

# Closed Loop Testing of Microphonics Algorithms Using a Cavity Emulator

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An analog crystal filter based cavity emulator is modified with reverse biased varactor diodes to provide a tuning range of around 100 Hz. The piezo drive voltage of the resonance controller is used to detune the cavity through the bias voltage. A signal conditioning and summing circuit allows the introduction of microphonics disturbance from a signal source or using real microphonics data from cavity testing. This setup is used in closed loop with a cavity controller and resonance controller to study the effectiveness of resonance control algorithms suitable for superconducting cavities.

## Keyword

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