

ABRACADABRA: A broadband/resonant search for axions

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In the long-wavelength regime, axion interactions with a static magnetic field can be described in terms of an effective current which sources a small oscillating magnetic field. I will describe a new experiment (ABRACADABRA) to detect this axion effective current which can operate with either broadband or resonant readout of the signal. Inspired by advances in medical physics and precision magnetometry, the broadband approach has advantages at low axion mass and can probe many decades of mass simultaneously. The combination of broadband and resonant approaches potentially has sensitivity to GUT-scale QCD axions. I will discuss recent progress on a prototype of ABRACADABRA under development at MIT.

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