

# Listening to the Dark Universe: Experimental Searches for Axion Dark Matter

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The axion is a highly motivated hypothetical particle that could simultaneously address two major fundamental questions in modern physics—the strong CP problem and the dark matter mystery. A large class of experimental searches exploit the axion-photon coupling, aiming to detect axion-induced photons in the presence of strong magnetic fields. These efforts have advanced significantly in recent years, with several searches, particularly in the micro-eV (GHz) mass range, now reaching sensitivity levels that probe well-motivated theoretical models. Ongoing developments aim to broaden the accessible mass range and improve detection capabilities through advanced technologies and innovative experimental strategies. This talk will review the current status of axion dark matter experiments and discuss future prospects across the global search program.

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