University of Nottingham
Nanoscale and Microscale Research Centre

Ptychography: A New Era in Electron Imaging

Dr Christopher Allen

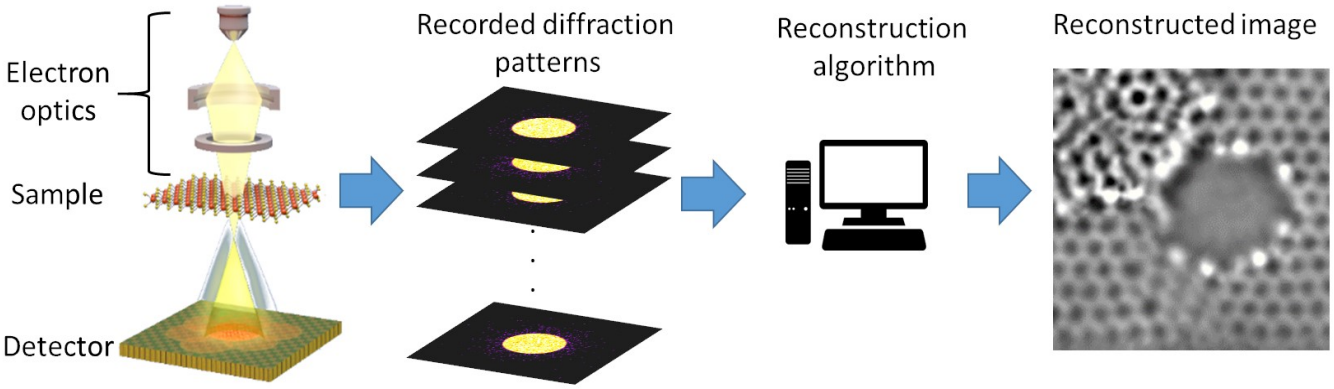
electron Physical Science Imaging Centre (ePSIC)

Diamond Light Source

nmRC Guest Lecture

Wednesday 23rd June 15:00-16:00

X1 Lecture Theatre Chemistry Building and Microsoft Teams



The latest generation of fast, direct electron detectors have been a catalyst for the development of novel electron imaging techniques based on the collection and analysis of large numbers of diffraction patterns.

At the forefront of these new techniques is **electron ptychography,** a diffraction imaging technique in which the phase of the electron wave function can be quantitatively recovered.

Electron ptychography can surpass the standard resolution limits of electron microscopy and has been shown to be very dose efficient opening up the possibility for the study of the atomic structure of materials which could not previously be imaged. Furthermore the quantitative nature of the phase recovery allows for the imaging of internal electromagnetic fields and local variations in charge density at sub-Angstrom resolution.

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Dr Christopher Allen is a MPhys graduate in physics from the University of Leeds, going on to complete a PhD at the same institution under the supervision of Prof. Bryan Hickey investigating the link between the atomic structure and electronic properties of carbon nanotubes.

In June 2011 Chris joined the Department of Materials at the University of Oxford as a post-doctoral researcher focusing on the characterisation of carbon nanomaterials using aberration corrected transmission electron microscopy. In 2016 Chris moved to the electron Physical Sciences Imaging Centre (ePSIC) at Diamond Light source as a Staff Scientist and became Principal Scientist in 2019.

Chris's current research is focused on technique development for low voltage STEM, TEM and diffraction imaging of low dimensional and beam sensitive materials.

To attend the lecture in person, please fill out this form. There are 50 spaces available in X1 Lecture Theatre Chemistry Building, University Park Campus. If you are on the waiting list for a place in X1 you will receive an email to inform you of this.

To attend the lecture on Microsoft Team, please use this link.