

Abstract Submitted
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Acoustic and Seismic Noise Subtraction in CUORE KENNETH VETTER, University of California, Berkeley — The Cryogenic Underground Observatory for Rare Events (CUORE) experiment is an ongoing search for neutrinoless double beta decay ($0\nu\beta\beta$) located at the Gran Sasso National Laboratory (LNGS) in Italy. The experiment features 988 bolometers, each composed of a neutron transmutation doped thermistor attached to a TeO_2 crystal. Recent work has found that the CUORE bolometer channels are sensitive to acoustic and seismic events originating from outside the detector at LNGS. The effects are thought to be nonlinear, with a substantial amount of down-mixing occurring during the conversion of vibrational energy to heat. Acoustic events are expected to worsen the energy resolution of the CUORE detector, thus characterizing these nonlinear effects is a necessary step to take. Here we explain our procedure for measuring the effects of acoustic and vibrational noise on the CUORE bolometer channels using microphones and accelerometer. We then discuss the correlation of these devices with the bolometer channels. Finally, we examine how decorrelating this noise may affect the energy resolution of the CUORE detector.

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