



Tuesday, April 10<sup>th</sup>, 2018 – 02:00 p.m.  
CFEL Seminar room III (Bldg. 99)

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### Slow-Electrons Interacting with Light and Matter

The eikonal approximation has formed the basis for much of our understandings of the interaction of light and electrons. The classical non-recoil approximation or quantum mechanical Volkov states of free – electron waves have been routinely employed to interpret the outcomes of low-loss EELS or electron holography. Despite the enormous success of semianalytical approximations, there are certainly ranges of electron-photon coupling strengths where more demanding self-consistent analyses are to be exploited to thoroughly grasp our experimental results. Slow-electron point-projection microscopes and many of the photoemission experiments are employed within such ranges. We aim to classify those regimes and propose numerical solutions for an accurate simulation model. A survey of the works carried out within self-consistent Maxwell-Lorentz and Maxwell-Schrödinger frameworks are covered here. Several applications of the proposed frameworks are discussed, and an outlook for further investigations is also delivered.

Host: Angel Rubio

