



Contribution ID: 61

Type: **Talk**

Status and Recent Results from the BREAD Gigahertz Pilot Experiment

Thursday, 19 September 2024 11:50 (20 minutes)

We present the status and recent results of the room temperature BREAD gigahertz pilot experiment (Giga-BREAD) which is looking for axion-like particles in the $\sim 50 \mu\text{eV}$ range. Reflector-based searches allow for wave-like dark matter searches at higher mass regimes where resonant cavity searches lose sensitivity due to scaling limitations. BREAD is a novel reflector concept which is optimized to fit inside solenoidal magnets to conduct searches for axions and axion-like particles. Last year, we conducted a pilot dark photon search using the GigaBREAD apparatus [PRL 132 (2024) 131004]. Following this successful dark photon search, we have been working to extend the sensitivity of GigaBREAD to axion-like particles by placing the reflector in a 4 T solenoidal magnet at Argonne National Laboratory.

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Session Classification: Morning 4