Cavity optomechanical coupling to multiple resonances assisted by Kerr comb generation in toroid microcavity

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Abstract

Blue-detuned strong pumping to a toroid microcavity generates a Kerr comb and also excites cavity optomechanical parametric oscillation. In this research, we observed the suppression of the oscillation while generating a Turing pattern comb in spite of the blue-detuned pumping. We take the multiple optomechanical couplings in every comb line into account and calculated an effective damping rate, which is in agreement with the experimental observation.

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