

Abstract Submitted
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Angular distribution and Josephson plasma modes of THz radiation emitted from Bi2212 mesas with various shapes¹ KAZUO KADOWAKI, TAKANARI KASHIWAGI, MANABU TSUJIMOTO, TAKASHI YAMAMOTO, HIDEHIRO ASAI, HIDETOSHI MINAMI, Institute of Materials Science, University of Tsukuba, RICHARD A. KLEMM COLLABORATION² — So far, we have measured angular dependence of the intensity of the THz emission from mesas of high- T_c superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ with various shapes such as rectangles, squares, cylinders, triangles, etc. and various dimensions larger or smaller than the penetration depth λ_c . The results have been analyzed by a model developed by Klemm and Kadowaki³, which assumes coherent generation of the standing wave cavity modes in a mesa due to the ac-Josephson effect. The higher harmonic modes are observed in some cases as expected in the model. However, it is often observed that the emission frequency does not obey the simple cavity mode, indicating that the cavity resonance may not be a stringent condition for the emission of the THz radiation. The implication is argued in terms of the emission dynamics from the Bi2212 mesa structure.

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