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MONASH CENTRE FOR ELECTRON MICROSCOPY

SEMINAR

Growth and Characterisation of Silicon Nanowires

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Max Plank Institute, Halle

Friday 29 February 2008, 11.00 a.m. – 12 noon
Law Lecture Theatre L3, Bldg 12

Abstract

Semiconductor nanowires (NWs) have attracted great interest in the field of basic sciences as well as in the field of technological application due to their sub-micron feature size. To realize such new kinds of nanoelectronics, sensors and optical devices, different growth mechanisms are under consideration. Molecular-beam epitaxy (MBE) will be discussed in respect to the corresponding morphology and crystallography of NWs. To generate NWs usually small metal droplets are applied, e.g. of gold. Such a vapor-liquid-solid growth concepts (VLS) can also be applied to the formation of SiGe heterostructures. Core-shell structures as well as axial NWs are attractive for further technological application, such as FET transistors, which might be characterized by a ballistic charge transport and by a low-energy consumption. For the investigation of the morphology of the NWs, of their chemical composition and for the detection of point defects and clusters TEM techniques will play an essential role. Other techniques for the analysis of the mechanical and electrical behaviour of NWs will be shortly discussed.

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Visitors are most welcome: Please note that there is a designated Visitors Car Park (N1) clearly ground-marked by white paint and tickets, at a cost of $1.4/hour for up to 3 hours, available from a dispensing machine. This high-rise carpark is located on the following Clayton Campus Map, Ref. B2.

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