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First axion and dark photon dark matter searches with MADMAX

The MAgnetized Disk and Mirror Axion eXperiment (MADMAX) is a future experiment aiming to detect dark matter axions from the galactic halo by resonant conversion to photons in a strong magnetic field. It uses a novel concept based on a stack of dielectric disks, called booster,to enhance the axion-photon conversion probability over a significant mass range. In its final version MADMAX can scan the uncharted QCD axion mass range around 100 μeV, favoured by post-inflationary theories. Several smaller scale prototypes have been tested these two last years allowing to validate the new dielectric haloscope concept and perform first axion and dark photon dark matter searches.

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