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Recent Progress on CAPP's Main eXperiment (CAPP-MAX)

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IBS-CAPP has established the state-of-the-art axion detector facility in Korea with multiple dilution refrigerator systems. The recent addition was 12 T big bore (32 cm) Nb3Sn superconducting magnet to the line-up with quantum noise-limited amplifiers to collect the axion dark matter physics data with a DFSZ level sensitivity. Achieving around 200 mK of total system noise temperature made it possible to scan more than 1 GHz per year. This milestone reflects the CAPP's effort of successfully applying cutting-edge technologies and innovative R&Ds to building a top-notch axion dark matter search experiment. The other critical R&D focus has been on the development of the high temperature superconducting cavity that sustains high Q-factor (> 10 million) even at 12T. A 36-liter superconducting cavity with HTS will be added to the CAPP-MAX experiment this year to enhance the scanning speed even further. We will present the status of CAPP's axion search and R&D efforts, including future plans.

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