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Doctoral Programme

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Guest Lecture

Title:

“Charge state readout in carbon nanotube quantum dots”

Speaker: [Dr. Mark Buitelaar](#)

Address: London Centre for Nanotechnology
Department of Physics & Astronomy, UCL, UK

Date: Friday, 16th of June 2017

Time: 14:30

Place: Seminar Room CBEG02 (387, Photonics); Gußhausstraße 27

Abstract: In this talk I will discuss techniques to quantify charge noise, charge coherence and charge relaxation in carbon nanotubes – a material of considerable interest for charge, spin and valley-based quantum information processing. We achieve this by combining radio-frequency reflectometry measurements of the quantum capacitance of the device with microwave manipulation to drive transitions between charge qubit states in the nanotube. By operating the device at an optimal point where it is first-order insensitive to charge noise, we observe an improvement of charge coherence by more than an order of magnitude.