The axion dark matter experiment MADMAX¨

Dr. Christoph Krieger

Universität Hamburg

¨The MAgnetized Disk and Mirror Axion eXperiment 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 stack of dielectric disks, called booster, to enhance the axion-photon conversion probability over a significant mass range. This will allow MADMAX as a dielectric axion haloscope to scan the mass range around 100 µeV which is particularly difficult to reach with other experimental approaches. While MADMAX will soon enter the commissioning of its large prototype for which later also a physics run in a large magnet at CERN is planned, several smaller scale prototype systems have been developed and used to verify the experimental principles.
This talk will present the design and concept of MADMAX as well as the current status of the experiment and its prototypes, including the ongoing research
and development and remaining challenges.¨