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Improving the quality factor of microwave cavities for axion search experiments SAEBYEOK AHN, JUNU JUNG, KAIST, SUNGWOO YOUN, YANNIS SEMERTZIDIS, Center for Axion and Precision Physics Research — In cavity-based axion search experiments, the quality factor (Q) of microwave resonant cavities is an important parameter to be sensitive to faint signal from the axion-to-photon conversion. 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 improve the quality factor of resonant cavities by employing two approaches - pure material and heat treatment. Using a 4K cryocooler and liquid helium, we measure the temperature dependence of Q value to find the effect of material purity and an optimal condition of heat treatment. The measurements are performed on Cu and Al cavities and the results are shown in this presentation.

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