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Anisotropic thermal conductivity of proton fluctuation-induced quantum spin liquid κ-H_3(Cat-EDT-TTF)$_2$ MASAAKI SHIMOZAWA, YOSHITAKA SUZUKI, KAORI SUGII, AKIRA UEDA, SHOGO YAMADA, YUSUKE IMAI, KIYOSHI TORIZUKA, YOSHIYA UWATOKO, HATSUMI MORI, MINORU YAMASHITA, ISSP, University of Tokyo — We report the thermal transport properties of a quantum spin liquid candidate κ-H_3(Cat-EDT-TTF)$_2$ (H-CAT) with a two-dimensional nearly isotropic triangular lattice. Above 1.0 K, thermal conductivity of H-CAT is substantially smaller than that of a deuterated non-magnetic sample (D-CAT) despite no spin thermal conductivity in D-CAT. In the zero-temperature limit, a finite T-linear term of the thermal conductivity of H-CAT is clearly observed when the heat current is parallel to c-axis, while it is almost zero when the heat current is parallel to b-axis. These features would be attributed to anisotropic proton fluctuations present in H-CAT.

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