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Flux-flow resistivity and penetration depth measurements of $BaFe_2(As,P)_2$: semi-quantitative estimates of gap anisotropy[1] TATSUNORI OKADA, YOSHINORI IMAI, HIDEYUKI TAKAHASHI, Department of Basic Science, the University of Tokyo, MASAMICHI NAKAJIMA, AKIRA IYO, HIROSHI EISAKI, National Institute of Advanced Industrial Science and Technology, ATSUTAKA MAEDA, Department of Basic Science, the University of Tokyo — Flux-flow measured by using a microwave technique is unique method to investigate quasiparticles in the vortex core. By measuring the magnetic-field dependence of the flux-flow resistivity, ρ_f, of several Fe-based SCs, we found that $\rho_f(H)$ is expressed as $\rho_f/\rho_n = \alpha H/H_{c2}$ with α strongly depends on materials, suggesting that $\rho_f(H)$ of Fe-based SCs is dominated by the gap structure. By comparing these with the penetration depth data, we also found that α becomes larger when the gap function is more anisotropic [1,2]. To make this gap-anisotropy scenario more convincing, we focused on $BaFe_2(As,P)_2$ (P=30, 45%), and found that the penetration depth increased in proportion to $T^{1.5-1.7}$. The fractional exponent can be understood by assuming that these materials have gaps with lines of nodes and deeply-warped nodeless gaps. As for flux-flow, $\rho_f(H)$ showed a large gradient of $\alpha > 2.5$, similar to that of $SrFe_2(As,P)_2$ [2], pointing to highly anisotropic gaps in a consistent manner. These results support the gap-anisotropy scenario. [1]T. Okada *et al.*, PRB **86**, 064516 (2012); Physica C **484**, 27 (2013); *ibid* **494**, 109 (2013) [2]H. Takahashi *et al.*, PRB **86**, 144525 (2012).

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