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Stabilization heaters for AMoRE

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AMoRE (Advanced Mo-based Rare process Experiment) is a large-scale low temperature detector to search for neutrinoless double beta decay ($0\nu\beta\beta$) of ^{100}Mo . The project employs MMC readouts for simultaneous phonon-scintillation detection from scintillating crystals containing ^{100}Mo elements. Because heat capacities of the detector components and MMC sensitivity vary with temperature, signal amplitudes drift over a long time period as the base temperature fluctuates. This effect degrades the energy resolution of the calorimetric detection at low temperatures. By installing a Joule heater attached to the detector to inject periodic and controlled amount of heat, we produce reference signals that can be used for gain stabilization. We show the crystal heater used in AMoRE experiments and report the gain stabilization results using the heater signal.

Less than 5 years of experience since completion of Ph.D

Y

Student (Ph.D., M.Sc. or B.Sc.)

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