



UNIVERSITÀ DEGLI STUDI
DI PERUGIA



Trieste, Cagliari, Grenoble, Perugia

AVVISO DI SEMINARIO

Lunedì 28 gennaio 2019 - ore 12:00

Aula F (Fisica)

Dr. Giorgio Schirò

Institut de Biologie Structurale & CNRS Grenoble

"X-ray pulses for time-resolved experiments on photosensitive systems II - Ultrafast protein structural dynamics"

Abstract:

Biological macromolecules are characterized by specific structural and dynamic features that are at the basis of their biological activity. Understanding macromolecular activity thus requires studying structural changes over time and on various time-scales down to the femtochemistry regime. Time-resolved X-ray scattering and diffraction permit tracking macromolecular conformational changes along a photoinduced reaction pathway, and their characterization at the atomic level of resolution. The temporal resolution is limited to 100 ps at synchrotrons. The advent of X-ray free electron lasers (XFEL) has pushed the resolution to the sub-ps regime, allowing ultrafast changes to be studied by time-resolved serial femtosecond crystallography. I will show results from recent studies of light-induced protein structural dynamics in model systems [1-2] and in photoactive proteins on the femtosecond to millisecond time scale [3-5].

[1] Levantino*, Schirò* et al. Nature Comm. 6, 6772 (2015)

[2] Barends et al. Science 350, 445 (2015)

[3] Schirò et al. J. Appl. Cryst. 50, 932 (2017)

[4] Coquelle*, Schirò* et al. Nature Chem. 10, 31 (2018)

[5] Heyes...& Schirò, Comms. Biology 2, 1 (2019)

Tutti gli interessati sono invitati a partecipare

Il Responsabile:

Dr. Lucia Comez

Il Direttore:

Prof. Massimiliano Rinaldo Barchi