



Mercoledì **19 febbraio 2025** alle ore **11:00** presso l'aula L1 del
DiSC

il Prof. Thomas Elsaesser

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12489 Berlin, Germany*

terrà il seminario dal titolo:

***Ultrafast charge dynamics and electric interactions in
molecules and molecular materials***

Electric interactions have a major impact on the structure and function of liquids, proteins, and molecular materials. For a quantitative characterization and understanding, the genuine long-range character of Coulomb interactions and their ultrafast fluctuations at ambient temperature pose major challenges to be addressed by experiment and theory. This talk gives an introduction in advanced experimental techniques for determining transient molecular electric fields and charge densities by discussing key results of recent research. Local electric fields and interaction geometries of hydrated DNA and RNA are characterized by two-dimensional infrared (2D-IR) spectroscopy of backbone vibrations. Ultrafast THz Stark spectroscopy reveals electric dipole moments of electronically excited chromophore states in liquids and proteins. Beyond spectroscopy, x-ray diffraction with a femtosecond time resolution allows for grasping transient charge densities and the interplay of electronic and vibrational degrees of freedom. As an outlook, future perspectives of the field will be discussed.

La presenza della S. V. sarà molto gradita

Alberta Ferrarini

Il Direttore del Dipartimento
Stefano Mammi