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The CAST experiment: status and perspectives

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The status of the solar axion search with the CERN Axion Solar Telescope (CAST) will be discussed. Results from the first part of CAST phase II where the magnet bores were filled with ^4He gas at variable pressure in order to scan m_a up to 0.4 eV will be presented. From the absence of excess X-rays when the magnet was pointing to the Sun, we set a typical upper limit on the axion-photon coupling of $g_{a\gamma} < 2.17 \times 10^{-10} \text{ GeV}^{-1}$ at 95% CL for $m_a < 0.4$ eV, the exact result depending on the pressure setting. Our search for axions with masses up to about 1.2 eV using ^3He as a buffer gas is in progress in the second part of CAST phase II. Expectations for sensibilities will be given. Near future perspectives as well as more long term options for a new helioscope experiment will be evoked.

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