

# NUCLEAR SEMINAR SERIES

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**NSCL, MSU**

**Tuesday, November 27**

**4:00 pm - Rm 124 NSH**

## ***The measurement of astrophysical important ( $\alpha$ , Xn) reaction rates with HaBaNERO detector***

Neutron-rich neutrino winds after core-collapse supernovae have been proposed as a possible site for the nucleosynthesis process responsible for the relatively high  $Z=38-47$  abundances in some metal-poor stars. In this scenario, ( $\alpha$ ,Xn) reaction rates are the main production mechanism of heavier nuclei once the temperature has decreased in the late phases of the wind. Although it has been shown that the resulting abundances are highly dependent on these rates, there is little experimental data for the reactions involved in the nucleosynthesis. In order to address this lack of experimental data, the Heavy ion Accelerated Beam induced (Alpha, Neutron) Emission Ratio Observer (HabaNERO) has been recently developed to measure ( $\alpha$ ,xn) cross sections. Preliminary results of the first experiment using HabaNERO, a measurement of the  $^{75}\text{Ga}(\alpha,1n)_{78}\text{As}$  and  $^{75}\text{Ga}(\alpha,2n)_{77}\text{As}$  cross sections, will be presented.



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