



E-MRS 2007 Spring Meeting
Strasbourg, France - May 28th to June 1st, 2007

SYMPOSIUM E

Probing electronic processes at organic semiconductor junctions

Symposium Organizers:

Carlos SILVA, Université de Montréal (Québec), Canada

Natalie STINGELIN-STUTZMANN, Queen Mary University of London, UK

Albert P. H. J. SCHENNING, Technical University Eindhoven, The Netherlands

Lukas BURGI, Centre Suisse d'Electronique et de Microtechnique SA, Zürich, Switzerland

Symposium Partners:

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**nature
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The journal Nature Materials has kindly offered prizes for the two best posters of this symposium presented by students.



Monday, May 28, 2007

Organic Charge Transport Systems: Molecular Design and Architecture : Frank Würthner

- E-1 1 14:00 **Solution Processable Thienothiophene semiconducting polymers**
Iain McCulloch, Clare Bailey, Martin Heaney, Maxim Shkunov, Rick Hamilton, David Sparrowe, Steve Tierney, Merck Chemicals, Chilworth Science Park, Southampton, UK Michael Chabinyc Palo Alto Research Center, Palo Alto, CA, USA R. Joseph Kline, Dean DeLongchamp National Institute of Standards and Technology, Gaithersburg, MD 20899
- E-1 2 14:30 **Tailoring Nanocomposite Structure and Interfaces for Optoelectronic Applications**
Gitti L. Frey Department of Materials Engineering, Technion – Israel Institute of Technology, Haifa 32000, Israel
- E-1 3 15:00 **Leveraging Structure – Property Relationships to Advance Plexcore™ technology for OLED displays and lighting**
Shawn Williams, Ph.D. VP, Technology Plextronics
- E-1 4 15:15 **Improved stability and colour tuning of solid state light emitting electrochemical cells**
Henk J. Bolink,(*,a) Luca Cappelli,(a) Eugenio Coronado,(a) Michael Grätzel,(b) Enrique Ortí,(a) Ruben D. Costa,(a) Pedro M. Viruela,(a) and Md. K. Nazeeruddin,(b) a) Institute of Molecular Science, University of Valencia, PO Box 22085, ES-46071 Valencia, Spain, and b) Laboratory for Photonics and Interfaces, Ecole Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland
- E-1 5 15:30 **First principle prediction of photoluminescence of ionic iridium complexes**
R. Terki, L.-P. Simoneau and A. Rochefort Ecole Polytechnique de Montréal, Engineering Physics Department and Regroupement sur les matériaux de pointe (RQMP), C. P. 6079, Succ., centre-ville, Montréal, Qué., Canada H3C 3A7
- 15:45 break**

Organic Charge Transport Systems: Molecular Design and Architecture : Ian McCulloch

- E-2 1 16:15 **Electronic Processes in Molecular and Supramolecular Materials Based on Perylene Bisimide Dyes**
Frank Würthner Institut für Organische Chemie, Universität Würzburg, 97074 Würzburg, Germany
- E-2 2 16:45 **INTRAMOLECULAR CHARGE TRANSFER AND TRIPLET FORMATION IN COVALENTLY LINKED, COFACIALLY STACKED PERYLENE-DIIMIDES**
D. Veldman (1), S. Chopin (1), R.M. Williams (2), S.C.J. Meskers (1) and R.A.J. Janssen (1) (1) Molecular Materials and Nanosystems, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands, (2) Faculty of Science, University of Amsterdam, Nieuwe Achtergracht 166, 1018 WV Amsterdam, The Netherlands.
- E-2 3 17:00 **Synthesis and current rectification in donor-acceptor diads: from small molecules to asymmetric carbon nanotubes.**
Dmitrii F. Perepichka Department of Chemistry, McGill University , H3A 2K6, Montreal, CANADA
- E-2 4 17:15 **Efficient thin-film organic solar cells using low-band-gap oligothiophenes: Investigation of heterojunctions with tailored energy level alignment using photoinduced cation and triplet absorption**
K. Schmidt (1), R. Schueppel (2), C. Uhrich (2), K. Schulze (2), D. Wynands (2), J. L. Brédas (1), B. Maennig (2), M. Pfeiffer (3), K. Leo (2), E. Brier (4), E. Reinold (4), P. Baeuerle (4) (1) School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, Georgia, USA (2) Institut für Angewandte Photophysik, Technische Universität Dresden, Germany (3) Heliatek GmbH Dresden, Germany (4) Institut für Organische Chemie II und Neue Materialien, Universität Ulm, Germany
- E-2 5 17:30 **Solvent vapour processing of polythiophene:fullerene blend films and real time in-situ optical probing of induced morphological changes**
Toby Ferenczi [1], Mariano Campoy-Quiles [1], Tiziano Agostinelli [1,2], Jenny Nelson [1] and Donal D. C. Bradley [1] [1] Department of Physics, Imperial College London, London, UK [2] Politecnico di Milano, Milan, Italy

Tuesday, May 29, 2007

Charge Injection in Organic Charge Transport Systems : Bert de Boer

- E-3 1 09:15 **Charge Injection and Transport in Conjugated Polymers**
Hon Hang Fong, Alexios Papadimitratos, and George Malliaras Materials Science and Engineering, Cornell Univesrity, Ithaca, NY, USA
- E-3 2 09:45 **Improving charge injection in organic thin-film transistors with thiol-based self-assembled monolayers**
Patrick Marmont, Nicolas Battaglini, Philippe Lang, Gilles Horowitz ITODYS, Université Paris Diderot, 1 rue Guy de la Brosse, 75005 Paris, France
- E-3 3 10:00 **Improved Interface Properties and Device Characteristics of p-type & n-type Organic Semiconductor Films on Sol-Gel Silica as Gate Dielectric**
T. Cahyadi, S. G. Mhaisalkar School of Materials Science and Engineering, Nanyang Technological University, Singapore, Block N4.1, Nanyang Avenue, Singapore 639798 Z. -K. Chen, Institute of Materials Research and Engineering, 3 Research Link, Singapore 117602 C. M. Ng Chartered Semiconductor Manufacturing Ltd., 60 Woodlands, Industrial Park D, Street 2, Singapore 738406
- E-3 4 10:15 **Memory Effect in Organic Diodes containing Self-assembled Gold Nanoparticles**
R. Izquierdo Département d'informatique, Université du Québec à Montréal, Case postale 8888, Succursale Centre-ville, Montréal, Québec, H3C 3P8, Canada H.P. Wang and R. Martel Regroupement Québécois sur les Matériaux de Pointe et département de Chimie, University of Montréal, C.P. 6128 Succursale Centre-ville, Montréal, Québec, H3T 1J4, Canada S. Pigeon, OLA Display Corp., Thin films and micromachining laboratory, 1000 St-Antoine Ouest, suite 106, Montréal, Québec, H3C 3R7, Canada.
- E-3 5 10:30 **Varying the chemical nature and physical structure of the semiconductor-contact and semiconductor-insulator interfaces in polymer thin film transistors and its impact on device performance**
Alasdair Campbell (a), Ruth Rawcliffe (a), Monika Voigt (a), Jingsong Huang (a), Donal Bradley (a), Saghar Khodabakhsh (b), Tim Jones (b), Fanshun Meng (b), Joachim Steinke (b), Maxim Shkunov (c), Martin Heeney (c), Steve Tierney (c), Iain McCulloch (c) (a) Department of Physics, Imperial College London, UK (b) Department of Physics, Imperial College London, UK (c) Merck Chemicals, Southampton, UK
- 10:45 break**
- Charge Injection in Organic Transport Systems : George Malliaras**
- E-4 1 11:15 **Probing Electronic and Chemical Processes at the Organic-Nanotube Interface**
M. Paillet and R. Martel Regroupement Québécois sur les Matériaux de Pointes (RQMP) et Département de Chimie, Université de Montréal, Québec, H3T 1J4, Canada
- E-4 2 11:45 **Interface states analysis from capacitance-voltage characteristics in organic light-emitting diodes varying cathode metal**
Germà Garcia-Belmonte, Eva M. Barea, José M. Montero and Juan Bisquert Dept. de Física, Universitat Jaume I, E-12071 Castelló, SPAIN Henk J. Bolink, Institut de Ciència Molecular, Universitat de València, Polígon La Coma s/n, E-46980, Paterna, València, SPAIN
- E-4 3 12:00 **Structural imperfections in pentacene thin films: from growth thermodynamics to electronic defects**
Stijn Verlaak, Cédric Rolin and Paul Heremans Polymer and Molecular Electronics, IMEC, Kapeldreef 75, 3001 Leuven, Belgium
- E-4 4 12:15 **Surface Composition of Poly(3,4-ethylene dioxithiophene)-Poly(styrene sulfonate) Blends crosslinked with glycerol before and after Heat Treatment**
Ana B. Rodriguez¹, Simon J. Martin¹, David G. Lidzey¹, Monika Voigt², Robert Dalgliesh³, and Mark Geoghegan¹ 1 University of Sheffield. Department of Physics and Astronomy. Hounsfield Road. Sheffield S3 7RH.. UK 2 Imperial College, Physics Department. South Kensington Campus. London, SW7 2AZ. UK 3 Rutherford-Appleton Laboratory, Chilton. Didcot. OX11 0QX. UK
- 12:30 Lunch**
- Charge Injection in Organic Transport Systems : Richard Martel**
- E-5 1 14:15 **Self-Assembled Monolayers in Organic Diodes**
Bert de Boer Materials Science Centre/ University of Groningen Nijenborgh 4, NL-9747AG, Groningen, The Netherlands
- E-5 2 14:45 **Analysis of the interaction between the Pentacene film and Oxygen using Raman spectroscopy and electrical measurement**
G. Das¹, F. De Angelis¹, S. Cipolloni², D. Simeone², L. Mariucci², G. Fortunato², E. Di Fabrizio¹ 1 Dipartimento di Medicina Sperimentale e clinica. Università della Magna Graecia di Catanzaro. 2 Insitute of Photonics and Nanotechnology. CNR Rome
- E-5 3 15:00 **Modification of source and drain contacts by SAMs to tune the charge injection in OFETs**
Kamal Asadi, Fatemeh Gholamrezaie, Edsger. C. P. Smits, Paul W. M. Blom and Bert de Boer Molecular Electronics, Materials Science Centre, University of Groningen, Nijenborgh 4, NL-9747AG, Groningen, The Netherlands
- E-5 4 15:15 **Metal-Organic Interfaces: Self-Assembled Monolayers of Conjugated Molecules on Noble Metals as Prototypical Examples.**
Georg Heimel,¹ Lorenz Romaner,² Jean-Luc Bredas,¹ and Egbert Zojer ² 1 School of Chemistry and Biochemistry and Center for Organic Photonics and Electronics, Georgia Institute of Technology, Atlanta, Georgia 30332-0400. 2 Institut fuer Festkoerperphysik, Technische Universitaet Graz, Petersgasse 16, A-8010 Graz, Austria.
- 15:30 break**

Symposium E

Charge Injection in Organic Transport Systems, Part 1 : John Grey

- E-6 1 16:00 **Conjugated polymers: electronic interactions and delocalization across the molecular interface**
Laura Herz University of Oxford, Clarendon Laboratory, Parks Road, Oxford, OX1 3PU, UK.
- E-6 2 16:30 **Optoelectronic Devices with Defined Polymer-Polymer Heterojunctions**
Dieter Neher, Chunhong Yin, Xiaohui Yang, Björn Pieper, Burkhard Stiller University of Potsdam, Institute of Physics, Am Neuen Palais 10, 14469 Potsdam, Germany Thomas Kietzke Institute of Materials Research and Engineering (IMRE), Research Link 3, 117602 Singapore Hans-Heinrich Hörhold University of Jena, Institute of Organic Chemistry and Macromolecular Chemistry, Humboldtstr. 10, 07743 Jena, Germany
- E-6 3 16:45 **Interfacial dipole layer formation - integer charge transfer model**
W. Osikowicz, S. Braun, M. P. de Jong, M. Fahlman and W. R. Salaneck Department of Physics, Chemistry and Biology, Linköping University, 58183 Linköping, Sweden
- E-6 4 17:00 **Dark and light-induced bias stress in pentacene field-effect transistors by charge trapping at the organic semiconductor/gate dielectric interface**
M. Debucquoy (1,2), S. Verlaak (1), J. Genoe (1) and P. Heremans (1,2) (1) IMEC, SOLO/PME, Kapeldreef 75, B-3001 Leuven, Belgium (2) Katholieke Universiteit Leuven, ESAT/INSYS, Kasteelpark Arenberg 10, B-3001 Leuven, Belgium
- 6 5 17:15 **Kelvin Probe Force Microscopy nanoscale insights into charge generation and transfer in electron acceptor/donor blends based on multi-chromophoric arrays**
Vincenzo Palermo,^a Andrea Liscio,^a Giovanna De Luca,^a Desiree Gentilini,^b Matthijs B.J. Otten,^c René A.J. Janssen,^d Klaus Müllen,^e Roeland J.M. Nolte,^c Alan E. Rowan,^c Paolo Samorì ^{a,b} a Istituto per la Sintesi Organica e la Fotoreattività - Consiglio Nazionale delle Ricerche Via Gobetti 101, 40129 Bologna, Italy. b Nanochemistry Laboratory, Institut de Science et d'Ingénierie Supramoléculaires (ISIS), Université Louis Pasteur, 8, allée Gaspard Monge, F-67083 Strasbourg (France) c Institute for Molecules and Materials Radboud University Nijmegen, Toernooiveld 1, 6525 ED, Nijmegen (The Netherlands) d Laboratory of Macromolecular and Organic Chemistry, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven (The Netherlands) e Max-Planck Institute for Polymer Research, Ackermannweg 10, D-55124 Mainz (Germany)

Wednesday, May 30, 2007**08:30 EMRS PLENARY SESSION****12:30 Lunch****Intermolecular Electronic Coupling Effects, Part 2 : Laura Herz**

- E-7 1 14:00 **Understanding Energy and Charge Transfer in Conjugated Polymers Using Single Molecule Spectroscopy**
John K. Grey, Doo Young Kim, William L. Miller, Rodrigo Palacios, Allen J. Bard, Paul F. Barbara
- E-7 2 14:30 **The role of intermolecular coupling in the photophysics of regio-regular poly(3-hexylthiophene)**
Jenny Clark, University of Cambridge, UK Carlos Silva, Université de Montréal, Canada Richard H. Friend, University of Cambridge, UK Frank C. Spano, Temple University, Philadelphia, USA
- E-7 3 14:45 **Scanning probe microscopy on operational organic solar cells**
Klara Maturova, Martijn Kemerink, and René A.J. Janssen Dept. of Applied Physics, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands
- E-7 4 15:00 **Nano-scale electrical characterization of bulk heterojunction polymer solar cells by means of Electrostatic Force Microscopy and Conductive AFM**
A. Swinnen¹, A. Volodin², M. P. Chowdhury², O. Douhéret³, M. D'Olieslaeger^{1,3}, J. Manca^{1,3}, C. Van Haesendonck²
¹ Institute for Materials Research, Hasselt University, Wetenschapspark 1, BE-3590 Diepenbeek, Belgium ² Laboratory of Solid-State Physics and Magnetism, Katholieke Universiteit Leuven, Celestijnenlaan 200 D, BE-3001 Leuven, Belgium ³ IMEC vzw, division IMOMECE, Wetenschapspark 1, BE-3590 Diepenbeek, Belgium
- E-7 5 15:15 **Exciplex formation, charge separation, and recombination in bulk hetero-junction blend films of a polyfluorene polymer and a soluble silole derivative**
Jessica J. Benson-Smith, Joanne S. Wilson, Donal D. C. Bradley and Jenny Nelson Department of Physics, Imperial College London, London SW7 2BW, United Kingdom.

15:30 Break**Charge Photogeneration at Heterojunctions : Laurens Siebbeles**

- E-8 1 16:00 **Scanning Probe Microscopy of Organic Heterojunctions in Polymer Solar Cells**
David C. Coffey, Obadiah G. Reid, Liam S. C. Pingree, David S. Ginger*, Department of Chemistry, University of Washington, Seattle, 98195-1700, U.S.A.
- E-8 2 16:30 **ELECTRON-HOLE RECOMBINATION IN ORGANIC BULK-HETEROJUNCTION SOLAR CELLS STUDIED WITH PHOTOINDUCED ABSORPTION SPECTROSCOPY, TIME-DELAYED COLLECTION AND MONTE-CARLO SIMULATIONS.**
Ton Offermans, Stefan C. J. Meskers, and René A. J. Janssen Molecular Materials and Nanosystems, Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, P.O. Box 513, 5600 MB, Eindhoven, The Netherlands and Dutch Polymer Institute (DPI), P.O. Box 902, 5600 AX Eindhoven, The Netherlands.
- E-8 3 16:45 **Charge generation and recombination at polymer-polymer heterojunctions**
Sebastian Westenhoff, Xinping Zhang, Ian A. Howard, Robert A. Marsh, Richard H. Friend Optoelectronics Group, University of Cambridge, Cavendish Lab, Cambridge CH3 0HE, England
- E-8 4 17:00 **MODULATION OF LIGHT INDUCED CHARGE SEPARATION AT H₂TPP / Au JUNCTION**
Thomas Dittrich,¹ Y. Zidon,² Yoram Shapira, ² Hahn-Meitner-Institut, Glienicke Str. 100, 14109 Berlin, Germany, dittrich@hmi.de ² Tel-Aviv University, School of Electrical Engineering, Ramat-Aviv 69978, Israel
- E-8 5 17:15 **Bulk heterojunction solar cells using a novel poly-bithiophene polymer.**
P. Morvillo (1), E. Bobeico (1), C. Privato (1), A. Mucci (2), F. Parenti (2), L. Schenetti (2) (1) C.R. ENEA Portici, Loc. Granatello, 80055 Portici (NA), Italy. (2) Dipartimento di Chimica, Università di Modena e Reggio Emilia, Via Campi 183, 41100 Modena, Italy.
- E-8 6 17:30 **Effects of different length-scale organic-organic heterojunctions on photophysical processes.**
Annamaria Petrozza¹, Sebastian Westenhoff¹, Igor Avilov², Richard H. Friend¹, Ji-Seon Kim¹. ¹ Department of Physics, Cavendish Laboratory, University of Cambridge, J.J. Thomson Avenue, Cambridge CB3 0HE, UK. ² Laboratory for Chemistry of Novel Materials, University of Mons-Hainaut, Place du Parc 20, B-7000 Mons, Belgium

19:00 E-MRS RECEPTION PALAIS DES CONGRES

Thursday, May 31, 2007

Charge Transport Phenomena in Organic Matter : Joe Kline

- E-9 1 09:15 **Progress in single-crystal Organic Field-Effect Transistors: fundamentals and applications.**
M. F. Calhoun, J. Sanchez, C.-Y. Kao, M. A. Stickle, S. Rivillon, Y. Chabal, E. Garfunkel, M. E. Gershenson and V. Podzorov (Rutgers University, Piscataway, NJ, USA)
- E-9 2 09:45 **Charge modulation spectroscopy and electrical transport in single crystalline OFETs**
Bruno Gompf, Matthias Fischer, Ashutosh K. Tripathi, Jens Pflaum, Martin Dressel Physikalisches Institut, Universität Stuttgart, Pfaffenwaldring 57, D-70550 Stuttgart, Germany
- E-9 3 10:00 **Transient photocurrents in Rubrene single crystal field-effect transistors**
Nripan Mathews #*, Etienne Menard %, Vitaly Podzorov @, Denis Fichou #, Michael Gershenson @, John Rogers % and Subodh Mhaisalkar*. # CEA-Saclay, LRC Nanostructures et Semi-Conducteurs Organiques CNRS-CEA-UPMC DSM/DRECAM/SPCSI, 91191 Gif surYvette, France % Department of Materials Science and Engineering UIUC, Urbana, Illinois ,USA @ Department of Physics and Astronomy Rutgers University, New Jersey, USA * School of Materials Science and Engineering, Nanyang Technological University, 639798, Singapore
- E-9 4 10:15 **High Mobility Light Emitting Transistors based on a substituted Tetracene**
Fabio Cicoira (1), Afshin Davdand (1), Clara Santato (1), Catalin Harnagea (1), Alain Pignolet (1), Federico Rosei (1), Hong Meng(2), Dmitrii Perepichka (3). (1) Université du Québec-INRS-EMT 1650, boulevard Lionel Boulet Varennes (Québec) J3X 1S2, CANADA. (2)DuPont Company, Wilmington, Delaware. (3) Department of Chemistry, McGill University 801 Sherbrooke Street West, Montreal, H3A 2K6, Quebec, CANADA.
- E-9 5 10:30 **The spin transport characteristics in different conjugated molecules**
Hao Dong, Ning Deng, Lei Zhang, Min Ren, Peiyi Chen Institute of Microelectronics, Tsinghua University, Beijing 10084, P. R. China

10:45 Break

Charge Transport Phenomena in Organic Matter : Jerome Cornil

- E-10 1 11:15 **Structure Property Relationships for Developing Plastic Electronics**
R. Joseph Kline(1), Dean M. DeLongchamp(1), Eric K. Lin(1), Lee Richter(1), Daniel A. Fischer(1), Michael F. Toney,(2) Martin Heeney(3) and Iain McCulloch(3) 1. National Institute of Standards and Technology, Gaithersburg, MD 2. Stanford Synchrotron Radiation Laboratory, Menlo Park, CA 3. Merck Chemical Ltd. Southampton, UK
- E-10 2 11:45 **Highly stable small molecule organic semiconductor field-effect transistors**
Wolfgang L. Kalb, Thomas Mathis, Simon Haas, Arno F. Stassen, Bertram Batlogg Laboratory for Solid State Physics, ETH Zurich, Switzerland
- E-10 3 12:00 **On the origin of hysteresis effects in organic field effect transistors**
M. Egginger (a), M. Irimia-Vladu (b), A. Tanda (c), R. Schwödauier (b), S. Bauer (a) and N.S. Sariciftci (a) (a) Linz Institute for Organic Solar Cells (LIOS) and Physical Chemistry, Johannes Kepler University Linz, Altenbergerstr. 69, 4040 Linz, Austria (b) Soft Matter Physics, Johannes Kepler University Linz, Altenbergerstr. 69, 4040 Linz, Austria (c) plastic electronic GmbH, Rappetsederweg 28, 4040 Linz, Austria
- E-10 4 12:15 **Electronic memory effects in diodes from a zinc oxide nanoparticle –polystyrene hybrid material**
Frank Verbakel, Stefan C.J. Meskers, and René A.J. Janssen Molecular Materials and Nanosystems, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands, and Dutch Polymer Institute (DPI), P.O. Box 902, 5600 AX Eindhoven, The Netherlands

12:30 Lunch

Charge Transport Phenomena in Organic Matter : Vitaly Podzorov

- E-11 1 14:15 **Charge Hopping in Conjugated Materials: A Quantum-Chemical Insight**
Y. Olivier (a), J.L. Brédas (b,a), J. Cornil (a,b) (a) Laboratory for Chemistry of Novel Materials University of Mons-Hainaut, Place du Parc 20, B-7000 Mons, Belgium (b) School of Chemistry and Biochemistry Georgia Institute of Technology, Atlanta, Georgia 30332-0400, USA
- E-11 2 14:45 **Efficient charge transport along conjugated polymer chains**
P. Prins, F.C. Grozema, J.M. Schins and L.D.A. Siebbeles Opto-Electronic Materials Section, DelftChemTech, Delft University of Technology, Julianalaan 136, 2628 BL, Delft, The Netherlands
- E-11 3 15:15 **Seebeck effect in rubrene and pentacene field-effect transistors**
Kurt P. Pernstich, B. Rössner, and B. Batlogg ETH Zurich, Laboratory for Solid State Physics, CH-8093 Zurich, Switzerland
- 15:30 **break**

POSTER SESSION

16:00 - 18:00

- E-12 2 **Phase behaviour and electronic properties of alpha-quaterthiophene:polyethylene blends**
Pascal Wolfer [a], Christian Müller [a], Natalie Stingelin-Stutzmann [a, b] and Paul Smith [a] [a] Department of Materials, ETH Zurich, CH-8093 Zurich, Switzerland [b] Department of Materials, Queen Mary, University of London, London E1 4NS, UK
- E-12 3 **Electron Tunneling through the Saturated Hydrocarbon Mantle Separating the One-Dimensional Semiconducting Columns of Discotic Materials**
John M. Warman and Jorge Piris (Delft University of Technology, NL)
- E-12 4 **Electronic Structure of Fullerene/Ultra Thin Gate Dielectrics Interfaces for Low Voltage Organic Thin Film Transistors**
M.-H. Cho, S. W. Cho, K.-H. Yoo, K. Jeong, and C.-N. Whang* Institute of Physics and Applied Physics, Yonsei University, 134 Shinchon-dong Seodaemoon-gu, Seoul 120-749, Korea Y. Yi, K. B. Chung* Division of Advanced Technology, Korea Research Institute of Standards and Science, Deajon 305-600, Korea

- E-12 5 **High-gain low-hysteresis organic inverters using UV-photo patternable gate dielectrics**
Sang Chul Lim¹, Seong Hyun Kim¹, Jae Bon Koo¹, Yong Suk Yang¹, Gi Heon Kim¹, Chan Hoe Ku^{1,2}, Jung Hun Lee^{1,2}, and Kyung Soo Suh¹ ¹Electronics and Telecommunications Research Institute, Yuseong, Daejeon 305-350, Korea ²Information Display Department, Kyung Hee University, Seoul 130-701, Korea
- E-12 5 **Tuning the electrical properties of Organic Field Effect Transistors by organic bulk hetero-junctions**
P. Cosseddu(a),(b) and A. Bonfiglio (a),(b) a) INFM-University of Cagliari, Department of Electric and Electronic Engineering, Cagliari, Italy b) CNR-INFM-S3 nanoStructures and bioSystems at Surfaces, Modena, Italy J. O. Vogel(c), I. Salzmänn(c), J. P. Rabe(c) and N. Koch(c) c) Humboldt University of Berlin, Department of Physics, Berlin, Germany R. DiPietro(d) and B. Fraboni(d) d) University of Bologna, Department of Physics, Bologna, Italy
- E-12 6 **MODELLING OF THE EFFECT OF ELECTRODE DOPING IN PLED EFFICIENCY**
Marta M. D. Ramos, Helder M. C. Barbosa, Departamento de Física, Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Portugal.
- E-12 7 **Indium tin oxide work function tailoring with adsorbed poly(amidoamine) dendrimers**
Gianluca Latini,§ Mike Wykes,§ Robert Schlapak,† Stefan Howorka,†, # Franco Cacialli,§ § Department of Physics and Astronomy, and London Centre for Nanotechnology, University College London, London, WC1E 6BT, U.K. † Center for Biomedical Nanotechnology, Upper Austrian Research GmbH, A-4020 Linz, Austria # Department of Chemistry, University College London, London WC1H 0AJ, U.K.
- E-12 8 **Charge injection into discotic liquid crystals**
S Nanan^{1,2}, BJ Whitaker¹, RJ Bushby^{1,2} and D Tate^{1,2}. ¹ School of Chemistry, University of Leeds, Leeds, UK. ² Centre for Self-Organising Molecular System (SOMS), University of Leeds, Leeds, UK
- E-12 9 **Transistor and Circuit Operation of Complimentary Organic Thin Film Devices**
Authors: Yong Suk Yang, Seong Hyun Kim, Sang Chul Lim, Jae Bon Koo, Jung Hun Lee, Chan Hoe Ku Affiliations: Electronics and Telecommunications Research Institute
- E-12 10 **A sacrificial layer process for the fabrication of Top Emission OLEDs**
Sung Mook Chung, Chi-Sun Hwang, Jeong-Ik Lee, Sang Hee Ko Park, Yong Suk Yang, Lee-Mi Do and Hye Yong Chu Organic display Team, Electronics and Telecommunications Research Institute
- E-12 11 **The relevance of the intermolecular interactions in obtaining photorefractive materials with very high optical gain Γ and long shelf lifetime.**
A. Colligiani, Dept. of Food Science, University of Napoli "Federico II", 80055 Portici (Na) and INFM, Italy; P. Masi, A. Romano, Dept. of Food Science, University of Napoli "Federico II", 80055 Portici (Na), Italy; R. Angelone, F. Ciardelli, F. Greco, G. Ruggeri, Dept. of Chemistry and Industrial Chemistry, University of Pisa, 56126 Pisa and INFM, Italy.
- E-12 12 **Phase behaviour, processing and electronic properties of PBTTT polymer poly(2,5-bis(3-alkylthiophen-2-yl)thieno[3,2-b](thiophene)**
Mohammed A. Baklar,¹ Dave Sparrowe,² Maxim Skhunov,² Martin Heeney,² Iain McCulloch² and Natalie Stingelin-Stutzmann^{1,3} ¹Queen Mary, University of London, Mile End Road, E1 4NS, London, United Kingdom; ²Merck Chemicals Limited, LC Chilworth Technical Centre; University Parkway, SO16 7QD, Southampton, United Kingdom; ³ETH Z?h, Wolfgang-Pauli Str., 8093 Z?h, Switzerland
- E-12 13 **Transport phenomena in Thia calix(4)arene amide:**
M. Benzarti¹, C. Dridi^{1,2*}, R. Ben Chaabane¹, F. Vocanson³, J. Davenas⁴ and H. Ben Ouada¹ ¹LPCI, Faculté des Sciences de Monastir, 5000 Monastir, TUNISIA ²ISSAT de Sousse, Cité Ettafala, 4003 Ibn Khaldoun Sousse, Tunisia ³LCI, UCB Lyon¹, Bd du 11/11/1918, 69100, Villeurbanne Cedex France ⁴LMPB, Bat ISTIL, Bd du 11/11/1918, 69100, Villeurbanne Cedex France
- E-12 14 **Photovoltaic properties of CdS-polymer blend heterojunction**
A.A.Pud, N.F.Osipyonok, V.V.Kislyuk, O.I.Kozonushchenko, P.S.Smertenko, O.P.Dimitriev Institute of Bioorganic Chemistry and Petrochemistry of NAS of Ukraine, 50 Kharkivske shose, 02160, Kyiv, Ukraine Institute of Semiconductor Physics of NAS of Ukraine, pr. Nauki 45, Kyiv 03028, Ukraine
- E-12 15 **Electrical Characterization of Mica as a Potential Gate Insulator for Organic Field-Effect Transistors**
Xiaofeng Lu, Leszek Majewski, and Aimin Song
- E-12 16 **Light-emitting diodes interlayers based on crosslinkable polyfluorenes**
Jorge Morgado^(1,2), Ana Charas⁽¹⁾, Luis Alcácer^(1,2) (1) Instituto de Telecomunicações, Instituto Superior Técnico, Av. Rovisco Pais, P-1049-001 Lisboa, Portugal (2) Dep. Eng. Química e Biológica, Instituto Superior Técnico, Av. Rovisco Pais, P-1049-001 Lisboa, Portugal
- E-12 17 **A mechanically tunable polymer DFB laser**
Bernard Wenger and Richard H. Friend Cavendish Laboratory, University of Cambridge, JJ Thomson av., CB3 0HE, UK
- E-12 18 **Cyclodextrin-threaded conjugated polyrotaxanes for organic electronics: the influence of counter ions**
Gianluca Latini, § Lisa –Jodie Parrott, § Michael J. Frampton†, Harry L. Anderson† and Franco Cacialli§ §Department of Physics and Astronomy, University College London and London Centre for Nanotechnology, Gower Street, London WC1E 6BT (UK) †Department of Chemistry, University of Oxford, Chemistry Research Laboratory, Mansfield Road, Oxford OX1 3TA (UK)
- E-12 19 **Poly(dialkylstannane)s: Synthesis and Orientation of Semiconducting, Liquid-Crystalline Materials**
Fabien Choffat(a), Sara Fornera(a), Walter Caseri(a), Paul Smith (a), Matthijs P. de Haas(b), John M. Warman(b), Dag W. Breiby(c), Martin(c) (a) Department of Materials, ETH Z?h, CH-8093 Z?h, Switzerland (b) Optoelectric Materials Section, TU Delft, NL-2629 JB Delft, The Netherlands (c) Danish Polymer Centre, Ris?tional Laboratory, Frederiksborgvej 399, DK-4000 Roskilde, Denmark
- E-12 20 **Growth and characterization of organic layers deposited on porous-patterned Si surface**
T. Ya. Gorbach, P. S. Smertenko, G.P.Olkhovik, V.Lashkarev Institute of Semiconductors Physics, National Academy of Sciences of Ukraine, 45, prospekt Nauki, 03028, Kyiv, Ukraine M. Kuzma, G.Wisz, Institute of Physics, Rzeszow University, Rejtana 16a, 35-309 Rzesz?w, Poland
- E-12 21 **Ink-Jet Printed Electrodes and Organic Semiconductor for Organic Thin-Film Transistors**
Dongjo Kim, Sunho Jeong, Sul Lee, Sunghye Lee, and Jooho Moon Department of Materials Science and Engineering, Yonsei University, Seoul 120-749, Korea

- E-12 22 **Direct photo-patternable gate dielectric based on organic-inorganic hybrid polymer for organic thin-film transistors**
Sunghee Lee, Sunho Jeong, Dongjo Kim, Sul Lee and Jooho Moon Department of Materials Science and Engineering, Yonsei University, Seoul 120-749, Korea
- E-12 23 **Organic Thin Film Transistors based on Printed P3HT by Plasma Enhanced Polymer Contact Printing**
Hyejin Kim, Bokyuong Yoon, Jinwoo sung, Pilsung Cho, Cheolmin Park
- E-12 24 **Cyanocoumarin Derivatives Red Dopant Materials for High Performance Organic Light Emitting Devices**
Mei-Ying Chang(1)*, Wen-Yao Huang(1), Yi-Jan Tsai(1), Chian-Yi Hung(1) and Yu-Kai Han(2) (1)Institute of Electro-Optical Engineering, National Sun Yat-Sen University, Kaohsiung, Taiwan 804, Republic of China (2)Department of Chemical and Material Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan, Republic of China
- E-12 25 **Tough, Semiconducting Polyethylene-Poly(3-hexylthiophene) Diblock Copolymers**
Christian Müller, Shalom Goffri and Dag W. Breiby, Jens W. Andreasen, Henri D. Chanzy, René A.J. Janssen, Martin M. Nielsen, Christopher P. Radano, Henning Sirringhaus, Paul Smith, Natalie Stingelin-Stutzmann
- E-12 26 **Dual-Gate Pentacene Organic Thin-Film Transistor and Inverter**
Jae Bon Koo1*, Chan Hoe Ku1,2, Sang Chul Lim1, Seong Hyun Kim1, Jung Hun Lee1,2, In Kyu You1, and Kyung Soo Suh1
1Electronics and Telecommunications Research Institute, Yuseong, Daejeon 305-350, Korea 2Information Display Department, Kyung Hee University, Seoul 130-701, Korea
- E-12 27 **NEXAFS of P(VDF-TrFE)/PEDOT:PSS films on Si**
Klaus Müller, Dipankar Mandal, Dieter Schmeißer Olaf Seifarth, Patrick Hoffmann, Karsten Henkel
- E-12 28 **Buffer layer investigation of MFIS stacks for organic nonvolatile memory applications**
Karsten Henkel, Bernd Seime, Ioanna Paloumpa, Klaus Müller, Dieter Schmeißer Brandenburgische Technische Universität Cottbus, Angewandte Physik-Sensorik, K.-Wachsmann-Allee 17, 03046 Cottbus, Germany
- E-12 29 **Correlation between dielectric/semiconductor interface characteristics and electrical response of polymer-based TFTs**
Francesco Todescato, Raffaella Capelli, Franco Dinelli, Michele Muccini: Istituto per lo Studio dei Materiali Nanostrutturati (ISMN-BO) Sezione di Bologna, Consiglio Nazionale delle Ricerche, Via Gobetti 101,40129 Bologna, Italy, f.todescato@bo.ismn.cnr.it, tel +39 051 6398517-29, fax +39 051 6398540. Mujie Yang: Department of Polymer Science and Engineering, Zhejiang University, Hangzhou 310027, China Tel./fax: 0086-571-87952444 Nadia Camaioni: Istituto per la Sintesi Organica e la Fotoreattività (ISOF-BO) Sezione di Bologna, Consiglio Nazionale delle Ricerche, Via Gobetti 101,40129 Bologna, Italy.
- E-12 30 **Structure and properties of Electroluminescent Zinc(II) bis(8-hydroxyquinoline) thin films on technically relevant substrates**
Vibha Tripathi, Debjit Dutta, Satyendra Kumar Department of Physics, IIT Kanpur-208016, INDIA Samtel Centre for Display Technologies, IIT Kanpur-208016, INDIA
- E-12 31 **OPTICAL AND ELECTRICAL BEHAVIOUR OF SYNTHETIC MELANIN THIN FILMS**
L. Morresi, N. Pinto, M. Ficcadenti, P. Tombesi CNISM/INFN- Dipartimento di Fisica, Università di Camerino, I-62032 Camerino, Italy M. Cuccioli, M. Angeletti Dipartimento di Biologia MCA, Università di Camerino, I-62032 Camerino, Italy
- E-12 32 **Analytical expression for the electric field at the metal-organic interface in single carrier organic diodes under space-charge conduction**
A. L. Álvarez (1), B. Arredondo(1), B. Romero (1), X. Quintana (2), A. Gutiérrez-Llorente (1), R. Mallavia (3), J. M. Otón (2). (1) Universidad Rey Juan Carlos (Madrid). Area de Tecnología Electronica. (2)Universidad Politecnica de Madrid. Departamento de Tecnología Fotónica. (3)Universidad Miguel Hernandez (Elche). Instituto de Biología Molecular y Celular.
- E-12 33 **PROPERTIES OF THERMAL VACUUM DEPOSITED PENTACENE THIN FILMS**
Mihaela Girtan, Sylvie Dabos - Seignon, Laboratoire POMA, UMR CNRS 6136, Université d'Angers, 2 Bd. Lavoisier, 49045 Angers cedex, France, email: mihaela.girtan@univ-angers.fr
- E-12 34 **Polymer-blend based X-ray photodetectors for medical applications**
P. E. Keivanidis1, J. C. Blakesley2, R. Speller2, N. C. Greenham1, R. H. Friend1 1 Department of Physics, University of Cambridge 2 Medical Physics and Bioengineering, University College London
- E-12 35 **Bardeen's tunneling approach to analyze carrier transport at metal-organic material interface**
M. J. Sharifi, Shahid Beheshti University, electrical and computer engineering faculty Email: m-sharifi@sbu.ac.ir) M. R. Fatholahi, Tarbiat moalem University, Science faculty, Physics group H. Mahdian, Tarbiat moalem University, Science faculty, Physics group
- E-12 36 **Temperature dependent spectral properties of polyrotaxanes and their unthreaded reference polymers**
Parrott Lisa-Jodie, (1) Daniel Clément, Silva Carlos, (2) Anderson Harry, (4) and Cacialli, Franco. (1) (1) Department of Physics and Astronomy (CMMP Group), University College London, and London Centre for Nanotechnology, Gower Street, London, WC1E 6BT, (UK). (2) Cavendish Laboratory, University of Cambridge, Madingley Road, Cambridge, CB3 0HE, (UK). (3) Imperial College London, London, SW7 2AZ, (UK). (4) Department of Chemistry, University of Oxford, Chemistry Research Laboratory, Mansfield Road, Oxford, OX1 3TA, (UK).
- E-12 37 **Ambipolar Organic Field Effect Transistors with semi conducting blends for CMOS-type Organic circuits**
S.P. Tiwari, V. Ramgopal Rao, Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai - 400076, India. Subodh G. Mhaisalkar School of Materials Engineering, Nanyang Technological University, Nanyang Avenue-639798, Singapore.
- E-12 38 **Patterned gate OFETs with inorganic High-K gate dielectric materials for all P-type Organic circuits**
S. P. Tiwari, D. Maji, Srinivas P., Nitin S. Kale and V. Ramgopal Rao, Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai - 400076, India.
- E-12 39 **INVESTIGATION OF THE INTERFACE EFFECT ON THE ELECTRICAL PROPERTIES OF SOME ORGANIC HETEROJUNCTIONS**
Anca Stanculescu, Florin Stanculescu* National Institute of Materials Physics, P.O. Box MG 7 Magurele, Bucharest, Romania * Faculty of Physics, University of Bucharest, Romania

Symposium E

- E-12 40 **Phosphorescent Resonant Energy Transfer Between Iridium Complexes**
Dorothee Wasserberg, Stefan C. J. Meskers, and René A. J. Janssen Molecular Materials and Nanosystems, Eindhoven University of Technology, PO Box 513, 5600 MB Eindhoven, The Netherlands.
- E-12 41 **Fabrication of Organic Inverters by using Screen-printing method**
Seong Hyun Kim, Sang Chul Lim, Jung Hun Lee, Chan Hoi Ku, Jae Bon Koo, Yong Suk Yang, and Taehyoung Zyung IT Components & Materials Research Division, ETRI
- E-12 42 **Organization of Charge-Carrier Pathways in Discotic Liquid-Crystalline Semiconductors**
Avinesh Kumar, Marcel Kastler, Wojciech Pisula, Frédéric Laquai, Richard J. Davies, Stanislav Balushev, Mari-Cruz Garcia-Gutiérrez, Daniel Wasserfallen, Hans-Jürgen Butt, Christian Riekkel, Gerhard Wegner and Klaus Müllen
- E-12 43 **OLED complete characterization by spectroscopic ellipsometry**
Jean-Philippe PEIL - Jean-Louis STEHLE - Christophe DEFRANOUX SOPRA 26 rue Pierre Joigneaux 92270 BOIS-COLOMBES 01.46.49.67.00 01.42.42.29.34
- E-12 44 **Multi-component semiconducting polymer systems with low crystallization-induced percolation threshold**
Shalom Goffri 1, Christian Müller 2, Natalie Stingelin-Stutzmann 2,3, Dag W. Breiby 4,5, Christopher P. Radano 6, Jens W. Andreasen 4, Richard Thompson 7, René A.J. Janssen 6, Martin M. Nielsen 4,5, Paul Smith 2 and Henning Sirringhaus 1 (1 Cavendish Laboratory, University of Cambridge, JJ Thomson Ave., Cambridge CB3 0HE, UK; 2 Department of Materials, ETH Zürich, Wolfgang-Pauli Str., CH-8093, Zürich, Switzerland; 3 Department of Materials, Queen Mary, University of London, Mile End Rd., London E1 4NS, UK; 4 Danish Polymer Centre, Risø National Laboratory, 4000 Roskilde, Denmark; 5 now at: Centre for Molecular Movies, University of Copenhagen, Universitetsparken 5, 2100 Copenhagen Ø, Denmark; 6 Laboratory of Macromolecular and Organic Chemistry, TU Eindhoven, P.O. Box 513, 5600 MB Eindhoven, The Netherlands; 7 Department of Chemistry, University of Durham, South Road, Durham DH1 3LE, UK)