

Calibrating the DMRadio-50L Detector

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Dark Matter Radio 50L (DMRadio-50L) is a resonant, lumped-element detector searching for low-mass axion dark matter. The detector will have a toroidal superconducting magnet enclosed by a superconducting sheath connected to a high-Q tunable LC resonator. In this talk, I will outline the calibration plan the experiment will employ to determine its end-to-end sensitivity. A variety of methods will be used, including a mimetic axion signal injected into the detector, resonator noise measurements, multichannel SQUID chain calibration, and sideband injection. These results will allow us to characterize the detector and convert raw detector data into limits on $g_{a\gamma\gamma}$.

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