



**Università
degli Studi
di Palermo**

Dipartimento di Ingegneria
Direttore: prof. Livan Fratini



Co.R.I. PROJECT COURSE ANNOUNCEMENT

Prof. Dimitris Charalambidis, Emeritus at the Department of Physics, University of Crete, member of FORTH-IA (<https://www.iesl.forth.gr/>), Heraklion (Crete, Greece), Chief Scientific Advisor at ELI-ALPS (<https://www.eli-alps.hu/>), (Szeged, Ungheria), will hold a short course on **"Physics and Technology of Femto and Attosecond Lasers"**, within the activities of a UniPa Co.R.I. Project 2024 (Azione D3).

Schedule will be as follows:

- Tuesday, 19 May 2026, 15:00-18:00.
- Thursday, 21 May 2026, 15:00-18:00.
- Monday 25 May 2026, 15:00-18:00.

Venue will be Viale delle Scienze, Edificio 6 (ex D.I.N.), 2nd Floor, "Aula Didattica". A list of topics can be found below.

Moreover, on 18, 20, and 22 May, from 10:00 to 13:00, Prof. Charalambidis will be available for further discussions with graduate and PhD students on ultrashort laser technologies and their applications and on research and job opportunities at the European Research Infrastructure (Edificio 6, ex D.I.N., 2nd Floor, Room 2026).

Students of the LM Electronics Engineering who will attend the lectures will receive 0.5 CFU per seminar, upon presentation of a brief report for each seminar attended. Students of other programmes may apply for credits, according to the rules of their own study programme.

For further information please contact Prof. Salvatore Basile (tel.: 09123899064, email: salvatore.basile@unipa.it).

TOPICS

1. Intricacies of ultrashort pulse synthesis and techniques for generating and amplifying (CPA) ultrashort pulses.
2. Dispersion and dispersion control.
3. Linear and non-linear propagation of ultrashort pulses.
4. Temporal characterization of ultrashort pulses.
5. Introduction to ultrashort laser matter interactions. Regimes, processes, dynamics.
6. Introduction to attosecond pulses. The three step model. Generation of high order harmonics. The synthesis of attosecond pulse trains, propagation and effects phase matching.
7. Generation of isolated attosecond pulses.
8. Temporal characterization techniques for attosecond pulses.
9. Selected examples of applications of attosecond pulses.
10. Introduction to the ELI-ERIC European Research Infrastructure.