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## Updated axion search results from HAYSTAC's Phase II operation in the mass range above $17 \mu\text{eV}$

*Wednesday, 18 September 2024 11:30 (20 minutes)*

The Haloscope At Yale Sensitive To Axion CDM (HAYSTAC) Experiment is actively searching for QCD axions using a resonant microwave cavity enhanced by a quantum squeezed state receiver (SSR). Because the axion's mass and coupling strength are unknown, a crucial metric is the scanning rate across the parameter space. Integration of the SSR into the HAYSTAC experiment has allowed for a scan rate enhancement of up to 2x. More recently, HAYSTAC has improved its system stability, enabling the SSR to operate reliably across a wide range of axion masses. I will discuss HAYSTAC's latest results in the mass range between  $17\text{-}20 \mu\text{eV}$ , current status, and future plans.

**Primary author:** BAI, Xiran (Yale University)

**Presenter:** BAI, Xiran (Yale University)

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