

Latest results on dark matter axions with CAST-CAPP

Wednesday 10 August 2022 10:20 (20 minutes)

Following a suggestion from 2012, the CAST experiment has been converted from an axion helioscope to an axion haloscope searching for Dark Matter axions. The CAST-CAPP sub-detector whose results will be presented consists of four tunable microwave cavities with no mode crossings for the axion mode, situated inside one of the two twin bores of the CAST dipole magnet. For the first time in axion research, the detector uses the phase-matching technique that improves the signal-to-noise ratio and a novel fast-tuning mechanism that allows searching for transient events. The excluded frequency range for galactic axions extends over a frequency range of ~ 660 MHz, i.e., axions with masses around $19.74 - 22.47 \mu\text{eV}$ and sets a competitive limit.

Primary authors: MAROUDAS, Marios (University of Patras); Mr OZBOZDUMAN, Kaan (Bogazici University)

Presenter: MAROUDAS, Marios (University of Patras)

Session Classification: Contributed talks