

Abstract Submitted  
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**A low-background structural active-veto scintillator for rare event physics** MICHAEL FEBBRARO, DAVID RADFORD, Oak Ridge National Lab, ELENA SALA, BELA MAJOROVITS, OLIVER SCHULZ, Max-Planck Institute, CHRIS BRIGHTWELL, Tennessee Technical University, YURI EFRE-MENKO, University of Tennessee, DANIEL MUENSTERMANN, Lancaster University, RASTISLAV HODAK, Czech Technical University, MARKUS STOMMEL, MARKUS POHL, Technical University Dortmund — The polyester poly(ethylene 2,6-naphthalate) (PEN) has been identified as an attractive candidate 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 with a yield strength higher than that of copper at cryogenic temperatures [Yano, 1995]. It has also been used as a low background material for preparation of electrical ribbon cables for cryogenic detector applications [Brofferio, 2013]. In presentation, we will provide an update on synthesis, characterization, and potential applications of PEN and PEN derivatives in rare event physics such as a future germanium-based ton-scale  $0\nu\beta\beta$  experiment. This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics. Research sponsored by the Laboratory Directed Research and Development Program of Oak Ridge National Laboratory, managed by UT-Battelle, LLC, for the U.S. Department of Energy. [Yano, 1995] Yano O, et al., Prog Polym Sci (1995) [Brofferio, 2013] C. Brofferio, et al., NIMA 178 (2013)

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