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## **Tuning Axion Haloscopes with Non-Linear Dielectric** *Materials*

Tuesday 4 June 2019 14:55 (5 minutes)

Axion haloscopes based on the resonant cavity technique require large and larger arrays of cavities to maintain signal power as frequency increases. For large numbers of cavities, tuning the cavity resonant frequency with mechanical actuators becomes difficult, especially at temperatures below 100 mK. We propose the use of non-linear dielectric crystals such as Strontium Titanate to tune large cavity arrays without the need for large numbers of mechanical actuators. We will show simulation and prototype testing results.

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