



Contribution ID: 199

Type: Oral

Axion helioscopes update: the status of CAST & IAXO

Thursday 5 June 2014 12:20 (20 minutes)

After almost 35 years since their suggestion as a good solution to the strong CP-problem, axions remain one of the viable candidates for the Dark Matter, although still eluding detection. Most of the methods for their detection are based on their coupling to photons, one of the most promising ones being the helioscope technique.

We will report on the current status of the CERN Axion Solar Telescope and the future International Axion Observatory (IAXO). Recent results from the second part of CAST phase II, where the magnet bores were filled with ^3He gas at variable pressure achieving sensibilities on the axion mass up to 1.2 eV, will be presented. Currently CAST is expecting to improve sensitivity to solar axions with rest mass below $0.02 \text{ eV}/c^2$ after the upgrade of the X-ray detectors and with the implementation of a second X-ray optic. At the same time, it is exploring other possibilities at the low energy physics frontier. On the other hand IAXO, the fourth generation axion helioscope, aims to improve CAST's performance in terms of axion-photon coupling by 1-1.5 orders of magnitude. The details of the project building a dedicated magnet, optics and x-ray detectors will be given.

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Session Classification: II.b Astro & Space

Track Classification: Experiments: 2b) Astrophysics and Space Instrumentation