SYMPOSIUM NN

Molecular Electronics

December 2 – 6, 2002

Chairs

Marie-Isabelle Baraton	Univ of Limoges
Eric L. Garfunkel	Rutgers Univ
David C. Martin	Univ of Michigan
Stuart S.P. Parkin	IBM Almaden Research Ctr

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* Invited paper

This "virtual" symposium addresses the burgeoning interest in molecular electronics by offering related presentations from nominally disparate fields. Four symposia (C, G, J, P) have incorporated entire sessions concerning molecular electronics into their overall programs, and scheduling was coordinated to enable convenient viewing of any or all of these sessions. Other presentations in which the topic is evident are listed at the end of this program and identified by a ♣ in the associated symposia programs.

SESSION NN1/C1: JOINT SESSION
ARRAYS, ESSAYS AND DIAGNOSTICS - I
Chair: Guenter Schmid
Monday Morning, December 2, 2002
Room 208 (Hynes)

8:30 AM *NN1.1/C1.1
BIODIRECTED SYNTHESIS OF FUNCTIONAL MATERIALS USING NANOSCALE BUILDING BLOCKS. Chad A. Mirkin, Department of Chemistry and Institute for Nanotechnology, Northwestern University, Evanston, IL.

9:00 AM *NN1.2/C1.2
BIOMATERIAL-NANOPARTICLE HYBRID SYSTEMS FOR BIOELECTRONICS. Itamar Willner, Institute of Chemistry, The Hebrew University of Jerusalem, Jerusalem, ISRAEL.

9:30 AM NN1.3/C1.3
NANOPATTERNED SURFACES FOR CONTROLLED SELF-ASSEMBLY OF MOLECULES. Federico Rosei, Y. Naitoh, M. Schunack, E. Legsgaard, I. Stensgaard, and F. Besenbacher, Physics Department and I-NANO, University of Aarhus, DENMARK; P. Jiang, A. Gourdon, C. Joachim, CEMES-CNRS, Toulouse, FRANCE.

9:45 AM NN1.4/C1.4
CONDUCTANCE MICROSCOPY FOR ELECTRIC CONDUCTION STUDY OF BIOINSPIRED HYBRID NANOSTRUCTURES UNDER AMBIENT CONDITIONS. Saleem Rao, Wahyu Setyawan, Seunghun Hong, Florida State Univ, Dept of Physics, Tallahassee, FL.

10:00 AM BREAK

10:30 AM *NN1.5/C1.5
DNA-MEDIATED ASSEMBLY OF CARBON NANOTUBE DEVICES. Keith A. Williams, Peter Veenhuizen, Cees Dekker, Delft University of Technology, Department of Nanoscience and DIMES, Delft, THE NETHERLANDS.

11:00 AM NN1.6/C1.6
ELECTRONIC DETECTION OF INDICATOR-FREE DNA HYBRIDS BY ELECTRONIC FIELD CONTROL. H.Y. Lee, Y.S. Choi, H. Tanaka, and T. Kawai, The Institute of Scientific and Industrial Research, Osaka University, Osaka, JAPAN.

11:15 AM NN1.7/C1.7
A HIGH PERFORMANCE CELL PATTERNING FOR CELL-BASED SENSOR APPLICATIONS. Mandana Veiseh, Miqin Zhang, University of Washington, Dept of Materials Science & Engineering, Seattle, WA.

11:30 AM NN1.8/C1.8
MOLECULAR CASTING WITH DNA-MEMBRANE COMPLEXES. Hongjun Liang[a], Thomas E. Angelini[b], James Ho[c], Paul Braun[a] and Gerard C.L. Wong[a,b,c], University of Illinois at Urbana-Champaign, Urbana, IL; [a]Department of Materials Science and Engineering; [b]Department of Physics; [c]Department of Bioengineering.

SESSION NN2/C2: JOINT SESSION
ARRAYS, ESSAYS AND DIAGNOSTICS - II
Chair: Ulrich Simon
Monday Afternoon, December 2, 2002
Room 208 (Hynes)

1:30 PM *NN2.1/C2.1
FABRICATIONS OF PEPTIDE NANOTUBES FUNCTIONALIZED WITH BIOLOGICAL AND MOLECULAR RECOGNITIONS AND THEIR ASSEMBLIES INTO DEVICE CONFIGURATIONS. Hiroshi Matsui, Yung-fou Chen, Ramin Djilali, City Univ. of New York, Hunter College, Dept. of Chemistry, New York, NY.

2:00 PM *NN2.2/C2.2
NANOPARTICLE BIOCONJUGATE CHEMISTRY: STRENGTHENING BIOMOLECULES' GRIP ON GOLD. Sarah Evans, Aimee Erickson, Castro Laicer, Kyle Page, T. Andrew Taton, Department of Chemistry, University of Minnesota, Minneapolis, MN.

2:30 PM NN2.3/C2.3
SELECTIVITY OF POLYPEPTIDES FOR BINDING TO CARBON NANOTUBES. Siqun Wang, Hong Wang, Steve Lustig, Nancy Rizzo, Shekhar Subramoney, Anand Jagota, DuPont, Central Research, Wilmington, DE; Yet-Ming Chiang, Ellen S. Humphreys, Sung-Yoon Chung, Department of Materials Science & Engineering, Massachusetts Institute of Technology, Cambridge, MA.

2:45 PM NN2.4/C2.4
A NEW PROTEIN PATTERNING TECHNIQUE AND ITS APPLICATION IN BIO-INSPIRED SELF-ASSEMBLY. Dong Guo, Helen McNally, Purdue University, School of Electrical and Computer Engineering, West Lafayette, IN; Maneesh Pingle, Donald Bergstrom, Purdue University, Dept. of Medicinal Chemistry and Molecular Pharmacology, West Lafayette, IN; Rashid Bashir, Purdue University, School of Electrical and Computer Engineering, West Lafayette, IN.

3:00 PM NN2.5/C2.5
SPECIFIC INTERACTION BETWEEN A PROTEIN AND CARBON NANOTUBES - TOWARDS BIOSENSORS. Carolina Salvador-Morales, Trinity College, Dept of Physics, Dublin, IRELAND; Ed Franklin, Trinity College, Dept of Biochemistry, Dublin, IRELAND; G. Chambers, DIT, School of Physics, Dublin, IRELAND; Antonio Fonseca, Janos Nagy, FUNDP, Namur, BELGIUM; Werner Blau, Andrew Minett, Marc in het Panhuis, Trinity College, Dept of Physics, Dublin, IRELAND.

3:15 PM BREAK

SESSION NN3/J6: JOINT POSTER SESSION
Monday Evening, December 2, 2002
8:00 PM
Exhibition Hall D (Hynes)

NN3.1/J6.1
LOW TEMPERATURE ELECTRONIC TRANSPORT AND LONG RANGE ELECTRON TRANSFER IN MACROMOLECULES. Natalya Zimboskaya, City College of CUNY, Physics Department, New York, NY.

NN3.2/J6.2
MOLECULAR DYNAMICS STUDY OF ENERGY TRANSPORT THROUGH POLYMERIC MEDIUM. Rajesh Raghavan, Craig Carter, Massachusetts Institute of Technology, Dept of Materials Science and Technology, Cambridge, MA.

NN3.3/J6.3
SIMULATION OF ONE ELECTRON TRANSISTORS BASED ON FULLERENE MOLECULES. J.R. Soto, A. Calles, J. Austrich, and M.L. Marquina, Faculty of Sciences, National University of Mexico, MEXICO.

NN3.4/J6.4
A PROCEDURE FOR MODELING A ROTAXANE-BASED MOLECULAR DEVICE. XiangE Zheng and Karl Sohlberg, Drexel University, Chemistry Department, Philadelphia, PA.

SESSION NN4/J7: JOINT SESSION
MOLECULAR ELECTRONICS
Chair: David A. LaVan
Tuesday Morning, December 3, 2002
Room 313 (Hynes)

8:30 AM *NN4.1/J7.1
REMOTE ELECTRONIC CONTROL OF DNA AND PROTEIN MOLECULAR MACHINES. Joseph Jacobson, Kimberly Hamad-Schifferli, John Schwartz, The MIT Media Lab Center for Bits and Atoms; J.P. Shi, and Shuguang Zhang, The Center for Biomedical Engineering, Massachusetts Institute of Technology, Cambridge, MA.

9:00 AM NN4.2/J7.2
SELF-ALIGNED SPLIT GATE ELECTRODES ON SUSPENDED CARBON NANOTUBES. Seung-Beck Lee, L.A.W. Robinson, D.G. Hasko, H. Ahmed, Univ of Cambridge, Cavendish Laboratory, Cambridge, UNITED KINGDOM; K.B.K. Teo, M. Chhowalla, G.A.J. Amaratunga, W.I. Milne, Univ of Cambridge, Dept of Engineering, Cambridge, UNITED KINGDOM.

9:15 AM NN4.3/J7.3
ENERGY TRANSFER AND CONVERSION IN NANOCHANNEL COMPOUNDS CONTAINING CONJUGATED CHROMOPHORES. R. Tubino, Dip. Scienza dei Materiali and INFM, Univ. of Milano-Bicocca, Milano, ITALY; G. Bongiovanni, A. Mura, Dip. Fisica and INFM, Univ. of Cagliari, Cagliari, ITALY; C. Botta, ISMAC-CNR, Milano, ITALY; G. Di Silvestro, Universita' di Milano, Milano, ITALY.

9:30 AM NN4.4/J7.4
SEMIEMPIRICAL STUDY OF A PH-SWITCHABLE [2]ROTAXANE. Laura Frankfort, Karl Sohlberg, Department of Chemistry, Drexel University, Philadelphia, PA.

9:45 AM NN4.5/J7.5
A STUDY ON DNA ELECTRONICS USING NANOGAP JUNCTIONS. Joon Sung Lee, Yang-kyu Choi, Oh Seaback, and Luke P. Lee, Berkeley Sensor and Actuator Center, Department of Bioengineering, University of California at Berkeley.

10:00 AM BREAK

SESSION NN5/J8: JOINT SESSION
NANOTECHNOLOGY AND MOLECULAR MACHINES - II
Chair: Joseph M. Jacobson
Tuesday Morning, December 3, 2002
Room 313 (Hynes)

10:30 AM *NN5.1/J8.1
CHEMICAL ANALYSES AND MOLECULAR RECOGNITION WITH NANOMECHANICAL CANTILEVER ARRAYS. Christoph Gerber, NCCR National Center of Competence for Nanoscience, Inst. of Physics, Univ. Basel, Nanoscale Science Group, IBM Research Lab, Rueschlikon, SWITZERLAND.

11:00 AM NN5.2/J8.2
FABRICATION AND CHARACTERIZATION OF A CARBON NANOTUBE TORSIONAL OSCILLATOR. P.A Williams, A.M. Patel, S.J. Papadakis, M.R. Falvo, S. Washburn, R. Superfine, Dept. of Physics and Astronomy and Curriculum of Applied and Materials Science, University of North Carolina, Chapel Hill, NC.

11:15 AM NN5.3/J8.3
CHEMICAL CONTROL OF ENERGY DISSIPATION IN NANOMECHANICAL, MHz-RANGE SILICON RESONATORS. Yu Wang, Joshua A. Henry, Melissa A. Hines, Cornell Univ, Dept of Chemistry, Ithaca, NY.

11:30 AM NN5.4/J8.4
FOCUSED ION BEAM NANO-MACHINED STRUCTURES FOR STRAIN ANALYSIS BY A MOIRE TECHNIQUE. Biao Li, Albany NanoTech, Albany, NY; Xin Zhang, Department of Manufacturing Engineering, Boston University, Boston, MA; Huimin Xie, Dept of Eng. Mechanics, Tsinghua University, CHINA.

11:45 AM NN5.5/J8.5
PROCESSING TECHNIQUES FOR SINGLE WALLED CARBON NANOTUBES FOR ELECTRONICS APPLICATIONS. Paul Jaynes, Tom Tiano, Charlie Carey, Margaret Roylance, Foster-Miller, Inc., Waltham, MA; Ken McElrath, CNI, Houston, TX.

SESSION X2:
Chairs: Marie-Isabelle Baraton, Eric L. Garfunkel, David C. Martin and Stuart S.P. Parkin
Tuesday Afternoon, December 3, 2002
Grand Ballroom (Sheraton)

12:05 PM *X2.1
CARBON NANOELECTRONICS. Paul L. McEuen, LASSP, Cornell University, Ithaca, NY.

SESSION NN6/G9: JOINT SESSION
NANO AND MOLECULAR ELECTRONICS
Chair: Dawn A. Bonnell
Wednesday Afternoon, December 4, 2002
Room 200 (Hynes)

1:30 PM *NN6.1/G9.1
ELECTRONIC CHARACTERIZATION OF SINGLE DEFECTS IN ONE-DIMENSIONAL NANOSTRUCTURES. A.T. Johnson, Marcus Freitag, University of Pennsylvania, Dept of Physics and Astronomy, Philadelphia, PA; Sergei V. Kalinin, Dawn A. Bonnell, University of Pennsylvania, Dept of Materials Science and Engineering, Philadelphia, PA.

2:00 PM NN6.2/G9.2
AFM-BASED ELECTRICAL CHARACTERIZATION OF NANOSTRUCTURES. Sandra B. Schujman, Sujit K. Biswas, Dept. of Physics, Applied Physics and Astronomy; Robert Vajtai, Bingqing Wei, Dept. of Materials Science and Engineering; Leo J. Schowalter, Dept. of Physics, Applied Physics and Astronomy; Pulickel M. Ajayan, Dept. of Materials Science and Engineering, Rensselaer Polytechnic Institute, Troy, NY.

2:15 PM NN6.3/G9.3
INTERFACE EFFECTS ON ELECTRICAL PROPERTIES OF CARBON NANOTUBES. Pridhudev Manghat, Jaewu Choi, Dept of Electrical and Computer Engineering, Wayne State Univ, Detroit, MI.

2:30 PM NN6.4/G9.4
NEGATIVE DIFFERENTIAL RESISTANCES IN NANOMECHANICAL DOUBLE BARRIER TUNNELING JUNCTIONS WITH C_{60} MOLECULES AT ROOM TEMPERATURE. Kouhei Nagano[a], Yasuo Azuma[a], Yutaka Majima[a,b]; [a]Tokyo Institute of Technology, Dept. of Physical Electronics, [b]Organization and Function, PRESTO, Japan Science and Technology Corporation (JST), Tokyo, JAPAN.

2:45 PM NN6.5/G9.5
QUANTUM CONFINEMENT ON THE VIBRATIONAL PROPERTIES OF SILICON NANOWIRES. C.K.A. Adu, G.U. Sumanasekera, B.K. Pradhan, and P.C. Eklund, Dept. of Physics, Pennsylvania State University, University Park, PA; J.E. Fischer, Department of Material Science and Engineering and Laboratory for Research on the Structure of Matter, University of Pennsylvania, Philadelphia, PA.

3:00 PM BREAK

3:30 PM NN6.6/G9.6
PERIODIC ARRAYS OF INTRAMOLECULAR JUNCTIONS OF SILICON NANOWIRES. Duoduo Ma, Shuittong Lee, City Univ of Hong Kong, Dept of Physics and Materials Science, Hong Kong, CHINA.

3:45 PM NN6.7/G9.7
SINGLE MOLECULE SWITCHES. Z.J. Donhauser, P.S. Weiss, The Pennsylvania State University, University Park, PA.

4:00 PM NN6.8/G9.8
SCANNING TUNNELING SPECTROSCOPY OF SINGLE COMPLEX MOLECULES AND ORDERED MOLECULAR NANOSTRUCTURES AT ROOM TEMPERATURE. Federico Rosei, Y. Naitoh, M. Schunack, E. Legsgaard, I. Stensgaard, and F. Besenbacher, Physics Department and I-NANO, University of Aarhus, DENMARK; P. Jiang, A. Gourdon, and C. Joachim CEMES-CNRS, Toulouse, FRANCE.

4:15 PM NN6.9/G9.9
SINGLE MOLECULAR CONDUCTIVITY OF ORDERED NANOWIRES. M. Hadi Zareie, Hong Ma, Bryan W. Reed, Alex Jen, and Mehmet Sarikaya, Materials Science and Engineering, University of Washington, Seattle, WA.

4:30 PM NN6.10/G9.10
ELECTRON TRANSPORT THROUGH CONJUGATED ORGANIC MOLECULES. Ganesh K. Ramachandran, John K. Tomfohr, Otto F. Sankey and Stuart M. Lindsay, Department of Physics and Astronomy, Arizona State University, Tempe, AZ; Xristo Zarate, Alex Primak, Tom A. Moore, Ana L. Moore and Devens Gust, Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ; and Larry A. Nagahara, Physical Sciences Research Laboratory, Motorola Labs, Tempe, AZ.

4:45 PM NN6.11/G9.11
COMBINED STM, UPS AND THEORETICAL INVESTIGATIONS OF THE ELECTRONIC COUPLING EFFICIENCY OF VARIOUS ANCHORING GROUPS FOR MOLECULAR ELECTRONICS. L. Patrone, S. Palacin, F. Armand, J.P. Bourgoin, Service de Chimie Moléculaire, CEA Saclay, FRANCE; J. Lagoute, S. Gauthier, H. Tang, CEMES CNRS, Toulouse, FRANCE; N. Stuhr-Hansen, T. Bjornholm, Department of Chemistry, Copenhagen University, DENMARK.

SESSION NN7/P10: JOINT SESSION
FROM MANGANITES TO ORGANIC SPINTRONIC MATERIALS - II
Chairs: Anand Bhattacharya and Arthur J. Epstein
Thursday Afternoon, December 5, 2002
Room 204 (Hynes)

3:15 PM *NN7.1/P10.1
HYBRID SPINTRONICS: A NEW PERSPECTIVE FOR ORGANIC SEMICONDUCTORS IN SPINTRONICS. I. Bergenti, V. Dediu, P. Nozar, G. Ruani, M. Murgia C. Taliani, ISMN-Bo, CNR, Bologna, ITALY.

3:45 PM NN7.2/P10.2
ORGANIC SEMICONDUCTOR MAGNETO-ELECTRONICS. Albert H. Davis, Konrad Bussmann, Materials Physics Branch, Naval Research Laboratory, Washington, DC.

4:00 PM *NN7.3/P10.3
SPIN-DRIVEN RESISTANCE IN ORGANIC-BASED MAGNETIC SEMICONDUCTOR V[TCNE]x (x$\sim$2). N.P. Raju, Vladimir N. Prigodin, Kostia I. Pokhodnya, Arthur J. Epstein, Department of Physics and Department of Chemistry, The Ohio State University, Columbus, OH; Joel S. Miller, Department of Chemistry, University of Utah, Salt Lake City, UT.

SESSION NN8/G14: JOINT SESSION
PROCESSING AND PROPERTIES OF NANOWIRES
Chair: Andrew P. Shreve
Friday Morning, December 6, 2002
Room 200 (Hynes)

8:30 AM NN8.1/G14.1
RAMAN-ACTIVE PHONONS IN POLAR SEMICONDUCTING NANOWIRES. G.D. Mahan and P.C. Eklund, Dept of Physics, Penn State University, University Park, PA.

8:45 AM NN8.2/G14.2
DUAL-PROBE SCANNING TUNNELING MICROSCOPE AND A CARBON NANOTUBE RING TRANSISTOR. Taishi Shigematsu, Hiroyuki Watanabe, Chikara Manabe, Kei Shimotani, Masaaki Shimizu, Advanced Research Lab., Corporate Research Center, Fuji Xerox Co., Ltd., Kanagawa, JAPAN.

9:00 AM NN8.3/G14.3
TRIPLE-PROBE ATOMIC FORCE MICROSCOPE: MEASURING A CARBON NANOTUBE/DNA MIS-FET. Kei Shimotani, Hiroyuki Watanabe, Taishi Shigematsu, Chikara Manabe, Masaaki Shimizu, Advanced Research Lab., Corporate Research Center, Fuji Xerox Co., Ltd., Kanagawa, JAPAN.

9:15 AM NN8.4/G14.4
TEXTURE-CONTROLLED ELECTROCHEMICAL GROWTH AND CHARACTERIZATION OF METALLIC NANOWIRES. Mingliang Tian, Jinguo Wang, James Kurtz, Thomas E. Mallouk, and Moses H.W. Chan, Penn State Univ, Center for Collective Phenomena in Restricted Geometries, and the Materials Research Institute, University Park, PA.

9:30 AM NN8.5/G14.5
DYNAMICAL EVOLUTION OF GOLD NANOWIRE FORMATION. Pablo Z. Coura, Socrates de O. Dantas, Univ. Fed. de Juiz de Fora, Departamento de Física, Juiz de Fora, BRAZIL; Douglas S. Galvao, UNICAMP, Instituto de Física Gleb Wataghin, Campinas, BRAZIL; Varlei Rodrigues, Daniel Ugarte, Laboratório Nacional de Luz Síncrotron, Campinas, BRAZIL.

9:45 AM NN8.6/G14.6
THE ROLE OF CARBON CONTAMINATION IN SUSPENDED GOLD NANOWIRES. Sergio B. Legoas, Douglas S. Galvao, Applied Physics Department, State University of Campinas, Campinas, SP, BRAZIL; Varlei Rodrigues, Daniel Ugarte, Laboratorio Nacional de Luz Sincrotron, Campinas, SP, BRAZIL.

10:00 AM BREAK

10:30 AM NN8.7/G14.7
FIELD EMISSION FROM PEAPODS (FILLED SINGLE WALL CARBON NANOTUBE SYSTEMS). Richard M. Russo, Siddhartha Kar, Christine Sung, David E. Luzzi, Dept of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA.

10:45 AM NN8.8/G14.8
EFFECTS OF SINGLE-WALLED CARBON NANOTUBES ON THE CHARGE TRANSPORT PROPERTIES OF POLYFLUORENE DERIVATIVE POLYMERS. H. Lu, S. Webster, L. Zheng, R. Czerw, J. Ballato, D.L. Carroll, Clemson Univ, Dept of Materials Science and Engineering, Clemson, SC.

Some other presentations that pertain to molecular electronics are:

B3.7 PATTERNED DEPOSITION FROM LIQUID CARBON DIOXIDE. Christine K. Luscombe, Wilhelm T.S. Huck, A.B. Holmes

B4.2 ENERGY LEVEL ALIGNMENT AT INTERFACES WITH ORGANIC MATERIALS: NEW DATA, BETTER UNDERSTANDING. Antoine Kahn

B5.4 FORMATION OF SINGLE-WALL CARBON NANOTUBES FORREST ASSEMBLIES ON METAL SURFACES. Fotios Papadimitrakopoulos

B6.8 MOLECULAR AND INTERFACE "ENGINEERING" OF CURRENT TRANSPORT THROUGH SINGLE MOLECULES: A MICROSCOPIC STUDY. Yongqiang Xue

B6.9 SCANNING PROBE STUDIES OF ORGANIC SELF-ASSEMBLED MONOLAYERS (SAMs). Weirong Jiang

B7.8 ESTABLISHING RELIABLE ELECTRICAL CONTACT TO MOLECULES BY NANOTRANSFER PRINTING. Yueh-Lin Loo

B9.28 ELECTRONIC STRUCTURE OF MOLECULES RELEVANT TO MOLECULAR ELECTRONIC DEVICES. Nikita Matsunaga

B9.63 CORRELATING SUBSTITUENT PARAMETERS TO PROPERTIES DESIRABLE FOR THE FABRICATION OF MOLECULAR ELECTRONIC DEVICES. Natalie Carroll

B9.64 VIBRATIONAL MICROSCOPY/SPECTROSCOPY AND STM-MANIPULATION OF SINGLE SEXI-PHENYL MOLECULES. Saw-Wai Hla

C4.1 BIO-ASSEMBLY OF NANOSCALE MATERIALS FOR NANOELECTRONICS. Ming Zheng

C8.4 Jim Heath

C9.4 ASSEMBLY OF GOLD NANOPARTICLES ON DNA STRANDS. Michael Noyong

C10.2 THEORETICAL STUDY OF ELECTRON TRANSPORT THROUGH METALLIC NANOPARTICLES. Yongqiang Xue

C11.17 ELECTRIC FIELD AND CHARGED MOLECULES MEDIATED SELF ASSEMBLY FOR ELECTRONIC DEVICES. S.W. Lee

D4.4 ELECTROCHROMIC MATERIALS AND DEVICES FROM LAYER-BY-LAYER ASSEMBLED POLYMER FILMS. Dean DeLongchamp

D4.6 A NEW FLEXIBLE STRUCTURE FOR OFETS. Annalisa Bonfiglio

D4.7 ORGANIC TRANSISTOR SENSORS AND MEMORY ELEMENTS FABRICATED VIA SOLUTION DEPOSITION. H.E. Katz

D4.10 ELECTRONIC SYSTEMS BASED ON ELECTROCHEMICAL TRANSISTORS MADE ON PLASTIC FOILS AND FINE PAPER. Magnus Berggren

F4.6 COVALENT LINKING AND HYBRIDIZATION OF DNA AT SINGLE-WALLED CARBON NANOTUBES. Robert J. Hamers

F4.8 CHARACTERIZATION OF SELF-ASSEMBLED MONOLAYERS ON SILICON FOR MEMORY APPLICATIONS. Qiliang Li

F4.10 NANOSCALE PATTERNING OF ORGANIC AND INORGANIC STRUCTURES ON SILICON SURFACES. Jillian M. Buriak

F5.4 NANOSCALE ORGANIC ELECTRONIC DEVICES FORMED BY PRINTING AND LAMINATION. John A. Rogers

F5.6 CATHODIC ELECTROGRAFTING NANOLITHOGRAPHY OF TERMINAL ALKYNES ON SEMICONDUCTOR SURFACES. Patrick T. Hurley

F6.5 INTENTIONAL P-TYPE DOPING OF SILICON NANOWIRES USING TRIMETHYLBORON BY TEMPLATE-DIRECTED VAPOR-LIQUID-SOLID GROWTH. Kok-Keong Lew

F6.6 SEMICONDUCTOR NANOWIRES — SYNTHESIS, CHARACTERIZATION, AND NOVEL PROPERTIES. S.T. Lee

F7.1 **MRS MEDAL AWARD TALK PRESENTATION** NANOWIRES AS BUILDING BLOCKS FOR NANOSCALE SCIENCE AND TECHNOLOGY—BUILDING A BIG FUTURE FROM SMALL THINGS. Charles M. Lieber

F7.6 ELEMENTAL SEMICONDUCTOR SUPERLATTICE NANOWIRES. Peidong Yang

G4.1 MEASURING AND CONTROLLING NANOMETER-SCALE PROPERTIES IN MOLECULES AND ASSEMBLIES. P.S. Weiss

G7.30 LOCALIZED CROSS-SECTIONING OF CARBON NANOTUBE-TO-METAL JUNCTIONS FOR HIGH SPATIAL RESOLUTION CHEMICAL AND STRUCTURAL ANALYSIS. K. Dovidenko

G7.32 A COMPARISON OF SCANNING IMPEDANCE AND SCANNING GATE MICROSCOPIES FOR DETERMINING PROPERTIES OF INDIVIDUAL DEFECTS IN MOLECULAR CIRCUITS. Sergei V. Kalinin

G7.33 ORGANIC MOLECULES ACTING AS NANOMOLDS ON Cu(110). Federico Rosei

G8.11 INFLUENCE OF SUBSTRATE ON IN-PLANE ELECTRICAL CONDUCTION OF CuPc NANO-CRYSTALS. Masakazu Nakamura

G11.2 MORPHOLOGY AND POLAR ORDER IN SELF-ASSEMBLED THIN FILMS OF OVERCROWDED ARENES STUDIED BY SCANNING PROBE MICROSCOPY. Thuc-Quyen Nguyen

G11.3 SCANNING PROBE MICROSCOPY OF SELF-ASSEMBLED MONOLAYERS OF PHENYLENE/ ETHYNYLENE MOLECULES. R. Ross Getty

G11.4 SURFACE POTENTIAL IMAGING MECHANISMS OF SELF-ASSEMBLED MONOLAYERS. Tony Alvarez

J2.2 NANOPATTERNED SURFACES FOR CONTROLLED GROWTH OF MOLECULAR NANOSTRUCTURES. Federico Rosei.

V5.3 DIELECTRIC INTERFACE FORMATION IN ORGANIC SEMICONDUCTOR BASED ELECTRONICS. Neil J. Watkins