

Time-resolved spectroscopy of 2D materials using high resolution optical microscopy

Speaker:

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Abstract

Pump probe spectroscopy is considered to be the simplest experimental technique in order to investigate ultrafast electronic dynamics, two beams interfere with the sample, a strong beam (pump) interacts with the sample and stimulate it to reach a non-equilibrium state, while a weaker beam (probe) is utilized to monitor the pump-induced changes in the optical constants (such as reflectivity, transmission or absorption... etc) of the sample, all that can happen only by shifting the probe pulse arrival time relative to pump pulse. Information of the relaxation of the electronic states of the sample can be obtained simply by measuring the variations in the optical constants as a function of time delay between the arrival time of the pump and the probe, meanwhile, the duration of the laser pulses sets the time resolution of the system.

Moreover, it is well established that dielectric microspheres can be used to concentrate light in small volumes, frequently going beyond the usual far-field diffraction limit.

In this seminar, microsphere-assisted optical microscopy is coupled with time-resolved spectroscopy to investigate optical properties of two-dimensional thin films.

PhD Seminar

5th April 2023

Sala Riunioni S5, 15.00

via Garzetta 48, Brescia

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