Abstract Submitted
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Tunable sub-terahertz emission from intrinsic Josephson junctions in $Bi_2Sr_2CaCu_2O_{8+\delta}$ enhanced by the internal cavity resonance[1] MANABU TSUJIMOTO, TAKASHI YAMAMOTO, KAVEH DELFANAZARI, RYO NAKAYAMA, TAKEO KITAMURA, MASASHI SAWAMURA, TAKANARI KASHIWAGI, HIDETOSHI MINAMI, MASASHI TACHIKI, University of Tsukuba, RICHARD KLEMM, University of Central Florida, KAZUO KADOWAKI, University of Tsukuba — Intense, continuous and coherent terahertz electromagnetic wave emission from the intrinsic Josephson junction system in cuprate high-T_c $Bi_2Sr_2CaCu_2O_{8+\delta}$ with remarkably higher intensity [L. Ozyuzer *et al.*, Science **318**, 1291 (2007).] than previously generated from single or arrayed Josephson junctions has been understood by the enhancement of the output intensity by the internal cavity resonance. However, we have recently observed emission, which seems to have low enhancement due perhaps to the relatively low-Q factor, in a wide frequency range, covering almost all frequencies continuously as long as the ac Josephson effect is satisfied. This broadly tunable behavior is very different from that with the tunability found in the inner current-voltage branch region [M. Tsujimoto *et al.*, to be published in 2011.] and enables us to design useful and tunable sub-terahertz source devises. In the presentation, we will also discuss the possible high-power devices using the high-Qelectromagnetic cavity.

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Manabu Tsujimoto
University of Tsukuba

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