



Contribution ID: 375

Type: **Oral Presentation**

IAXO, next-generation of helioscopes (15' + 5')

Thursday 4 August 2016 14:30 (20 minutes)

The International Axion Observatory (IAXO) is a proposed next-generation axion helioscope with the primary physics research goal to search for solar axions via their Primakoff conversion into photons in a strong magnetic field.

IAXO consists of a 20 m long superconducting 8-coil toroidal magnet optimized for axion research. Each one of the eight 60-cm-diameter magnet bores is equipped with state-of-the-art x-ray optics and low-background x-ray detectors. The magnet is built into a structure with elevation and azimuth drives that allow for daily solar tracking.

IAXO will achieve a sensitivity to the axion-photon coupling $g_{\gamma\gamma}$ down to a few 10^{-12} GeV $^{-1}$ for a wide range of axion masses up to ~ 0.25 eV. This is an improvement over the currently best axion helioscope, the CERN Axion Solar Telescope (CAST), of about 5 orders of magnitude in signal strength.

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Session Classification: Dark Matter Detection

Track Classification: Dark Matter Detection