Reaction cross section of $^{22}$C

YASUHIRO TOGANO, Department of Physics, Tokyo Institute of Technology, SAMURAI COLLABORATION — Reaction cross section of $^{22}$C on a carbon target at an energy of 240 MeV/nucleon have been measured by using the transmission method. The most neutron-rich carbon isotopes $^{22}$C is a candidate of a two-neutron halo nucleus. Tanaka et al. [1] measured the reaction cross section of $^{22}$C on a hydrogen target at 40 MeV/nucleon. It is showed $^{22}$C to have a large matter radius of $5.9\pm0.9$ fm, which is much larger than the ones of carbon isotopes with $N \leq 14$, suggesting $^{22}$C is the halo nucleus. This reported radius has a large uncertainty due to a lack of statistics. To deduce a more accurate matter radius of $^{22}$C, the measurement of reaction cross section with higher statistics at a higher beam energy are required. The experiment was performed by using the SAMURAI spectrometer at RIBF. The $^{22}$C beam at 240 MeV/nucleon was impinged on a carbon target, and the reaction product was identified by using SAMURAI spectrometer. In the present talk, the extracted reaction cross section and derived matter density distribution of $^{22}$C will be presented.

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