SYMPOSIUM B

Polymer/Metal Interfaces—Fundamentals, Properties, and Applications

December 1 – 6, 2002

Chairs

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TUTORIAL

FT B: POLYMER INTERFACE FUNDAMENTALS—FROM MORPHOLOGY TO ELECTRONIC STRUCTURE
Sunday, December 1, 2002
1:30 p.m. - 4:00 p.m.
Room 202 (Hynes)

The properties of material interfaces are of fundamental importance in scientific areas such as wetting, lubrication, adhesion and electronic structure, which control a variety of applications in electrophotography, biotechnology, industrial coatings, electronic devices, cosmetics, etc. In this tutorial, the behavior of polymers at surfaces and interfaces will be reviewed, with emphasis on polymer/substrate interfaces. First, the basic thermodynamics of interfaces and the role of interfacial energy on their structure and properties will be presented. The modification of surface properties by the addition of interfacially active components, which selectively segregate to the interface in order to reduce the total free energy of the system, will be discussed. Some of the modern experimental methods for the determination of interfacial structure will be reviewed, and selected examples on the investigation and modification of polymer surfaces, and of polymer-polymer and polymer-substrate interfaces will be provided. Furthermore, the elementary principles underlying surface-sensitive spectroscopies of polymer surfaces and interfaces encountered in modern polymer-based electronic applications will be discussed. The issues important in these new applications will be developed from an elementary level to models of surface and some central interface issues unique to polymer-based electronics. Several examples will be used to illustrate both the use of spectroscopies in learning about polymer surfaces and interfaces and the resolution of certain puzzles in interface science in this area.

Instructors:
Spiros H. Anastasiadis, University of Crete
William Salaneck, Linköping University

SESSION B1: INTERFACIAL CHEMISTRY AND ADHESION
Chair: Spiros H. Anastasiadis
Monday Morning, December 2, 2002
Room 207 (Hynes)

8:30 AM *B1.1
INTERFACIAL POLYMERIZATION OF MOLECULAR SQUARES: THIN MICROPOROUS MEMBRANES FEATURING SIZE SELECTIVE TRANSPORT. Melinda Keefe, Jodi O'Donnell, Joseph T. Hupp, Northwestern University, Dept of Chemistry, Evanston, IL.

9:00 AM *B1.2
ELECTRO-POLYMERIZED FUNCTIONAL LAYERS-THEIR STRUCTURE, REDOX-BEHAVIOR AND OPTICAL PROPERTIES. Wolfgang Knoll, Max-Planck-Institut fuer Polymerforschung, Mainz, GERMANY, and Departments of Chemistry and of Materials Science, National University of Singapore, SINGAPORE.

9:30 AM B1.3
PLASMA POLYMERIZED FLUOROPOLYMERS AND THE INTERFACE WITH COPPER. Michael S. Silverstein, Roni Chen, Department of Materials Engineering, Technion-Israel Institute of Technology, Haifa, ISRAEL; Laurant Sandrin, Laboratoire Ondes et Acoustique, ESPCI, Paris, FRANCE; Ed Sacher, Departement de Genie Physique et de Genie des Materiaux, Ecole Polytechnique de Montreal, Quebec, Montreal, CANADA.

9:45 AM B1.4
MOLECULAR STRUCTURE OF INTERPHASES FORMED BY PLASMA POLYMERIZED FILMS AND STEEL SUBSTRATES. P.I. Rosales, E.J. Krusling, F.J. Boerio, R.G. Dillingham, University of Cincinnati, Department of Materials Science and Engineering, Cincinnati, OH.

10:00 AM BREAK

10:30 AM B1.5
POLYMER FILMS BY SURFACE-INITIATED RING OPENING METATHESIS POLYMERIZATION: FORMATION, MANIPULATION, AND DEVELOPMENT OF PROTEIN RESISTANT PROPERTIES. Shinae Jun, Tseh-Hwan Yong, Paul E. Laibinis, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA.

10:45 AM *B1.6
POLYMER MONOLAYERS: MEASURING NANOADHESION WITH AN ATOMIC-FORCE MICROSCOPE. Frederic Madani, Vasileios Koutsos, Centre for Materials Science and Engineering, Institute for Materials and Processes, School of Engineering and Electronics, The University of Edinburgh, Edinburgh, UNITED KINGDOM.

11:15 AM B1.7
MECHANICAL PROPERTIES OF COPPER THIN FILMS ON POLYIMIDE. Denis Y.W. Yu, Frans Spaepen, Division of Engineering and Applied Sciences, Harvard University, Cambridge, MA.

11:30 AM B1.8
DIRECT OBSERVATION AND CHARACTERIZATION OF THE OXIDE NANOSTRUCTURED INTERFACE RESULTING FROM ORGANOSILANE PRE-TREATMENT OF ALUMINIUM. Mark J. Whiting, Vlad Stolojon, Ann Rattana, John Watts, School of Engineering, University of Surrey, Guildford, UNITED KINGDOM.

11:45 AM B1.9
IN-SITU MICROSCOPIC AND SPECTROSCOPIC STUDY OF PLASTIC DEFORMATION IN PET-STEEL LAMINATES. R. Rastogi, W.P. Vellinga, H.E.H. Meijer, Materials Technology, Mechanical Engineering, Eindhoven University of Technology, THE NETHERLANDS; O. van Asselen, Dutch Polymer Institute, THE NETHERLANDS.

SESSION B2: INTERFACIAL ADHESION AND FAILURE
Chair: Vasileios Koutsos
Monday Afternoon, December 2, 2002
Room 207 (Hynes)

1:30 PM *B2.1
LESSONS FOR REINFORCING METAL/POLYMER INTERFACES FROM POLYMER/POLYMER AND POLYMER/OXIDE ADHESION STUDIES. E.J. Kramer, UCSB, Santa Barbara, CA.

2:00 PM B2.2
EFFECTS OF SELF ASSEMBLED MONOLAYERS ON INTERFACIAL FRACTURE OF THIN EPOXY FILMS. N.R. Moody, Sandia National Laboratories, Livermore, CA; M.S. Kent, E.D. Reedy Jr., J.A. Emerson, Sandia National Laboratories, Albuquerque, NM; D.F. Bahr, Washington State University, Pullman, WA.

2:15 PM B2.3
THE MEASUREMENT OF FAILURE AT POLYMER COATING INTERFACES USING MICROINDENTATION. D.M. Shinozaki, Y. Lu, University of Western Ontario, Department of Mechanical and Materials Engineering, London, ON, CANADA.

2:30 PM B2.4
INTERFACIAL ADHESION OF POLYMER/METAL INTERFACES IN THREE DIMENSIONAL MICROELECTRONIC STRUCTURES. Chris Litteken, Reinhold Dauskardt, Department of Materials Science and Engineering, Stanford University, Stanford, CA; Guanghai Xu, Tracey Scherban, Logic Technology Development Quality & Reliability, Intel Corp, Hillsboro, OR.

2:45 PM BREAK

3:15 PM *B2.5
NONLINEAR CONTACT-MECHANICAL MEASUREMENTS ON METAL SURFACES USING QUARTZ CRYSTAL RESONATORS. Steffen Berg, Diethelm Johannsmann, Max-Planck-Institute for Polymer Research, Mainz, GERMANY.

3:45 PM B2.6
COMBINATORIAL MEASUREMENTS OF PMMA/ALUMINUM ADHESION. Rui Song, Alfred J. Crosby, Alamgir Karim, Eric J. Amis, NIST, Gaithersburg, MD.

4:00 PM B2.7
DAMAGING OF A SOFT POLYMERIC SUBSTRATE BY CRACK PROPAGATION THROUGH ITS HARD COATING. Matthieu George, Jerome Colin, Christophe Coupeau, Jean Grilhe, Poitiers Univ, Dept of Materials Science, Poitiers, FRANCE.

4:15 PM B2.8
DELAMINATION OF POLYMER FILMS FROM METAL SUBSTRATES: SUBMICROSCOPIC AND MOLECULAR ASPECTS. Michael Rohwerder, Xing-Wen Yu, Herve Ehahoun, Max-Planck-Institute for Iron Research, Duesseldorf, GERMANY.

4:30 PM B2.9
ADHESION PROPERTY OF NOVEL POLYIMIDES CONTAINING FLUORINE AND PHOSPHINE OXIDE MOIETIES. K.U. Jeong, Y.J. Jo, H.M. Kang and T.H. Yoon, Kwangju Institute of Science and Technology, Dept. of Materials Science and Engineering, Kwangju, KOREA.

4:45 PM B2.10
CONJUGATED POLYMER NETWORK ULTRATHIN FILMS ON METAL INTERFACES USING THE PRECURSOR POLYMER APPROACH: SYNTHESIS, IN-SITU CHARACTERIZATION, AND APPLICATIONS. Rigoberto Advincula, University of Houston, Department of Chemistry, Houston, TX, and Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL.

SESSION B3: STRUCTURE, THERMAL AND MECHANICAL PROPERTIES OF INTERFACES
Chair: Evangelos Manias
Tuesday Morning, December 3, 2002
Room 207 (Hynes)

8:30 AM *B3.1
CONTROLLING THE ROUGHNESS OF SOLVENT CAST POLYMER FILMS. Sanat K. Kumar, Department of Materials Science and Engineering, The Pennsylvania State University, University Park, PA.

9:00 AM *B3.2
THE GLASS TRANSITION AND RELAXATION IN THIN POLYMER FILMS. James A. Forrest, Department of Physics, University of Waterloo, Waterloo, Ontario, CANADA.

9:30 AM B3.3
PLASTIC DEFORMATION OF GLASSY POLYMERS: UNIVERSAL CORRELATION BETWEEN SHEAR ACTIVATION VOLUME AND ENTANGLEMENT DENSITY. Janet Ho, Marcel Utz, Institute of Materials Science, University of Connecticut, Storrs, CT; Leon Govaert, Dutch Polymer Institute (DPI), Materials Technology (MaTe), Eindhoven University of Technology, Eindhoven, THE NETHERLANDS.

9:45 AM BREAK

10:15 AM *B3.4
CONFORMATION OF END-ANCHORED CHAINS IN POLYMERIC MATRICES. Spiros H. Anastasiadis, Foundation for Research and Technology-Hellas, Institute of Electronic Structure and Laser, Heraklion Crete, GREECE and University of Crete, Department of Physics, Heraklion Crete, GREECE.

10:45 AM B3.5
RAPID DEFORMATION OF THIN GOLD LAYERS IN POLYMER MATRICES. Kwanwoo Shin, Jaseong Ku, Kwang-Ju Institute of Science and Technology, Kwang Ju, KOREA; Howard Wang, Sushil K. Satija, Charles C. Han and Daniel Josell, NIST, Gaithersburg, MD.

11:00 AM B3.6
INTERFACE MODULATED MORPHOLOGIES IN POLYMER BLEND THIN FILMS. Russell J. Composto, Hyun-joong Chung, University of Pennsylvania, Materials Science and Engineering, Philadelphia, PA; Howard Wang, Polymer Division, NIST, Gaithersburg, MD.

11:15 AM B3.7
PATTERNED DEPOSITION FROM LIQUID CARBON DIOXIDE. Christine K. Luscombe, Wilhelm T.S. Huck, A.B. Holmes, University of Cambridge, Melville Laboratory, Cambridge, UNITED KINGDOM; Bushra Al-Duri, Gary A. Leeke, J. Liu, Regina C.D. Santos, Jonathan P.K. Seville, University of Birmingham, Centre for Formulation Engineering, Birmingham, UNITED KINGDOM. ♣

11:30 AM *B3.8
CONTACT MOLDING TECHNIQUES FOR MICRO AND NANO PATTERNING. Kenneth R. Carter, Craig J. Hawker, David Gemack and Timothy von Werne, IBM Almaden Research Center, NSF Center for Polymeric Interfaces and Macromolecular Assemblies, San Jose, CA.

SESSION B4: INTERFACE ENERGETICS
Chair: George G. Malliaras
Tuesday Afternoon, December 3, 2002
Room 207 (Hynes)

1:30 PM *B4.1
PHOTOELECTRON SPECTROSCOPY OF MATERIALS AND INTERFACES FOR POLYMER-BASED ELECTRONIC DEVICES. W.R. Salaneck, M. Fahlman, Department of Physics, IFM, Linkoping University, Linkoping, SWEDEN.

2:00 PM *B4.2
ENERGY LEVEL ALIGNMENT AT INTERFACES WITH ORGANIC MATERIALS: NEW DATA, BETTER UNDERSTANDING. Weiying Gao, Norbert Koch and Antoine Kahn, Princeton Univ, Dept of Electrical Engineering, Princeton, NJ. ♣

2:30 PM *B4.3
CHARACTERIZATION OF THE INTERFACE DIPOLE AT ORGANIC-METAL INTERFACES. Xavier Crispin, Annica Crispin, William R. Salaneck, Linkoping University, Department of Physics and Measurement Technology, Linkoping, SWEDEN; Victor Geskin, Jerome Cornil, Roberto Lazzaroni, Universite de Mons-Hainaut, Centre de Recherche en Electronique et Photonique Moleculaires, Mons, BELGIUM; Jean-Luc Bredas, University of Arizona, Department of Chemistry, Tucson, AZ.

3:00 PM BREAK

3:30 PM *B4.4
PHOTOEMISSION STUDY OF POLYMER-METAL INTERFACES. S.T. Lee, Center of Super-Diamond and Advanced Films (COSDAF) & Department of Physics and Materials Science, City University of Hong Kong, Hong Kong SAR, CHINA.

4:00 PM *B4.5
ORIENTED GROWTH OF MODEL MOLECULES OF POLYETHYLENE AND POLY(TETRAFLUOROETHYLENE) (n-C44H90 AND n- C24F50) AND ANGLE-RESOLVED UPS STUDY OF THEIR INTRAMOLECULAR ENERGY BAND DISPERSION (E=E(k)) RELATION. Daisuke Yoshimura, T. Miyamae[a], S. Hasegawa[a], Hisao Ishii[b], Yukio Ouchi, Nobuo Ueno[c], Kazuhiko Seki, Res. Center for Mat. Science and Dept. Chemistry, Nagoya Univ., JAPAN; [a]Inst. Mol. Sci.; [b]Res. Inst. Electrocom, Tohoku Univ., JAPAN; [c]Dept. Mat. Tech, Chiba Univ., JAPAN.

4:30 PM *B4.6
ELECTRONIC STRUCTURE AT ANODE-POLYMER INTERFACES IN POLYMER LEDS. Gitti Frey, Ji-Seon Kim, Peter K.H. Ho, Kieran Reynolds and Richard H. Friend, Cavendish Laboratory, University of Cambridge, UNITED KINGDOM.

SESSION B5: INTERFACES IN NANOMATERIALS
Chair: Roya Maboudian
Wednesday Morning, December 4, 2002
Room 207 (Hynes)

8:30 AM *B5.1
COMPOSITE THIN FILMS OF DENDRIMER-ENCAPSULATED METAL NANOPARTICLES AND CONDUCTING POLYMERS. Julio Alvarez, Richard M. Crooks, Texas A&M University, Department of Chemistry, College Station, TX.

9:00 AM B5.2
REAL-TIME IN-PLANE DIFFUSION OF GOLD NANOPARTICLES IN POLYMER THIN FILMS. Suresh Narayanan, Rodney Guico, Dong Ryeol Lee, Jin Wang, Advanced Photon Source, Argonne National Laboratory, Argonne, IL; Alain Gibaud, University de Maine, Le Mans, FRANCE; Sunil Sinha, University of California, San Diego, CA.

9:15 AM B5.3
ELECTRICAL AND MECHANICAL CHARACTERIZATION OF NANOPOROUS LOW-k FILMS AS INTERLAYER DIELECTRIC. Alok Nandini U. Roy, Zubin P. Patel, H. Bakhru, Dept of Physics, University at Albany-SUNY, Albany, NY; A. Mallikarjunan, T.M. Lu, Center for Integrated Electronics and Electronics Manufacturing, Rensselaer Polytechnic Institute, Troy, NY.

9:30 AM B5.4
FORMATION OF SINGLE-WALL CARBON NANOTUBES FORREST ASSEMBLIES ON METAL SURFACES. Fotios Papadimitrakopoulos, Debjit Chattopadhyay, Izabela Galeska, Nanomaterials Optoelectronics Laboratory, Department of Chemistry, Polymer Program, Institute of Materials Science, University of Connecticut, Storrs, CT. ♣

9:45 AM B5.5
EVIDENCE OF NOBLE METAL DIFFUSION IN POLYMERS AT ROOM TEMPERATURE AND ITS RETARDATION BY A CHROMIUM BARRIER. A. Thran, T. Strunskus, V. Zaporojtchenko, and F. Faupel, Lehrstuhl für Materialverbunde, Technische Fakultät der Universität Kiel, Kiel, GERMANY.

10:00 AM BREAK

10:30 AM B5.6
DISPERSION OF NOBLE METAL NANOCLUSTERS IN BISPHENOL-(A)-POLYCARBONATE BY ACETONE VAPOR SORPTION AND CRYSTALLIZATION. Kai Dolgner, Jan Kruse, Krzysztof Koziol, Vladimir Zaporojtchenko, Franz Faupel, Chair for Multicomponent Materials, Faculty of Engineering, Kiel, GERMANY; Shigehito Deki, Department of Chemical Science and Engineering, Kobe, JAPAN.

10:45 AM B5.7
MULTISCALE MOLECULAR DYNAMICS SIMULATION OF THE LIQUID POLYCARBONATE/NICKEL (111) INTERFACE. Cameron F. Abrams, Luigi Delle Site, Kurt Kremer, Max-Planck-Institute for Polymer Research, Mainz, GERMANY.

11:00 AM B5.8
SELF DIFFUSION IN NANO-FILLED POLYMER MELTS: A MOLECULAR DYNAMICS SIMULATION STUDY. T.G. Desai, R.A. Koshy, and P. Keblinski, Material Science and Engineering Department, Rensselaer Polytechnic Institute, Troy, NY.

11:15 AM B5.9
ELECTRONIC CHARACTERISTICS OF SILICON-ORGANIC INTERFACES. Samares Kar, Indian Inst of Technology, Dept of Electrical Engineering, Kanpur, INDIA; Dominique Vuillaume, CNRS, IEMN, Lille, FRANCE.

11:30 AM *B5.10
NEW ADVANCES IN POLYMER NANOCOMPOSITES. Emmanuel P. Giannelis, Cornell University, Dept of Materials Science & Engineering, Ithaca, NY.

SESSION B6: CHARGE INJECTION
Chair: Yang Yang
Wednesday Afternoon, December 4, 2002
Room 207 (Hynes)

1:30 PM *B6.1
CONTACT FORMATION AND INJECTION EFFICIENCY AT METAL-POLYMER AND METAL-MOLECULARLY DOPED POLYMER INTERFACES IN APPLIED ORGANIC PHOTO/ELECTRONIC DEVICES. Andronique Ioannidis, Xerox Corporation, Webster, NY.

2:00 PM B6.2
STUDY OF ELECTRODE-POLYMER INTERFACES IN POLYMER LIGHT-EMITTING DIODES USING ELECTRICAL IMPEDANCE SPECTROSCOPY AND PHOTOVOLTAIC MEASUREMENTS. A. van Dijken, Philips Research, Eindhoven, THE NETHERLANDS; P.W.M. Blom, Materials Science Center, University of Groningen, Groningen, THE NETHERLANDS; I.N. Hulea, H.B. Brom, Kamerlingh Onnes Laboratory, Leiden University, Leiden, THE NETHERLANDS; K. Brunner, Philips Research, Eindhoven, THE NETHERLANDS.

2:15 PM B6.3
INJECTION AND TRANSPORT IN A BLUE-EMITTING COPOLYMER. Rizwan Khan, Alasdair Campbell, Theo Kreouzis, Dmytro Poplavskyy, Donal Bradley, Physics Department, Blackett Laboratory, Imperial College of Science, Technology and Medicine, London, UNITED KINGDOM.

2:30 PM B6.4
POTENTIAL PROFILE SURVAYED DIRECTLY WITH MICROMANIPULATOR WITH PROBING TIP IN Al/POLY(3-ALKYLTHIOPHENE)/Au DIODES. Keiichi Kaneto, Masahiro Nakagawa, Kouichi Rikitake and Wataru Takashima, Kyushu Institute of Technology, Graduate School of Life Science and Systems Engineering, Fukuoka, JAPAN.

2:45 PM B6.5
THE CHARACTERIZATION OF COPPER-DOPED CARBON AEROGELS BY TRANSPORT PROPERTIES MEASUREMENTS. R.W. Fu[a,b], N. Yoshizawa[a,c], Y. Hanzawa[d], K. Kaneko[d], A.P. Santos[a], M.S. Dresselhaus[a], G. Dresselhaus[a], J. Satcher[e], and T. Baumann[e]; [a]Massachusetts Institute of Technology, Cambridge, MA; [b]PCFM Laboratory, Zhongshan University, Guangzhou, CHINA; [c]National Institute of Advanced Industrial Science and Technology, Onogawa, Tsukuba, JAPAN; [d]Department of Chemistry, Faculty of Science, Chiba University, Chiba, JAPAN; [e]Lawrence Livermore National Laboratory, Livermore, CA.

3:00 PM BREAK

3:30 PM *B6.6
HOLE INJECTION INTO LARGE BANDGAP CONJUGATED POLYMERS. Teunis van Woudenbergh, Paul W.M. Blom, Materials Science Centre and DPI, University of Groningen, THE NETHERLANDS.

4:00 PM *B6.7
CHARGE CARRIER INJECTION INTO A DISORDERED ORGANIC DIELECTRIC. V.I. Arkhipov and H. Baessler, Institute of Physical, Nuclear and Macromolecular Chemistry and Material Science Center, Philipps Universitaet Marburg, Marburg, GERMANY; E.V. Emelianova, Semiconductor Physics Laboratory, University of Leuven, Heverlee-Leuven, BELGIUM.

4:30 PM B6.8
MOLECULAR AND INTERFACE "ENGINEERING" OF CURRENT TRANSPORT THROUGH SINGLE MOLECULES: A MICROSCOPIC STUDY. Yongqiang Xue, Mark A. Ratner, Northwestern University, Department of Chemistry and Materials Research Center, Evanston, IL. ♣

4:45 PM B6.9
SCANNING PROBE STUDIES OF ORGANIC SELF-ASSEMBLED MONOLAYERS (SAMs). Weirong Jiang, Alexei Ermakov, Eric Garfunkel, Rutgers-The State University, Department of Chemistry, Piscataway, NJ; David Abusch-Magder, Yueh-Lin Loo, Zhenan Bao, Bell Laboratories, Lucent Technologies, Murray Hill, NJ. ♣

SESSION B7: INTERFACES IN APPLICATIONS - I
Chair: Andronique Ioannidis
Thursday Morning, December 5, 2002
Room 207 (Hynes)

8:30 AM *B7.1
THE CREATION OF NEW ORGANIC ELECTRONIC DEVICES THROUGH METAL/ORGANIC INTERFACE ENGINEERING. Yang Yang, Liping Ma, Qianfei Xu, University of California, Dept of Materials Science and Engineering, Los Angeles, CA.

9:00 AM B7.2
EXPERIMENTAL STUDIES AND PHYSICAL MODEL OF

EFFICIENT, TUNABLE INJECTION USING TUNNEL-TRANSPARENT DIELECTRIC CONTACTS ON POLYMER LIGHT-EMITTING DEVICES. Ludmila Bakueva, Sergei Musikhin, Edward H. Sargent, Alexander Shik, University of Toronto, Toronto, CANADA.

9:15 AM B7.3
p-SEXIPHENYL (6P)/METAL INTERFACES STUDIED BY UPS, MAES AND XPS: HOLE TRAPPING EFFECT OF METAL CLUSTER IN ORGANIC FILM. H. Ishii, Tohoku Univ, Research Institute of Electrical Communication, Sendai, JAPAN; E. Ito, The Institute of Physical and Chemical Research (RIKEN), Wako, JAPAN; H. Oji, Institute for Molecular Science, Okazaki, JAPAN; K. Mizuno, T. Imai, Y. Ouchi, Nagoya Univ, Dept of Chemistry, Graduate School of Science, Nagoya, JAPAN; K. Seki, Nagoya Univ, Research Center for Materials Science, Nagoya, JAPAN.

9:30 AM B7.4
CHEMICAL STRUCTURE OF Al/LiF/MEH-PPV INTERFACE. X.D. Feng, D. Grozea, and Z.H. Lu, Department of Materials Science and Engineering, University of Toronto, Toronto, Ontario, CANADA.

9:45 AM B7.5
Alq_3-BASED ORGANIC LIGHT-EMITTING DEVICES WITH Al/FLUORIDE CATHODE: PERFORMANCE ENHANCEMENT AND INTERFACE ELECTRONIC STRUCTURES. Y. Park, J. Lee, Korea Research Institute of Standards and Science, Daejeon, KOREA; D.Y. Kim, Chemistry and Physics Division, Hallym University, Chunchon, KOREA.

10:00 AM BREAK

10:30 AM *B7.6
LONG-LIVED PHOTOEXCITATIONS IN ELECTRO-LUMINESCENT POLYMERS. Christine Cuppoletti, Lewis Rothberg, Department of Chemistry, University of Rochester, Rochester, NY.

11:00 AM B7.7
MODIFICATION OF CONDUCTING POLYMER THIN FILM INTERFACES USING SELF-ASSEMBLED MONOLAYERS CONTAINING TRANSITION METAL COMPLEXES. David M. Sarno, Sudhindra Prasad, Wayne E. Jones Jr., State University of New York at Binghamton, Department of Chemistry, Institute for Materials Research, and Integrated Electronics and Engineering Center, Binghamton, NY; Luis J. Matienzo, IBM Microelectronics, Endicott, NY.

11:15 AM B7.8
ESTABLISHING RELIABLE ELECTRICAL CONTACT TO MOLECULES BY NANOTRANSFER PRINTING. Yueh-Lin Loo, Julia W.P. Hsu, David V. Lang[a], John A. Rogers, Bell Laboratories, Lucent Technologies, Murray Hill, NJ; [a]Agere Systems, Murray Hill, NJ. ♣

11:30 AM B7.9
STABLE, HIGH MOBILITY ORGANIC FIELD EFFECT TRANSISTORS OPERATING AT AMBIENT CONDITIONS. Janos Veres, Simon Ogier, Stephen Leeming, Beverley Brown, Domenico Cupertino and Soad Khaffaf, AVECIA, Manchester, UNITED KINGDOM.

11:45 AM B7.10
METAL CATHODE PATTERNING FOR ORGANIC LIGHT-EMITTING DIODES. Jungsoo Rhee, J.H. Choi, J.H. Park, Hong H. Lee, Seoul National Univ, School of Chemical Engineering, Seoul, KOREA.

SESSION B8: INTERFACES IN APPLICATIONS - II
Thursday Afternoon, December 5, 2002
Room 207 (Hynes)

1:30 PM *B8.1
DESIGNING THIN FILMS AND INTERFACES FOR ENHANCED DEVICE PERFORMANCE. M.F. Rubner, Department of Materials Science and Enginering, MIT, Cambridge, MA.

2:00 PM *B8.2
SURFACE ENGINEERING FOR RELIABLE OPERATION OF MEMS. Roya Maboudian, Carlo Carraro, Dept. of Chemical Engineering, University of California, Berkeley, CA.

2:30 PM *B8.3
FABRICATION OF MACRO- AND MICRO-SCOPIC PATTERNED METAL FILMS ON PLASTICS: FUNDAMENTALS AND USE IN BIO-MEMS DEVICES. Robin L. McCarley, Bikas Vaidya, and Steven A. Soper, Louisiana State University, Dept. of Chemistry, Baton Rouge, LA.

3:00 PM BREAK

3:30 PM *B8.4
FUZZY POLYMER COATINGS FOR MICROFABRICATED NEURAL PROSTHETIC DEVICES. David C. Martin, Dong-Hwan Kim, Yinghong Xiao, David Lin, Junyan Yang, Mohammad Abidian, and Xinyan Cui, Depts. of Materials Science and Engineering, Biomedical Engineering, and the Macromolecular Science and Engineering Center, The University of Michigan, Ann Arbor, MI.

4:00 PM B8.5
USE OF COLLAGEN TO GROW A PHOTOCATALYTIC FILM ONTO STAINLESS STEEL SUBSTRATE. Mary Ann Seltzer, Gennaro J. Maffia, Widener University, Department of Chemical Engineering, Chester, PA; Sam Speer, Catalyx, Inc., Media, PA.

4:15 PM B8.6
IMPLANT SURFACE MODIFICATION BY BIOLOGICAL MULTI-LAYER SYSTEMS. Regine Willumeit, Helmut Kamusewitz, Michael Schossig, Helmut Clemens, GKSS Research Center, Geesthacht, GERMANY.

4:30 PM B8.7
ADHESION AND DELAMINATION OF PRESSURE SENSITIVE ADHESIVE/EPIDERMIS INTERFACES. Marc B. Taub, and Reinhold H. Dauskardt, Stanford University, Department of Materials Science and Engineering, Stanford, CA.

4:45 PM B8.8
SHEAR MODULATION FORCE MICROSCOPY TO INVESTIGATE MECHANICAL PROPERTIES OF SELF-ASSEMBLED PROTEIN AND LIVING CELLS. Shouren Ge, Jonathan Sokolov, Miriam Rafailovich, SUNY at Stony Brook, Dept of Materials Science and Engineering, Stony Brook, NY; Nadine Pernodet, SUNY at Stony Brook, Bioelectromagnetics Research Laboratory, Stony Brook, NY.

SESSION B9: POSTER SESSION
Thursday Evening, December 5, 2002
8:00 PM
Exhibition Hall D (Hynes)

B9.1
THE BENEFITS OF HIGH K DIELECTRICS FOR POLYMER TFTS. Naser Sedghi, Giles Lloyd, Munira Raja, and Bill Eccleston, Dept of Electrical Engineering and Electronics, The Univ of Liverpool, Liverpool, UNITED KINGDOM; Simon J. Higgins, Dept of Chemistry, The Univ of Liverpool, Liverpool, UNITED KINGDOM.

B9.2
Abstract Withdrawn

B9.3
Abstract Withdrawn

B9.4
UNDERGRADUATE RESEARCH ON ORGANIC LIGHT-EMITTING DIODES: SIMMONS/CCMR MATERIALS SCIENCE PROGRAM. V. Goldberg, M. Kaplan, G. Malliaras, L. Soltzberg, J. Genevich, E. Coombs, E. Giacomozzi, V. Kwasnik, S. Naeem, E. Pham.

B9.5
INJECTION AND TRANSPORT IN DOPED ORGANIC SEMICONDUCTORS. Yulong Shen, Ken Diest, Man Hoi Wong and George G. Malliaras, Department of Materials Science & Engineering, Cornell University; Bing Hsieh, Xerox Corporation; David Dunlap, Department of Physics and Astronomy, University of New Mexico.

B9.6
TRANSPORT IN IODINE DOPED TETRA-METHYL TRIPHENY DIAMINE. Yulong Shen, Ken Diest, George G. Malliaras, Department of Materials Science & Engineering, Cornell University, Ithaca, NY.

B9.7
DEVELOPING CHEMICAL AND BIOLOGICAL SENSORS BASED ON ORGANIC THIN FILM TRANSISTORS. Jeff Mason, Zhengtao Zhu, Trang Nguyen, George Malliaras, Cornell Univ, Dept of Materials Science and Engineering, Ithaca, NY; Antje Baeumner, Cornell Univ, Dept of Biological and Environmental Engineering, Ithaca, NY.

B9.8
DETERMINATION OF PENTACENE THIN-FILM STRUCTURE AND MORPHOLOGY USING X-RAYS AND AFM. Alex Mayer,

George Malliaras, Cornell Univ, Material Science and Engineering, Ithaca, NY; Randy Headrick, Dept of Physics, Univ of Vermont, Burlington, VT; Alexander Kazimirov, Cornell High Energy Synchrotron Source, Ithaca, NY.

B9.9
ORDER IMPROVED MOBILITY IN POLYHEXYLTHIOPHENE BASED FIELD EFFECT TRANSISTORS. Holger Heil, Roland Schmechel, Heinz von Seggern, Institute of Material Science, Darmstadt University of Technology, Darmstadt, GERMANY.

B9.10
OPTOELECTRONIC POLYMERS: SYNTHETIC CHALLENGES. S.S. Newaz, Sudarshan K. Sanduja, Anis Q. Ashraf, Polyorganix, Inc., Houston, TX.

B9.11
SEMICONDUCTING POLYFLUORENES – TOWARDS RELIABLE STRUCTURE-PROPERTY RELATIONSHIPS. Emil J.W. List, Christian Doppler Laboratory Advanced Functional Materials, Institute of Solid State Physics, Graz University of Technology, Graz, AUSTRIA, and Institute of Nanostructured Materials and Photonics, Weiz, AUSTRIA; Roland Guentner, Patricia Scanducci de Freitas, Ullrich Scherf, Institute of Physical Chemistry, University of Potsdam, Golm, GERMANY.

B9.12
DIRECT WRITE POLYMER FIELD EFFECT TRANSISTOR. Mikhail I. Sluch, Robert M. Taylor, Kenneth H. Church, Sciperio, Inc., Stillwater, OK.

B9.13
NEW SURFACE FUNCTIONAL METAL POWDERS FOR ANISOTROPIC CONDUCTIVE FILM MATERIALS IN ELECTRONIC PACKAGE APPLICATION. Shu-Chen Huang, Hsun-Tien Li, Kai-Chi Chen, Tzong-Ming Lee, Industrial Technology Research Institute, Materials Research Laboratories, Hsinchu, TAIWAN.

B9.14
Abstract Withdrawn

B9.15
MICROWAVE CHARACTERIZATION OF ELECTRO-OPTIC POLYMERS. Guru Subramanyam, Prasanna Mathala, Christine Chevalier[†], and Mary Leovich, Dept. of ECE, University of Dayton, Dayton, OH; Antonio Davis, Electro-Optics Program, University of Dayton; Perry Yaney, Electro-Optics and Department of Physics, University of Dayton, Dayton, OH; James Grote, AFRL/MLPS Materials and Manufacturing Directorate, WPAFB, Dayton, OH. [†]Presently employed by Analex Corp, NASA Glenn Research Center, Cleveland, OH.

B9.16
THE ELECTROACTIVE INTERACTION AT THE CONDUCTING POLYMER / METAL INTERFACE. Zhexiong Tang, Robert Clark, Sze C. Yang, Dept of Chemistry, Univ of Rhode Island, Kingston, RI; Richard Brown, Neil Alvarez, Dept of Chemical Engineering, Univ of Rhode Island, Kingston, RI.

B9.17
CURRENT-VOLTAGE STUDIES ON MONOMOLECULAR ORGANIC FILMS. A. Hidalgo, M.S. Tomar, Univeresity of Puerto Rico, Physics Department, Mayaguez, PR.

B9.18
A NOVEL HOLE TRANSPORT MATERIAL FOR LIFETIME IMPROVEMENT AND LITI COLOR PATTERNING OF PLED. Jun Yeob Lee, Jang Kyuk Kwon and Ho Kyoon Chung, Samsung SDI Co. Ltd, Corporate R&D Center, Yong-in, KOREA.

B9.19
AN EQUIVALENT CIRCUIT MODEL OF ELECTRICAL CONDUCTION IN A PARTICULATE POLYMER MATRIX WITH CONDUCTIVE SURFACE ADDITIVES. Vladislav Skorokhod, Xerox Research Centre of Canada, Mississauga, Ontario, CANADA.

B9.20
EFFECT OF METAL ELECTRODES ON THE FERRO- ELECTRIC RESPONSES OF POLY(VINYLIDENE FLUORIDE-TRIFLUOROETHYLENE) COPOLYMER THIN FILMS. Feng Xia, Q.M. Zhang, The Penn State Univ, Materials Research Institute and Dept of Electrical Engineering, University Park, PA.

B9.21
INTERFACE DIPOLES ARISING FROM SELF-ASSEMBLED MONOLAYERS ON GOLD: UV-PHOTOEMISSION STUDIES OF ALKANETHIOLS AND SEMI-FLUORINATED ALKANETHIOLS. Amy L. Graham, Dana M. Alloway, Michael Hofmann, Darrin Smith, V. Wysocki, Randall Lee, Paul A. Lee, Neal R. Armstrong, Department of Chemistry, University of Arizona, Tucson, AZ.

B9.22
INTERFACES BETWEEN METAL ELECTRODES AND PHOTO-ACTIVE POLYMERS STUDIED BY PHOTOELECTRON SPECTROSCOPY. Y.J. Bhandari, K. Demirkan, Z.I. Niazimbetova, A. Menon, S. Vaidynathan, M.E. Galvin, R.L. Opila, University of Delaware, Dept of Materials Science and Engineering, Newark, DE.

B9.23
STUDIES ON THE LOW-k BCB PASSIVATION OF 0.1 UM GAMMA GATE PHEMT'S. Woo-Suk Sul, Hyo-Jong Han, Byeong-Ok Lim, Seong-Dae Lee, Dan An, Jin-Koo Rhee, Millimeter-wave INnovation Technology Research Center (MINT), Dongguk University, Seoul, KOREA.

B9.24
ELECTROLUMINESCENCE PROPERTIES OF SYSTEMATICALLY DERIVATIZED ORGANIC CHROMOPHORES CONTAINING DONOR AND ACCEPTOR GROUPS. Amitava Patra, Michael Pan, Christopher S. Friend, Tzu-C. Lin, Alexander N. Cartwright, and Paras. N. Prasad, Institute for Lasers, Photonics and Biophotonic, Departments of Chemistry and Electrical Engineering, University at Buffalo, The State University of New York, Buffalo, NY; Ryszard Burzynski, Laser Photonics Technology, Inc., Amherst, NY.

B9.25
REFLECTIVE DIFFRACTION GRATING FOR USE IN DISPLAY DEVICES. Pao-Ju Hsieh, Hui-Lung Kuo, Chin-kung Lee, Wen-Jong Chen, Industrial Technology Research Institute, Chutung, TAIWAN.

B9.26
ELECTRICAL PROPERTIES OF FERROELECTRIC VINYLIDENE FLUORIDE OLIGOMER. Kenji Ishida[a,b], Kei Noda[a], Kazuyuki Mochizuki[a], Atsushi Kubono[c], Toshihisa Horiuchi[a], Hirofumi Yamada[a], Kazumi Matsushige[a]; [a]Kyoto University, Dept of Electronic Science and Engineering, Kyoto, JAPAN; [b]Structural Ordering and Physical Properties, PRESTO-JST, JAPAN; [c]Kyoto Institute of Technology, Dept of Polymer Science and Engineering, Kyoto, JAPAN.

B9.27
THE EFFECTS OF ELECTRON BEAM IRRADIATION ON POLY(3-HEXYLTHIOPHENE). Heejoon Ahn, Daniel W. Oblas, James E. Whitten, Dept. of Chemistry and Center for Advanced Materials, The University of Massachusetts Lowell, Lowell, MA.

B9.28
ELECTRONIC STRUCTURE OF MOLECULES RELEVANT TO MOLECULAR ELECTRONIC DEVICES. Nikita Matsunaga, Department of Chemistry and Biochemistry, Long Island University, Brooklyn, NY; Karl Sohlberg, Department of Chemistry, Drexel University, Philadelphia, PA. ♣

B9.29
PHOTOELECTRON SPECTROSCOPY MEASUREMENTS OF THE VALENCE BAND STRUCTURES OF C60 THIN FILMS ON SINGLE CRYSTAL SILICON AND POLYCRYSTALLINE COPPER. B. Ha, J.H. Rhee, Y. Li, D. Singh, and S.C. Sharma, University of Texas-Arlington, Arlington, TX.

B9.30
TEMPERATURE DEPENDENCE OF THE ELECTRICAL CONDUCTIVITY OF POLYMERIZED C60 THIN FILMS ON DIFFERENT SUSTRATES. R. Govinthasamy, J.H. Rhee and S.C. Sharma, University of Texas-Arlington, Arlington, TX.

B9.31
RAMAN SPECTROSCOPY MEASUREMENTS OF INTERFACE EFFECTS IN C60/COPPER-OXIDE/COPPER. Y. Li, J.H. Rhee, D. Singh, and S.C. Sharma, University of Texas at Arlington, Dept of Physics and Materials Science & Engineering Program, Arlington, TX.

B9.32
GATE BIAS MODULATED CURRENT FLOW ANALYSIS AT ORGANIC SEMICONDUCTOR / METAL INTERFACE FOR DEVELOPING HIGH PERFORMANCE ORGANIC FET. Manabu Yoshida, Sei Uemura, Satoshi Hoshino, Takehito Kodzasa, and Toshihide Kamata, Photonics Research Institute, National Institute of Advanced Industrial Science and Technology, Ibaraki, JAPAN.

B9.33
ELECTROPHYSICAL PROPERTIES OF THE POLYMERS WITH THE IMPLANTED AMORPHOUS SINGLE-COMPONENT METALS. R. Malkhasyan, R. Krmoyan, V. Kosyan, Scientific Production Enterprise "ATOM", Yerevan, REPUBLIC OF ARMENIA.

B9.34
TO GROW POLYMERIC CHIRAL SURFACES ON SOLID SUBSTRATES VIA SOLVENTLESS POLYMERIZATION. Degang Fu, Hongwei Gu, Bing Xu, Department of Chemistry, Hong Kong University of Science & Technology, Kowloon, Hong Kong (SAR), CHINA.

B9.35
Zr-PENDENT POLYIMIDE CARBON/GLASS COMPOSITES AND THEIR PROPERTY COMPARISONS WITH THE CORRESPONDING NON PENDENT POLYIMIDE COMPOSITES. Sangeeta Nangia, Department of Materials Science and Engineering, RIT, Rochester, NY; Marvin Illingsworth, Department of Chemistry, RIT, Rochester, NY.

B9.36
WASTE DISPOSAL WITH ELECTROGRAFTED POLYMERS. Pascal Viel, Serge Palacin, CEA-Saclay, DSM/DRECAM/SPCSI, Gif-sur-Yvette, FRANCE; Francis Descours, Alchimer SA, Orsay, FRANCE; Franck LeDerf, Joël Lyskawa, IMMO, University of Angers, Angers, FRANCE.

B9.37
NICKEL PLATED POLYMER/COLLOID MICROARRAYS VIA POLYMER-ON-POLYMER STAMPING. Haipeng Zheng, Michael F. Rubner, Paula T. Hammond, Department of Chemical Engineering and Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA.

B9.38
"MOLECULES-BY-MOLECULE" DEPOSITION (MMD) FOR THE FORMATION OF POLYMERIC FILMS ON THE AIR/WATER INTERFACE. Hongwei Gu, Bing Xu, Department of Chemistry, Hong Kong University of Science & Technology, Kowloon, Hong Kong (SAR), CHINA.

B9.39
SELF-REPAIR (OR SELF-POLISHING) OF POLYMERIC SURFACE DURING SOLVENTLESS POLYMERIZATION IN CONFINEMENT. Hongwei Gu, Bing Xu, Department of Chemistry, Hong Kong University of Science & Technology, Hong Kong (SAR), CHINA.

B9.40
DIRECT-WRITE POLYMER DIODES. Mikhail I. Sluch, Robert L. Parkhill, Robert M. Taylor, Kenneth H. Church, Sciperio Inc., Stillwater, OK.

B9.41
STUDY OF SELF-ASSEMBLED MONOLAYERS USING PLANAR ARRAY INFRARED (PA-IR) SPECTROSCOPY. Yujuan Liu, Anand Kamalbur, John D. Rabolt, Univ. of Delaware, Dept. of Materials Science and Engineering, Newark, DE; Douglas L. Elmore, Memphis Analytical Technology Center, Cargill, Cordova, TN; D. Bruce Chase, Central Research and Development, DuPont Experimental Station, Wilmington, DE.

B9.42
A BIOCOMPATIBLE STUDY OF CHRONIC IMPLANTS FOR ELECTRICAL STIMULATION AND CHEMICAL DRUG DELIVERY. Claudine A. Jaboro, Alexander L. Lagman, Mona R. Safadi, Gregory W. Auner, Department of Electrical and Computer Engineering/Biomedical Engineering, Wayne State University, Detroit, MI; Gary Abrams, Raymond Iezzi, Pat McAllister, School of Medicine, Kresge Eye Institute, Department on Neurosurgery, Ligon Center for Vision, Wayne State University, Detroit, MI; Ratna Naik, Daad Haddad, Department of Physics, Wayne State University, Detroit, MI; Vaman M. Naik, Department of Natural Sciences, University of Michigan-Dearborn, Dearborn, MI; Tiffany Walraven, Wayne State University School of Medicine.

B9.43
Abstract Withdrawn

B9.44
RAMAN SPECTROSCOPY MEASUREMENTS OF PRESSURE-INDUCED POLYMERIZATION OF C60. D. Singh, Y. Li, and S.C. Sharma, University of Texas-Arlington, Arlington, TX.

B9.45
FABRICATION AND CHARACTERIZATION OF TUNABLE MAGNETIC NANOCOMPOSITE MATERIALS. M. Dikeakos[a], L.D. Tung[b], T. Veres[a], A. Stancu[c], L. Spinu[d], and F. Normandin[a]; [a]IMI-National Research Council Canada, Boucherville, Quebec, CANADA; [b]AMRI, University of New Orleans, New Orleans, LA; [c]Faculty of Physics, Al. I. Cuza University, Iasi, ROMANIA; [d]AMRI, Dept. of Physics, University of New Orleans, New Orleans, LA.

B9.46
COMB-LIKE POLYMER THIN FILMS PREPARED BY IONIZATION-ASSISTED DEPOSITION OF ACRYLATE COMPOUNDS. Hiroaki Usui, Takahiro Katayama, Takanobu Honda and Kuniaki Tanaka, Dept Material Systems Engineering, Tokyo University of Agriculture and Technology, Koganei, Tokyo, JAPAN.

B9.47
BLOOD COMPATIBILITY OF METAL OXIDE LAYERS ON STAINLESS-STEEL. Kanji Tsuru, Shinji Takemoto, Tatsuhiro Yamamoto, Satoshi Hayakawa and Akiyoshi Osaka, Biomaterials Laboratory, Faculty of Engineering, Okayama University, Okayama, JAPAN; Seisuke Takashima, Co-Operative Reserch Center, Okayama University, Okayama, JAPAN.

B9.48
BLOOD COMPATIBILITY OF STAINLESS-STEEL AND TITANIUM IMMOBILIZED WITH ALGINIC ACID LAYERS. Tomohiko Yoshioka, Kanji Tsuru, Satoshi Hayakawa, and Akiyoshi Osaka, Biomaterials Laboratory, Faculty of Engineering, Okayama University, Tsushima, Okayama, JAPAN.

B9.49
CHARACTERISTICS OF Cu/C FILMS ON POLYMERSUB-STRATE PREPARED BY ROOM TEMPERATURE ECR-MOVCD COUPLED WITH PERIODIC DC BIAS. Joong Kee Lee, Hyungduk Ko, Jin Hyun, Dongjin Byun, Byung Won Cho and Dalkeun Park, Eco Nano Research Center, Korea Institute of Science and Technology, Seoul, KOREA.

B9.50
SINGLE-STEP PHOTOFABRICATION OF KINOFORMS IN USE OF AZOBENZENE-CONTAINING POLYMER FILMS. Shin Yasuda, Jiro Minabe, Katsunori Kawano, and Tatsuya Maruyama, Fuji Xerox Co., Ltd., Corporate Research Center, Kanagawa, JAPAN; Hidenori Yamada, Fuji Xerox Co., Ltd., New Business Center, Kanagawa, JAPAN.

B9.51
THE NANOMECHANICAL EFFECT OF DENDRIMER INTERLAYERS UNDERNEATH Cu FILMS. Junyan Zhang, Shane Street, Center for Materials for Information Technology and Chemistry Department, University of Alabama, Tuscaloosa, AL.

B9.52
SELF-ASSEMBLED MONOLAYERS ON SiO_2 PRESENTING A MIXTURE OF REACTIVE AND INERT OLIGO(ETHYLENE GLYCOL) GROUPS FOR THE SELECTIVE IMMOBILIZATION OF BIOMOLECULES TO SURFACES. Jiehyun Seong, Seok-Won Lee, Paul E. Laibinis, Massachusetts Institute of Technology, Dept of Chemical Engineering, Cambridge, MA.

B9.53
GENETICALLY ENGINEERED GOLD-BINDING POLYPEPTIDES: STRUCTURE PREDICTION AND MOLECULAR DYNAMICS. Rosemary Braun[a], Daniel Heidel, Klaus Schulten[a], and Mehmet Sarikaya, [a]Beckman Institute and Department of Physics, University of Illinois, Urbana, IL, and Materials Science & Engineering, University of Washington, Seattle, WA.

B9.54
P-TYPE DOPING OF HOLE TRANSPORT MOLECULAR FILMS. Weiying Gao, Antoine Kahn, Princeton Univ, Dept of Electrical Engineering, Princeton, NJ.

B9.55
CHARACTERIZATION OF POLYMERIC LOW-K MATERIALS DESIGNED FOR LOW-K INTERMETAL DIELECTRIC APPLICATION. M. Dobler, B. Spill, Leica Microsystems Semiconductor, Wetzlar, GERMANY; M. Uhlig, T. Gessner, Chemnitz University of Technology, GERMANY.

B9.56
CHARGE INDUCED QUENCHING OF EXCITED STATES IN ORGANIC ELECTROLUMINESCENT DEVICES. Terri L. Haskins,

Arabinda Chowdhury, Ralph H. Young, Lewis J. Rothberg, University of Rochester, Rochester, NY; Jerome Lenhard, Eastman Kodak Company, Rochester, NY.

B9.57
ORGANIC/INORGANIC HYBRID MATERIAL FOR COATING ON METALS. Hui Wan, Ping Ren, Yue Ma, Zhexiong Tang, Sze C. Yang, Dept of Chemistry, Univ of Rhode Island, Kingston, RI.

B9.58
FLUORENONE DEFECT IN POLYFLUORENE AND BLUE COLOR FROM POLYFLUORENE BASED LIGHT-EMITTING DIODES. Xiong Gong, Parameswar K. Iyer, Guillermo C. Bazan, Daniel Moses, and Alan J. Heeger, Institute for Polymer and Organic Solids, University of California at Santa Barbara, Santa Barbara, CA.

B9.59
A TFT STRATEGY FOR POLYMER CIRCUITS. Bill Eccleston, Naser Sedghi, Munira Raja, and Giles Lloyd, Dept of Electrical Engineering and Electronics, The Univ of Liverpool, Liverpool, UNITED KINGDOM; Simon J. Higgins, Dept of Chemistry, The Univ of Liverpool, Liverpool, UNITED KINGDOM; Diederik B.A. Rep, Dept of Applied Physics, Delft Univ of Technology, Delft, NETHERLANDS.

B9.60
THE EFFECT OF INTERFACIAL CHEMISTRY ON METAL IONIC PENETRATION INTO POLYMERIC FILMS. A. Mallikarjunan, G.-R. Yang, S.P. Murarka, and T.-M. Lu, Center for Integrated Electronics, Rensselaer Polytechnic Institute, Troy, NY.

B9.61
ELECTROCHEMICAL DEPOSITION AND CHARACTERIZATION OF POLY(3,4-ETHYLENEDIOXYTHIOPHENE) AND ITS DERIVATIVE ON MICROMACHINED NEURAL PROBES. Yinghong Xiao, Xinyan Cui, David C. Martin, The University of Michigan, Department of Materials Science and Engineering and Macromolecular Science and Engineering, Ann Arbor, MI.

B9.62
HIGHLY TUNABLE NANOENGINEERED POLYELECTROLYTE MULTILAYER ANTI-REFLECTION COATINGS. Jeri'Ann Hiller, Jonas D. Mendelsohn, Michael F. Rubner, Massachusetts Institute of Technology, Department of Materials Science and Engineering, Cambridge, MA.

B9.63
CORRELATING SUBSTITUENT PARAMETERS TO PROPERTIES DESIRABLE FOR THE FABRICATION OF MOLECULAR ELECTRONIC DEVICES. Natalie Carroll, Drexel Univ, Dept of Chemistry, Philadelphia, PA; Nikita Matsunaga, Long Island Univ, Department of Chemistry and Biochemistry, Brooklyn, NY; Karl Sohlberg, Drexel Univ, Dept of Chemistry, Philadelphia, PA. ♣

B9.64
VIBRATIONAL MICROSCOPY/SPECTROSCOPY AND STM-MANIPULATION OF SINGLE SEXI-PHENYL MOLECULES. Saw-Wai Hla, Nanoscale & Quantum Phenomena Institute, Dept of Physics & Astronomy, Ohio University, Athens, OH; Kai-Felix Braun, Karl-Heinz Rieder, Freie Universitaet Berlin, GERMANY. ♣

B9.65
HIGHLY-SENSITIVE TASTE SENSORS USING NANOSTRUCTURED FILMS: USING INFORMATION VISUALISATION TO OPTIMISE COMBINATIONS OF MATERIALS FOR THE SENSOR ARRAY. Almir Olivetti Arteiro, Alexandre Gomes de Siqueira, Cristina Ferreira de Oliveira, Instituto de Cincias Matematicas e de Computacao, USP, São Carlos, São Paulo, BRAZIL; Antonio Riul Jr, Luiz Henrique Capparelli Mattoso, EMBRAPA Instrumentano Agropecuaria, São Carlos, São Paulo, BRAZIL; Osvaldo Novais de Oliveira Jr, Instituto de Fisica de São Carlos, USP, São Carlos, São Paulo, BRAZIL.

B9.66
INVESTIGATION OF THE USE OF SMAS IN COMPOSITE MATERIALS. Shivananda P. Mizar, Ryszard J. Pryputniewicz, Mechanical Engineering Department/CHSLT-NEST, Worcester Polytechnic Institute, Worcester, MA.

B9.67
BUCKLING INSTABILITIES OF THIN CAP LAYERS DEPOSITED ONTO LOW-k DIELECTRIC FILMS. F. Iacopi[a], S.H. Brongersma, K. Maex[a], IMEC, Leuven, BELGIUM; [a]also at E.E. Dept., Katholieke Universiteit Leuven, BELGIUM; T.J. Abell, affiliate at IMEC from Intel Corp., Santa Clara, CA.

B9.68
ORDERING IN BUCKLING OF METAL FILMS ON POLYMERS. Piljin Yoo, S.Y. Park, S.M. Seo, Hong H. Lee, Seoul National University, School of Chemical Engineering, Seoul, KOREA.

SESSION B10: INTERFACES IN BIOLOGICAL MATERIALS
Chair: Robert M. Corn
Friday Morning, December 6, 2002
Room 207 (Hynes)

8:30 AM *B10.1
ELECTROCHEMICAL REAGENTLESS DETECTION BASED ON ENGINEERED PROTEIN SCAFFOLDS AND REDOX PEPTIDES. Harold Goldston, Sulay Jhaveri, J. Mathew Mauro, Leonard Tender, Scott Trammell, Center for Bio/Molecular Science and Engineering, Naval Research Laboratory, Washington, DC; Stephanie Fertig, Alicia Scribner, Nova Research, Inc, Alexandria, VA.

9:00 AM *B10.2
HYBRIDIZATION AND DENATURATION OF DNA HYBRIDS AT METAL ELECTRODE SURFACES STUDIED BY SPR AND FLUORESCENCE METHODS. Rosina M. Georgiadis, Jian Wang, Lauren K. Wolf, Alexander W. Peterson, Boston University, Dept of Chemistry, Boston, MA.

9:30 AM *B10.3
THE INTERACTION OF DNA WITH GOLD SURFACES CHARACTERIZED BY XPS AND FT-IR. D.Y. Petrovykh[a], H. Kimura-Suda[b], M.J. Tarlov[b], L.J. Whitman[a], Physics Dept., Univ. of Maryland, College Park, MD; [a]Naval Research Laboratory, Washington, DC; [b]National Institute of Standards and Technology, Gaithersburg, MD.

10:00 AM BREAK

10:30 AM *B10.4
MECHANICAL PROPERTIES OF BIOPOLYMERS IMMOBILIZED ONTO A METAL SURFACE. Lawrence A. Bottomley, Mark A. Poggi, Georgia Institute of Technology, School of Chemistry and Biochemistry, Atlanta, GA; Jaimie Anderson, Vincent Conticello, Emory University, Dept of Chemistry, Atlanta, GA; Peter T. Lillehei, NASA Langley Research Center, Advanced Materials and Processing Branch, Hampton, VA.

11:00 AM B10.5
SPR IMAGING MEASUREMENTS OF PROTEIN ADSORPTION ONTO DNA, PEPTIDE, AND CARBOHYDRATE MICROARRAYS. Emily A. Smith, Greta J. Wegner, Hye Jin Lee, Robert M. Corn, University of Wisconsin, Dept. of Chemistry, Madison, WI.

11:15 AM B10.6
POLYETHER-GRAFTED POLY(ACRYLIC ACID) THIN FILMS ON SiO_2 SURFACES FORMED BY CHEMISORPTION AND THEIR PROTEIN-RESISTANT CHARACTERISTICS. Jiehyun Seong, Hyun-Goo Choi, Geoffrey D. Moeser, T. Alan Hatton, William H. Green Jr., Paul E. Laibinis, Massachusetts Institute of Technology, Dept of Chemical Engineering, Cambridge, MA.

11:30 AM B10.7
BIOMIMETIC DEXTRAN COATINGS ON SILICON WAFERS: THIN FILM PROPERTIES AND WETTING. Michela Ombelli[a], Russell J. Composto[b] and David M. Eckmann[c]; [a]Department of Chemistry, University of Perugia, Perugia, ITALY; [b]Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA; [c]Department of Anesthesia and The Institute for Medicine and Engineering, University of Pennsylvania, Philadelphia, PA.

11:45 AM B10.8
BIOPOLYMER – RARE EARTH LAYERED COMPOSITES . Terry Haas, Tufts University, Department of Chemistry; Regina Valluzzi, Tufts University, Department of Chemical and Biological Engineering; Robert P. Guertin, Peggy Cebe, Tufts University, Department of Physics, Medford, MA.