

Evento organizzato nell'ambito di Engineering
Physics Colloquia



Università
Ca' Foscari
Venezia

Dipartimento di
Scienze Molecolari
e Nanosistemi

Attosecond Science for the Study of Electron Dynamics in Matter

18 luglio 2024, ore 11.00

Aula Delta 1B, Edificio Delta, Campus Scientifico, Via Torino
ed in videoconferenza al link: <https://unive.zoom.us/j/83404583981>
password: seminar1

Prof.ssa **Caterina Vozzi**, The Institute for Photonics and
Nanotechnologies (IFN) - National Research Council (CNR) (Italy)

Our knowledge of the microscopic world has been transformed by the study of matter on ultrafast time scales. The capacity to produce and apply light pulses with durations from the femtosecond (10^{-15} s) to the attosecond (10^{-18} s) scale has created new opportunities for watching and manipulating quantum mechanical processes in real-time. By revealing ultrafast processes in matter, attosecond science can unlock the secrets and potential of chemical reactions and enable technologies like ultrafast lasers and attosecond spectroscopy. It is a leading field in both fundamental research and

technological innovation. Studying how electrons behave in ultrafast time scales with attosecond science is crucial for understanding and possibly influencing molecular transformations, impacting fields from medicine to materials science.

This lecture will cover the subject of the 2023 Nobel Prize in Physics: the finding of a non-linear optical process called High-order Harmonic Generation (HHG) that has transformed the field of ultrafast science, allowing the creation of attosecond light pulses for investigating the briefest of events in the behaviour of matter.

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