1st International Workshop on
Nano-scale Spectroscopy
and its Applications to
Semiconductor Research

Program

Sunday, 10 December 2000

18:00 - 20:00	Welcome reception at the ICTP

Monday, 11 December 2000

8:45 - 9:00	Opening remarks by the workshop chairman G. Salviati
Session Synchrotron radiation techniques I, chair: Y. Watanabe	
9:00 - 9:45	T. Kinoshita, University of Tokyo: WHAT CAN WE DO BY PHOTOELECTRON SPECTROMOCROSCOPY?
9:45 - 10:10	S. Di Fonzo, Sincrotrone Trieste: NON-DESTRUCTIVE DETERMINATION OF LOCAL STRAIN UNDER BURIED INTERFACES WITH 100-NANOMETER SPATIAL RESOLUTION
10:10 - 10:35	K. C. Prince, Sincrotrone Trieste: Surface chemistry of lead sulphide
10:35 - 11:30	coffee break
Session Synchrotron radiation techniques II, chair: N. Ueno	
11:30 - 11:55	M. Kiskinova, Sincrotrone Trieste: Scanning Photoemission Microscopy: recent developments and applications
11:55 - 12:20	R. J. Phaneuf, University of Maryland: Spatially Resolved Spectra and Energetically Resolved Photoelectron Images

	of Reactive Surface Phases and PN-Junctions
12:20 - 12:45	R. Larciprete, Sincrotrone Trieste: VISIBLE AND UV PULSED LASER PROCESSING OF THE Ti/Si(001) INTERFACE STUDIED BY XPS MICROSCOPY WITH SYNCHROTRON RADIATION
12:45 - 13:10	E. Di Fabrizio, INFM-TASC: Zone Plate for x-ray applications
13:10 - 14:30	lunch break
Session Synchrotron radiation techniques III, chair: M. Kiskinova	
14:30 - 15:15	N. Ueno, Chiba University: Imaging of organic thin films using electron emission microscope
15:15 - 15:40	M. Cinchetti, Johannes Gutenberg Universität Mainz: The Effect of Surface Defects on the Efficiency of GaAsP Photoemitters for Polarised Electron Sources
15:40 - 16:05	M. Mynar, Delong Instruments: X-ray photoemission and low energy electron microscope
16:05 - 16:30	B. Kaulich, ESRF: X-RAY MICROSCOPY AND SPECTROMICROSCOPY TECHNIQUES USING MULTI KEV PHOTONS
16:30 - 17:00	coffee break
Session Synchrotron radiation techniques IV, chair:T. Kinoshita	
17:00 - 17:45	S. Heun, Sincrotrone Trieste: PHOTOELECTRON SPECTROSCOPY FROM INDIVIDUAL HETEROEPITAXIAL NANOCRYSTALS ON GaAs(001)
17:45 - 18:10	M. Bertolo, Sincrotrone Trieste: Cross-sectional photoemission microscopy of semiconductor heterostructures

Tuesday, 12 December 2000

Session Synchrotron radiation techniques V, chair: S. Heun	
9:00 - 9:45	Y. Watanabe, NTT Basic Research Laboratories: Synchrotron radiation photoelectron spectroscopy of nanostructures
9:45 - 10:10	A. Barinov, Sincrotrone Trieste: Formation stages and thermal stability of metal/n-GaN interface
10:10 - 10:35	C. Teichert, Montanuniversität Leoben: Self-organized semiconductor nanostructures and their applications
10:35 - 11:30	coffee break
Session Scanning probe techniques I, chair: S. Ushioda	
11:30 - 12:15	R. Cingolani, Universita' di Lecce: Wavefunction mapping in single quantum dots
12:15 - 12:40	J. Wiebe, Hamburg University: An Ultra High Vacuum-300 mK-Scanning Tunneling Microscope for Local Measurements of the Density of States on InAs(110)
12:40 - 13:05	F. Rosei, Università di Roma Tor Vergata: Growth and characterization of Ge/Si(111) quantum dots by Scanning Tunneling Microscopy
13:05 - 15:00	lunch break
15:00 - 18:00	Excursion to Sincrotrone Trieste

Wednesday, 13 December 2000

Session Scanning probe techniques II, chair: M. Sakurai	
9:00 - 9:45	S. Ushioda, Tohoku University: Probing of electronic transitions with atomic scale spatial resolution
9:45 - 10:10	T. K. Johal, Universita di Lecce:

	IMAGING OF QUANTUM DOT STATES BY SCANNING TUNNELING SPECTROSCOPY
10:10 - 10:35	K. Kanisawa, NTT Basic Research Laboratories: IMAGING OF ZERO-DIMENSIONAL STATES IN SEMICONDUCTOR NANOSTRUCTURES USING SCANNING TUNNELING MICROSCOPY
10:35 - 11:00	B. Ressel, Sincrotrone Trieste: ELECTRONIC STRUCTURE OF THE Pb/Si(111) MOSAIC PHASE
11:00-11:30	coffee break
Session Scanning probe techniques III, chair: M. Colocci	
11:30 - 12:15	M. Sakurai, RIKEN: STM-INDUCED LIGHT EMISSION FROM NANOSTRUCTURES ON A SI(001)-(2X1)-D SURFACE
12:15 - 12:40	L. Ottaviano, INFM Unità dell'Aquila: On the spatially resolved electronic structure of polycristalline WO3 films investigated with Scanning Tunneling Spectroscopy
12:40 - 13:05	J. P. Singh, Nuclear science Centre New Delhi: Electronic excitations induced enhancement in metallicity on HOPG and Si surfaces: in-situ STM/STS studies
13:05 - 14:30	lunch break
Session Scanning probe techniques IV, chair: K. Yagi	
14:30 - 15:15	S.-W. Hla, Freie Universität Berlin: Single Molecule Engineering with a Scanning Tunneling Microscope
15:15 - 15:40	H. Iwasaki, Osaka University: STM Nanolithography on SiO2/Si
15:40 - 16:05	N. Jug, Institute Josef Stefan Ljubljana: Surface structure of some transition-metal trichalchogenides

16:05 - 16:50	A. Armigliato, CNR-Istituto LAMEL Bologna: STRAIN ANALYSIS IN SUBMICRON ELECTRON DEVICES BY CONVERGENT BEAM ELECTRON DIFFRACTION
16:50 - 17:00	coffee break
Session Scanning probe techniques V, chair: S.-W. Hla	
17:00 - 17:45	M. Colocci, INFM Firenze: New trends in the optical investigation of semiconductor heterostructures at the nanoscale
17:45 - 18:10	A. Crottini, Swiss Federal Institute of Technology Lausanne: A novel tip-surface distance control for low temperature scanning near-field photoluminescence spectroscopy
18:10 - 18:35	L. Sirigu, Swiss Federal Institute of Technology-EPFL Lausanne: OPTICAL PROPERTIES OF V-GROOVE QUANTUM WIRE LASERS AND LED
20:00 - 23:00	Social dinner

Thursday, 14 December 2000

Session Electron microscopy techniques I, chair: G. Salviati	
9:00 - 9:45	N. Yamamoto, Tokyo Institute of Technology: TEM-Cathodoluminescence Study of Microstructures and Defects in Semiconductor Epilayers
9:45 - 10:10	M. Ivanda, Rudjer Boskovic Institute Zagreb: COMPARISON OF HIGH RESOLUTION TRANSMISSION ELECTRON MICROSCOPY AND LOW FREQUENCY RAMAN SCATTERING IN DETERMINATION OF PARTICLES SIZE DISTRIBUTION OF NANOSIZED TiO2
10:10 - 10:35	A. Patnaik, Indian Institute of Technology Madras: STRUCTURE AND CHARGE TRANSPORT IN N+ BEAM INDUCED pi-BONDED NANOCRYSTALLINE CLUSTERS IN POLY PHENYLENE OXIDE

10:35 - 11:00	J. Swiatowska-Mrowiecka, University of Mining and Metallurgy: INFLUENCE OF THE CRYSTALLOGRAFIC ORIENTATION ON THE MECHANISM OF ZINC DISSOLUTION IN ORGANIC SOLVENTS
11:00 - 11:30	coffee break
Session Electron microscopy techniques II, chair: N. Yamamoto	
11:30 - 12:15	K. Yagi, Tokyo Institute of Technology: Surface Imaging with use of an Energy Filter
12:15 - 12:40	V.Grillo, Universitaet Erlangen-Nuernberg: COMPOSITIONAL FLUCTUATIONS AND LUMINESCENCE PROPERTIES OF InGaN QUANTUM WELLS GROWN ON GaN AND SAPPHIRE SUBSTRATES: A COMPARISON
12:40 - 13:05	M. Starowicz, University of Mining and Metallurgy, Krakow: ELECTROCHEMICAL DEPOSITION OF SI(IV) COMPOUNDS ON THE METAL SURFACE FROM ANHYDROUS ORGANIC SOLVENTS
13:05 - 14:30	lunch break
Session Electron microscopy techniques III, chair: T. Sekiguchi	
14:30 - 15:15	G. Salviati, MASPEC-CNR Institute Parma: Cathodoluminescence submicrometric depth profiling of optical emissions in semiconducting heterostructures and devices
15:15 - 15:40	O. Martinez, Dpto. Física de la Materia Condensada. E.T.S.I.I. Valladolid: MICROCHARACTERIZATION OF CONFORMAL GaAs AND AlGaAs ON Si LAYERS BY SPATIALLY RESOLVED OPTICAL TECHNIQUES
15:40 - 16:25	T. Sekiguchi, National Research Institute for Metals Tsukuba: Low-energy Cathodoluminescence Study of Semiconductor Nanostructures and Nanoparticles
16:25 - 16:40	Concluding remarks by the workshop vice-chairman N. Yamamoto

Friday, 15 December 2000

8:00 - 22:00	Excursion to CNR-MASPEC in Parma