## Noise Optimization in DMRadio-50L Using a Tunable Transformer

DMRadio-50L is a resonant low-mass axion search utilizing a low-noise amplifier. The experiment's sensitivity depends on tuning the resonator-amplifier coupling to approach a quantum-limited amplifier noise. This frequency-dependent coupling must be optimized in real-time across the experiment's frequency range. In this poster, I will introduce a tunable transformer developed for this purpose and discuss its cryogenic performance and integration into DMRadio-50L.

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