373. Title:Compact tunable sub-terahertz oscillators based on Josephson junctions
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Abstract:Essential applications of terahertz technology are urgently in need of compact, tunable solid-state continuous wave radiation sources. However, no satisfactory solution is yet available for the frequency range of up to approximately 1.0 THz. Here, we present coherent radiation from large series arrays of Josephson junctions between 0.1 and 0.25 THz with off-chip radiation power of 7μW. Niobium junctions oscillate at 4.2 K and the detection has been done at room temperature. The well-known obstacle to impedance matching is overcome by utilizing the excited resonances in the junction substrates serving as dielectric resonator antennae.