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10-Solid-state High Harmonic Generation

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The nonlinear interaction of ultrashort laser pulses with solids, namely the process of solid-state High Harmonic Generation (HHG), has brought about a surge of scientific interest due to the prospect of creating novel compact Extreme Ultraviolet (XUV) sources and harnessing ultrafast dynamics of electrons in solids. Possibilities of engineered materials with tailored optical responses, or methods for all-optical band structure mapping through HHG keep driving this area of research forward.

Our main goal is to study the strong-field interactions that characterise HHG in solid-state materials through state-of-the-art modelling. Such models will be used to understand the results of previous experimental campaigns from the VOXEL and L2I labs at IST. Furthermore, the modelling can guide future experimental projects at the IST labs.

Author: ANTUNES, André (GoLP/IPFN - Instituto Superior Técnico)

Presenter: ANTUNES, André (GoLP/IPFN - Instituto Superior Técnico)