



ERASMUS MUNDUS



EUROPHOTONICS-POESII MASTER COURSE

PROPOSAL FOR A MASTER THESIS

Dates: April 1st, 2016 – September 30th, 2016

Laboratory : Ultrafast Optical Dynamics of Solids

City, Country : Barcelona, Spain

Title of the master thesis :

Characterization of a rapid scan FTIR for ultrafast probing in the mid-IR region.

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Summary of the subject (maximum 1 page) :

The properties of materials in the mid-infra-red spectral region (3-15 μm) is vital for understanding their operation and performance. This is particularly true for materials such as solar-cells where trap states can localize electrons and prevent efficient extraction of the photoinduced charges.

However, measurements in the MIR region are difficult due to a range of factors from generating light at the appropriate wavelength, focusing and manipulating the light for experimental needs and detecting light.

This project will build a simple Fourier Transform InfraRed (FTIR) spectrometer for characterizing the pulses of MIR light. If successfully implemented, the FTIR can be combined with experiments on solar cells to measure dynamics in a material system.

Keywords : Ultrafast Optical Physics, Condensed Matter Physics

Additional information :

Required skills : A good background in optics is strongly recommended.