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Title

Tunable terahertz emission from Bi2Sr2CaCu2O8+ $\delta$  mesa devices

Source

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Abstract

We have measured coherent terahertz emission spectra from Bi2Sr2CaCu2O8+ $\delta$  mesa devices as a function of temperature and mesa bias voltage. The emission frequency is found to be tunable by up to 12% by varying the temperature and bias voltage. We attribute the appearance of tunability to asymmetric boundaries at the top and bottom and the nonrectangular cross section of the mesas. This interpretation is consistent with numerical simulations of the dynamics of intrinsic Josephson junctions in the mesa. Easily tunable emission frequency may have important implications for the design of terahertz devices based on stacked intrinsic Josephson junctions. (29 References).