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CFEL – Building 99, seminar room IV (1st floor)

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Fully differential measurement on nonsequential double ionization of neon with elliptical polarization

The concept of long quantum trajectory has provided profound insights into the physics of above-threshold ionization (ATI) and high-order harmonic generation (HHG). However, experimental identification of the imprint of long trajectories in nonsequential double ionization (NSDI) is quite challenging because most of previous studies used linearly polarized laser pulses, where the contributions from long trajectories are usually hidden by that from short trajectories. As compared to linear polarization, the use of elliptical polarized laser offers a unique chance to interrogate the effect of long trajectories on double ionization. In this talk, I will present the recent experimental results from fully differential measurements on neon double ionization under elliptical polarization. Combined with a semiclassical analysis, we reveal the dominance of long trajectories in NSDI and more interestingly, we demonstrate that the correlated electron behaviors can be controlled by simply varying the laser ellipticity.

Host: Jochen Küpper/ CFEL Molecular Physics Seminar