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Open quantum systems: relaxation and decoherence

Prof.Amir Ordacgi Caldeira

时间：3月22日（星期四）15:00—16:30
地点：北京大学物理大楼西楼202报告厅

•**摘要：** In this talk it is our intention to present the basic ideas of what is known today as “Quantum Dissipation” and show its importance to new problems appearing in different areas of physics. We shall approach the problem investigating realistic physical situations where the question of dissipation is really relevant and then identify the concrete problems to be treated. Some examples are; dissipative quantum tunneling, dissipative coherent tunneling and decoherence between wave packets in the classically accessible region of the phase space of the system. Once we have accomplished that we will discuss some implications of the subject to the so-called macroscopic quantum phenomena and introduce several examples of applications of the previously developed techniques to superconductivity, magnetism and optics. The relevance of these questions to problems related to quantum computation and the quantum theory of measurement will be briefly touched upon.

•**报告人简介：** Prof. Caldeira received his bachelor's degree in 1973 from the Pontifícia Universidade Católica do Rio de Janeiro, his M.Sc. degree in 1976 from the same university, and his Ph.D. in 1980 from University of Sussex. His Ph.D. advisor was the Physics Nobel Prize winner Anthony James Leggett. He joined the faculty at Universidade Estadual de Campinas (UNICAMP) in 1980. In 1984 he did post-doctoral work at the Kavli Institute for Theoretical Physics (KITP) at University of California, Santa Barbara and at the Thomas J. Watson Research Laboratory at IBM. He was the recipient of the Wataghin Prize, from Universidade Estadual de Campinas, for his contributions to theoretical physics in 1986.

•Caldeira's research interests are in theoretical condensed matter physics, in particular quantum dissipation and strongly correlated electron systems. His best known work is on the Caldeira-Leggett model, which is one of the first and most important treatments of decoherence in quantum mechanical systems.

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