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Electromagnetic response of Fe(Se,Te) in the superconducting sate A. MAEDA, H. TAKAHASHI, D. NAKAMURA, T. AKIIKE, F. NABESHIMA, Y. IMAI, Department of Basic Sciences, University of Tokyo, S. KOMIYA, I. TSUKADA, Central Research Institue of Electric and Power Industry (CRIEPI) — We investigate the electromagnetic response of Fe(Se,Te) from microwave to THz region, with special interests in the superconducting state. Samples were epitaxial thin films or bulk single crystals, depending on the technique of measurements. The results obtained are the followings. (1) Temperature dependence of the penetration depth was almost flat, with a very small contribution of T^2, suggesting nodeless gap plus some disorder induced pair breaking. (2) Temperature dependence of superfluid density is rather different from that of, eg, LiFeAs, suggesting weak interband scattering. (3) Quasiparticle (QP) conductivity, $\sigma(\omega, T)$ shows a broad peak below T_c. Both of temperature dependence and frequency dependence show that this peak is not the coherence peak in conventional s-wave superconductors, but is due to the enhancement of the QP scattering time. These strongly suggest that the symmetry of superconducting wave function is sign-changed s-wave. (4) Sharp peak around T_c was invisible in $\sigma(T)$, suggesting very small superconductivity fluctuation. (5) Conductivity spectra ($\sigma(\omega)$) suggest that the superconducting gap, 2Δ is 1.2 meV, leading to $2\Delta/k_BT_c$ is 1.37. We will discuss possible reasons for the small gap value.

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