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The CAST experiment: results and perspectives

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The status of the solar axion search with the CERN Axion Solar Telescope (CAST) will be discussed. 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. In the next two years CAST is expecting to improve sensitivity to solar axions with rest mass below $0.02 \text{ eV}/c^2$ by upgrading the X-ray detectors and by the implementation of a second X-ray optic. Expected goals and sensibilities will be given. At a longer term, the fourth generation of axion helioscope aims to improve the current axion-photon coupling by 1-1.5 order of magnitudes. This will be possible by building a dedicated magnet and dedicated optics and X-ray detectors.

Primary author: FERRER RIBAS, esther

Presenter: Mr DAFNI, Theopisti (Universidad de Zaragoza (ES))

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