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Dark matter axion search experiments using 18T HTS magnet at CAPP/IBS in KAIST

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The presence of dark matter had profound consequences on the evolution of the Universe. The Standard Model does not accommodate a suitable dark matter candidate. Therefore, the existence of dark matter is a crucial phenomenological evidence for physics Beyond the Standard Model. The pressing goal of current and future dark matter experiments is to answer the question of whether dark matter interacts with normal matter other than gravity; i.e. if dark matter is detectable. Among the plethora of dark matter candidate particles, the Weakly Interacting Massive Particles (WIMPs) and the Axions are the most outstanding contender. In this talk, we will discuss about the dark matter axion search projects at the Center for Axions and Precision Physics Research at CAPP/IBS in KAIST, especially focused on the CAPP18T axion dark matter search experiment which utilizes a 18T High Temperature Superconducting solenoid magnet, resonant cavity, dilution refrigerator and linear amplifier system.

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