

Abstract Submitted
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Searching for Axion Dark Matter Below 1 micro-eV: the Dark Matter Radio KENT IRWIN, Stanford Univ, DARK MATTER RADIO COLLABORATION — The Dark Matter Radio Cubic Meter (DMRadio-m³) is an experiment to search for QCD axion dark matter over more than 1.5 orders of magnitude in mass, from 20 neV to 0.8_eV , including substantial coverage of the two benchmark QCD axion models (referred to as KSVZ and DFSZ). The QCD axion, originally proposed as a solution to the strong CP problem in QCD, is one of the most strongly motivated candidates for dark matter. The design for DMRadio-m³ is being developed under the DOE Dark Matter New Initiatives program. The DM Radio Collaboration brings together the teams that developed both the ABRACADABRA-10cm experiment and the DM Radio Pathfinder experiment. In this mass range, dark-matter is probed by the signals induced in lumped-element electromagnetic resonators. I will describe the design of DMRadio-m³, as well as a related experiment, DMRadio-50L, which will probe axion-like particles and hidden photons at masses below 10 neV. These experiments both utilize lumped-element resonators to couple to dark-matter-induced signals.

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