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Experimental study of ^{25}O and ^{26}O by using SAMURAI at RIBF

YOSUKE KONDO, Department of Physics, Tokyo Institute of Technology, SAMURAI COLLABORATION — The unbound nuclei ^{25}O and ^{26}O are studied by means of invariant mass method by using the SAMURAI spectrometer at RIBF. These nuclei are located in the region of the neutron drip line anomaly, where limit of nuclear stability suddenly changes from oxygen to fluorine. According to recent theoretical studies, three nucleon forces are essential to explain the location of the neutron drip line of oxygen isotopes. Available experimental information on oxygen isotopes beyond the drip line is not sufficient to test these theories. In addition, ^{26}O has attracted much attention as a candidate of two neutron radioactivity. Currently, experimental studies provide only upper limit of the ground state energy, which is important to understand possible long lifetime of ^{26}O. In the present study, ^{25}O and ^{26}O are produced by one-proton removal reactions from ^{26}F and ^{27}F, respectively. Decay products, ^{24}O and neutrons are detected by heavy ion detectors and the large acceptance neutron detector array NEBULA. Experimental results will be discussed in the presentation.

Yosuke Kondo
Department of Physics, Tokyo Institute of Technology

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