CRETE CENTER FOR QUANTUM COMPLEXITY AND NANOTECHNOLOGY

UNIVERSITY OF CRETE
DEPARTMENT OF PHYSICS

CAPACITIES

ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

PHYSICS COLLOQUIUM

Thursday, 23 November 2017

17:00 -18:00

3rd Floor Seminar Room

"Strong-field laser atom interactions for the development of quantum-optical XUV spectrometers and studies in the non-linear XUV regime"

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Abstract

Impressive technological achievements in laser pulse engineering have led to the development of table-top laser systems which can deliver high power pulses in the infrared spectral range and duration at the femtosecond time scale. The high intensities achievable with these pulses have enabled the observation of many fascinating non-linear processes occurring for all states of matter. Among these is the process of high-order harmonic generation (HHG) induced in the strong-field regime (where the electric field of the laser drastically distorts the atomic potential) by the interaction of intense laser pulses with atoms. This process, which is quintessential for an in-depth understanding of strong-field laser-atom interactions, has been used for the production of broadband coherent radiation in the extreme ultraviolet (XUV) spectral range and utilized in impressive applications ranging from the field of high-resolution spectroscopy in XUV to "Attosecond Science". Here, I will present how the strong-field laser atom interaction has led to the development of I) "Quantum-optical spectrometers in the XUV spectral range" and II) high intensity (>10^{16} W/cm^2) XUV sources for non-linear studies in the XUV spectral range.