



Contribution ID: 86

Type: **not specified**

The DMRadio Program

Monday, 14 June 2021 17:20 (20 minutes)

DMRadio, which now includes the ABRACADABRA collaboration, is a multi-detector program to search for axion dark matter (aDM) with mass below 1 μeV using a lumped-element resonator. DMRadio-50L is a toroidal detector that will probe aDM over the range $20 \text{ peV} m_a$ 20 neV down to photon couplings of $g_{a\gamma\gamma} > 5 \times 10^{-15} \text{ GeV}^{-1}$. It is currently under construction and will also serve as a testbed for acceleration with quantum sensors. DMRadio-m3, which is in the design phase, will have a larger magnet and be sensitive to aDM in the QCD axion band from $20 \text{ neV} m_a$ $0.8 \mu\text{eV}$. We are also pursuing the development of a future search for GUT-scale QCD axions with masses down to 1 neV, called DMRadio-GUT. In this talk I will give an overview of the DMRadio program, design considerations, and schedule. I will also present recent results from ABRACADABRA.

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Session Classification: Session 3