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Ionization efficiency at sub-keV energies for crystals and noble liquids

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We study the ionization and light yields produced by nuclear recoils at low energies in pure crystals and noble liquids in the context of Lindhard's integral equation, incorporating the effects of binding energy, improved modeling of the electronic stopping, and electronic straggling. We consider three different models for the electronic stopping power that incorporate Coulomb repulsion effects at low energies, and Bohr electronic stripping for high energies. Finally, we discuss possible new effects near threshold.

Primary author: SARKIS MOBARAK, Youssef (ICN-UNAM)

Co-authors: Dr AGUILAR-AREVALO, Alexis (ICN-UNAM); Dr D'OLIVO SAEZ, Juan Carlos (INC-UNAM); BAXTER, Daniel (Fermi National Accelerator Laboratory)

Presenters: SARKIS MOBARAK, Youssef (ICN-UNAM); BAXTER, Daniel (Fermi National Accelerator Laboratory)

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