

Development and Nuclear Science Education at the National Superconducting Cyclotron Laboratory

National Superconducting Cyclotron Laboratory (NSCL) is a world-leading center in rare isotope research and education. The NSCL mission is to understand the atomic nucleus and the experimental program encompasses a wide variety of techniques related to charged particle, photon, and mass spectroscopy of radioactive isotopes. A sustained research and development effort toward future detector technologies with increasing sensitivities is necessary to successfully carry out the NSCL mission. As examples, my group has deployed a mechanically-cooled HPGe system for efficient coincident beta- and gamma-ray counting coupled to a dead-time free data acquisition system. The faculty at NSCL also play an important role in STEM workforce development, training approximately 10% of the Ph.D. nuclear scientists in the U.S.A. each year. The students are drawn to NSCL based on the compelling science program and unique opportunities to apply novel detectors to study rare isotopes. These highly-skilled young scientists are recruited by national laboratories, industry, and academia, and many continue to work on problems related to radiation monitoring and detector development. In this talk, I will present an overview of the nuclear science program highlighting recent detector technologies at NSCL for nuclear science research. *Work supported in part by NSF PHY and DOE.

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