

Nano-Science Activity at Atomic-scale Surface Science Research Center (ASSRC) in Yonsei University

*Presented by H. W. Yeom
2003. 10. 14*

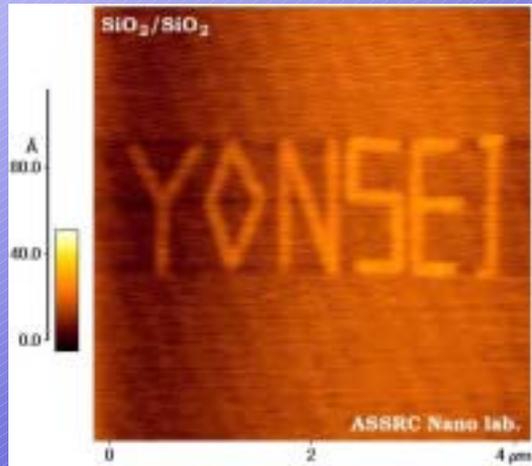
Overview of ASSRC

- **Director : Prof. C. N. Whang**
- **Established in 1995**
- **Funding - Korean Science and Engineering Foundation
(through SRC program) and Yonsei University**
- **Annul budget - 12 billion won**
- **Research groups - 15 groups from 8 institutes**
- **In-house man power - 5 professors, 4 Research professors,
8 Post docs**



Major Research Areas

- Atomic structures of atomic (nano) -scale structures on surfaces
- Electronic structures of atomic (nano) -scale structures on surfaces
- Fabrication and manipulation of nanoscale structures on surfaces
- Fabrication of nanodevices and transport properties



Nano-lettering by scanning tunneling probe on SiO_2 thin film



ASSRC & IPAP, Yonsei Univ.



Major Instruments

- Synchrotron-radiation photoelectron spectroscopy beam line
- Scanning Tunnelling Microscope
- Atomic Force Microscope
- Scanning Electron Microscope
- Ion-Scattering Spectrometer
- Photoemission Electron Microscope



4 K Scanning Tunneling Microscope



Synchrotron-radiation photoelectron spectroscopy system

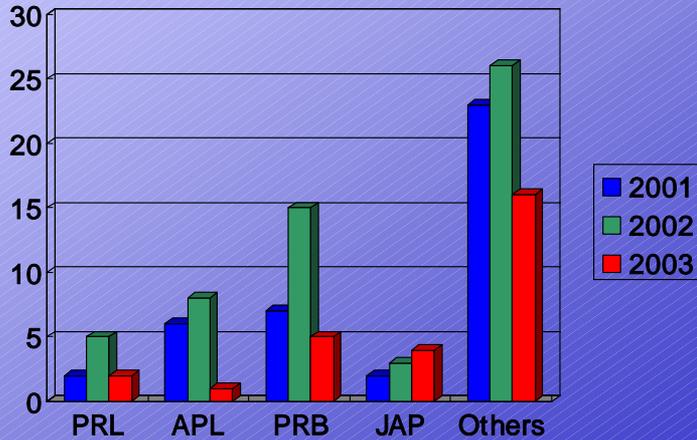


ASSRC & IPAP, Yonsei Univ.

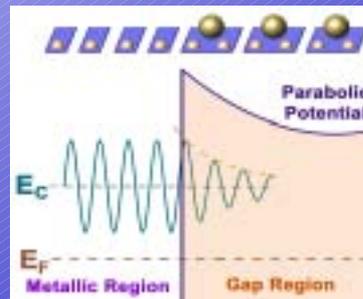
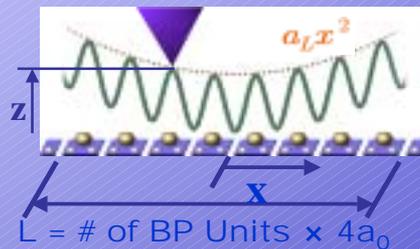
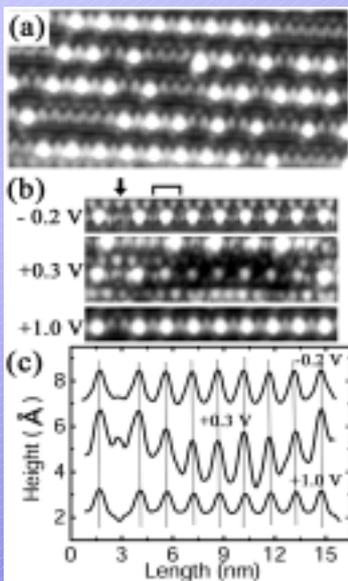


Recent Publications (2001~2003)

	2001	2002	2003 (1/2)
Number of papers	40	57	28

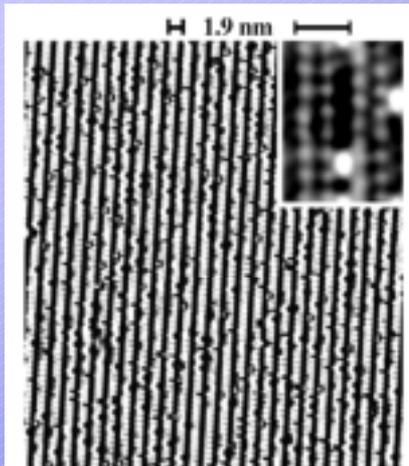


Si atomic chain on Si(111)5X2-Au : Shottky barrier effect



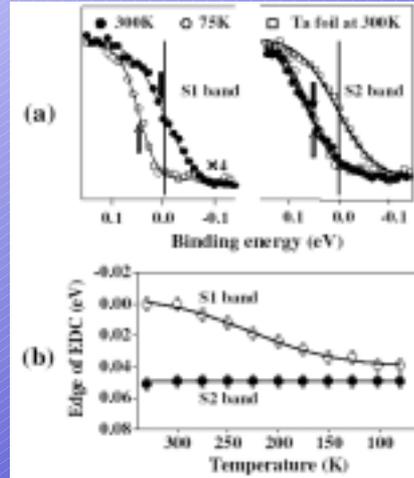
Metallic nanowires on Si

STM images of Au nanolines



Himpsel's group, PRL (2002)

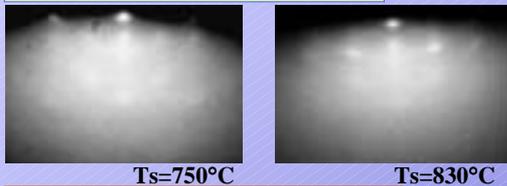
Metal-insulator transition of nanolines



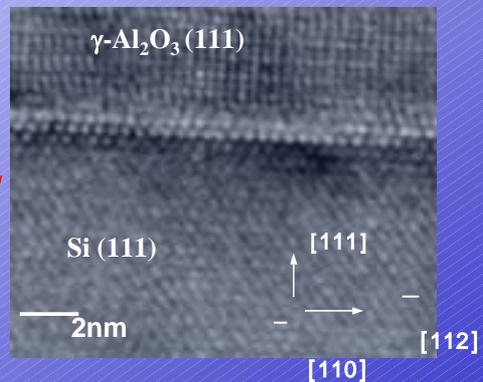
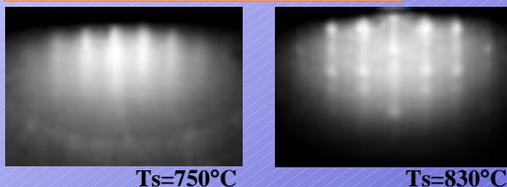
Yeom's group, PRL (2003)

Growth of epitaxial Al₂O₃ on oxidized or clean Si(111)

Al₂O₃/clean-Si(111)



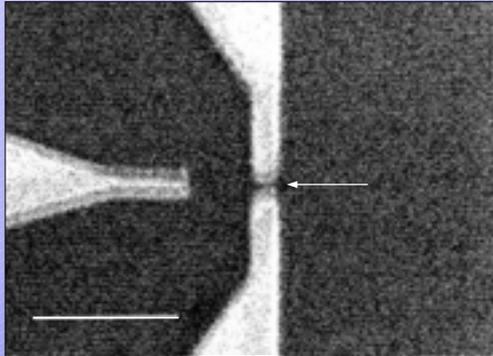
Al₂O₃/oxidized-Si(111)



Better crystallinity to grow on the oxidized Si(111).

Electric transport through DNA - SEM image of trapped DNA

Before trapping



After trapping

