



Contribution ID: 60

Type: **not specified**

SEARCH FOR DARK MATTER AXIONS WITH CAST-CAPP

Wednesday, June 16, 2021 3:25 PM (25 minutes)

The CAST experiment at CERN was recently converted from axion helioscope to axion haloscope searching for Dark Matter (DM) axions. The CAST-CAPP detector, whose current status and recent results will be presented, consists of four tunable cavities installed inside one of the two twin bores of the CAST dipole magnet. The detector is using the phase-matching technique to improve the signal-to-noise ratio. In addition to searches for galactic axions, the CAST-CAPP detector has the potential to search for streaming DM axions including the theoretically motivated axion mini-clusters. The currently excluded frequency range for virialized axionic dark matter extends over a range of ~ 660 MHz corresponding to axions with masses around $19.7 - 22.4 \mu\text{eV}$ and sets a competitive limit.

Speaker

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Session Classification: Session 10