

"Modern Synchrotron X-ray Methods for Materials Physics"

Ian Robinson

Professor of Physics

London Centre for Nanotechnology

Third generation synchrotrons, such as the new facility in Shanghai, are revolutionary because they use undulator sources of X-rays. These undulators produce up to 6 orders of magnitude more coherent X-rays than the older machines. New measurement techniques, exploiting this coherence, can be developed. In this talk I will describe two new methods, Coherent Diffraction Imaging, and X-ray Ptychography, which are very useful in materials physics. I will show examples of our work to study the structure of Zinc Oxide and Silicon nanowires using these methods.