Ph.D studentship in
Controlling electron-electron correlation in the formation of Rydberg states and in multi-electron ionization in molecular systems using intense attosecond laser pulses

Title:	**Ph.D studentship**
Contact:	**Dr. Agapi Emmanouilidou**
Deadline for applications:	**31st of January, 2018**

Project description:
A Ph.D position for 3.5 years is available in the research area of Strong-Field and Attosecond Science at University College London, in the group of Dr. Agapi Emmanouilidou. The goal of this project is to investigate exciting phenomena that take place during the nonlinear response of multicenter molecules when driven by intense laser fields. Such processes are the formation of highly excited Rydberg states as well as of multi-electron ionization. Moreover, we aim to explore the use of two intense and ultra-short laser fields in order to control the contribution of electron-electron correlation in the formation of Rydberg states and in multi-electron ionization. Furthermore, unlike most theoretical studies that adapt the dipole approximation, in these studies the magnetic field aspect of the laser field will be fully accounted for. Very recently, we have identified exciting and surprising effects of the magnetic field in strongly-driven atoms. This project aims to also address magnetic field effects in strongly-driven molecular systems.

The student will have the opportunity to learn in detail the theoretical aspects of laser matter interactions, to acquire computational skills and use state-of-the-art computational models to perform the above studies. Very importantly, the student will use the above mentioned tools to build analytical models to unravel the physical mechanisms of fundamental processes in the field of laser-matter interactions.

Application procedure

Please send a CV and transcript and address all your inquiries to Dr. Agapi Emmanouilidou a.emmanouilidou@ucl.ac.uk.