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**Dynamic Quantum Phase Transitions in Non-Hermitian Systems**

WENG-HANG LEONG, REN-BAO LIU, Chinese Univ of Hong Kong — Quantum phase transitions are considered in non-Hermitian systems. Quantum criticality occurs at points where the excitation gap closes in the imaginary part. Phase diagrams of 1D anisotropic XY model with complex transverse field are investigated by exact solution. The long-range character of correlation functions would alter dramatically when the system crosses the imaginary zeros of excitation energy at the complex plane of the transverse field. Quantum phase transitions can be obtained not only at the whole gap closing exceptional points, but also at the additional imaginary zero points. In addition, by studying the corresponding 1D p-wave superconductor system with open boundary condition, we find topological phase transitions at the exceptional points.

Weng Hang Leong  
Chinese Univ of Hong Kong

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