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**HL 34: Invited Talk Reuter**

Time: Thursday 9:15–10:00

Location: H15

**Invited Talk** HL 34.1 Thu 9:15 H15  
**Momentum space wave functions in InAs quantum dots mapped by capacitance voltage spectroscopy** — ●DIRK REUTER  
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It is long known that capacitance-voltage (C-V) spectroscopy is a versatile method to measure the addition spectra of conduction band states in self-assembled InAs quantum dots (QDs) grown on GaAs. From the spectra, quantization as well as interaction energies can be extracted and compared to theoretical models. Recently, this method was also applied to the valence band states of InAs QDs and I will discuss the electron and the hole charging in comparison.

Performing C-V spectroscopy at higher frequencies makes the technique sensitive to the tunnelling dynamics. By applying an in-plane magnetic field, the sensitivity to the tunnelling rate can be used to map the in-plane momentum space wave functions corresponding to the individual QD energy levels. I will discuss this technique briefly and present wave function maps for the electron and the hole system, respectively. The wave functions are anisotropic along the high-symmetry crystal directions, which points to an anisotropic lateral confinement potential. In addition, the wave function measurements reveal that the valence band states are more complex than the conduction band states. This will be discussed in detail and compared to the relevant theoretical models.