

NUCLEAR SEMINAR SERIES



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4:00 pm - Rm 184 NSH

Beta-delayed neutron emission: a tool and a process

Beta delayed neutron emission is a two-step decay mode, which occurs in very neutron-rich nuclei. It becomes a dominating decay mode for sufficiently exotic nuclei, which are at the edge of the current discovery capabilities. Because the majority of new isotopes studied in future facilities will proceed via this decay mode, it is essential to deepen the understanding of this process. Past studies have demonstrated that the information obtained through the beta delayed neutron emission studies can inform us about the properties of most exotic isotopes. Other research branches such as nuclear astrophysics, stewardship science, and nuclear energy require data and reliable models which involve delayed neutron emission.

Our group has built and implemented neutron detectors tailored for the beta delayed neutron decay in multiple experimental facilities with a focus on neutron spectroscopy and multi-neutron emission. I will present the highlights of our research and the most recent technical development of a new generation of neutron detectors, which we will be able to improve energy resolution and to increase the detection efficiency and be able to meet the challenges of the future experiments.



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