SEMINAR ANNOUNCEMENT

Structural and electronic characterization of non-polar group-III-Nitride surfaces

By
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Date: 19 October 2010, Tuesday
Time: 11.00am to 12.00pm
Venue: Hilbert Space (PAP-02-02)
Host: Asst. Prof. Sun Handong

Abstract:
It will be shown how scanning tunneling microscopy (STM) and spectroscopy (STS) can be applied as extremely useful technique to study nitride semiconductor surfaces. Via STM the atomic structure of the surfaces can be imaged in real space and dislocations crossing the surface can be studied. STS provides detailed information about the electronic structure of the studied surface and therewith clarifies the energetic positions of surface states and the Fermi level. Applying cross-sectional STM to layered structures will lead to and comprehensive analysis of the spatial arrangement of the constituent materials. From the first cross-sectional STM measurements (XSTM) on layer with different doping concentrations the imaging mechanisms could be unraveled: Similar to XSTM on zincblende semiconductor nano structures, a mechanical contrast contribution from strain relaxation as well as an electronic contribution originating from differently strong Fermi level pinning was found.

Short Biography
1996 German Diploma in Physics (Dipl. Phys.) at the Technische Universität Berlin (Germany) about “Raman spectroscopy, LEED and Auger-Electron-Spectroscopy of metallic adsorbates on semiconductor surfaces”.
1999 Research stay at the electron synchrotron ELETTRA at Trieste/Italy.
2001 Ph.D. in Physics (Dr. rer. nat.) at the Technische Universität Berlin (Germany) about “Cross-sectional scanning tunneling microscopy on InAs/GaAs quantum dots”.
Since 2001 Post Doctoral researcher at the Technische Universität Berlin (Germany) (similar to Assistant Professorship), work on cross-sectional scanning tunneling microscopy of semiconductor nano-structures as well as growth and characterization of semiconductor surfaces.
2007-2008 Post doctoral Feodor-Lynen research fellow of the Alexander-von-Humboldt-foundation at the University of Texas at Austin/TX USA.

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