

## **Excited-State Quantum Phase Transitions**

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Excited-State Quantum Phase Transition (ESQPT) is a novel concept unifying various types of singularities present in discrete energy spectra of quantum systems with a limited number of effective degrees of freedom. ESQPTs extend the ground-state quantum phase transitions in diverse many-body systems (like atomic nuclei, molecules), lattice system (e.g., graphene), and quantum-optical systems (matter-field coupling). ESQPTs are rooted in some classical phase-space singularities and their key signatures are identified in nonanalytic density and flow properties of quantum spectra, and in some anomalous dynamical and thermodynamical features of the system. These signatures have a potential impact on complex processes involving many-body systems as well as on various quantum information techniques.