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The International Axion Observatory (IAXO) and BabyIAXO (*)

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The International Axion Observatory (IAXO) is a next-generation axion helioscope aiming at a sensitivity to the axion-photon coupling down to ˜1.5×10^{-12} GeV^{-1}, approximately 1.5 orders of magnitude beyond current helioscopes, across a wide mass range up to ˜0.25 eV. IAXO will probe QCD axions in the 1 meV~1 eV mass range, where they could constitute all or part of the dark matter in the Universe, as well as a large part of parameter space that includes ALP dark matter candidates and other novel excitations at the low-energy frontier of particle physics. The collaboration is currently constructing BabyIAXO, as a preliminary step towards a full IAXO experiment. BabyIAXO will not only serve as a testbed for prototype magnet, X-ray optic, and detector systems, but also probe four times lower in axion-photon coupling than the current leading helioscope limits. In this contribution, we discuss the status of BabyIAXO and IAXO, as well as the anticipated science impact of each.

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