An update on the Axion Helioscopes front: Current activities at CAST and the IAXO project

Although they have not yet been detected, axions and axion-like particles (ALPs) continue to maintain the interest (even increasingly so) of the rare-event searches community as viable candidates for the Dark Matter of the Universe but also as a solution for several other puzzles of astrophysics. Their property of coupling to photons has inspired different experimental methods for their detection, one of which is the helioscope technique. The CERN Axion Solar Telescope (CAST) is the most sensitive helioscope built up to date and has recently published part of the latest data taken with the magnet bores gradually filled with 3He, probing the mass range up to 1.17 eV. The International AXion Observatory (IAXO) is being proposed as a facility where different axion studies can be performed, with the primary goal to study axions coming from the Sun. Designed to maximize sensitivity, it will improve the levels reached by CAST by almost 5 orders of magnitude in signal detection, that is more than one order of magnitude in terms of $g\gamma$. Here we will summarize the most important aspects of the helioscopes, and focus mainly on IAXO, based on the recent papers [1, 2].