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Current Research:	Nonlinear dynamics, stochastic processes, synchronization, pattern formation	

## Turing instability in quantum activator–inhibitor systems

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We show that Turing instability, a fundamental mechanism of nonequilibrium self-organization in classical systems, can also occur in a quantum dissipative system. We propose a quantum-optical parametric oscillator with nonlinear damping as a quantum activator–inhibitor unit, and numerically demonstrate that a system of two such units can undergo Turing instability when diffusively coupled with each other. The Turing instability induces a pair of nonuniform states that are mixed due to quantum noise. Further performing continuous measurement on the coupled system reveals the nonuniformity caused by the Turing instability.