we set the gas gain of GEMs high to measure the low-energy depositing particles at a high-intensity about 10^{5-6} Hz heavy-ion beam, TPC became unstable because of the energy loss of beam particles is about 100 times larger than that of recoiling deuterons. This may cause a negative effect on the resolution and the accuracy. As a solution for this problem, we tried to make a dual-gain multiplication system on GEM-TPC which provides about 100 times lower gas gain at beam trajectory region than recoil particle region by dividing the electrodes of GEM into three area, two recoil sides and the beam side. In this presentation, the test of a dual-gain multiplication in CAT at HIMAC with a high-intensity 100 MeV/u ^{132}Xe beam and the results will be reported.

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