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Low-energy quasiparticle excitations in $A$$Fe_2As_2$, A =Rb, Cs revealed by magnetic penetration depth measurements YUTA MIZUKAMI, YUTA KAWAMOTO, SATOSHI KURATA, YUSUKE SHIMOYAMA, Kyoto University, PHILIPP BURGER, ANNA BÖHMER, FREDERIC HARDY, THOMAS WOLF, CHRISTOPH MEINGAST, HILBERT LÖHNEYSEN, Karlsruhe Institute for Technology, YUJI MATSUDA, TAKASADA SHIBAUCHI, Kyoto University — In superconductors with strong correlations, clarifying the superfluid response in the superconducting state plays a crucial role to determine the symmetry and the structure of superconducting gap. In hole-doped iron-based pnictide superconductor KFe_2As_2 without electron pockets, highly unusual nodal structure in the superconducting gap has been reported. How this gap structure changes in related materials is important to understand its pairing mechanism. Here, we report on the magnetic penetration depth measurements in $A$$Fe_2As_2$, A =Rb, Cs. We observe strong temperature dependence of penetration depth at low temperatures, evidencing low-energy quasiparticle excitations. From detailed comparisons of the data between K, Rb, Cs systems, the gap structure in these materials will be discussed.

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