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Controllable frequency comb generation in a tunable superconducting coplanar waveguide resonator¹ J. Q. YOU, SHUAIPENG WANG, YIPU WANG, DENGKE ZHANG, XIAOQING LUO, ZHEN CHEN, Quantum Physics and Quantum Information Division, Beijing Computational Science Research Center, TIEFU LI, Institute of Microelectronics, Department of Micro and Nanoelectronics, Tsinghua University — Frequency combs have attracted considerable interest because they are extremely useful in a wide range of applications, such as optical metrology and high precision spectroscopy. Here we report the design and characterization of a controllable frequency comb generated in a tunable superconducting coplanar waveguide resonator in the microwave regime. Both the center frequency and teeth density of the comb are precisely controllable. The teeth spacing can be adjusted from Hz to MHz. The experimental results can be well explained via theoretical analysis.

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