



Monday, June 17<sup>th</sup> 2019 - 14:00 h  
CFEL Seminar room IV (Bldg. 99)

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## Theoretical study on solid-state high harmonic generation: from a one-dimensional model to an ab-initio three-dimensional approach

High harmonic generation (HHG) from crystalline solids has become a playground in ultrafast phenomena. In contrast to noble gases, crystalline solids have rich physical properties, e.g. anharmonic energy dispersion, anisotropy depending on crystalline axis, strong electron-hole correlation, and so on. While the three-step model for HHG and its generalizations are successfully applicable to several situations, a deviation from the theoretical prediction is one of the most interesting physics in this field. To understand such deviations in solid-state HHG experiments, we need to go beyond the three-step model or along different directions. I will mainly talk about our recent trials to understand solid-state HHG, electron-hole attraction inclusion based on Hartree-Fock theory for 1D model crystal, and an ab-initio approach based on density-functional theory for 3D bulk solid comparing with experiments.

**Host:** Angel Rubio

