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## Operation of a ferrimagnetic Axion haloscope at ma = 58 microeV

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In the QUAX experiment, dark matter axions are searched by means of their resonant interactions with electronic spins in a magnetized sample. In principle axion-induced magnetization changes can be detected embedding a sample in a rf cavity under a static magnetic field. In this presentation we describe the operation of a prototype ferrimagnetic haloscope, whose sensitivity is limited only by thermal effects. With a preliminary axion search, we are able to produce an upper limit on cosmological DSFZ axions of gaee  $<4.9\times10^{\circ}-10$  at 90% C.L. for an axion mass of 58 microeV (i.e. 14 GHz) and assuming a local DM density of 0.45 GeV/cm $^{\circ}$ 3. This is the first reported measurement of the coupling between cosmological axions and electronic spins. Some preliminary measurements with a NbTi superconducting cavity will be presented.

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