IBM-NIMS symposium on "Characterization and manipulation at the atomic scale"

National Institute for Materials Science (NIMS)

Organizing committee:

Oscar CUSTANCE (NIMS, Japan)
Daisuke FUJITA (NIMS, Japan)
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Monday, June 14th

9:00-9:15 Opening remarks: Sukekatsu USHIODA (Presidents of NIMS)

Session I: controlling materials at the atomic scale I

09:15-10:00 Don EIGLER (IBM Almaden)
"Classical computation in quantum spin-structures"

10:00-10:30 Coffee Break

10:30-11:15 Masakazu AONO (NIMS & MANA)
"Observing, controlling, and measuring at the atomic/molecular scale

11:15-12:00 Gerhard MEYER (IBM Zurich)
"Scanning tunneling/atomic force microscopy of individual atoms/molecules on ultrathin NaCl films"

12:00-13:30 Lunch

Session II: controlling materials at the atomic scale II

13:30-14:00 Oscar CUSTANCE (NIMS)
"Application of atomic force microscopy for atom manipulation and single atom chemical identification"

14:00-14:30 Markus TERNES (IBM Almaden & Max-Planck Institute Stuttgart)
"Force and conductance at the atomic level: From tunneling to chemical bonds and the manipulation of individual atoms"

Session III: STM to unveil the properties of materials at the atomic and molecular level

14:30-15:15 Andreas HEINRICH (IBM Almaden)
"Spin excitation spectroscopy of magnetic atoms on surfaces"

15:15-15:45 Coffee Break

15:45-16:15 Sebastian LOTH (IBM Almaden)
"Nanosecond time resolution in the STM and its application to spin relaxation measurements"

16:15-17:00 Maki KAWAI (RIKEN & The University of Tokyo)
"Single molecule spectroscopy"

17:00-17:15 Break

17:15-18:00 Yukio HASEGAWA (ISSP, The University of Tokyo)
"Spatial mapping of screened potential and superconductivity by low-temperature scanning tunneling microscopy/spectroscopy"

19:00-21:00 Banquet

Tuesday, June 15th

Session IV: Application of AFM to the characterization of materials

09:15-10:00 Dan RUGAR (IBM Almaden)
"Nanoscale magnetic resonance imaging -The quest for a molecular structure microscope"

10:00-10:30 Coffee Break

10:30-11:15 Leo GROSS (IBM Zurich)
"Individual molecules investigated by noncontact AFM"

11:15-12:00 Bernd GOTSMANN (IBM Zurich)
"Beyond AFM based data storage"

12:00-13:30 Lunch

Session V: Application of electron microscopy for the visualization of nanoscale dynamic processes

13:30-14:00 Koji KIMOTO (NIMS)
"High spatial-resolution analysis using scanning transmission electron microscopy; limiting factors for realizing atomic resolution"

14:00-14:30 Dmitri GOLBERG (NIMS & MANA)
"Nanotube properties analyzed in transmission electron microscope"

Session VI: NIMS & Materials Nanoarchitectonics

14:30-15:00 Keisuke SAGISAKA (NIMS)
"Manipulation of silicon adatoms and electronic structures on Si(111)-7x7"

15:00-15:30 Coffee Break

15:30-16:00 Yasushi YAMAUCHI (NIMS)
"Observation of surface spins using metastable atom beams"

16:00-16:30 Takayoshi SASAKI (NIMS & MANA)
"Functional nanosheets of oxide and hydroxide: graphene analogue"

16:30-17:00 Tsuyoshi HASEGAWA (NIMS & MANA)
"Nanoionic switching devices: atomic switches"

17:00-17:15 Coffee Break

17:15-18:00 James Gimzewski (UCLA & MANA)

18:00-18:15 Closing remarks: Daisuke FUJITA (NIMS)