

Cross-spectral measurement techniques for axion cavity searches

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The cross-spectrum of two measurements rejects uncorrelated signals, while retaining those that are correlated. Here we present some fundamental concepts of cross-correlation measurements and how they can be applied to axion cavity searches. One technique allows for improved resolution when observing the intrinsic thermal noise of cavities by rejecting uncorrelated amplifier noise. A different technique allows the spectrum outputs of two spatially well-separated cavities to be effectively combined.

We will also present a brief status report of a cavity-based search for ~ 26.6 GHz CDM axions.

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