



COLLOQUIA DI DOTTORATO, A.A. 2024/2025

A101, Dipartimento di Fisica
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New Physics in Driven Quantum Materials

Andrea Cavalleri

*(Max Planck Institute for the Structure and
Dynamics of Matter, Hamburg and
Department of Physics, University of Oxford)*

In this seminar, how coherent electromagnetic radiation at Tera-Hertz and mid-infrared frequencies can be used to drive complex solids, in an attempt to enhance their coherence, is discussed.

As collective excitations are driven nonlinearly, leading to coupling amongst otherwise virtually non-interacting normal modes of the material. Driving gives rise to non-thermal states with unconventional properties, and sometimes with emergent order. Interesting examples involve the nonlinear control of the crystal lattice, used to induce magnetic order, ferroelectricity and non-equilibrium superconductivity at high temperatures.