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Unconventional superconductivity in $CaFe_{0.85}Co_{0.15}AsF$ evidenced by torque measurements HONG XIAO, Center for High Pressure Science and Technology Advanced Research, X. J. LI, G. MU, T. HU, Shanghai Institute of Microsystem and Information Technology — Out-of-plane angular dependent torque measurements were performed on $CaFe_{0.85}Co_{0.15}AsF$ single crystals. Abnormal superconducting fluctuation, featured by enhanced diamagnetism with magnetic field, is detected up to about 1.5 times superconducting transition temperature T_c. Compared to cuprate superconductors, the fluctuation effect in iron-based superconductor is less pronounced. Anisotropy parameter γ is obtained from the mixed state torque data and it is found that γ shows both magnetic field and temperature depenence, pointing to multiband superconductivity. The temperature dependence of penetration depth $\lambda(T)$ suggests unconventional superconductivity in $CaFe_{0.85}Co_{0.15}AsF$.

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