

Subcycle Control of Strong-Field Processes on the Attosecond Timescale

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I will give you a few highlights of my thesis work, performed in the Attosecond group of Johan Mauritsson, part of the Lund Attosecond Science Center headed by Anne L'Huillier. The group is an experimental one, which means my thesis work has not only been theoretical, I have also performed a few experiments!

My research has mainly been targeting High-order Harmonic Generation (HHG), mostly trying to understand the inherent subcycle nature of the process, and the influence of the two dominant classes of electron trajectories — the short and the long — their interplay and their differences. We observed unambiguously the effect of quantum path interference between these two trajectories on the emitted HHG radiation. I will also present a *Gedanken-experiment* on the possible use of HHG radiation to induce long-lasting coherence between the residual ion substates in photo-ionisation.