Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

One-neutron knockout reaction from 20C JONGWON HWANG, Seoul National University, SAMURAI COLLABORATION — Recent researches in neutron-rich nuclei have demonstrated that the depth of each single-particle level varies from that in stable nuclei : some of the well-known magic numbers disappear and new shell closures develop. Cross-shell excitation, transition of a nucleon across a shell gap, can be exploit to probe changes in shell structure. The present work aims at exploration of neutron-unbound states of ^{19}C, especially a hole- state populated by cross-shell excitation, via a one-neutron knockout reaction. The experiment was performed at the RIBF facility in RIKEN. A ^{20}C secondary beam produced by BigRIPS with an energy of 280 MeV/nucleon impinged on a carbon target placed before the SAMURAI spectrometer. By taking full advantage of the analyzer system comprised of a large-acceptance super-conducting dipole magnet, associated tracking detectors, and a large volume neutron detector system, an invariant mass spectrum for the system of ^{18}C+n was reconstructed. Three unbound excited states in ^{19}C were identified including the unknown $1/2^+_1$ state at 2.90 MeV in excitation energy. Details of the measurement and analysis along with results will be presented.

Jongwon Hwang
Seoul National University

Date submitted: 01 Jul 2014 Electronic form version 1.4