

# 凝聚态物理-北京大学论坛

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## Quantum Thermodynamics: Hot Entanglement?

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时间：5月28日（星期四）15:00—16:30

地点：北京大学物理大楼中212教室

摘要：Quantum thermodynamics is a fast emergent new field which studies the statistical mechanical and thermodynamic properties of quantum systems, especially small systems. It goes beyond traditional textbook quantum statistical mechanics in that the quantum features pertaining to the *quantum correlation, coherence, fluctuations and entanglement* of a system are now of primary concern, not just the spin-statistics aspects, and the *nonequilibrium dynamics* of such systems occupies the center stage. I will discuss one exemplary investigation we carried out recently in this field: whether quantum entanglement can be maintained up to some high temperatures.

\* Based on J. T. Hsiang and B. L. Hu, "Quantum Entanglement at High Temperatures? I. Bosonic Systems in Nonequilibrium Steady State" [[arXiv:1503.03587](https://arxiv.org/abs/1503.03587)]

Professor Bei-Lok Hu 胡比乐 got his PhD in theoretical physics from Princeton University in 1972 under the late Professor John A. Wheeler. After postdoctoral work at Stanford University, University of California, Berkeley and Santa Barbara in mathematics, physics and astrophysics, he was appointed an honorary research fellow at Harvard University in 1979 before he assumed his current position at the University of Maryland in 1980.

Professor Hu is a world-renowned leader in quantum gravity research and a progenitor of emergent gravity. His pioneering research in the 70's on quantum field theory in curved spacetime and the 80s in semiclassical gravity with applications to quantum processes in the early universe earned him an elected Fellow of the American Physical Society. The focus of Professor Hu's current research is on foundational issues of quantum, statistical and gravitational physics, exploring new directions in gravitational quantum physics, macroscopic quantum phenomena and quantum thermodynamics, the subject of this seminar.

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