中国科学院理论物理研究所
理论物理国家重点实验室

“非平衡统计物理基础与涨落关系”四讲

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2012-03-15（星期四）：08:50 - 12:00
2012-03-16（星期五）：08:50 - 12:00

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第一讲：统计物理基础 -- Brief historical and conceptual overview of foundations of SM; Dynamical approach and ergodic hypothesis; Bridge law and thermodynamics.

第二讲：不可逆性及其宇宙学含义 -- Reversible microscopic laws lead to irreversible macroscopic laws? Levels of description and space and time scales relevant to microscopic interpretation of macroscopic phenomena; On the final destiny of the known universe.

第三讲：非平衡现象与涨落关系 -- Recent conceptual developments in applications of chaos theory to irreversible physics; How does macroscopic description arises from microscopic one? When is a system "small", so fluctuations are relevant, and when "large", so macroscopic descriptions apply?

第四讲：玻耳兹曼与吉布斯熵 -- Ensembles and thermodynamic concepts have been very successful, applications are envisaged in many different disciplines. How are different notions of entropy related to each other, and when is it appropriate to apply them? Is there a degree of arbitrariness related to the different descriptions? Time scales and space scales relevant to physics provide an answer.

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