

The Klash Proposal: Status and Perspectives

Monday 18 June 2018 14:30 (20 minutes)

We recently proposed [arXiv:1707.06010] a search of galactic axions with mass about $0.2 \mu\text{eV}$ using a large volume resonant cavity, tens of cubic meters, cooled down to 4 K and immersed in a moderate axial magnetic field of about 0.6 T generated inside the superconducting magnet of the KLOE experiment located at the National Laboratory of Frascati of INFN.

This experiment, called KLASH (KLoe magnet for Axion Search), has a potential sensitivity on the axion-to-photon coupling, $g_{a\gamma\gamma}$, of about $6 \times 10^{-17} \text{ GeV}^{-1}$, reaching the region predicted by KSVZ and DFSZ models of QCD axions.

We will present the results of detailed mechanical and electromagnetic simulations of the cryostat and resonant cavity and improved studies of the Squid amplifier and of the tuning system.

We will then discuss the discovery potential of axions and other light particles with this realistic setup and the strategies to extend the bandwidth from 50 MHz foreseen in the original proposal to hundreds MHz.

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