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Тип: Секційна доповідь

First Estimation of Effect of Curved Foil Geometry on the Detection Efficiency of SuperNEMO Demonstrator

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The presentation is dedicated to the impact of source foil deformation on the detection efficiency of the SuperNEMO experiment, which is designed to search for neutrinoless double beta decay ($0\nu\beta\beta$) in ^{82}Se . While the foils should be ideally flat, gravitational effects cause them to bend, potentially affecting the efficiency of event reconstruction. Using results of precise laser measurements of the real foil shape, detailed Monte Carlo simulations were performed for both flat and curved geometries across four processes: $0\nu\beta\beta$, $2\nu\beta\beta$ from ^{82}Se and single beta decays from ^{214}Bi and ^{208}Tl . The analysis compares efficiencies under standard and additional selection criteria, including vertex separation and internal/external event probabilities. Results demonstrate how source geometry influences signal sensitivity and background rejection, providing important input for the optimization of the SuperNEMO analysis strategy.

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