



Tata Institute of Fundamental Research Hyderabad

Colloquium

John Cardy

University of California, Berkeley

Professor John Cardy is well known for his application of quantum field theory and the renormalization group to condensed matter, especially to critical phenomena in both pure and disordered equilibrium and non-equilibrium systems. In the 1980s he helped develop the theory of conformal invariance and its applications to these problems, ideas which also had an impact in string theory and the physics of black holes.



In the 1990s he used conformal invariance to derive many exact results in percolation and related probabilistic problems. More recently Professor Cardy has worked on questions of quantum entanglement and non-equilibrium dynamics in many-body systems.

He is a Fellow of the Royal Society, a recipient of the 2000 Dirac Medal of the Institute of Physics, of the 2004 Lars Onsager Prize of the American Physical Society, of the 2010 Boltzmann Medal of the International Union of Pure and Applied Physics, and of the 2011 Dirac Medal and Prize of the International Centre for Theoretical Physics.

Professor Cardy has a long-standing association with TIFR, and visited our Mumbai campus in 2007-08 as the Homi Bhabha Chair Professor.

Quantum Quenches: a probe of many-body quantum mechanics

In a quantum quench, a system is prepared in some state (typically the ground state of an initial hamiltonian) and then evolved coherently with a different hamiltonian, e.g. by instantaneously changing a parameter. Such protocols in many-body systems have recently become experimentally achievable with ultracold atoms. I shall discuss some of the theoretical approaches to this problem, and in particular discuss whether, and in what sense, such systems thermalize.

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Time: 4 PM

Venue: TIFR-H, Gopanpally

All are welcome

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