

# Searching for Axions and High-Frequency Gravitational Waves with ABRACADABRA-10cm

*Thursday 27 March 2025 16:35 (15 minutes)*

ABRACADABRA-10cm has had great success as a lumped-element axion dark matter pathfinder experiment. Now, using the electrodynamics of gravitational waves and a simple change of pickup structures, we are using the ABRACADABRA detector to search for high-frequency gravitational wave in the kHz to MHz range. These higher frequencies may indicate signs of in-spiraling primordial black holes, or other beyond the standard model phenomena. With careful calibration and simulation used to distinguish between the two signals, we introduce the first simultaneous search for both axions and gravitational waves. I will present on the design and results from the ABRACADABRA-10cm high-frequency gravitational wave search.

**Author:** Dr PAPPAS, Kaliroe (Columbia University)

**Presenter:** Dr PAPPAS, Kaliroe (Columbia University)

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