



Physics Division Seminar

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Nuclear Physics Applications at the University of Notre Dame

Host: Jason Clark

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Over the past two years the Nuclear Science Laboratory at the University of Notre Dame has expanded its program in applied nuclear physics, to complement its research strength in nuclear astrophysics. A fourth accelerator (St. Andre) is now operational and is used for several types of “societal” applications of nuclear science ranging from the more traditional archeology and target thickness determinations, to scanning consumer products for the presence of flame retardants, and other chemicals of concern. Specifically, our work has expanded to develop a rapid screening technique for an emerging class of chemicals of concern: Per- and Polyfluorinated Alkyl Substances (PFAS) that are ubiquitous in in our textiles, food packaging, personal care products and various industrial uses. Some interesting recent results will be presented that have led to policy changes because of the public attention surrounding the results. In addition, we are working to develop methods to produce long-lived radioisotopes that are useful in medicine, stewardship and elsewhere. This involves “harvesting” efforts from operating accelerator facilities to collect unused isotopes as well as production of proton-rich isotopes that are difficult to obtain from other sources. An overview of the applied nuclear physics program and facilities at Notre Dame will be presented, together with our vision for student training opportunities in this program.

PHY Seminar