Special Seminar on

Measurement of the point-spread function of CCD cameras for HREM

By

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Period: 09.00-10.15
Meeting Room 110, NSTDA Building, Thailand Science Park,

Instructor Profile:

Chris Boothroyd is a Senior Scientist at the Center for Electron Nanoscopy, Technical University of Denmark (DTU CEN). His research is in the field of quantitative electron microscopy.

His PhD (1982 to 1986) in the Department of Materials Science and Metallurgy, Cambridge, involved the characterisation of amorphous metals for use as high temperature contacts on semiconductors. From 1986 he remained in Cambridge to work on interfaces in III-V semiconductor heterostructures and the design of an imaging filter. In 1990 he was a visiting scientist at the NKK Corporation Steel Research Centre, Japan, where he investigated boron segregation in NiAl alloys using EELS and developed a method for processing energy loss spectra to remove noise. On his return to Cambridge he was appointed as a staff member at the Materials Science department where he was responsible for a VG STEM with an energy filter and later was in charge of electron microscopy teaching. His main research interests during this period were electron beam lithography and contrast in high resolution electron microscopy. He was on leave at the Institute of Materials Research and Engineering (IMRE), Singapore during 2001 working on UHV quantitative microscopy. From September 2002 he was a Principal Scientist at IMRE and an Adjunct Associate...
Professor at the Department of Physics, National University of Singapore (NUS). He joined DTU CEN in January 2008.

Responsible for Cen's Analytical Titan TEM and for Cen's computing facilities. His research interests include quantitative high-resolution electron microscopy, energy-loss and X-ray microanalysis, scanning transmission electron microscopy, image simulation, image processing, aberration-corrected electron microscopy and in situ electron microscopy.

Abstract:

The point spread function measures how much the CCD camera blurs images. Measurement of the point-spread function is difficult. In principle, illumination of a single pixel with a very fine electron beam gives the point-spread function directly, but in practice such direct measurement is difficult. Instead a number of indirect methods (hologram fringes, the noise method and various edge methods) have been developed by various authors each with their own advantages and disadvantages. My progress in making these work will be described.

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Registration Form (TR-52-29)

Measurement of the point-spread function of CCD cameras for HREM

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