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Superconductivity fluctuation of $FeSe_{1-x}Te_x$ as a function of x measured by microwave conductivity A. MAEDA, F. NABESHIMA, K. NAGASAWA, D. ASAMI, M. KAWAI, Dep. Basic Sciences, Univ. Tokyo, Y. IMAI, Dep. Physics, Tohoku Univ. — Iron chalcogenides, $Fe_{1-x}Se_x$, have attracted much attention because of many reasons. One of these is that superconductivity fluctuation can be seen up to rather high temperatures probably because of the small Fermi surface effect, and detailed investigation of the superconductivity fluctuation contributes to the understanding of many anomalous and characteristic aspects of superconductivity in these materials. We investigated superconductivity fluctuation of $Fe_{1-x}Se_x$ as a function of x (including x=0), by measuring complex conductivity in a nonresonant microwave technique. In all materials investigated, superconductivity fluctuation was observed up to higher temperatures than in NbN, which was measured as a conventional standard superconductor. In all samples, however, the fluctuation was not the BKT like. At least, the x=0.5 sample shows the 3D-XY behavior, which is popular for many superconductors. With increasing x, the temperature range of prominent superconductivity fluctuation decreases. This might be due to the increase of the Fermi surface volume by the introduction of Te. We will discuss more detailed feature of the fluctuation, such as the critical exponent for other samples etc.

Atsutaka Maeda
Univ of Tokyo

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