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Magnetic field effects on THz radiation from $Bi_2Sr_2CaCu_2O_{8+\delta}$ mesa structures[1] TAKEO KITAMURA, TAKANARI KASHIWAGI, MANABU TSUJIMOTO, KAVEH DELFANAZARI, MASASHI SAWAMURA, KAZUYA ISHIDA, SHUNSUKE SEKIMOTO, CHIHARU WATANABE, University of Tsukuba, TAKASHI YAMAMOTO, Japan Atomic Energy Agency, HIDETOSHI MINAMI, MASASHI TACHIKI, KAZUO KADOWAKI, University of Tsukuba — In a previous our study, coherent and continuous electromagnetic radiation phenomena in mesa structures of $Bi_2Sr_2CaCu_2O_{8+\delta}$ single crystal have been investigated precisely in magnetic fields up to only 150 Oe [1]. This experimental result showed that the emission intensity decreases sharply for the field parallel to the *c*-axis, while it decreases gradually as increasing magnetic field for the in-plane field. In order to improve the measurement, we developed a new system with a better angular resolution and much wider magnetic field range up to 6 T, and a mesa having much stronger THz emission power. The mesa structure is also changed to the stand-alone type of mesa, which produces higher power THz radiation with ideal distribution of radiation [2]. In this presentation, the recent detailed results will be shown in magnetic fields both parallel and perpendicular to the *ab*-plane of Bi2212, where the Josephson and pancake vortices are playing an important role for THz radiation.

[1] K. Yamaki *et al.*, physica C **470** (2010) S804.
[2] T. Kashiwagi *et al.*, Jpn. J. Appl. Phys. **51** (2012) 010113.

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