

Thursday, 9th July 2015

11:00

AER 19 Seminar Room 4.14

**Ab-initio simulations
of light-matter interactions**

by

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In this talk we will discuss some of the theoretical approaches we are developing to be able to perform first principles simulations of matter out of equilibrium. We will illustrate how to reach in simple cases the control of material processes at the electronic level, We will focus on examples linked to the efficient conversion of light into electricity or chemical fuels (“artificial photosynthesis”) and the design of new optoelectronic devices. In the long-run we aim to provide a detailed, efficient, and at the same time accurate microscopic approach for the ab-initio description and control of quantum many-body systems in and out of equilibrium.