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Status update of the axion helioscope BabyIAXO

Friday, 8 July 2022 11:50 (15 minutes)

The International Axion Observatory (IAXO) is a large-scale axion helioscope that will look for axions and axion-like particles (ALPs) produced in the Sun. It is conceived to reach a sensitivity on the axion photon coupling in the range of 10^{-12} GeV^{-1}.
On the way to IAXO, an intermediate experiment babyIAXO is already in the construction phase. BabyIAXO will be important to test all IAXO subsystems (magnet, optics and detectors) and at the same time, as a fully-fledged helioscope, will reach a sensitivity on the axion-photon coupling of 1.5×10^{-11} GeV^{-1} for masses up to 0.25 eV, covering a very interesting region of the parameter space.
Important milestones have been reached in the past years in the development of the different components of the experiment as low background x-ray detectors and x-ray optics as well as for the design of the large magnet hosting two 10 m long bores with a diameter of 0.7 m for axion to photon conversion. The design of the mechanical infrastructures allowing for a Sun monitoring during half of a day has been defined.
We report on the recent characterization of babyIAXO subsystems and discuss how the achieved results compare to the requirements. We finally discuss the schedule for the construction of the babyIAXO helioscope.

In-person participation

Yes

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