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Measurements of quality factor of microwave cavities for axion search experiments

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In cavity-based axion search experiments, the quality factor of microwave resonant cavities is an important parameter for improvement of sensitivity to the axion-to-photon coupling. One of the R&D efforts conducted at the Center for Axion and Precision Physics Research (CAPP) of the Institute for Basic Science (IBS) is to develop high-Q cavities with frequency tuning systems. Using a 4K cryocooler and liquid helium, we measure the temperature dependence of Q values for cylindrical cavities of various materials. The results of the measurements are presented and future plans are discussed in this poster.

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