

Abstract Submitted  
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**Demonstration of the Prototype BetaCage, an Ultra-sensitive Screener for Surface Contamination** A. RIDER, Z. AHMED, S. GOLWALA, R. NELSON, A. ZAHN, California Institute of Technology, R. BUNKER, M. KOS, R.W. SCHNEE, B. WANG, Syracuse University, D.R. GRANT, University of Alberta — Material screening for low-energy betas and alphas is necessary for rare-event-search experiments, such as dark matter and neutrinoless double-beta decay searches where surface radiocontamination is a significant background. The BetaCage, a gaseous neon time-projection chamber, has been proposed as a screener for emitters of low-energy betas and alphas to which existent screening facilities are insufficiently sensitive. We have constructed and characterized a prototype of the BetaCage to demonstrate the viability of constructing a time-projection chamber out of materials consistent with radio-purity. The prototype has demonstrated sufficient energy resolution and stability to indicate the success of our basic design. We report on the details of the detection characteristics of the prototype BetaCage.

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