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Recent study and results for ionization efficiency theory in pure materials

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Considering that, low-energy nuclear recoils induced by elastic neutrino nuclear coherent scattering with nuclei in pure materials have become an important, active area in particle physics, we present a detailed model to compute silicon ionization efficiency (quenching factor) based on Lindhrad's integral equation, explaining the details considered to match recent low-energy published data. Where we will show the effect of applying this quenching factor to a CE ν NS like rate, comparing the neutrino spectrum from other quenching factor curves that have been used in recent experiments. We are going to show the universality applicability of this model to other materials like noble liquids TPC detectors, which in recent years have become relevant for neutrino low energy CE ν NS searches. Furthermore, we are going to present and discuss a study of effects that account in a direct way for the ionization efficiency, especially at low energies, which means the energy conversion of eV_{nr} to eV_{ee}.

Submitted on behalf of a Collaboration?

No

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