

631st ASRC Seminar

Date: 16:00 ~ 17:00, May 13

Location: Meeting Room 302, ASRC bldg.

Speaker: Dr. CERIZZA, Giordano
(Michigan State University)

Title: Neutron-removal reactions in the
100Sn region

Abstract: Characterizing the nature of single-particle states outside of double shell closures is essential to a fundamental understanding of nuclear structure. This is especially true for those doubly magic nuclei that lie far from stability and where the shell closures influence nucleosynthetic pathways. The region around 100Sn is important due to the proximity of the $N=Z=50$ magic numbers, the proton drip line, and the end of the rp-process. However, owing to low production rates, there is a lack of spectroscopic information and no firm spin-parity assignment for ground states of odd- A isotopes close to 100Sn. Neutron knockout reaction experiments on beams of 108,106Sn have been performed at the NSCL.

The neutron-deficient nucleus Sn107 has been studied in detail by measuring the decay gamma rays and momentum distributions of reaction residues, the spins of the ground, $5/2+$, and first-excited, $7/2+$, states of Sn107 have been assigned by comparisons to eikonal-model reaction calculations. Limits on the inclusive and exclusive cross sections have been measured and transitions due to neutron removals from below the $N=50$ closed shell have been observed. New excited states up to 5.5 MeV in Sn107 have been identified. Statistics-limited results on Sn105 will be also presented.

<Contact>

Riccardo Orlandi (81-6733)

Advanced Science Research Center