

New Results from HAYSTAC's Search for Dark Matter Axions

Thursday 27 March 2025 16:05 (15 minutes)

The Haloscope At Yale Sensitive To Axion CDM (HAYSTAC) experiment is a microwave cavity search which is actively probing QCD axions with masses $\lesssim 10\mu\text{eV}$. In this talk, I will present recent results from HAYSTAC's Phase II search for QCD axions between $16.96 - 19.46\mu\text{eV}$. These results are the widest search to date to achieve a quantum enhanced scan rate from a squeezed state receiver and include new data covering $1.71\mu\text{eV}$ of previously unexplored parameter space with sensitivity to QCD axions with axion-photon coupling of $\sim 3 \times |g_7^{KSVZ}|$. I will also discuss upgrades in development to facilitate further searches for axions beyond $20\mu\text{eV}$.

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Session Classification: SESSION 19: Direct detection: Ultra-Light DM (Axions, ALPs, WISPs) searches