

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

THz imaging system with the IJJ emitter¹ MANABU TSUJIMOTO, HIDETOSHI MINAMI, MASASHI SAWAMURA, KAVEH DELFANAZARI, TAKASHI YAMAMOTO, TAKANARI KASHIWAGI, KAZUO KADOWAKI, University of Tsukuba — The intrinsic Josephson junction (IJJ) emitter consisted of thousands of IJJs uniformly stacked in single crystalline high- T_c superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ (Bi-2212) [L. Ozyuzer *et al.*, *Science* **318**, (2007) 1291.] is expected to be a novel source of the continuous terahertz electromagnetic waves (THz-waves). The maximum emission power of tens of microwatts recently obtained with the mesa structure of IJJs seems to be sufficient to make use of the IJJ emitter for some practical applications such as THz imaging. According to the cavity resonance condition, we can control the radiation frequency by changing the geometrical size of the mesa. In this study, we develop the THz imaging system with IJJ emitter. In the presentation, we will show some transparent images of standard specimens obtained by the raster scanning method. Also, we will mention some problems to be solved for the future applications of the IJJ emitter.

¹CREST-JST, WPI-MANA, Strategic Initiative A (University of Tsukuba)

Manabu Tsujimoto
University of Tsukuba

Date submitted: 30 Nov 2010

Electronic form version 1.4