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Enhanced Macroscopic Quantum Tunneling in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ Intrinsic Josephson Junction Stacks X.Y. JIN, J. LISENFELD, Y. KOVAL, A. LUKASHENKO, A.V. USTINOV, P. MÜLLER, Physikalisches Institut III, Universität Erlangen-Nürnberg — We have investigated macroscopic quantum tunneling in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ intrinsic Josephson junctions and performed microwave absorption experiments. Classical-to- quantum crossover temperatures of up to 700mK were found. Plasma frequencies of up to 1.13 THz have been observed. In uniformly switching intrinsic Josephson stacks, the escape rate from zero- voltage state is enhanced by several orders of magnitude in comparison to single intrinsic junctions having comparable junction parameters. This enhancement is due to the unique stacking structure of intrinsic Josephson junctions.

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