

Abstract Submitted
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Incorporating Ideas from Detector Physics into the Physics Curriculum: from HS to College¹ MISO KOMAROV, BERNARD BOSTON, RODNEY CARMONA, ELY LEON, MEL SABELLA, EDMUNDO GARCIA-SOLIS, Chicago State University — The goal of this project is to improve student understanding of modern physics in the undergraduate curriculum by building stronger content knowledge, reasoning and laboratory skills. This project is centered on the development of lab modules that help students move beyond theory and develop an appreciation of modern experimental physics. These modules allow students to build knowledge of subatomic particles by experimenting with detectors made of scintillator plastic, phototubes and read-out electronics. These instructional modules we are developing will permeate throughout the undergraduate curriculum forming a coherent conceptual thread. As students progress through the materials the content will become more challenging as the level of scaffolding decreases. As students complete the conceptual thread they will become versed in nuclear physics experimental techniques. In this talk we introduce the project, the detectors and the lab modules. Module one relates the kinetic energy we study in introductory mechanics to the kinetic energy of sub-atomic particles. Module two relates the principles of electromagnetism and charge from the interaction of magnets and coils to that of a sub-atomic particle moving through a detector.

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