

Colloquium di Dipartimento SMFI

**Prof. André Eckardt**Institut für Theoretische Physik
Technische Universität Berlin

terrà un seminario dal titolo

**Controlling quantum systems by means of
strong time-periodic driving**

Abstract:

Time-periodically driven quantum systems, also known as Floquet systems, possess states far from thermal equilibrium. At the same time, their theoretical description retains part of the structure known from undriven systems. For instance they possess quasi-stationary states, called Floquet states, characterized by quasienergies that are defined (and conserved) modulo the driving frequency only. (They might be viewed as the time analog of Bloch states in spatially periodic potentials, which are characterized by quasimomenta that are defined modulo reciprocal lattice vectors.) This allows us to understand many aspects of their non-equilibrium nature, to identify differences and similarities with respect to undriven systems, and to design powerful control schemes based on strong time-periodic forcing (Floquet engineering). I will give a general introduction to quantum Floquet systems, explain how periodic driving can be used to control quantum phase transitions and to engineer topologically non-trivial states of matter in engineered quantum systems of ultracold atoms, and discuss how the interplay of driving and dissipation can be used to engineer interesting non-equilibrium steady states in open Floquet systems.

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Collegamento remoto via

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