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- Authors
- Sessions
- Sponsors

2004 Fourth IEEE Conference on Nanotechnology

17– 19 August 2004
Tutorials – 16 August 2004
Technische Universität München
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- Chair Welcome
- Program Committee
- Organizing Committee
- Links: IEEE
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IEEE-NANO 2004

A message from the General Chair and the Program Chair

On behalf of the organizers, we would like to welcome you to the 2004 Fourth IEEE Conference on Nanotechnology. After successful conferences in Maui, Washington DC and most recently San Francisco, the IEEE Nano Conference has left the United States for the first time this year and arrived in the Old Continent.

It is a great pleasure to welcome you to Munich, a very attractive and dynamic city which, in addition to its profound cultural heritage, is the present day high-tech capital of Germany. It is therefore of great significance for the City, and especially for the Technical University, to host such prestigious event dedicated to a theme with so much impact on future high technology growth.. The conference is sponsored by the IEEE Nanotechnology Council, and has received generous financial support from several companies and government agencies. The purpose of the conference is to provide a forum for the discussion and exchange of ideas in various areas of nanoscience and nanotechnology, with the main focus on the engineering aspects of nanotechnology, from nanostructure modeling and fabrication to nanosystems design and realization.

The program of IEEE-Nano 2004 consists of 5 plenary talks, 15 invited presentations, approximately 110 contributed oral presentations and 90 contributed posters (distributed in 2 poster sessions). The Proceedings in this CD-ROM contain all the contributed papers (oral and posters), and the Proceedings Chairpersons and their collaborators are to be praised for such an outstanding achievement. In addition to the invited and contributed presentations, four tutorial short courses are offered on the first day. An exhibition is organized throughout the conference as well. A special panel session on the critical subject of how to teach nanotechnology is organized on Wednesday. A special symposium will take place on Thursday afternoon, dedicated to the applications of Nanotechnology in Medicine. We would like to thank all the members of the Program Committee for their work and effort in putting together a very interesting and high quality program.

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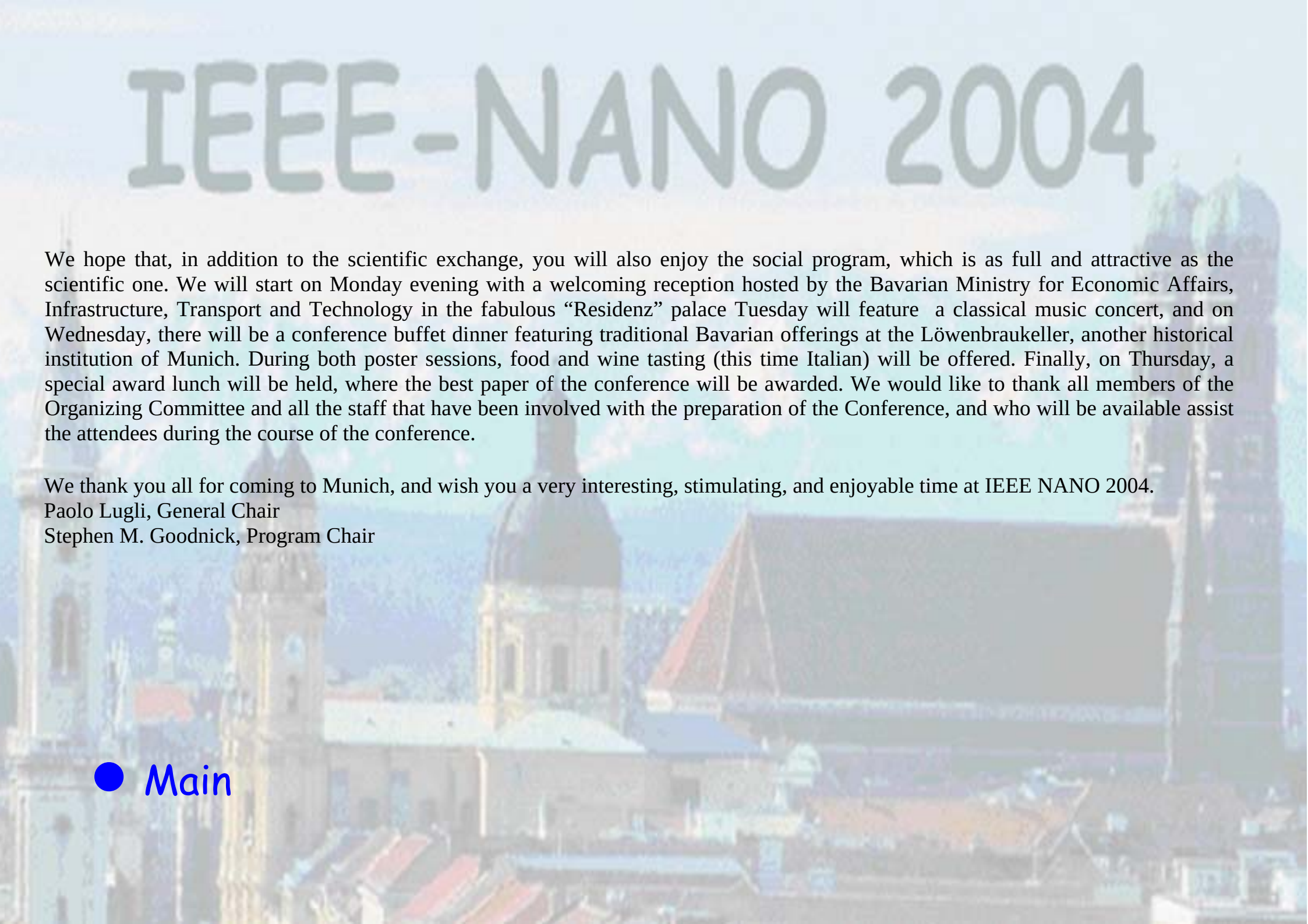
We hope that, in addition to the scientific exchange, you will also enjoy the social program, which is as full and attractive as the scientific one. We will start on Monday evening with a welcoming reception hosted by the Bavarian Ministry for Economic Affairs, Infrastructure, Transport and Technology in the fabulous “Residenz” palace Tuesday will feature a classical music concert, and on Wednesday, there will be a conference buffet dinner featuring traditional Bavarian offerings at the Löwenbraukeller, another historical institution of Munich. During both poster sessions, food and wine tasting (this time Italian) will be offered. Finally, on Thursday, a special award lunch will be held, where the best paper of the conference will be awarded. We would like to thank all members of the Organizing Committee and all the staff that have been involved with the preparation of the Conference, and who will be available assist the attendees during the course of the conference.

We thank you all for coming to Munich, and wish you a very interesting, stimulating, and enjoyable time at IEEE NANO 2004.
Paolo Lugli, General Chair
Stephen M. Goodnick, Program Chair



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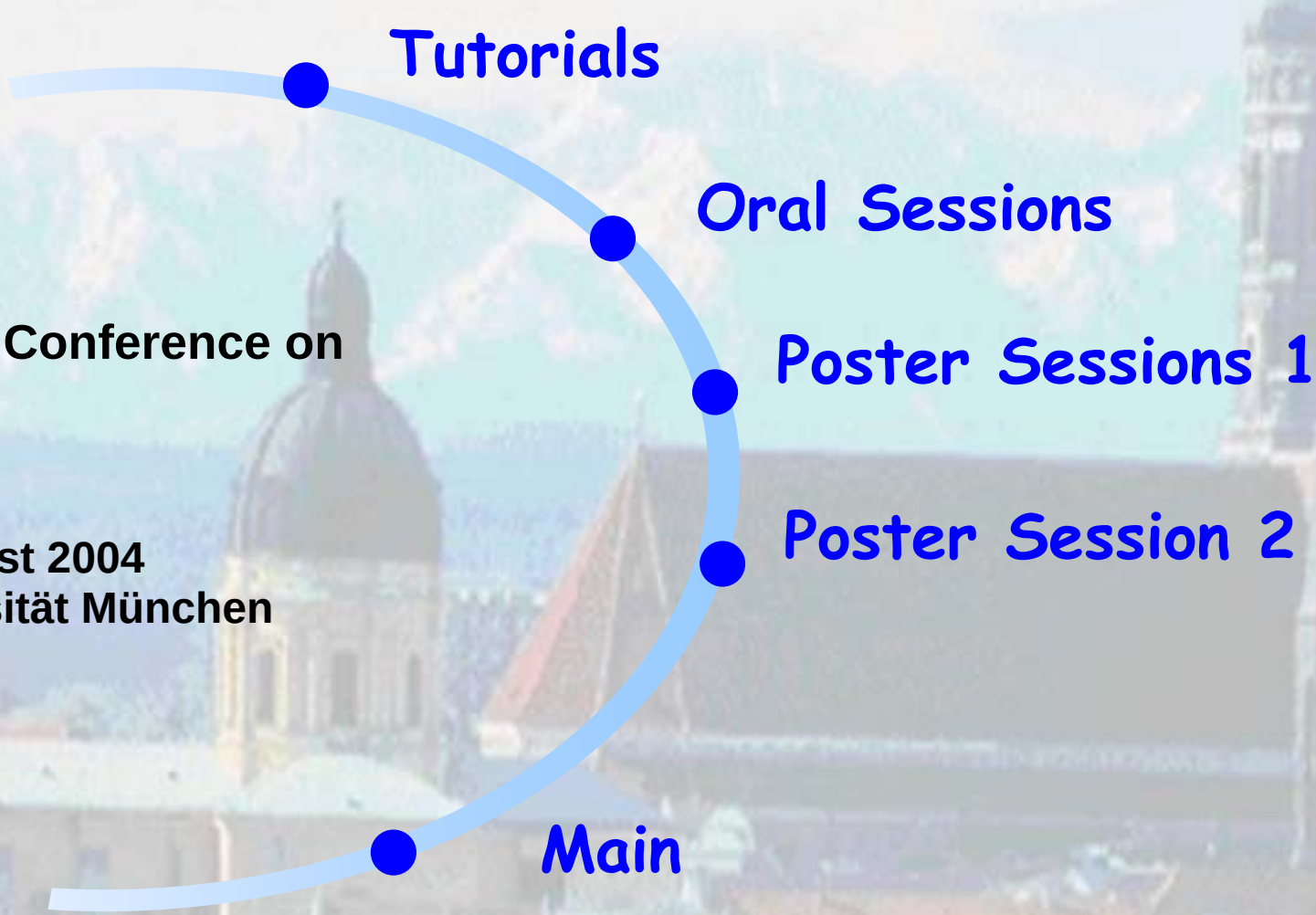

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TUESDAY ORAL SESSIONS:

TU_PL: PLENARY SESSION
TU_1_1: CARBON NANOTUBES 1
TU_1_2: NANOMATERIALS
TU_1_3: NANOROBOTICS
TU_2_1: NANOELECTRONICS 1
TU_2_2: NANOFABRICATION 1
TU_2_3: NANOPHOTONICS 1
TU_3_1: NANOELECTRONICS 2
TU_3_2: NANOSTRUCTURES 1
TU_3_3: TEACHING NANOTECHNOLOGY

WEDNESDAY ORAL SESSIONS:

WE_PL: PLENARY SESSION
WE_1_1: MOLECULAR ELECTRONICS
WE_1_2: SPINTRONICS
WE_1_3: NANOSENSORS
WE_2_1: NANOCIRCUITS
WE_2_2: NANOSTRUCTURES 2
WE_2_3: NANOFABRICATION 2
WE_3_1: NANOPHOTONICS 2
WE_3_2: NANOELECTRONICS 3

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TH_1_2: “DURINT” PROJECT - NANOELECTRONICS
TH_1_3: NANOFABRICATION 3
TH_2_1: NANOBIOELECTRONICS 2
TH_2_2: “DURINT” PROJECT - NANOCIRCUITS
TH_2_3: NANOELECTRONICS 4
TH_3_1: (Late news papers)
TH_3_2: NANOMANIPULATION
TH_SP: SYMPOSIUM ON “Applications of Nanotechnology in Medicine”

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MONDAY AUG. 16th

9.00-12.30 Tutorial short course I : Carbon Nanotubes (M. Meyyapan, NASA)

9.00-12.30 Tutorial short course II : Nanoelectronics (S.M. Goodnick, ASU)

14.00-17.30 Tutorial short course III : Molecular Electronics (P. Lugli, TUM; A. Di Carlo, Rome "Tor Vergata")

14.00-17.30 Tutorial short course IV : Bioelectronics (B. Wolf and coworkers, TUM)

19.00 Welcoming Reception at "Residenz"

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TUESDAY AUG. 17th

8.45 Opening

9.00-11.00 TU_PL: PLENARY SESSION
(Chair: S. M. Goodnick)

9.00 TU_PL_1 Plenary lecture: Nanoelectronic a quantum leap
Klaus von Klitzing (*Max-Planck-Institut FKF, Stuttgart, Germany*)

10.00 TU_PL_2 Plenary lecture: Benchmarking Nanotechnology for High-Performance and Low-Power Logic Transistor Applications
Robert Chau, (*Intel Corporation, Portland, OR, USA*)

11.00 Coffee break

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11.30-12.45 SESSION TU1_1: CARBON NANOTUBES 1 (Chair: G. Abstreiter)

TU1_1_1 Invited talk: Carbon nanotube electronics and opto-electronics
Phaedon Avouris (*IBM Research Division, T.J. Watson Research Center, Yorktown Heights, USA)*

TU1_1_2 Carbon Nanotube Based High Current Transistors,
R. Seidel, A.P. Graham, E. Unger, G.S. Duesberg, M. Liebau, W. Steinhoegl, W. Pamler, and F. Kreupl, *(Infineon Technologies AG, Corporate Research, 81730 Munich, Germany)*

TU1_1_3 Simulation of Carbon Nanotube Field-Effect Devices,
L. Latessa[1], A. Pecchia[1], A. Di Carlo[1], G. Scarpa[2], and P. Lugli[2], *([1]Dept. of Electronic Engineering, University of Rome "Tor Vergata", Rome, Italy, [2]Dept. of Electrical Engineering, Technical University of Munich, Munich, Germany)*

TU1_1_4 Deposition and STM Investigation of Single-Walled Carbon Nanotubes on GaAs(110),
L.B. Ruppalt, P.M. Albrecht, and J.W. Lyding, *(Beckman Institute and Dept. of Electrical and Computer Engineering, University of Illinois, Urbana, Champaign 61801, USA)*

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11.30-12.45 SESSION TU1_2: NANOMATERIALS (Chair: U. Ravaioli)

TU1_2_1 Two-color Size-Tunable (1100-1600 nm) Quantum Dot Nanocrystal Electroluminescent Devices,
L. Bakueva, G. Konstantatos, L. Levina, E.H. Sargent, (Dept. of Electrical & Computer Engineering, University of Toronto, Toronto M5S 3G4, Canada)

TU1_2_2 Thermal Conductivity of Si/Ge Quantum Dot Superlattices,
A. Khitun[1] J. Liu[2] and K.L. Wang[1], *([1]Device Research Laboratory, Electrical Engineering Dept., MARCO Focus Center on Functional Engineered Nano Architectonics (FENA), University of California at Los Angeles, Los Angeles, California, 90095-1594,USA, [2]Dept. of Electrical Engineering, University of California at Riverside, Riverside, CA 92521, USA)*

TU1_2_3 Characterization Approaches of Nanoscale Modified Plastics,
D. Vogel[1], J. Keller[1], B. Michel[1], M. Holst[2], M. Muzic[2], *([1]Fraunhofer IZM, Micro Materials Center Berlin, Berlin, Gustav-Meyer-Allee 25, D-13355 Berlin, Germany, [2]Robert Bosch GmbH, P.O.B. 11 31, D-71301 Waiblingen, Germany)*

TU1_2_4 Highly Thermal Robust Ni-Germanosilicide Utilizing NiPt/Co/TiN Tri-layer for CMOS Application,
J.-G. Yun[1], S.-Y. Oh[1], H.-H. Ji[1], B.-F. Huang[1], S.-H. Park[2], H.-S. Lee[2], D.-B. Kim[2], U.-S. Kim[2], H.-S. Cha[2], S.-B. Hu[2], J.-G. Lee[2], and H.-D. Lee[1], *([1]Dept. of Electronics Engineering, Chungnam National University, Yuseong-gu, Daejeon 305-764, Korea, [2]System IC R&D Division, Hynix Semiconductor Inc., Hungduk-Gu, Chongju 361-725, Korea)*

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TU1_2_5 Nanoscale Materials Modification Via Low-Energy Reactive Plasmas,

P.A. Kraus, T.C. Chua, C.S. Olsen, T.M. Bauer*, *(Front End Products Group, Applied Materials, Sunnyvale, CA, USA, *Sandia National Laboratories, Albuquerque, NM, USA)*

11.30-12.45 SESSION TU1_3: NANOROBOTICS (Chair: T. Fukuda*)

TU1_3_1 Carbon Nanotube-Tipped Microcantilever Arrays for Imaging, Testing, and 3D Nanomanipulation: Design and Control,
E. Lee, and M.J. Chung, *(Korea Advanced Institute of Science and Technology, Daejeon, 305-701, South Korea)*

TU1_3_2 Dynamic Modes of Nano-Particle Motion During Nanoprobe Based Manipulation,
A. Tafazzoli and M. Sitti, (*Dept. of Mechanical Eng., Carnegie Mellon University, Pittsburgh, PA 15213, USA*)

TU1_3_3 Nonlinear Dynamics of a Micro-Cantilever in Close Proximity to a Surface,
F. Jamitzky[1,2], M. Stark[3,4], W. Bunk[2], W.M. Heckl[1], R.W. Stark[1],
([1]*Center for Nanoscience and Ludwig-Maximilians-Universität, 80333 Munich, Germany,* [2]*Center for Interdisciplinary Plasma Science and Max-Planck-Insitut für Extraterrestrische Physik, 85748 Garching, Germany,* [3]*Laboratoire Spectrométrie Physique, UJF/CNRS, 38402 St Martin d'Hères, France,* [4]*LEPES (CNRS), 38042 Grenoble, France*)

TU1_3_4 Invited talk: Perspective of Nanotube Sensors and Nanotube Actuators
Toshio Fukuda, Fumihito Arai, Lixin Dong, and Yoshiaki Imaizumi
(*Department of Micro/Nano System Engineering, Nagoya University, Nagoya, Japan)*

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14.30-16.00 SESSION TU2_1: NANOELECTRONICS 1 (Chair: G. Klimeck*)

TU2_1_1 Invited talk: Quantum devices in semiconductor nanowires

Lars Samuelson (*Lund University, Solid State Physics/the Nanometer Structure Consortium LUND, Sweden*)

TU2_1_2 STTM - Promising Nanoelectronic DRAM Device,

S.J. Baik, Z. Huo, S.-H. Lim, I.-S. Yeo, S. Choi, U.-I. Chung, and J. T. Moon, *(Process Development Team, Semiconductor R&D Center, Samsung Electronics Co., LTD. San#24 Nongseo-Ri, Giheung-Eup, Yongin-City, Gyeonggi-Do, Korea 449-711)*

TU2_1_3 Fabrication of Single-Electron Transistors Based on Proximity Effects of Electron-Beam Lithography,

S.-F. Hu[1], Y.-P. Fang[2], Y.-C. Chou[2] and G.-J. Hwang[3], *([1]National Nano Device Laboratoriesm, Hsinchu 30050, Taiwan, R.O.C., [2]Dept. of Physics, National Tsing Hua University, Hsinchu 30043, Taiwan, R.O.C., [3]Center of Measurement Standards, Industrial Technology Research Institute, Hsinchu 30042, R.O.C.)*

TU2_1_4 Defect Characterization and Yield Analysis of Array-Based Nanoarchitecture,

S. Zhang[1], M. Choi[1], and N. Park[2], *([1] Dept. of ECE, University of Missouri-Rolla, Rolla, MO 65409-0040, USA, [2] Dept. of CS, Oklahoma State University, Stillwater, OK 74078, USA)*

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TU2_1_5 Triple High κ Stacks ($Al_2O_3/HfO_2/Al_2O_3$) with High Pressure 10atm) H_2 and D_2 Annealing for SONOS Type Flash Memory Device Applications,

S. Jeon, S. Choi*, H. Park*, H. Hwang*, J.H. Han, H. Chae, S.D. Chae, J.H. Kim, M.K. Kim, Y.S. Jeong, Y. Park, S. Seo, J.W. Lee, and C.W. Kim, *(M.D. lab, Samsung Advanced Institute of Technology, San 14 Nongseo-ri, Kihung-up, Yongin-si, Kyungki-do, Korea, Dept. of Materials Science & Engineering, Kwangju Institute of Science & Technology, Gwangju, 500-712, Korea)*

14.30-16.00 SESSION TU2_2: NANOFABRICATION 1 (Chair: R.J. Pryputniewicz)

TU2_2_1 Design and Simulation of Magnetically Controlled Nanoscale Assembly,

G. Friedman, B. Yellen and I. Tsukerman*, *(Drexel University, Electrical and Computer Engineering Dept., Philadelphia, PA 19104, USA, *Dept. of Electrical & Computer Engineering, The University of Akron, OH 44325, USA)*

TU2_2_2 Dip Pen Nanolithography™ and its Potential for Nanoelectronics,

B. Rosner, N. Amro, S. Disawal, L. Demers, H. Zhang, J. Rendlen, T. Duenas, R. Shile, J. Fragala, R. Elghanian, *(NanoInk Inc., Chicago, IL 60607, USA; NanoInk Inc., Campbell, CA 95008, USA)*

TU2_2_3 Fabrication of Embedded Media by Etching of Self-Assembled Mask,

L.K. Verma and V. Ng, *(Information Storage Materials Laboratory, Dept. of Electrical and Computer Engineering, National University of Singapore, 4 Engineering Drive 3, Singapore 117576)*

TU2_2_4 Fabrication of Magnetic Nanostructures Using KrF Lithography,

N. Singh[1,2], Goolaup S.[2] and A.O. Adeyeye[2], *([1] Institute of Microelectronics, 11 Science Park Road, Singapore Science Park II, Singapore -117685, [2] Dept. of Electrical and Computer Engineering, National University of Singapore, 4 Engineering drive 3, Singapore-117576)*

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TU2_2_5 Scanning Tunneling Microscopy Using Dynamic Laser Heating,

J. Ballard, D. Shi, E. Carmichael, S. Pappu, J. Lyding, and M. Gruebele, *(Beckman Institute of Advanced Science and Technology, University of Illinois, Urbana, IL, 61801, USA)*

TU2_2_6 Self-Assembled Monolayer Resists for Electron Beam Lithography,

S.O. Koswatta, A.D. Scott, S. Bhattacharya, and D.B. Janes, *(Dept. of Electrical and Computer Engineering, Purdue University, West Lafayette, IN 47906, USA)*

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14.30-16.00 SESSION TU2_3: NANOPHOTONICS 1 (Chair: Y. Arakawa*)

TU2_3_1 A Basic Architecture for a Multistate Memory System Using Nano Antennas,

Lakshmanan.V.H, Gayathri.S, *(Velammal Engineering College, Chennai-600082, Tamil Nadu, India)*

TU2_3_2 Comparing the Transmission Through Ellipse and Double-Hole Nano-Photonic Arrays in Gold Films,

R. Gordon[1], B. Leathem[2], P.D. Popescu[1], K.L. Kavanagh[2] and A.G. Brolσ[3], *([1]Dept. of Electrical and Computer Engineering, University of Victoria, [2]Dept. of Physics, Simon Fraser University, [3]Dept. of Chemistry, University of Victoria)*

TU2_3_3 Light Emission at 1530 nm from Mixture of Er_2O_3 and P_2O_5 Nanoparticles on Silicon,

K.-J. Sun, Y.-S. Su, C.-F. Lin*, *(Graduate Institute of Electro-Optical Engineering, National Taiwan University, No.1, Sec. 4, Roosevelt Road, Taipei, 106, Taiwan, R.O.C, *also with Graduate ßInstitute of Electronics Engineering, and Dept. of Electrical Engineering)*

TU2_3_4 Quantum Confinement Observed in Ultrafine ZnO and $ZnO/Zn_{0.8}Mg_{0.2}O$ Coaxial Nanorod Heterostructures,

W.I. Park[1], S.J. An[1], G.-C. Yi[1], and M. Kim[2], *([1]Dept. of Materials Science and Engineering, Pohang University of Science and Technology, (POSTECH), Pohang 790-784, Korea, [2]Samsung Advanced Institute of Science and Technology, P. O. Box 111, Suwon 440-600, Korea)*

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TU2_3_5 Invited talk: Photonic switching in InAs/InP quantum dots

J.E.M. Haverkort, R. Prasanth, S. Dilna, E.W. Bogaart, J.J.G.M. van der Tol, E.A. Patent, G. Zhao, Q. Gong, P.J. van Veldhoven, R. Nötzel and J.H. Wolter, (*COBRA Inter-University Research Institute, Eindhoven University of Technology, Physics Dept., Eindhoven, The Netherlands*)

16.00-16.30 Coffee break

16.30-18.00 SESSION TU3_1: NANOELECTRONICS 2 (Chair: D. K. Ferry)

TU3_1_1 Invited talk: Coherent Transport in SWCNTs with Spin-Orbit Coupling

Ahmet Ali Yanik, Prabhakar Srivastava, Gerhard Klimeck and Supriyo Datta (*Purdue University, Purdue, IN, USA)*

TU3_1_2 Ballistic Transport in Strained-Si Cavities: Experiment and Theory,

G. Scappucci[1], L. Di Gaspare[1], A. Notargiacomo[1], F. Evangelisti[1], E. Giovine[2], R. Leoni[2], V. Piazza[3], P. Pingue[3], F. Beltram[3], M. Pala[4], G. Curatola[4], and G. Iannaccone[4,5], *([1]Unità INFM, Dipartimento di Fisica "E. Amaldi", Università di Roma TRE, V. Vasca Navale 84, 00146 Roma, Italy, [2]Istituto di Fotonica e Nanotecnologie, IFN-CNR, V. Cineto Romano 42, 00156, Roma, Italy, [3]NEST-INFM and Scuola Normale Superiore, Via della Faggiola 19, I-56126 Pisa, Italy, [4]Dipartimento di Ingegneria dell'Informazione, Università degli Studi di Pisa and [5]IEIIT-CNR, V. Caruso, 56122 Pisa, Italy)*

TU3_1_3 Very High Performance 50 nm T-gate III-V HEMTs Enabled by Robust Nanofabrication Technologies,

I. Thayne, X. Cao, D. Moran, E. Boyd, K. Elgaid, H. McLelland, M. Holland, S. Thoms, C. Stanley, *(Nanoelectronics Research Centre, Dept. of Electronics and Electrical Engineering, University of Glasgow, Glasgow G12 8LT, Scotland, UK)*

TU3_1_4 Ballistic GaInAs/AlInAs Devices Technology and

Characterization at Room Temperature,

J.S. Galloo[1], Y. Roelens[1], S. Bollaert[1], E. Pichonat[1], X. Wallart[1], A. Cappy[1], J. Mateos[2], T. Gonzales[2], *([1] IEMN-UMR CNRS 8520, Villeneuve d'Ascq, BP 69, 59652, France, [2] Universidad de Salamanca, Plaza de la Merced s/n, 37008 Salamanca, Spain)*

TU3_1_5 Why is the Spin Field Effect Transistor Elusive?

S. Pramanik[1], S. Bandyopadhyay[1], and M. Cahay[2], *([1] Dept. of Electrical Engineering, Virginia Commonwealth University, Richmond, VA 23284, USA, [2] Dept. of Electrical and Computer Engineering and Computer Science, University of Cincinnati, Cincinnati, OH 45221, USA)*

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16.30-18.00 SESSION TU3_2: NANOSTRUCTURES 1 (Chair: Y. Park)

TU3_2_1 Effect of Topology on Coherent Transport Through Nanotube Junctions,

A. Marchi[1], A. Bertoni[2], S. Reggiani[1], and M. Rudan[1], *([1]Advanced Research Center on Electronic Systems (ARCES) and Dept. of Electronics (DEIS), University of Bologna, Italy, [2]INFM-S3 Research Center, Modena, Italy and ARCES, Bologna, Italy)*

TU3_2_2 High Frequency Characterization for the Single-Walled Carbon Nanotubes Using S-parameter,

M. Zhang, X. Huo, Q. Liang*, Z.K. Tang* and P.C.H. Chan, *(Dept. of Electrical and Electronic Engineering and *Dept. of Physics, Hong Kong University of Science and Technology, Hong Kong, China)*

TU3_2_3 Carbon Nanotube-Based Membranes: A Platform for Studying Nanofluidics,

J.K. Holt, H.G. Park, A. Noy, T. Huser, D. Eaglesham, and O. Bakajin, *(Chemistry and Materials Science Directorate, Lawrence Livermore National Laboratory, Livermore, CA 94551, USA)*

TU3_2_4 Metalloprotein-Based Field-Effect Transistor: A Prototype,

G. Maruccio[1], P. Visconti, A. Biasco, A. Bramanti, E. D'Amone, R. Cingolani, and R. Rinaldi, *(National Nanotechnology Laboratory of INFM, University of Lecce, Via per Arnesano, 73100 Lecce, Italy, [1]also with Dept. of Physics, University of Lecce)*

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TU3_2_5 Theoretical Investigation of Metal-Molecule Interface with Terminal Group,

P. Bai[1], E. Li[1], S. Yang[1], P.A. Collier[2], *([1]Institute of High Performance Computing, Singapore 117528, [2]Singapore Institute of Manufacturing Technology, Singapore 638075)*

TU3_2_6 Schottky Barrier Behavior of Metallic Multi-wall Carbon Nanotube on-Metal Systems,

Quoc Ngo[1,2], Shoba Krishnan[1], Alexis Stimpfle[1], M. Meyyappan[2], and Cary Y. Yang[1] *([1]Center for Nanostructures, Santa Clara University, Santa Clara, California, USA, [2]Center for Nanotechnology, NASA Ames Research Center, Moffett Field, California, USA)*

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16.30-18.00 SESSION TU3_3 TEACHING NANOTECHNOLOGY
(Chair: A. Csurgay)

18.15-19.30 POSTER SESSION I (see below)

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WEDNESDAY AUG. 18th

8.45-10.45 WE_PL: PLENARY SESSION
(Chair: M. Meyyapan)

WE_PL_1 8.45 Plenary speaker: Technology and Application Trends in Nano-Electronics
Christoph Kutter (*Infineon Technologies AG, Corporate Research, München, Germany*)

WE_PL_2 9. 45 Plenary speaker: Title to be announced
Angela Belcher (*Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA*)

10.45 Coffee break

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10.15-12.45 SESSION WE1_1: MOLECULAR ELECTRONICS (Chair: A. Di Carlo)

WE1_1_1 Invited talk: Transport and electrostatics in metallic carbon nanotubes

M. P. Anantram, A. Svizhenko and T. R. Govindan (*Center for Nanotechnology, NASA Ames Research Center, Moffett Field, CA, USA*)

WE1_1_2 Measurement of I-V Characteristic of Organic Molecules Using Step Junction,

K. Lee, J. Choi, and D.B. Janes, (*School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN 47907, USA)*

WE1_1_3 Conductance Investigations of Stretched Molecules,

G. Speyer, R. Akis, and D.K. Ferry, *(Dept. of Electrical Engineering and Center for Solid State Electronics Research, Arizona State University, Tempe, AZ 85287, USA)*

WE1_1_4 Conductance Modulation in Molecular Devices via Field-Induced Conformational Change,

M. Girlanda[1], I. Cacelli[1], A. Ferretti[2], and M. Macucci[3], *([1]Dipartimento di Chimica e Chimica Industriale, Università degli Studi di Pisa, Via Risorgimento 35, I-56122 Pisa, Italy,[2]IPCF-CNR, Pisa, Italy,[3]Dipartimento di Ingegneria dell'Informazione, Università degli Studi di Pisa, Via Caruso, I-56122 Pisa, Italy)*

WE1_1_5 Transistor Effects and in situ STM of Redox Molecules at Room Temperature,

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T. Albrecht[1], A. Guckian[2], J. Ulstrup[1], H. Vos[2], *([1] Technical University of Denmark (DTU), Dept. of Chemistry, Dk-2800 Lyngby, [2] Dublin City University (DCU), School of Chemical Sciences, Dublin 9, Ireland)*

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10.15-12.45 SESSION WE1_2: SPINTRONICS (Chair: S. Bandyopadhyay)

WE1_2_1 Application of Mesoscopic Magnetic Rings for Logic Devices,

A. Imre[1], L. Zhou[1], A. Orlov[1], G. Csaba[2], G. H. Bernstein[1], W. Porod[1], and V. Metlushko[3,] (*[1]Center for Nano Science and Technology, Dept. of Electrical Engineering, University of Notre Dame, Notre Dame, IN 46556, USA, [2]Institute for Nanoelectronics, TU Munich, Munich, Germany, [3]University of Illinois at Chicago, Chicago, IL 60607, USA)*

WE1_2_2 Spin Polarized Injectors for Organic Light Emitting Diodes,

E. Arisi[1], I. Bergenti[1], V. Dediu[1], T. Mertelj[2], M. Murgia[1], A. Riminucci[1], G. Ruani[1], and C. Taliani[1], ([1]*Istituto per lo studio dei Materiali Nanostrutturati, CNR, Bologna, Italy, [2]Dept. of Mathematics and Physics, University of Ljubjana, 1000 Ljubjana, Slovenia)*

WE1_2_3 Invited talk: Ferromagnetic semiconductors for nanospintronics

Tomasz Dietl (*Institute of Physics, Polish Academy of Sciences and ERATO Semiconductor Spintronics JST Project, Warszawa, Poland)*

WE1_2_4 Invited talk: Electrical Magnetization Reversal in Ferromagnetic Semiconductor Structures

Hideo Ohno (*Laboratory for Nanoelectronics and Spintronics Research Institute of Electrical Communication Tohoku University, JAPAN ERATO Semiconductor Spintronics Project, JST, Japan*)

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10.15-12.45 SESSION WE1_3: NANOSENSORS (Chair: B. Courtois)

WE1_3_1 Self-Assembled Silicon Nano-Bridges as an Enabler for Nano-Sensors,

T.I. Kamins, M.S. Islam, S. Sharma, and R.S. Williams, *(Quantum Science Research, Hewlett-Packard Laboratories, Palo Alto, CA 94304, USA)*

WE1_3_2 Ultra-Small Site Temperature Sensing by Carbon Nanotube Thermal Probes,

F. Arai, C. Ng, P. Liu, L. Dong, Y. Imaizumi, K. Maeda, H. Maruyama, A. Ichikawa and T. Fukuda, *(Dept. of Micro System Engineering, Nagoya University, Nagoya, Aichi, 464-8603, Japan)*

WE1_3_3 Piezoresistive Behaviour of Single Wall Carbon Nanotubes,

P. Regoliosi[1], A. Reale[1], A. Di Carlo[1], S. Orlanducci[2], M.L. Terranova[2], P. Lugli[3] *([1]Dept. of Electronic Engineering, Univ. of Rome Tor Vergata, Rome, 00133 Italy, [2]Dept. of Science and Chemical Technology, Univ. of Rome Tor Vergata, Rome, 00133 Italy and INFM [3]Lehrstuhl für Nanoelektronik, TU München, Arcisstrasse 21 München, D-80333 Germany)*

WE1_3_4 Field Emission of Telescoping Multi-Walled Carbon Nanotubes,

Lixin Dong [1,2], Fumihito Arai [1], Toshio Fukuda [1], and Bradley J. Nelson [3] *(1 Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8603, Japan,[2] Currently ETH-*

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Zurich, [3] Swiss Federal Institute of Technology (ETH), Zurich, Switzerland)

WE1_3_5 Estimation of the Transfer Function of a Microcantilever Used in Atomic Force Microscopy,

M. Stark[1], R. Guckenberger[1], A. Stemmer[2], R. W. Stark[2,3], *([1]Max-Planck-Insitut für Biochemie, 82152 Martinsried, Germany, [2]Swiss Federal Institute of Technology Zurich, ETH Center CLA, 8092 Zurich, Switzerland, [3]Center for Nanoscience and Ludwig-Maximilians-Universität, 80333 Munich, Germany)*

WE1_3_6 Ultra-Low-Power Polymer Thin Film Encapsulated Carbon Nanotube Thermal Sensors,

C.K.M. Fung and W.J. Li, *(Centre for Micro and Nano Systems, The Chinese University of Hong Kong, Hong Kong SAR)*

14.30-16.00 SESSION WE2_1: NANOCIRCUITS (Chair: W. Mathis)

WE2_1_1 Invited talk: Circuit Models for Physically-Coupled Nanoelectronic Device Architectures

Wolfgang Porod and Arpad Csurgay (*Center for Nano Science and Technology, University of Notre Dame, Notre Dame, IN, USA*)

WE2_1_2 Cellular Nonlinear Network Based on Semiconductor Tunneling Structure with a Self-Assembled Quantum Dot Layer,

A. Khitun and K.L. Wang, *(Device Research Laboratory, Electrical Engineering Dept.,MARCO Focus Center on Functional Engineered Nano Architectonics (FENA), University of California at Los Angeles, Los Angeles, California, 90095-1594, USA)*

WE2_1_3 Cellular Neural/Nonlinear Networks Using Resonant Tunneling Diode,

S.-R. Li, P. Mazumder and L.O. Chua, *(Dept. of EECS, The University of Michigan, Ann Arbor, MI, 48109, USA)*

WE2_1_4 Dynamic Sparing and Error Correction Techniques for Fault Tolerance in Nanoscale Memory Structures,

C.M. Jeffery, A. Basagalar, and R.J.O. Figueiredo, *(University of Florida, Gainesville, FL, 32611, USA)*

WE2_1_5 Carbon Nanotubes for Quantum-Dot Cellular Automata

Clocking,

S.E. Frost[1], T.J. Dysart[1], P.M. Kogge[1] and C.S. Lent[2], *([1]Dept. of Computer Science and Engineering, [2]Dept. of Electrical Engineering, University of Notre Dame, Notre Dame, IN 46556, USA)*

14.30-16.00 SESSION WE2_2: NANOSTRUCTURES 2 (Chair: M. Sitti*)

WE2_2_1 Use of an Organic Template Structure for the Manipulation of Nano-Scale Objects,

S.J.H. Griessl, M. Lackinger, and W.M. Heckl, *(Dept. für Geo- und Umweltwissenschaften, Ludwig Maximilians Universität München, Theresienstr. 41, 80333 München)*

WE2_2_2 Growth of ZnSe Nanowires by Molecular Beam Epitaxy,

A. Colli[1], F. Martelli[2], S. Rubini[2], C. Ducati[3], S. Hofmann[1], A. C. Ferrari[1], J. Robertson[1], and A. Franciosi[2,4], *([1]Dept. of Engineering, University of Cambridge, Cambridge CB2 1PZ, UK., [2]Laboratorio Nazionale TASC-INFM, Area Science Park, 34012 Trieste, Italy, [3]Dept. of Materials Science and Metallurgy, University of Cambridge, Cambridge, UK, [4]Dipartimento di Fisica, Universita' di Trieste, 34127 Trieste, Italy)*

WE2_2_3 Platinum/Erbium Disilicide Nanowire Arrays on Si(001),

R. Ragan, S. Kim, D.A.A. Ohlberg, and R. Stanley Williams, (Hewlett-Packard Laboratories, Quantum Science Research, Palo Alto, CA, 94304, USA)

WE2_2_4 Measurements with an Atomic Force Microscope Using a Long Travel Nanopositioning Machine,

N. Hofmann, T. Hausotte, G. Jäger and E. Manske, *(Technische Universität Ilmenau Institute of Measurement- and Sensor-Technology, 98693 Ilmenau)*

WE2_2_5 Fracture Mechanical Characterization of Micro- and Nano-Filled Polymers by a Combined Experimental and Simulative Procedure,

B. Wunderle[1], D. Dermitzaki[2], J. Keller[1], Di. Vogel[1], B. Michel[1],
(Fraunhofer Institute for Reliability and Microintegration (IZM), Dept. Mechanical Reliability and Micro Materials, Gustav-Meyer-Allee 25, D-13355 Berlin, Germany, [2]Heriot-Watt University Edinburgh, School of Engineering and Physical Sciences, Ricarton Campus, EH14 4AS, UK)

WE2_2_6 Long-Range Ordered Self-Assembled InAs Quantum Dots on (110) GaAs Grown with Molecular Beam Epitaxy,

D. Schuh, J. Bauer, R. Schulz, E. Uccelli, F. Hofbauer, A. Kress, J.J. Finley, and G. Abstreiter, *(Walter Schottky Institut, Technische Universität München, Am Coulombwall 3, D-85748 Garching, Germany)*

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14.30-16.00 SESSION WE2_3: NANOFABRICATION 2 (Chair: G.H. Berstein*)

WE2_3_1 Ni-P-CNTs Nanocomposite Film for MEMS Applications,
G.-R. Shen[1], L.-N. Tsai[2], T.Y. Chao[1],Y.-T. Cheng[1],T. K. Lin[3], W. Hsu[2], *([1]Microsystems Integration Laboratory, Dept. of Electronics Engineering, [2]Dept. of Mechanical Engineering, National Chiao Tung University, 1001 Ta Hsueh Road, Hsinchu, Taiwan, 300, ROC, [3]Dept. of Chemical Engineering, Hwa Hsia College of Technology & Commerce.)*

WE2_3_2 Pure Metal Deposit Using Multi-Walled Carbon Nanotubes Decorated with Ruthenium Dioxide Super-Nanoparticles,
F. Arai[1], P. Liu[1], L. Dong[1], T. Fukuda[1], T. Noguchi[2] and K. Tatenuma[2], *([1]Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8603, Japan, [2]KAKEN Inc., Hori-cho, Mito, Ibaraki 310-0903, Japan)*

WE2_3_3 Nanoimprint - A Tool for Realizing Nano-Bio Research,
P. Carlberg[1], F. Johansson[1], T. Mårtensson[1], R. Bunk[1], M. Beck[1], F. Persson[1], M. Borgström[1], S.G. Nilsson[1], B. Heidari[4], M. Grazcyk[1], I. Maximov[1], E.-L. Sarwe[1], T.G.I. Ling[1], A. Månsson[3], M. Kanje[2], W. Seifert[1], L. Samuelson[1], L Montelius[1], *([1]Dept. Solid State Physics & The Nanometer Consortium, Lund University, Sweden, [2]Dept. of Cell and Organism Biology, Lund University, Sweden, [3]Dept. of Chemistry and Biomedical Sciences, University of Kalmar, Sweden.)*

WE2_3_4 Electron Beam Lithography and Liftoff of Molecules and DNA Rafts,

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G.H. Bernstein, W. Hu, Q. Hang, K. Sarveswaran*, and M. Lieberman*, (*Dept. of Electrical Engineering and *Dept. of Chemistry and Biochemistry, University of Notre Dame, Notre Dame, IN 46556, USA)*

WE2_3_5 Invited talk: Laser Assisted Direct Imprint and Guided Self-Assembly – Enabling Engines for Nanotechnology

S. Chou (*Department of Electrical Engineering, Princeton University, USA*)

16.00-16.30 Coffee break

16.30-17.30 SESSION WE3_1: NANOPHOTONICS 2 (Chair: J. Wolter)

WE3_1_1 Invited talk: Progress in Quantum dots for future nano-photonic devices
Yasuhiko Arakawa (*RCAST and IIS, University of Tokyo, Tokyo, Japan)*

WE3_1_2 Modeling Quantum Dots in Conventional and Annular III-V Micro-Pillar Micro-Cavities for Single-Photon Sources,
Y.-L.D. Ho, M.J. Cryan, I.J. Craddock, C.J. Railton, and J.G. Rarity,
(Centre for Communications Research, Dept. of Electrical and Electronic Engineering, University of Bristol, Queen's Building, University Walk, Bristol, BS8 1TR, United Kingdom)

WE3_1_3 Imprint Lithography as a Tool for the Fabrication of Organic-Inorganic Vertical Microcavities,
M. De Vittorio, M.T. Todaro, M. Mazzeo, L. Martiradonna, T. Stomeo, M. Anni, R. Cingolani, and G. Gigli, *(NNL-INFM, Dipartimento di Ingegneria dell'Innovazione, Università di Lecce, Via Arnesano, Lecce-73100 Italy)*

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16.30-17.30 SESSION WE3_2: NANOELECTRONICS 3 (Chair: A. Asenov)

WE3_2_1 Robustness of Readout Devices for Si-Based Quantum Computing,

K.H. Lee[1], A.D. Greentree[1,2], V. Chan[1], T.M. Buehler[1], R. Brenner[1], A.S. Dzurak[1], A.R. Hamilton[1] and R.G. Clark[1], *([1]Centre for Quantum Computer Technology, Schools of Physics and Electrical Engineering, University of New South Wales, NSW 2052, Australia, [2]Centre for Quantum Computer Technology, School of Physics, University of Melbourne, VIC 3010, Australia)*

WE3_2_2 On the Modeling of Semiconductor Quantum Effects for Circuit Simulation,

F. Felgenhauer, S. Fabel, and W. Mathis, *(University of Hannover, Electro Magnetic Theory Group of the Institute of Electromagnetism Theory and Microwave Technique, Appelstr. 9A, 30167 Hannover, Germany)*

WE3_2_3 Split Current Quantum Cellular Automata: Device and Logic Gates,

K. Walus, R.A. Budiman, M. Mazur, G.A. Jullien, and G. Schulhof, *(ATIPS Laboratory, Dept. of Electrical and Computer Engineering, University of Calgary, Calgary, Alberta T2N-1N4, Canada)*

WE3_2_4 Optical Gain in an Interband-Resonant-Tunneling-Diode,

B. Gelmont[1] and D. Woolard[2], *([1]ECE Dept., the University of Virginia, Charlottesville, VA 22904, USA, [2]U.S. Army Research Laboratory, U.S. Army Research Office, RTP, NC 27709, USA)*

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16.30-17.30 SESSION WE3_3: NANOBIOELECTRONICS (Chair: C. Ruggiero)

WE3_3_1 Surface Modification and Bioconjugation of Colloidal Nanocrystals to Form Building Blocks with Molecular Recognition,
R.A. Sperling[1], T. Pellegrino[2], S. Kudera[1], A.M. Javier[1], L. Manna[3], and W.J. Parak[1], *([1]Center for NanoScience, Ludwig–Maximilians–Universität München, Munich, Germany, [2]Dept. of Chemistry and Pharmacology, University of Bari, Italy, [3]National Nanotechnology Lab of INFM, Via Arnesano, Lecce, Italy)*

WE3_3_2 Brownian Dynamics: Molecular Systems Modeling and Control,
M.A. Lyshevski, *(Microsystems and Nanotechnologies, 70 Angels Path, Webster, NY 14580-4400, USA)*

WE3_3_3 Invited talk: Biological applications and biocompatibility of nanocrystals
C. Kirchner[1], T. Pellegrino[1,2], S. Kudera1, T. Liedl[1], A.M. Javier[1], H.E. Gaub[1] and W. Parak[1], (*[1]Center for Nanoscience, Ludwig-Maximilians Universität, München, Germany, [2]Dept. of Chemistry and Pharmacology, University of Bari, Bari, Italy*)

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17.45-19.15 POSTER SESSION II (see below)

20.00 Conference dinner

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THURSDAY AUG. 19th

8.45-10-15 SESSION TH1_1: NANOMECHANICS (Chair: M. Wybourne)

TH1_1_1 Nano-Electromechanical Transistor Operated as a Bi-Polar Current Switch,

R.H. Blick[1] and D.V. Scheible[2], *([1]Electrical & Computer Engineering, University of Wisconsin-Madison, Madison, WI 53706, USA, [2]Center for NanoScience, Ludwig-Maximilians-Universität, 80539 München, Germany)*

TH1_1_2 In-Situ Nanomechanical Studies of Carbon Nanotube Bundles,

P. Jaroenapibal, D.E. Luzzi, and S. Evoy, *(Dept. of Materials Science and Engineering, The University of Pennsylvania, Philadelphia, PA 19104, USA)*

TH1_1_3 Single Molecule Detection and Macromolecular Weighting Using an All-Carbon-Nanotube Nanoelectromechanical Sensor,

C. Roman, F. Ciontu, B. Courtois, *(Tima Laboratory, 46. Av. Félix Viallet, Grenoble, 38031, France)*

TH1_1_4 Novel Buckled Shapes of Free-Standing Mesoscopic Beams,

S.M. Carr, W.E. Lawrence, and M.N. Wybourne, *(Dept. of Physics and Astronomy, Dartmouth College, Hanover, NH 03755, USA)*

TH1_1_5 Invited talk: **Nanoelectromechanical Sensors**

K.L. Ekinci,[1,2] Y.T. Yang,[2] X.M.H. Huang,[2] C. Callegari,[2] P. Feng[2] and M.L. Roukes[2] *([1)] Aerospace and Mechanical Engineering, Boston University, Boston MA, [2)] Condensed Matter Physics, California Institute of Technology, Pasadena CA, USA)*

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8.45-10-15 SESSION TH1_2: “DURINT” PROJECT - NANOELECTRONICS
(Chair: H. Cui)

TH1_2_1 Invited talk: Inelastic Electron Tunneling Spectroscopy of an Alkane SAM

W. Wang, T. Lee, I. Kretzschmar, and M. A. Reed (*Departments of Electrical Engineering, Applied Physics, and Physics, Yale University, New Haven, CT, USA*)

TH1_2_2 Electronic Structure and Dielectric Behavior of Finite-Length Single-Walled Carbon Nanotubes,

Y. Li, D. Lu, S. Rotkin, K. Schulten and U. Ravaioli, *(Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign Urbana Illinois 61801, USA)*

TH1_2_3 Molecular Elements on Silicon Substrates: Modeling Issues and Device Prospects,

A.W. Ghosh, G.-C. Liang, T. Rakshit, D. Kienle, and S. Datta, *(School of Electrical and Computer Engineering, Purdue, University, W. Lafayette, IN 47907, USA)*

TH1_2_4 Theoretical Research of Mixed-Valence Transition Metal Complex for Molecular Computing,

Peiji Zhao, Dwight Woolard, and Jorge M. Seminario, *(Dept. of ECE, North Carolina State University, USA)*

TH1_2_5 Fabrication and Electrical Characterization of

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Au/Molecule/GaAs Devices,

S. Lodha and D.B. Janes, *(School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN 47907–2035, USA)*

8.45-10-15 SESSION TH1_3: NANOFABRICATION 3 (Chair: L. Samelson)

TH1_3_1 Simulation of Electrical Characteristics of Surrounding - and Omega - Shaped - Gate Nanowire FinFETs,
C.-S. Tang[1], S.-M. Yu[1], H.-M. Chou[1], J.-W. Lee[2], and Y. Li[1,2], *([1]National Chiao Tung University, Hsinchu City, Hsinchu 300, Taiwan, [2]National Nano Device Laboratories, Hsinchu City, Hsinchu 300, Taiwan)*

TH1_3_2 Nanoscaled Double Y-Branch Junction Operating as Room Temperature RF to DC Rectifier,
L. Bednarz[1], Rashmi[1], B. Hackens[2], H. Boutry[1], V. Bayot[1], and I. Huynen[1], S.-J. Galloo[2], Y.Roelens[2], S. Bollaert[2], E. Pichonat[2], and A. Cappy[2], *([1] Cermin, UCL, 1348 Louvain-la-Neuve, Belgium, [2]IEMN-UMR CNRS 8520, Villeneuve d:Ascq, PB 69, 59652, France)*

TH1_3_3 A Novel Single Electron SRAM Architecture,
S. Mahapatra, A.M. Ionescu, *(Electronics Laboratory (LEG), Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland)*

TH1_3_4 Silicon Nanocrystals: From Coulomb Blockade to Memory Arrays,
R.F. Steimle, R. Rao, M. Sadd, C. Swift, B. Hradsky, S. Straub, T. Merchant, M. Stoker, C. Parikh, S. Anderson, M. Rossow, J. Yater,

B. Acred, K. Harber, E. Prinz, B.E. White Jr., and R. Muralidhar,
Technology Solutions Organization, Motorola SPS, Austin, TX, 78721, USA)

TH1_3_5 Modeling Electronic Behavior of Carbon Nanotube Junction Devices,
Q.W. Shi[1] and J. Chen[2], *([1]Dept. of Physics, University of Science and Technology of China, [2]Division of Engineering, Brown University, RI 20912, USA)*

TH1_3_6 Microstructure and Nanoelectronics of Single GaN Nanowire with Well-Defined p-n Junction,
G. Cheng[1], R. Munden[1], I. Kretzschmar[1], A. Sanders[1], E. Stern[1], M.A. Reed[1], M. Moskovits[2], J. Zhang and Y. Wu[3], *([1]Dept. of Electrical Engineering and Applied Physics, Yale University, P.O. Box 208284, New Haven, CT 06520, USA, [2]Dept. of Chemistry & Biochemistry, University of California, Santa Barbara, CA 93106, [3]Dept. of Materials, University of California, Santa Barbara, CA 93106, USA)*

10.15-10.45 Coffee break

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10.45-12.15 SESSION TH2_1: NANOBIOELECTRONICS 2 (Chair: W. M. Heckl*)

TH2_1_1 Invited talk: Motor Proteins to Engineer a Monorail at the Nanoscale

Henry Hess[1] and Viola Vogel[1,2] (*[1]Center of Nanotechnology and Department of Bioengineering, University of Washington, Seattle, Washington 98195, and [2]Department of Materials, Swiss Federal Institute of Technology-ETH, Zürich, Switzerland*).

TH2_1_2 Interactive DNA Sequence and Structure Design for DNA Nanotechnology and DNA Computation,

M. Zhang[1], C.L. Sabharwal[2], W. Tao[3], T.-J. Tarn[4], N. Xi[5], and G. Li[5], ([1]Life Sciences and Chemical Analysis Division, Agilent Technologies, CA, USA, [2]Dept. of Computer Science, University of Missouri, Rolla, MO, USA, [3]Brooks Automation, CA, USA, [4]Dept. of Electrical Engineering, Washington University, St. Louis, USA, [5]Dept. of Electrical Engineering, Michigan State University, MI, USA)

TH2_1_3 Integrated Sensor Design Using Ion Channels Inserted into Lipid Bilayer Membranes,

M. Goryll[1], S. Wilk[1], G.M. Laws[1], S.M. Goodnick[1], T.J. Thornton[1], M. Saraniti[2], J.M. Tang[3], and R.S. Eisenberg[3], *([1]Arizona State University, Dept. of Electrical Engineering, Tempe, AZ 85287, USA, [2]Illinois Institute of Technology, Dept. of Electrical and Computer Engineering, Chicago, IL 60616, USA, [3]Rush Medical College, Dept. of Molecular Biophysics and Physiology, Chicago, IL 60612, USA)*

TH_2_1_4 Control and Function for DNA Nanodevices,

F.C. Simmel, W.U. Dittmer, and A. Reuter, *(Sektion Physik and Center for Nanoscience, University of Munich, Geschwister-Scholl-Platz 1, 80539 München, Germany)*

TH2_1_5 Experimental Studies of DNA Electrical Properties Using AFM Based Nano-Manipulator,

G. Li[1], N. Xi[1], A. Saeed[1], H. Chen[1], J. Zhang[1], W.J. Li[2], C.K.M. Fung[2], R.H.M. Chan[2], M. Zhang[3] and T.-J. Tarn[4], *([1]Dept. of Electrical and Computer Engineering, Michigan State University, East Lansing, Michigan, USA, [2]Dept. of Automation & Computer-Aided Engineering, The Chinese University of Hong Kong, Hong Kong, China, [3]Life Sciences Division, Agilent Technologies, 3500 Deer Creek Road, Palo Alto, CA 94304, USA, [4]Dept. of Systems Science and Mathematics, Washington University at St. Louis, MO 63130, USA)*

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10.45-12.15 SESSION TH2_2: “DURINT” PROJECT - NANOCIRCUITS
(Chair: J. Fortes)

TH2_2_1 Choice of Flat-Band Voltage, V_{DD} and Diameter of Ambipolar Schottky-Barrier Carbon Nanotube Transistors in Digital Circuit Design,

A. Raychowdhury, J. Guo, K. Roy, and M. Lundstrom, *(Dept. of Electrical and Computer Engineering, Purdue University, USA)*

TH2_2_2 Design and Performance Analysis of Novel Nanoscale Associative Memory,

B.A. Davis, J.C. Principe, and J.A.B. Fortes, *(Electrical and Computer Engineering, University of Florida, Gainesville, FL, 32611, USA)*

TH2_2_3 On Single Electron Technology Full Adders,

M. Sulieman and V. Beiu *(School of EE&CS, Washington State University, Pullman, WA, 99163-2752, USA)*

TH2_2_4 New Complementary Logic Circuits Using Coupled Quantum Wells,

Y. Katayama, *(IBM Research, Tokyo Research Laboratory, 1623-14 Shimotsuruma, Yamato, Kanagawa 242-8502, Japan)*

TH2_2_5 A Circuit Approach for Implementing Quantum Memory,

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H.-W. Wang, I.-M. Tsai, S.-Y. Kuo, *(Dept. of Electric Engineering, National Taiwan University, Taipei, Taiwan)*

TH2_2_6 Binary Addition Based on Single Electron Tunneling Devices,

C. Lageweg, S. Cotofana, S. Vassiliadis, *(Electrical Engineering Dept., Delft University of Technology, Delft, The Netherlands)*

10.45-12.15 SESSION TH2_3: NANOELECTRONICS 4 (Chair: R. Ragan)

TH2_3_1 Suppression of Quantum Interference Induced Vortices and Threshold Voltage Shift Due to the Inclusion of Inelastic Scattering in Ultra Small Fully Depleted SOI MOSFETs,

M.J. Gilbert and D.K. Ferry, *(Dept. of Electrical Engineering and Center for Solid State Electronics Research, Arizona State University, Tempe, AZ 85287-5706, USA)*

TH2_3_2 Quantum Mechanical and Transport Aspects of Resolving Discrete Charges in Nano-CMOS Device Simulation,

A. Asenov, G. Roy, C. Alexander, A.R. Brown, J.R. Watling and S. Roy, *(Device Modeling Group, Dept. Electronics & Electrical Engineering, University of Glasgow, Glasgow G12 8LT, Scotland)*

TH2_3_3 Three-Dimensional Simulation of Single Electron Transistors,

G. Fiori[1], M. Pala[1], and G. Iannaccone[1,2], *([1]Dipartimento di Ingegneria dell'Informazione, Universit`a degli Studi di Pisa, Via Caruso, I-56122 Pisa, Italy, [2]IEIIT-CNR, Pisa, Italy)*

TH2_3_4 How Quantum Effects and Unintentional Doping Affect the Threshold Voltage of Narrow-Width SOI Devices,

D. Vasileska and S.S. Ahmed, *(Dept. of Electrical Engineering, Arizona State University, Tempe AZ, 85287-5706, USA)*

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TH2_3_5 The Computational Abilities of Fixed Random Structures,

J.C. Lusth and E.A. Skaug, *(University of Arkansas, Fayetteville, AR, 72701, USA, University of Wisconsin, Madison, WI, 53719 USA)*

TH2_3_6 Power Dissipation in Nanomagnetic Logic Devices,

G. Csaba[1], P. Lugli[1], W. Porod[2], *([1] Institute for Nanoelectronics, Technical University of Munich, Arcisstrasse 21, D-80333 Munich, Germany, [2] Center for Nano Science and Technology, Electrical Engineering Dept., University of Notre Dame, 275 Fitzpatrick Hall, Notre Dame, IN 46556, USA)*

12.30-14.15 Award Lunch

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14.45-15.45 SESSION TH3_1 (Late news papers)

14.45-15.45 SESSION TH3_2: NANOMANIPULATION (Chair: F. Arai)

TH3_2_1 Nanomanipulation with 3D Visual and Force Feedback using Atomic Force Microscopes,
W. Vogl[1], M.Sitti[2], M.F. Zäh[1], *([1]iwb, Technische Universität München, Garching 85748, Germany, [2]NanoRobotics Laboratory, Carnegie Mellon University, Pittsburgh, PA 15213, USA)*

TH3_2_2 Augmented Reality Enhanced "Top-Down" Nano-Manufacturing,
G. Li, N, Xi, H. Chen, and A. Saeed, *(Dept. of Electrical and Computer Engineering, Michigan State University, East Lansing, Michigan, USA)*

TH3_2_3 Haptically Generated Paths of an AFM-Based Nanomanipulator Using Potential Fields,
M. Ammi and A. Ferreira, *(Laboratoire Vision et Robotique, 10, Boulevard, Lahitolle, 18000, Bourges, France)*

TH3_2_4 The Nanostructured Origami™ 3D Fabrication and Assembly Process for Nanomanufacturing,
H.J. In[1], W. Arora[2], T. Buchner[1], S.M. Jurga[1], H.I. Smith[2], G. Barbastathisa[1], *([1]Dept. of Mechanical Engineering, [2]Dept. of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA 02139, USA)*

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14.30-18.10 SESSION TH_SP: SPECIAL SYMPOSIUM ON "Applications of Nanotechnology in Medicine" (Chair: B. Wolf)

14.30-14.45 TH_SP_1 Opening remarks and introduction
B. Wolf (*Heinz Nixdorf Lehrstuhl für Medizinische Elektronik, TU München, Munich, Germany*)

14.45-15.15 TH_SP_2 Nanobiotechnology meets medical technology: propects and demands
D. Wechsler, (*Verband Deutsche Ingenieure, Germany*)

15.15-15.45 TH_SP_3 Applications on Nanotechnology in Medicine
C. Alexiou, (*Dept. Otorhinolaryngology, head and neck surgery, Friedrich-Alexander-Unveristäa, Erlangen, Germany*)

15.45-16.05 TH_SP_4 New magnetic FeCoPt nanoparticles for biotechnology
A. Hütten, (*Thin Films and Nanostructures, Unversität. Bielefeld, Bielefeld, Germany*)

16.05-16.25 TH_SP_5 Field-controlled motion of sub-nano, nano and macroparticles
M. Koch, (*Heinz Nixdorf Lehrstuhl für Medizinische Elektronik, TU München, Munich, Germany*)

16.25-16-45 TH_SP_6 Drug delivery for nerve tissue regeneration

F. C. Soumetz[1], M. Giacomini[1], L. Pastorino[1], J. B. Phillips[2], R. A. Brown[2], C. Ruggiero[1], *([1]D.I.S.T. University of Genova, Via Opera Pia, 13, 16145 Genova, Italy, [2]University College London, Tissue Repair and Engineering Centre, United Kingdom)*

16.45-17.15 Coffee break

17.15-17.35 TH_SP_7 Localized nucleic acid delivery to living cells using nanobiotechnology approaches

C. Plank, (*Institute of experimental oncology, Klinikum Rechts der Isar, TU München, Munich, Germany*)

17.35-17.55 TH_SP_8 Magnetorelaxometry of magnetic nanoparticles: a new method for the quantitative and specific analysis of biomolecules

F. Ludwig, (*Institute für Elektrische Messtechnik und Grunlagen der Elektrotechnik, TU Braunschweig, Braunschweig, Germany*)

17.55-18.15 TH_SP_9 Aerosol delivery of DNA-loaded nanoparticles: factors influencing particle stability and gene transfer efficiency

C. Rudolph, (*Haunersches Kinderspital, Klinikum der Ludwig Maximillian Universität München, Munich, Germany*)

18.15-18.35 TH_SP_10 Atomic Force Microscopy in Ophthalmic Surgery

M.P. De Santo[1], M. Lombardo[2], S. Serrao[2], G. Lombardo[1], and R. Barberi[1], ([1]LICRYL – Dept. of Physics, Università della Calabria, Arcavacata di Rende, 87036, [2]Dept. of Ophthalmology, Catholic University of Rome, Rome, Italy)

18.35-18.55 TH_SP_11 Technical and physical aspects of controlling magnetic nanoparticles

T. Weyh and B. Gleich, (*Heinz Nixdorf Lehrstuhl für Medizinische Elektronik, TU München, Munich, Germany*)

(* not yet confirmed)

POSTER SESSION I (Tuesday, Aug. 17th)

TU-P1 Compact Current and Current Noise Models for Single-Electron Tunneling Transistors,
H. Chaohong[1,2], S.D. Cotofana[1], and J. Jianfei[2], *([1]Computer Engineering Laboratory, Delft University of Technology, Delft, The Netherlands, [2]Research Institute of Micro/Nano Science and Technology, Shanghai Jiao Tong University, China)*

TU-P2 Quantum Well Electron Dynamics in a Parallel Magnetic Field,
N.J.M. Horing[1], M.L. Glasser[2], B. Dong[1] *([1]Dept. of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, New Jersey 07030, USA, [2]Dept. of Physics, Clarkson University, Potsdam, New York 13699, USA)*

TU-P3 Plasmon Resonances in Terahertz Photoconductivity,
N.J.M. Horing, *(Dept. of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, New Jersey 07030, USA)*

TU-P4 Change In Electrical Characteristics Of Gallium Phosphide Nanowire Transistors Under Different Environments,
D. Kang[1], W. Park[1], B. Kim[2], J. Kim[2], C. Lee[3] *([1]Materials and Devices Lab, Samsung Advanced Institute Of Technology, Yongin City, Korea 449-712, [2]Chonbuk National University, Chonju 561-756, Korea, [3]Dept. of Nanotechnology, Hanyang University, Seoul 133-791, Korea)*

TU-P5 Correlation Between Plasmon Absorption and Terahertz Photoconductance in a Grid-Gated Double-Quantum Well FET,
V.V. Popov[1], T.V. Teperik[1], Yu.N. Zayko[1], S.J. Allen[2], N.J.M. Horing[3],

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([1] Institute of Radio Engineering and Electronics (Saratov Division), Russian Academy of Sciences, 410019 Saratov, Russia, [2] Center for Terahertz Science and Technology, University of California, Santa Barbara, California, 93106, USA, [3] Dept. of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, New Jersey 07030, USA)

TU-P6 Fabrication of CaF2/Si/CaF2 Resonant-Tunneling Diodes by B-Surfactant Enhanced Epitaxy of Si Quantum-Well Layers,

C.R. Wang, M. Bierkandt, B.H. Müller, E. Bugiel, and K.R. Hofmann, *(Institute for Semiconductor Devices and Electronic Materials, University of Hannover, Appelstr. 11A, 30167 Hannover, Germany)*

TU-P7 Microtubules and Neuronal Nanobioelectronics,

S.E. Lyshevski, T. Renz*, *(Dept. of Electrical Engineering, Rochester Institute of Technology Rochester, New York, 14623-5603, USA, *Air Force Research Laboratory, Information Technology Directorate, 26 Electronic Parkway, Rome NY 13441, USA)*

TU-P8 Carbon-Based Nanoelectronics: NanoICs with Fullerenes,

S.E. Lyshevski, *(Dept. of Electrical Engineering, Rochester Institute of Technology, Rochester, New York, 14623-5603, USA)*

TU-P9 Semi-Empirical SPICE Models for Carbon Nanotube FET Logic,

C. Dwyer, M. Cheung, and D.J. Sorin, (*Dept. of Electrical and Computer Engineering, Duke University, Durham, NC 27708, USA)*

TU-P10 Electrical and Material Characteristics of the Sub 5 nm Hafnium Doped Tantalum Oxide High k Film,

J. Lu and Y. Kuo, *(The Thin Film Nano and Microelectronics Research Laboratory, Texas A&M University, College Station, TX, 77843-3122, USA)*

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TU-P11 SPICE Implementation of a Compact Single Electron Tunneling Transistor Model,

C. Jia[1,2], H. Chaohong[1,2], S.D. Cotofana[1], and J. Jianfei[2], ([1]Computer Engineering Laboratory, Delft University of Technology, Delft, The Netherlands, [2]Research Institute of Micro/Nano Science and Technology, Shanghai Jiao Tong University, China)

TU-P12 Quantum Simulation of Nano-Scale Schottky Barrier MOSFETs,

M.Shin[1], M. Jang[2], S. Lee[2], *([1]School of Engineering, Information and Communications University, Daejeon 305-714, Korea, [2]Nano-Electronics Device Team, ETRI, Daejeon 305-330, Korea)*

TU-P13 Regular Array of Nanometer-Scale Devices Performing Logic Operations with Fault-Tolerance Capability,

A. Schmid and Y. Leblebici, *(Microelectronic Systems Laboratory, Swiss Federal Institute of Technology, CH-1015 Lausanne, Switzerland)*

TU-P14 The Tunneling Field Effect Transistor (TFET) Used in a Single-Event-Upset (SEU) Insensitive 6 Transistor SRAM Cell in Ultra-Low Voltage Applications,

T. Nirschl[1,2], S. Henzler[1], C. Pacha [3], P.-F.Wang [1], W. Hansch[1], G. Georgakos[2], and D. Schmitt-Landsiedel[1], *([1]Technical University Munich, Institute for Technical Electronics, Theresienstrasse 90, 80290 Munich, Germany, [2]Infineon Technologies, Corporate Logic, [3]Infineon Technologies, Corporate Research)*

TU-P15 Resonant Crossover of Terahertz Loss to Gain in a Bloch Oscillating InAs/AlSb Super-Superlattice,

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P.G. Savvidis[1], B. Kolasa[1], and S.J. Allen[1], G. Lee[2], *([1]Center for Terahertz Science and Technology, University of California, Santa Barbara, California, 93106, USA, [2]Agilent Laboratories, 3500 Deer Creek Rd., Palo Alto, CA 94304-1317, USA)*

TU-P16 Optoelectromagnetic Nanocrystals and Microoptoelectromechanical Systems,

M.A. Lyshevski, and S.E. Lyshevski *([1]Microsystems and Nanotechnologies, 70 Angels Path, Webster, NY 14580-4400, USA, [2]Dept. of Electrical Engineering, Rochester Institute of Technology, Rochester, New York 14623-5603, USA,)*

TU-P17 Edge Detection at Height Profiles with Nano Resolution,

S. Töpfer, R. Mastylo, G. Linß, E. Manske, O. Kühn, U. Nehse, *(Technische Universität Ilmenau, Ilmenau, Thuringia, 98693, Germany)*

TU-P18 Visible Frequency of Achromatic Quadrants Wave Plates Using the Artificial Birefringence,

H.-C. Huang[1], M.-C. Chen[2], P.-G. Luan[2], J.-J. Yang[1] and C.-T. Lee[2], *([1]Mechanical Industry Research Laboratories, Industrial Technology Research Institute, Hsinchu, 310, Taiwan, Republic of China, [2]Institute of Optical Sciences, National Central University, Chung-Li, 32054, Taiwan, Republic of China)*

TU-P19 Light Transmission Through Nanostructured Metal Films: Numerical Modeling and Experiment,

K. Caputa[1], R. Gordon[1], and B. Leathem[2], *([1]Dept. of Electrical and Computer Engineering, University of Victoria, Victoria, BC, V8W 3P6, [2]Dept. of Physics, Simon Fraser University, Burnaby, BC, V5A 1S6)*

TU-P20 Self-Oscillation of Micromechanical Resonators,

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C.C. Höhberger, and K. Karrai, (Center for NanoScience, Ludwig-Maximilians-Universität München, Geschwister-Scholl-Platz 1, 80539 München, Germany)

TU-P21 Annealed InGaAs Quantum Dot Thin p-Clad Laser Diodes for Integration,

P. Lever, M. Buda, H.H. Tan and C. Jagadish, (Dept. of Electronic Materials Engineering, Research School of Physical Sciences and Engineering, Australian National University, Canberra, Australia, 2612)

TU-P22 Quantum-Wired MOSFET Photodetector Fabricated by Conventional Photolithography on SOI Substrate,

J.-H. Park[1,2], H. Kim[1], I.-S. Wang[2], and J.-K. Shin[2], *([1]Korea Electronics Technology Institute, Kyunggi-do, 451-865, Republic of Korea, [2]Dept. of Electronics, Kyungpook National University, Daegu, 702-701, Republic of Korea)*

TU-P23 Dielectrophoretic Integration of Nanodevices with CMOS Circuitry,

S. Evoy[1], N. DiLello[1], V. Deshpande[1], A. Narayanan[2], and S. Raman[2], *([1]Dept. of Electrical and Systems Engineering, The University of Pennsylvania, Philadelphia, PA 19104, USA, [2]Dept. of Electrical and Computer Engineering, Virginia Tech, Blacksburg, VA, 24061, USA.)*

TU-P24 Visible Photoluminescence and Conductometric Response of Tin Oxide Nanobelts to NO_2: Toward a Selective Gas Sensor,

G. Faglia[1], C. Baratto[1], E. Comini[1], M. Ferroni[1], M. Zha[2], G. Salviati[2], A. Zappettini[2], and G. Sberveglieri[1], *([1]INFM and University of Brescia, Sensor Laboratory, Dept. of Chemistry and Physics for Engineering and for Materials, Via Valotti 9, I-25123 Brescia, Italy, [2]Istituto dei Materiali per l'Elettronica ed il Magnetismo, IMEM Institute - C.N.R., Parco delle Scienze - I-Parma)*

TU-P25 Freely Suspended Nanostructure with No Substrate Beneath: Fabrication and Optical Imaging,

C. Meyer[1], O. Sqalli[2], H. Lorenz[1], and K. Karrai[1], *([1]Center for NanoScience and Physics Dept., Ludwig-Maximilians-University Munich, Germany, [2]Attocube Systems, Munich, Germany)*

TU-P26 A Biomedical Bone Nano Transducer,

K. Singh, *(CBME, Indian Institute of Technology, New Delhi-110016, India, and SOET, IGNOU University, New Delhi-110068)*

TU-P27 Preparation of Thermo-Chromic Nanocomposite Films,

G. Carotenuto[1], B. Martorana[2], P. Perlo[2], and L. Nicolais[1], *([1]Inst. of Composite and Biomedical Materials. National Research Council. Napoli – 80125. Italy, [2]FIAT Research Center. Orbassano (TO) – 10043. Italy)*

TU-P28 Computational Estimation of Nano-Photocatalyst Activity: Feasibility of Kernel Based Learning Machines,

D.J. Strauss, G. Schäfer, M. Akarsu, and H. Schmidt, (Leibniz–Institute for New Materials, Saarbruecken, Germany)

TU-P29 On Shape Controlled Nanocrystals and Hybrid Materials: How Nanotransistors and Remote Controlled Fluorescent Probes Could Be Realized,

S. Kudera[1], L. Manna[2], W.J. Parak[1], *([1]Lehrstuhl für angewandte Physik, Ludwig-Maximilians Universität München [2]National Nanotechnology Lab of INFM Lecce, Italy)*

TU-P30 Catalytic Syntheses of Silicon Nanowires and Silica

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Nanotubes,

Y.-H. Yang, S.-J. Wu, H.-S. Chiu, P.-I. Lin, and Y.-T. Chen, *(Dept. of Chemistry, National Taiwan University, Taipei 106, Taiwan, ROC and Institute of Atomic and Molecular Sciences, Academia Sinica, P.O. Box 23-166, Taipei 106, Taiwan, ROC)*

TU-P31 Improvement in Writing Speed of Electron Beam Direct-Write Lithography,

C.Y. Chen, C.C. Su, J.Y. Huang, J.J. Yang, and H.Y. Lin, *(Micro Component Development Dept., Micro Electro-Mechanical Sys. Div., Mechanical Industry Research Laboratories, Industrial Technology Research Institute, Chutung, Hsinchu, 310, Taiwan, ROC)*

TU-P32 Preparation of Nano-Composites by Advanced Colloidal Processing,

H. Sarraf, *(Institute of Chemical Technology (I.C.T), Prague, Czech Republic)*

TU-P33 Fabrication of Nanoelectrodes for Hybrid Molecular - Electronic Devices,

A.D. Torre, P. Visconti, G. Maruccio, E. D'Amone, R. Krahne, L. Manna, R. Rinaldi, and R. Cingolani, *(National Nanotechnology Laboratory of INFM, University of Lecce, Via per Arnesano, 73100 Lecce, Italy)*

TU-P34 Self Assembly of Nanowires Array with Lattice Directional Growth,

H. Lin, *(Dept. of Applied Physics, Cornell University, Ithaca, NY, 14850, USA)*

TU-P35 A Hybrid Nanorobotic Manipulation System Integrated with

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Nanorobotic Manipulators Inside Scanning and Transmission Electron Microscopes,

M. Nakajima, F. Arai, L. Dong, and T. Fukuda, *(Nagoya University, Nagoya City, 464-8603, Japan)*

TU-P36 Automated Nano-Assembly of Nanoscale Structures,

H. Chen, N. Xi, G. Li, J. Zhang, A. Saeed, *(Electrical and Computer Engineering Dept., Michigan State University, East Lansing, MI 48823, USA)*

TU-P37 Atomic Force Microscope Based Nanomanipulator for Mechanical and Optical Lithography,

F.J. Rubio-Sierra, S. Burghardt, A. Kempe, W.M. Heckl, and R.W. Stark, *(Center for Nanoscience and Ludwig-Maximilians-Universität München, 80333 Munich, Germany)*

TU-P38 Magnetic Anisotropy in Magnetostatically Coupled $Ni_{80}Fe_{20}$ Nanowires,

S. Goolaup, N. Singh, A.O. Adeyeye' V. Ng, and M.B.A Jalil, *(Information Storage Materials Laboratory, Dept. of Electrical and Computer Engineering, National University of Singapore, 4 Engineering Drive 3, Singapore-117576)*

TU-P39 Three-Dimensional Calculation of Electronic Structures in Semiconductor Quantum Ring Based Artificial Molecules,

Y. Li, *(Dept. of Computational Nanoelectronics, National Nano Device Laboratories & Microelectronics and Information Systems Research Center, National Chiao Tung University, P.O. BOX 25-178, Hsinchu City, Hsinchu 300, Taiwan)*

TU-P40 Control of Drug-Carrying Magnetobeads by Magnetic

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Gradient-Fields,

T. Weyh, N. Seidl, B. Gleich, C. Alexiou, M. Koch, B. Wolf, *(Heinz-Nixdorf-Chair For Medical Electronics, Dept. of Electrical Engineering and Information, Technology, Technische Universität München, Munich, Theresienstr. 90, 80333, Germany)*

TU-P41 Dynamic Marker,

M. Koch, T. Weyh, and B. Wolf, *(Technische Universität München, Arcisstrasse 21, D-80290 München, Germany)*

TU-P42 20nm Silicon Nanorods Fabricated by Reactive Ion Etch,

E.-Z. Liang, C.-J. Huang, and C.-F. Lin*, *(Graduate Institute of Electro-optical Engineering, National Taiwan University, ,* Also with Dept. of Electrical Engineering and Graduate Institute of Electronics Engineering, Taipei, Taiwan, Republic of China)*

TU-P43 Inversion Asymmetry Effects in L-Valley Quantum Wells,

J.-M. Jancu[1], R. Scholz[2], G. C. La Rocca[1], E. A. de Andrada e Silva[3], and P. *Voisin*[4], *([1]Scuola Normale Superiore and INFM, Piazza dei Cavalieri 7, I-56126 Pisa, Italy, [2]Institut für Physik, Technische Universität, D-09107 Chemnitz, Germany, [3]Instituto Nacional de Pesquisas Espaciais,C.P. 515, 12201-970 São José dos Campos - SP, Brasil, [4]Laboratoire de Photonique et de Nanostructure, CNRS, route de Nozay, F91000, Marcoussis, France)*

TU-P44 Quantized Conductance in an In-Plane Gated In0.53Ga0.47As Quantum Point Contact,

A. Beyer and D.K. Ferry, *(Center for Solid State Electronics Research and Dept. of Electrical Engineering, Arizona State University, Tempe, Arizona, 85287-6206, U.S.A.)*

TU-P45 Scattering of Chiral Currents by Quantum Point Contacts,

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A. Cresti[1], G. Grosso[1] and G.P. Parravicini[2], *([1]NEST-INFM and Dipartimento di Fisica "E. Fermi", Università di Pisa, Via Buonarroti 2, I-56127 Pisa, Italy, [2]NEST-INFM and Dipartimento di Fisica "A. Volta", Università di Pavia, Via Bassi 6, I-27100 Pavia, Italy)*

TU-P46 Electrical Contacts of Metals to Carbon-Nanotubes for Applications, to Electrical Coupling Between Miniaturized Moving Parts and Sensors,

Y. Tzeng, Y. Chen, C. Liu, and V. Krishnardula, *(Dept. of Electrical and Computer Engineering, Auburn University, Auburn, Alabama 36849, USA)*

TU-P47 Lattice of Surface-Magic-Clusters: An Ordered Array of Identical Nanostructures,

H.H. Chang[1,2], M.Y. Lai[1], J.H. Wei[2], C.M. Wei[3], and Y.L. Wang[1,2], *([1]Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei 106, Taiwan, [2]Dept. of Physics, National Taiwan University, Taipei 106, Taiwan, [3]Institute of Physics, Academia Sinica, Taipei 115, Taiwan)*

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POSTER SESSION II (Wednesday, Aug. 18th)

WE-P1 Temperature Dependence of Electron Transport Through Long Organic Molecules,

A.Yu. Smirnov[1], L.G. Mourokh[2], and N.J.M. Horing[2], *([1]D-Wave System, Inc., 320-1985 W. Broadway, Vancouver, British Columbia, Canada V6J 4Y3, [2]Dept. of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, New Jersey 07030, USA)*

WE-P2 Resonant Electron Tunneling Through Azurin in Air and Liquid by Scanning Tunneling Microscopy,

V. Frascerra, F. Calabi, G. Maruccio, P.P. Pompa, R. Cingolani, R. Rinaldi, *(National Nanotechnology Laboratory of INFM, University of Lecce, Via per Arnesano, 73100 Lecce, Italy)*

WE-P3 A Two-Level Redundancy Scheme for Enhancing Scalability of Molecular-Based Crossbar Memories,

Y.-H. Choi[1], M.-H. Lee[1], and Y. K. Kim[2], *([1]Dept. of Computer Engineering, [2]Dept. of Chemical Engineering, Hongik University, Seoul, Korea)*

WE-P4 STM Assisted *In-Situ* Spectroscopy on Nano-Sized Crystallites of Organic Semiconductors,

K. Hänel, L. Ruppel, G. Witte, A. Birkner, and C. Wöll, *(Physikalische Chemie I, Ruhr-Universität Bochum, 44780 Bochum, Germany)*

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A. Pecchia[1], A. Gagliardi[2], A. Di Carlo[1], T. Frauenheim[2], P. Lugli[1,3], *([1]Dipartimento di Ingegneria Elettronica, Universitá di Roma "Tor Vergata", 00133 Roma, Italy, [2]Dept. of theoretical physics, University of Paderborn, D-33098 Paderborn, Germany, [3]Institute of nanoelectronics, University of Munich, TU-Munich, Germany)*

WE-P6 Device for Conductance Measurements of Molecular Systems,

M. Lambacher[1], C.J.-F. Dupraz[1], U. Beierlein[1], J.P. Kotthaus[1], U.S. Schubert[2], P.R. Andres[2], *([1]Center for NanoScience and Sektion Physik, Ludwig-Maximilians-Universität-München, Geschwister-Scholl-Platz 1, 80539 München, Germany, [2]Laboratory of Macromolecular Chemistry and Nanoscience, Eindhoven University of Technology and Dutch Polymer Institute, P. O. Box 513, 5600 MB Eindhoven, The Netherlands)*

WE-P7 Practical Aspects of Electron Transport Through Single Molecules,

J.M. Seminario, *(Dept. of Electrical Engineering, University of South Carolina, Columbia, South Carolina 29208, USA)*

WE-P8 Effects of Synthesis Conditions on the Growth of MWCNTs Using an Ultra Sonic Evaporator with Pyrolysis of Hydrocarbon,

N.J. Jeong, K.S. Song, S.J. Lee, I.S. Ryu, S.P. Yu and Y.S. Seo, *(Korea Institute of Energy Research, 71-2, Jang-Dong, Yuseong-gu, Daejeon, 305-343, Korea)*

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WE-P10 Carbon Nanotubes Analysis, Classification and Characterization,

M.A. Lyshevski, *(Microsystems and Nanotechnologies, Webster, NY, 14580, USA)*

WE-P11 Carbon Nanotube/Conducting Polymer Composites for Electronic Application: Materials Preparation and Devices Assembling,

F. Brunetti[1], E. Tamburri[2], A. Reale[1], A. Di Carlo[1], P. Lugli[3], S. Orlanducci[2], M.L. Terranova[2], A. Fiori[2], *([1] Dept. of Electronic Engineering, Univ. Rome Tor Vergata, Rome, 00133 Italy, [2] Dept. of Science and Chemical Technology, Univ. of Rome Tor Vergata, Rome, 00133 Italy and INFM, [3] Lehrstuhl für Nanoelektronik, TU München Arcisstrasse 21 D-80333 München, Germany)*

WE-P12 Controlled Growth of Ordered SWCNTs for the Realization of Multielectrode Field Emitter Devices,

F. Brunetti[1], P. Regoliosi[1], A. Reale[1], A. Di Carlo[1], M.L.Terranova[2], S. Orlanducci[2], A. Fiori[2], E. Tamburri[2], V. Sessa[2], A. Ciorba[3], M. Rossi[3], M. Cirillo[4], V. Merlo[4], *([1] Dept. of Electronic Engineering, Univ. Rome Tor Vergata, Rome, 00133 Italy, [2] Dept. of Science and Chemical Technology, Univ. of Rome Tor Vergata, Rome, 00133 Italy and INFM, [3] Dept. of Energetics, Univ. of Rome La Sapienza, Rome, 00100 Italy, [4] Dept. of Physics, Univ. of Rome Tor Vergata, Rome, 00133 Italy and INFM)*

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D. Kienle and A. Ghosh *(School of Electrical and Computer Engineering, Purdue, University, W. Lafayette, IN 47907, USA)*

WE-P14 Controlled Growth of Carbon Nanotubes on Microstructured Surfaces,

Y.Keles[1,2], M. Milas[2], V. Thommen[3], S. Fahlbusch[4], T. Stöckli[1], E. Meyer[3], L. Forró[2], H.F. Knapp[1], ([1]CSEM Centre Suisse d'Electronique et de Microtechnique SA, Alpnach Dorf, CH-6055, Switzerland, [2]Institute of Physics of Complex Matter, FSB-EPFL, Lausanne, CH-1015, Switzerland, [3]Institut für Physik der Universität Basel, Basel, CH-4056, Switzerland, [4]Materials Technology Dept., EMPA, Thun, CH-3602, Switzerland)

WE-P15 Individual Single-Walled Carbon Nanotubes with Vertical Alignment,

T. Kato[1], G.-H. Jeong[1], T. Hirata[1], R. Hatakeyama[1], and K. Tohji[2], *([1]Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan, [2]Graduate School of Environmental Studies, Tohoku University, Sendai 980-8579, Japan)*

WE-P16 Electric Transport Properties of Single-Walled Carbon Nanotubes Functionalized by Plasma Ion Irradiation Method,

G.-H. Jeong[1], T. Izumida[1], T. Hirata[1], R. Hatakeyama[1], Y. Neo[2], H. Mimura[2], K. Omote[3], Y. Kasama[3], S.-H. Jhang[4], and Y.-W. Park[4], *([1]Dept. of Electronic Engineering, Tohoku University, Sendai 980-8579, Japan, [2]Research Institute of Electronics, Shizuoka University, Hamamatsu 432-8011, Japan, [3]Ideal Star Corporation, Minami-Yoshinari 6-6-3, Aoba-ku, Sendai 989-3204, Japan, [4]School of Physics, Seoul National University, Seoul 151-747, Korea)*

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M. Dipasquale[1], F. Gatti[2,], D. Ricci[1], D. Caviglia[1] and E. Di Zitti[1], *([1]Dept. of Biophysical and Electronic Engineering, [2]Dept. of Physics, University of Genoa, Genoa, 16145, Italy)*

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A.J. Khopade*, F. Caruso, and H. Möhwald, *(Max Planck Institute ofr Colloids and Interfaces, D-14424 /Potsdam, Golm Germany, * Sun Pharma Advanced Research Centre, Tandalja, Baroda –390 020 GJ, India)*

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S.E. Lyshevski and F.A. Krueger, *(Dept. of Electrical Engineering, Rochester Institute of Technology, Rochester, NY 14623-5603, USA)*

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M.A. Lyshevski, *(Microsystems and Nanotechnologies, 70 Angels Path, Webster, NY 14580-4400, USA)*

WE-P22 Atomic Force Microscopy in Ophthalmic Surgery,
M.P. De Santo[1], M. Lombardo[2], S. Serrao[2], G. Lombardo[1], and R. Barberi[1], *([1]LICRYL – Dept. of Physics, Università della Calabria, Arcavacata di Rende, 87036, [2]Dept. of Ophthalmology, Catholic University of Rome, Rome, Italy)*

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M. Olapinski[1], A. Brüggemann[2], M. George[2], S. Manus[1], N. Fertig[2], and F.C. Simmel[1], *([1]Sektion Physik and Center for Nanoscience, University of Munich, Geschwister-Scholl-Platz 1, 80539 München, Germany, [2]Nanion Technologies GmbH, Pettenkoferstr. 12, 80336 München, Germany)*

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U. Rehn[1], R.B. Wehrspohn[2] and U. Gösele[1], *([1] Max Planck Institute of Microstructure Physics, 06120 Halle, Germany, [2]University of Paderborn, Dept. of Physics, 33098 Paderborn, Germany)*

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F. C. Soumetz[1], M. Giacomini[1], L. Pastorino[1], J. B. Phillips[2], R. A. Brown[2], C. Ruggiero[1], *([1]D.I.S.T, University of Genova, Via Opera Pia, 13, 16145 Genova, Italy, [2]University College London, Tissue Repair and Engineering Centre, United Kingdom)*

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S. Thalhammer and W.M. Heckl, *(Dept. for Geo- and Environmental Sciences, University of Munich, Theresienstr. 41, 80333 Munich, Germany)*

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A.K. Ray[1], A. Bandyopadhyay[1] and S.I. Khondaker[2], *([1]Nanotechnology Research Laboratories, School of Engineering, Sheffield Hallam University, City Campus, Pond Street, Sheffield S1, 1WB, UK, [2]Center for Nano- & Molecular Science and Technology, The University of Texas at Austin, 1 University Station, A5300, Austin, TX 78712, USA)*

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P.P. Civalleri and M. Gilli, *(Politecnico di Torino, Corso Duca degli Abruzzi, 24, I–10129 Torino,)*

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H. Fujisaka, D.Hamano, T. Kamio, and M. Sakamoto, *(Faculty of Information Sciences, Hiroshima City University, 3–4–1 Ozuka-higashi, Asa-minami-ku, Hiroshima, 731-3194 Japan)*

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C.-Y. Lu, S.-A.Wang, and S.-Y. Kuo, *(Dept. of Electrical Engineering and Graduate Institute of Electronic Engineering, National Taiwan University, Taipei, Taiwan)*

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V. Beiu[1], U. Rückert[2], S. Roy[1], and J. Nyathi[1], *(Centres for Neural-Inspired Nano Architectures, [1]School of EE&CS, Washington State University, Pullman, WA 99164-2752, USA, [2]Heinz-Nixdorf Institute, University of Paderborn, 33102 Paderborn, Germany)*

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A. Dias (*Departamento de Engenharia Metalúrgica e de Materiais Universidade Federal de Minas Gerais, Belo Horizonte-MG, Brazil*)

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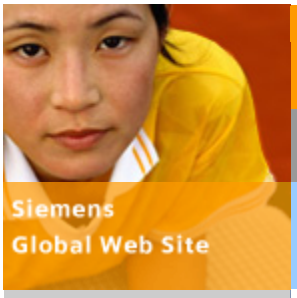

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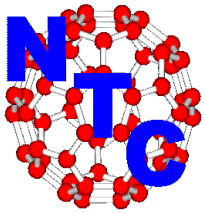

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Herzlich willkommen bei der Deutschen Forschungsgemeinschaft

Die Deutsche Forschungsgemeinschaft ist die zentrale Selbstverwaltungseinrichtung der Wissenschaft zur Förderung der Forschung an Hochschulen und öffentlich finanzierten Forschungsinstitutionen in Deutschland.

Die DFG dient der Wissenschaft in allen ihren Zweigen durch die finanzielle Unterstützung von Forschungsvorhaben und durch die Förderung der Zusammenarbeit unter den Forschern.

Aktuelles

Empfehlungen für Medizinische Fakultäten

(30.07.04) Neben einer guten Grundausstattung ist vor allem die Mittelverteilung eine wesentliche Voraussetzung für Medizinischen Fakultäten, um international wettbewerbsfähig zu sein. Die DFG hat nun Empfehlungen zur leistungsorientierten Mittelvergabe (LOM) ausgesprochen.

- Pressemitteilung
- Stellungnahme

Erstmals EURYI Award für Nachwuchswissenschaftler vergeben

(29.07.04) Die europäischen Forschungsorganisationen haben erstmals 25 Nachwuchswissenschaftler mit dem European Young Investigator Award (EURYI) ausgezeichnet. Der mit bis zu 1,25 Millionen Euro dotierte Preis soll deren Karriereweg unterstützen und zugleich die Attraktivität des europäischen Forschungsraums erhöhen.

- Weitere Informationen
- Pressemitteilung

DFG zum Urteil des Bundesverfassungsgerichts

(27.07.04) Mit dem heutigen Urteil zur Juniorprofessur entsteht für den wissenschaftlichen Nachwuchs ein hohes Maß an Unsicherheit. Die Juniorprofessur war der bislang konsequenteste Versuch, die frühe Selbstständigkeit des

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wissenschaftlichen Nachwuchses an den Hochschulen durchzusetzen. Ohne geeignete Alternativen werden gerade die besten Wissenschaftlerinnen und Wissenschaftler abgeschreckt, ihre Karriere in Deutschland fortzusetzen. Die DFG appelliert an die Länder, möglichst bald die notwendigen Rahmenbedingungen zu schaffen, um für diese Personengruppe attraktive Karrieremöglichkeiten in Deutschland auch weiterhin zu sichern.

- Pressemitteilung
- Stellungnahme

Jahrestreffen von Emmy Noether-Stipendiaten

(16.07.04) Zum dritten Mal veranstaltet die DFG ein Jahrestreffen für die Geförderten im Emmy Noether-Programm, ihrem Exzellenzprogramm für Nachwuchsgruppen. Vom 30. Juli bis 1. August treffen sich die Nachwuchswissenschaftler in Potsdam zum Erfahrungsaustausch. Im Rahmen eines wissenschaftspolitischen Abends wird Professor Julian Nida-Rümelin vortragen und für eine Diskussion zur Verfügung stehen.

- Veranstaltungsprogramm
- Mehr über das Emmy Noether-Programm