Abstract Submitted
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Study of the radiation line width and shape from the Bi2212 mesa structure[1] TAKANARI KASHIWAGI, TAKASHI YAMAMOTO, KAZUYA ISHIDA, MANABU TSUJIMOTO, KAVEH DELFANAZARI, RYO NAKAYAMA, TAKEO KITAMURA, MASASHI SAWAMURA, HIDEHIRO ASAI, HIDETOSHI MINAMI, KAZUO KADOWAKI, University of Tsukuba — Continuous electromagnetic waves in terahertz (THz) range have been observed from mesa structures of $Bi_2Sr_2CaCu_2O_{8+\delta}$(Bi2212) single crystals[1)] It has been established that the radiation frequency is determined by both the ac Josephson frequency and the resonance condition of the geometrical cavity[2)]. In order to understand the mechanism of the radiation from the intrinsic Josephson junctions (IJJs) in Bi2212, we studied the radiation line width and shape. These might depend upon the physical parameters of the Bi2212 single crystal such as the number of IJJs the fluctuations of the quasiparticles and pairs, the non-linearity and non-equilibrium conditions, and the stability of the electrical circuit including the IJJs. However, technical difficulties have been delayed the line width measurements in the THz range. Recently, we succeeded in measuring the radiation line width using a frequency mixer. These results will be compared to those from a single junction 1) L. Ozyuzer *et al.*, Science **318** (2007) 1291., 2) K. Kadowaki *et al.*, J. Phys. Soc. Jpn. **79** (2010) 023703

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