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THz wave radiation from the triangular mesas in layered high- T_c superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ intrinsic Josephson junctions¹ KAVEH DELFANAZARI, MANABU TSUJIMOTO, TAKANARI KASHIWAGI, HIDEHIRO ASAI, TAKASHI YAMAMOTO, MASASHI SAWAMURA, TAKEO KITAMURA, RYO NAKAYAMA, KAZUYA ISHIDA, HIDETOSHI MINAMI, TOSHIAKI HATTORI, KAZUO KADOWAKI, University of Tsukuba — Recently, it has been reported that the mesa structures fabricated from single crystalline high- T_c superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ intrinsic Josephson junctions generate THz waves [1, 2]. However, most of radiations in the previous studies were observed either below the critical current where the junctions switched to the resistive state or around the retrapping region. We present here three types of emission for isosceles triangular mesas in which THz waves were also additionally detected above the critical current where the external current is increasing in the resistive branch structures. Furthermore, intense, coherent, monochromatic, continuous and tunable THz waves were observed in various triangular mesas fabricated by the focus ion beam (FIB) technique [3]. Moreover, elucidating the oscillating modes inside the mesas by precisely studying the IV characteristics, FT-IR spectrum and angular dependence of the emission intensity will be discussed in detail at meeting.

[1] L. Ozyuzer *et al.* Science **318**, 1291 (2007).

[2] K. Kadowaki *et al.* Physica C **468** 634 (2008).

[3] K. Delfanazari *et al.* J. Phys. Conf. Ser. Accepted (2011).

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