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## Axion Searches with IAXO and BabyIAXO

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For the search for axions, helioscopes are one of the original experiments that were introduced by Sikivie in 1983. Helioscopes are built with the idea that the Sun is a major source for axions thanks to its high core temperature. These axions would be produced through the Primakoff effect, processes relying on the axion-electron coupling and other mechanisms. In a helioscope, those solar axions can then couple to X-ray photons in a magnetic field which then in turn can be detected.

Following previous experiments like CAST, IAXO (the International AXion Observatory) will be a next-generation helioscope. It is planned to be built at DESY in Hamburg just like its predecessor BabyIAXO. The latter will not only be a proof of concept for the different components of IAXO but has its own physics potential.

IAXO will consist of a 20 m long magnet that is mounted on a drive system to be able to track the Sun for a minimum of 12 hours a day. This magnet will be connected to 8 setups consisting of an X-ray focusing optic and a detector each.

This talk will give an overview of the plans for both IAXO and BabyIAXO as well as their physics potential. In addition to aiming for an axion-photon coupling sensitivity in the range of  $10^{-12}\text{GeV}^{-1}$  and  $2 \times 10^{-11}\text{GeV}^{-1}$  respectively, both experiments will be able to also search for axion-like particles (ALPs), dark matter axions in a haloscope stage and other physics cases. This talk will also go into detail about the developments towards building BabyIAXO and the progress of its different components.

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