

Abstract Submitted  
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**Development of calibration sources for the CUORE detector calibration system** JESS CLARK, University of Wisconsin - Madison — CUORE, the cryogenic underground observatory for rare events, is a search for neutrinoless double beta decay ( $0\nu\beta\beta$ ) that utilizes 988  $\text{TeO}_2$  bolometers at a temperature of 10 mK within a cryogen-free cryostat. Periodic precise energy calibration, particularly in the energy region surrounding the double beta decay Q-value of  $^{130}\text{Te}$  (2527 keV), is required to reliably establish and maintain an understanding of the bolometer responses. The detector calibration system (DCS) uses 12 gamma-source strings that are lowered into the detector region of the cryostat through a series of internal guide tubes for monthly calibration. The main constraints on our source string design are radiopurity of the production materials, mechanical reliability, and the load introduced into the cryostat from friction, thermal conductance, and radiation. We discuss the design, fabrication, and quality assurance of the radioactive source strings for the CUORE calibration system.

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