Contribution ID: 15

Type: not specified

Neutrino physics from gamma-ray spectroscopy

Nuclear matrix elements (NMEs) are crucial for understanding weak interaction processes such as inverse beta decay (IBD) and neutrinoless double-beta decay ($0\nu\beta\beta$), which provide insights into neutrino properties and physics beyond the Standard Model. A novel experimental approach aims to extract NMEs using electromagnetic (EM) transitions from isobaric analog states (IAS). In this Expression of Interest, we propose to use the protons delivered by the SPES cyclotron to effectively populate IAS states and measure their gamma decay strengths.

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Session Classification: Fourth Session: Nuclear Physics