

FDITE109 Optics and laser physics special course

Description:

The aim of the course is to review some specific topics related to the measurement of laser pulses by refreshing the optical knowledge necessary for their understanding.

Topics:

- Interferometers
- Fundamentals of linear and non-linear optics
- Dispersion
- Dispersion measurement with spectral interferometry
- Angular dispersion
- Measurement of propagation angular dispersion and phase front angular dispersion
- Measurement of the temporal profile of ultrashort laser pulses with intensity and interferometric autocorrelation
- FROG and SPIDER techniques

Recommended reading for the course:

[1] J. C. Diels, W. Rudolph: Ultrashort Laser Pulse Phenomena (Elsevier, 2006)

[2] [2] B. E. A. Saleh, M. C. Teich: Fundamentals of Photonics, 2 Volume Set (Series in Pure and Applied Optics) 3rd ed, Wiley, 2019

[3] U. Keller, Ultrafast Lasers (Springer, 2021)