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Impurity Scattering Effect and Pairing Symmetry Revealed by Low Temperature Specific Heat in Iron Pnictide Superconductors[1] GANG MU, Institute of Physics, Chiness Academy of Sciences, BING ZENG, Institute of Physics, CAS, PENG CHENG, ZHAOSHENG WANG, LEI FANG, BING SHEN, CONG REN, LEI SHAN, HUIQIAN LUO, PENGCHENG DAI, HAI-HU WEN — Low-temperature specific heat C_p was measured on $Ba(Fe_{1-x}Co_x)_2As_2$ single crystals in wide doping region. A sizeable residual specific heat coefficient γ_0 was observed in the low temperature limit of all samples. The specific heat jump near T_c, i.e. $\Delta C_p/T|_{Tc}$ was also determined. It is found that -γ_0,$\Delta C_p/T|_{Tc}$ and T_c all share a similar evolution with doping. These can be well understood within the model of $S^{\pm}$ pairing manner when accounting the cobalt-dopants as unitary scattering centers in the FeAs planes. Our results revealed a non-trivial impact of impurity scattering in FeAs-based superconductors. Angle resolved low temperature specific heat was measured in $FeSe_{1-x}Te_x$ single crystals. Oscillations with periodicity of $\pi/2$ was observed at 9 T. This constrains the pairing symmetry with the two possibilities: either d-wave or $S^{\pm}$.

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