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Development of structural self-vetoing scintillators for low background experiments

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The polyester poly(ethylene 2,6-naphthalate) (PEN) is an attractive candidate as a low-background material for future rare event physics experiments. The polyester exhibits ideal mechanical, electrical, and scintillation properties permitting its use not only as an active shield but also a structural component. Recent formulations have been developed which greatly improve optical clarity, reducing radio impurities, and aiding in production of complex geometries. In this presentation, we will provide an update on synthesis, characterization, and potential applications of PEN and PEN derivatives for low-background experiments. Examples will be provided on applications for future germanium-based ton-scale $0\nu\beta\beta$ experiments.

Secondary track (number)

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