



Strasbourg (France)

E-MRS 2005 Spring Meeting
May 31 – June 3, 2005

SYMPOSIUM F

Thin film and nano-structured materials for photovoltaics “THINC-PV2”

Symposium Organizers :

Christoph J. Brabec, Konarka, Erlangen, Germany

Arnulf Jäger-Waldau, European Commission, Ispra, Italy

Jef Poortmans, IMEC vzw, Leuven, Belgium

Abdelilah Slaoui, Laboratoire PHASE-CNRS, Strasbourg, France

Symposium Support

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Papers to be published in Thin Solid Films

SYMPOSIUM F

Tuesday, May 31, 2005
Mardi 31 mai 2005

Morning
Matin

Session I

Session chair : C. Brabec

- F-I.01** 9:00 -Invited- DESING OF HIGH MOBILITY, LOW BANDGAP ORGANIC SEMICONDUCTORS
U. Scherf, Bergische Universität Wuppertal, Makromolekulare Chemie, Gauss-Str. 20, 42097 Wuppertal, Germany
- F-I.02** 9:30 STUDY OF P3HT:PCBM BULK HETEROJUNCTION SOLAR CELLS : INFLUENCE OF COMPONENTS RATIO AND OF THE NATURE OF ELECTRODES ON THE LIFETIME
Rémi de Bettignies, Jocelyne Leroy, Muriel Firon, Carole Sentein, CEA Saclay, DRT/LITEN/ Laboratoire Cellules et Composants (L2C), Bâtiment 451, 91191 Gif-sur-Yvette Cedex, France
- F-I.03** 9:45 THE EFFECT OF A THERMAL POST-TREATMENT ON THE MORPHOLOGY AND CHARGE CARRIER DYNAMICS IN A PCBM-P3HT BULK HETEROJUNCTION
Tom J. Savenije(a), Xiaoniu Yang(b), Joachim Loos(b) and Jessica E. Kroeze(c), (a)Opto-Electronic Materials section, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, 2629 JB Delft, The Netherlands, (b)Group Polymer Physics, Eindhoven University of Technology, PO Box 513, 5600 MB Eindhoven, The Netherlands, and Dutch Polymer Institute, PO Box 902, NL-5600 AX Eindhoven, The Netherlands, (c)Present address: Centre for Electronic Materials and Devices, Imperial College London, London SW7 2AY, U.K.
- 10:00 **BREAK**

Session II

Session chairs : M.M. Al-Jassim, C. Balliff

- F-II.01** 10:15 -Invited- LARGE-GRAINED POLYCRYSTALLINE SILICON ON GLASS FOR THIN-FILM SOLAR CELLS
S. Gall, J. Schneider, J. Klein, M. Muske, B. Rau, E. Conrad, I. Sieber, W. Fuhs, Hahn-Meitner-Institut Berlin, Kekulestrasse 5, 12489 Berlin, Germany and M. Stöger-Pollach, P. Schattschneider, Technische Universität Wien, Wiedner Hauptstrasse 8-10, 1040 Wien, Austria
- F-II.02** 10:45 CRYSTALLOGRAPHIC ANALYSIS OF POLYCRYSTALLINE SILICON OBTAINED BY ALUMINIUM INDUCED CRYSTALLIZATION PROCESS
E. Pihan(a), A. Slaoui(a), C. Maurice(b), (a)PHASE-CNRS Laboratory, 23 rue du Loess, 67037 Strasbourg cedex 2, France, (b)Microstructures and Processing Laboratory, Ecole des Mines de Saint Etienne, 158 tours Fauriel, 42023 Saint-Etienne Cedex 2, France
- F-II.03** 11:00 THIN-FILM POLYCRYSTALLINE SILICON SOLAR CELLS ON CERAMIC SUBSTRATES WITH A VOC ABOVE 500 MV
L. Carnel, I. Gordon, G. Agostinelli, D. Van Gestel, K. Van Nieuwenhuysen, G. Beaucarne, J. Poortmans, IMEC vzw, Kapeldreef 75, 3001 Leuven, Belgium
- F-II.04** 11:15 -Invited- CRYSTALLINE Si FILMS FOR PV APPLICATIONS
A. Aberle, Centre for Photovoltaic Engineering, The University of New South Wales, UNSW Sydney NSW 2052, Australia
- F-II.05** 11:45 OPTIMIZATION OF ALUMINIUM-INDUCED CRYSTALLIZATION AND HIGH-TEMPERATURE EPITAXIAL GROWTH FOR THIN-FILM POLYCRYSTALLINE SILICON SOLAR CELLS
D. Van Gestel, I. Gordon, K. Van Nieuwenhuysen, L. Carnel, G. Beaucarne, and J. Poortmans IMEC vzw, Kapeldreef 75, 3001 Leuven, Belgium
- F-II.06** 12:00 HOMOEPITAXIAL SILICON GROWTH IN A NON-ULTRA-HIGH VACUUM ENVIRONMENT BY ION-ASSISTED DEPOSITION ON Si WAFER AND SEEDED GLASS SUBSTRATES
Axel Straub, Daniel Inns, Mason L. Terry, Yidan Huang, Per I. Widenborg and Armin G. Aberle, Centre for Photovoltaic Engineering, The University of New South Wales, UNSW Sydney NSW 2052, Australia
- F-II.07** 12:15 SILICON THIN FILM SOLARCELLS USING SIH₂CL₂
Yoshie Ikeda, Li Yali, Michiaki Yamazaki, Toru Saito and Hajime Shirai, Graduate School of Science and Technology, Saitama University 255 Shimo-Okubo, Sakura, Saitama 338-8570, Japan
- 12:30 **LUNCH**

Tuesday, May 31, 2005
Mardi 31 mai 2005

Afternoon
Après-midi

14:00-15:30 **POSTER SESSION I**

15:30 **BREAK**

Session III

Session chairs: **M. Marti, R. Kenny**

- F-III.01** 16:00 -Invited- CHARACTERIZATION OF Cu(In,Ga)Se₂ MATERIALS USED IN RECORD PERFORMANCE SOLAR CELLS
Miguel A. Contreras, National Renewable Energy Laboratory, 1617 Cole Blvd., Golden CO 80401, USA
- F-III.02** 16:30 In₂S₃ BUFFER LAYERS FOR HIGHLY EFFICIENT CIGSSE SOLAR CELLS DEPOSITED BY FAST AND LOW COST SPRAY ILGAR
Ch.-H. Fischer, N. Allsop, A. Schönmann and M.C. Lux-Steiner, Hahn-Meitner-Institut Berlin, Dept. SE 2, Glienicke Str. 100, 14109 Berlin, Germany
- F-III.03** 16:45 BAND-GAP ENGINEERING IN CIGS SOLAR CELLS USING NELDER-MEAD SIMPLEX OPTIMIZATION ALGORITHM
G. Cernivec, J. Krc, F. Smole, M. Topic, Faculty of Electrical Engineering, University of Ljubljana, Tržaška 25, 1000 Ljubljana, Slovenia
- F-III.04** 17:00 -Invited- PROGRESS IN EVAPORATED CDTE SOLAR CELLS
A. Romeo(a), G. Khrypunov(b), D.L. Bätzner(c), F. Kurdesau(d), H. Zogg(e) and A.N. Tiwari(e,f), (a)Faculty of Science, University of Verona, Ca' Vignal 2, Strada Delle Grazie, 37134 Verona, Italy, (b)National Technical University " KhPI", 61002, Kharkov, Ukraine, (c)The Australian National University, ACTON, ACT 0200 Australia, (d)National Academy of Sciences Belarus, Logoysky Tract 22, Minsk 220090, Belarus, (e)Thin Film Physics Group, Laboratory for Solid State Physics, ETH (Swiss Federal Institute of Technology) Zürich, Technoparkstrasse 1, 8005 Zurich, Switzerland, (f)CREST (Centre for Renewable Energy Systems and Technology), Department of Electronic and Electrical Engineering, Loughborough University, Leicestershire, LE11 3TU, U.K.
- F-III.05** 17:30 SIMS DEPTH PROFILING OF CdTe-BASED SOLAR CELLS GROWN ON SAPPHIRE SUBSTRATES
M. Emziane(a) K. Durose(a) D.P. Halliday(a), N. Romeo(b), and A. Bosio(b), (a)Department of Physics, University of Durham, South Road, Durham, DH1 3LE, U K., (b)Department of Physics, University of Parma, Viale delle Scienze 7a, 43100 Parma, Italy
- F-III.06** 17:45 MORPHOLOGY OF CDSE FILMS PREPARED BY CHEMICAL BATH DEPOSITION: THE ROLE OF SUBSTRATE
M. Simurda, P. Nemeč, P. Maly, Charles University in Prague, Faculty of Mathematics and Physics, Ke Karlovu 3, 121 16 Prague 2, Czech Republic, P. Formanek, Institut für Strukturphysik, Technische Universität Dresden, Zellescher Weg 16, 01062 Dresden, Germany, I. Nemeč, Y. Nemcová, Charles University in Prague, Faculty of Science, Albertov 6, 128 43 Prague 2, Czech Republic
- F-III.07** 18:00 -Invited- PROGRESS IN QUANTUM WELL SOLAR CELLS
M. Mazzer, Imperial College, London, U.K.
- F-III.08** 18:30 FINE-TUNING OF THE SPECTRAL COLLECTION EFFICIENCY IN MULTILAYER JUNCTIONS
M. Fernandes(a), A. Fantoni(a), P. Louro(a), Y. Vygranenko(a), G. Lavareda(b), N. Carvalho(b), M. Vieira(a), (a)Electronics Telecommunications and Computer Dept, ISEL, Lisbon, Portugal, (b)CFM-UTL-Av. Rovisco Pais, Lisbon
- F-III.09** 18:45 FERMI LEVEL SPLITTING AND THERMIONIC CURRENT IMPROVEMENT IN LOW-DIMENSIONAL MULTIQUANTUM-WELL (MQW) P-I-N STRUCTURES
Argyrios C. Varonides, Electrical Engineering Department University of Scranton, A Jesuit University, 800 Linden Street, Scranton PA 18510, USA

POSTER SESSION I
Tuesday, May 31, 2005
14:00 – 15:30

- F/PI.01** ANALYSIS OF THIN LAYERS AND INTERFACES IN ITO/A-SI:H/C-SI HETEROJUNCTION SOLAR CELL STRUCTURES BY SECONDARY ION MASS SPECTROMETRY
J.S. Christensen, A.G. Ulyashin, A.Yu. Kuznetsov, B.G. Svensson, University of Oslo, Department of Physics, Centre for Material Science and Nanotechnology, Sem Saelands vei 24, P.O.Box 1048 Blindern, 0316 Oslo, Norway
- F/PI.02** ANALYSIS OF ITO AND A-SI:H THIN LAYERS IN HETEROJUNCTION SOLAR CELL STRUCTURES BY AFM AND SSRM METHODS
K. Maknus, A.G. Ulyashin, A.Yu. Kuznetsov, B.G. Svensson, University of Oslo, Department of Physics, Centre for Material Science and Nanotechnology, Sem Saelands vei 24, P.O.Box 1048 Blindern, 0316 Oslo, Norway and H. Stiebig, Institute of Photovoltaics, Forschungszentrum Jülich, 52425 Jülich, Germany
- F/PI.03** CORRELATION OF OPTICAL AND PHOTOLUMINESCENCE PROPERTIES IN AMORPHOUS Si_x:H THIN FILMS DEPOSITED BY PECVD OR UVCVD
Jean-François Lelievre, Laboratoire de Physique de la Matière, UMR 5511, Groupe Photovoltaïque, INSA de Lyon, Bât Blaise Pascal, 7 avenue Jean Capelle, 69621 Villeurbanne Cedex, France
- F/PI.04** FRONT BURIED METALLIC CONTACTS AND THIN POROUS SILICON COMBINATION FOR EFFICIENT POLYCRYSTALLINE SILICON SOLAR CELLS
M. Ben Rabha, M.F. Boujmil, N. Meddeb, M. Saadoun, B. Bessaïs, Institut National de Recherche Scientifique et Technique, Laboratoire de Photovoltaïque et des Semiconducteurs, BP 95, 2050 Hammam-Lif, Tunisia
- F/PI.05** PHOTOCONDUCTIVITY AND RAMAN CHARACTERIZATION ON BORON DOPED DIAMOND THIN FILM
P.C. Ricci, A. Anedda, C.M. Carbonaro, D. Chiriu, R. Corpino and M. Marceddu, Italy
- F/PI.06** nc-Si/a-Si:H SOLAR CELLS DEPOSITED BY PLASMA ENHANCED CHEMICAL VAPOUR DEPOSITION TECHNIQUE AT 27.12 MHz
L. Raniero, I. Ferreira, H. Águas, S. Zhang, E. Fortunato and R. Martins, Departamento de Ciência dos Materiais, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa and CEMOP, Campus da Caparica, 2829-516 Caparica, Portugal
- F/PI.07** GROWTH STUDY OF HIGHLY CRYSTALLIZED UNDOPED MICROCRYSTALLINE SI FILMS
Sanjay K. Ram and Satyendra Kumar, Department of Physics, Indian Institute of Technology Kanpur, Kanpur-208016, India and Dinesh Deva Department of Chemical Engineering, Indian Institute of Technology Kanpur, Kanpur-208016, India and R. Vanderhaghen, B. Drevillon and P. Rocca i Cabarrocas Laboratoire de Physique des Interfaces et des Couches Minces (UMR 7647 du CNRS), Ecole Polytechnique, 91128 Palaiseau Cedex, France
- F/PI.08** RCA-BASED PASSIVATION OF POROUS SILICON STAIN ETCHED FOR SOLAR CELL APPLICATIONS
B. González- Díaz(a), P. Haro-González(a), D. Borchert(b), C. Hernández-Rodríguez(a), R. Guerrero-Lemus(a), (a)Departamento de Física Básica, Universidad de La Laguna, Astrofísico Francisco Sánchez, 38204 La Laguna, S/C de Tenerife, Spain, (b)Auf der Reihe 2, Institut für Solare Energiesysteme, Fraunhofer Institut, 45884 Gelsenkirchen, Germany
- F/PI.09** PIEZOELECTRIC PHOTOTHERMAL STUDY OF THE OPTICAL PROPERTIES OF MICROCRYSTALLINE SILICON NEAR THE BANDGAP
A. Fukuyama, S. Sakamoto, P. Wang, K. Sakai and T. Ikari, Faculty of Engineering, Univ. of Miyazaki, 1-1 Gakuen-Kibanadai-Nishi, Miyazaki 889-2192, Japan
- F/PI.10** SILICON THIN FILM PREPARED IN THE TRANSITION REGION AND THEIR USE IN SOLAR CELLS
S. Zhang(a,b), X. Liao(b), L. Raniero(a), E. Fortunato(a), Y. Xu(b), G. Kong(b), H. Águas(a), I. Ferreira(a) and R. Martins(a), (a)Department of Materials Science/CENIMAT, Faculty of Sciences and Technology, New University of Lisbon and CEMOP-UNINOVA, 2829-516 Caparica, Portugal, (b)State Key Laboratory for Surface Physics, Institute of Semiconductors & Center for Condensed Matter Physics, Chinese Academy of Sciences, Beijing 100083, China
- F/PI.11** a-Si/c-Si HETERO-JUNCTION SOLAR CELLS PREPARED BY LOW TEMPERATURE BY PROCESSES
Chung Hyun Lim, Jeong Chul Lee, Sang Won Jeon, Sae Jin Ahn, Jae Ho Yun, Seok Ki Kim, Jinsoo Song, Kyung Hoon Yoon, Solar cells Research Center, Korea Institute of Energy Research, Korea
- F/PI.12** a-Si/mc-Si thin film tandem solar cells on textured ZnO:Al with different electro-optical and structure properties
Sang Won Jeon(a,b), Jeong Chul Lee(a), Sang Kyun Kim(b), Chung Hyun Lim(b), Byung Ok Park(b), Sae Jin Ahn(a), Jae Ho. Yun(a), Seok Ki Kim(a), Jin Soo Song(a) and Kyung Hoon Yoon(a), (a)Solar Cells Research Center, Korea Institute of Energy Research (KIER) (b)Dep. of Inorganic Materials Engineering, KyungPook National University, Korea
- F/PI.13** ELECTROCHEMICAL GROWTH AND PROPERTIES OF CuInS₂ THIN FILMS FOR SOLAR ENERGY CONVERSION
B. Asenjo, A.M. Chaparro, M.T. Gutiérrez, J. Herrero, Energías Renovables, CIEMAT. Avda. Complutense 22, 28040 Madrid, Spain
- F/PI.14** STUDY OF PREPARATION PARAMETERS FOR INDIUM SULFIDE THIN FILMS OBTAINED BY MODULATED FLUX DEPOSITION
C. Sanz, C. Guillén and M.T. Gutiérrez, Departamento de Energías Renovables (CIEMAT), Avda. Complutense 22, 28040 Madrid, Spain

- F/PI.15** XPS AND EX-SITU LUMINESCENCE INVESTIGATIONS OF INDIUM PHOSPHORUS/ CADMIUM SULFIDE INTERFACES FOR BETTER UNDERSTANDING OF CIGS/CDS INTERFACES
B. Canava, I. Gerard, A. Etcheberry, IREM-Université de Versailles-Saint Quentin, 45 ave des Etats Unis, 78035 Versailles Cedex, France, J.F. Guillemoles, Ecole Nationale Supérieure de Chimie de Paris, 11 rue Pierre et Marie Curie, 75231 Paris Cedex 05, France
- F/PI.16** IN-SITU X-RAY PHOTOELECTRON SPECTROSCOPY STUDY OF THE OXIDATION OF CuGaSe₂
R. Würz, M. Rusu, Th. Schedel-Niedrig, M.Ch. Lux-Steiner Hahn-Meitner Institut Berlin, Glienicker Str. 100, 14109 Berlin, Germany, H. Bluhm, M. Hävecker, E. Kleimenov, A. Knop-Gericke, R. Schlögl Fritz-Haber-Institut der Max-Planck-Gesellschaft, Faradayweg 4-6, 14195 Berlin, Germany
- F/PI.17** THE INFLUNCE OF THE X-RADIATIONS PHOTOVOLTAIC PROPERTIES OF HETEROSTRUCTURES CdTe-ZnSe
J. Vaitkus, S. Otazhonov, Vilnius University, Semiconductor Physics Department, Vilnius, Lithuania Fergana University, Semiconductor Physics Department, Fergana Uzbekistan
- F/PI.18** INFLUENCE OF Sn INCORPORATION ON THE PROPERTIES OF CuInS₂ THIN FILMS GROWN BY VACUUM EVAPORATION METHOD
M. Ben Rabeh, M. Zribi, R. Brini, M. Kanzari and B. Rezig, Laboratoire de Photovoltaïque et Matériaux Semi-conducteurs -ENIT BP 37, Le belvédère 1002-Tunis, Tunisie
- F/PI.19** EXCITONS IN HIGH-QUALITY CuInS₂ SINGLE CRYSTALS
M.V. Yakushev, Y.V. Feofanov, Department of Physics, Strathclyde University, G4 ONG, Glasgow, U.K., A.V. Mudryi, A.V. Ivaniukovich, I.V. Victorov, Institute of Solid State and Semiconductor Physics, National Academy of Science of Belarus, 220072 Minsk, Belarus
- F/PI.20** LOW TEMPERATURE AIR-ANNEALING OF Cu(InGa)Se₂ SINGLE CRYSTALS
M.V. Yakushev, I. Pettigrew, A. Jack, Y.V. Feofanov, P. Edwards, Department of Physics, Strathclyde University, G40NG Glasgow, U.K., A.V. Mudryi, Institute of Solid State and Semiconductor Physics, National Academy of Science of Belarus, 220072 Minsk, Belarus
- F/PI.21** INVESTIGATION OF ELECTRODEPOSITED HETEROJUNCTION SOLAR CELLS
A.Sh. Abdinov, H.M. Mamedov and S.I. Amirova, Faculty of Physics, Baku State University, Z. Khalilov str. 23, 370148 Baku, Azerbaijan
- F/PI.22** GROWTH OF ZnS THIN FILMS OBTAINED BY CHEMICAL SPRAY PYROLYSIS. THE INFLUENCE OF PRECURSORS
M^cC. López, F. Martín, D. Leinen and J.R. Ramos-Barrado, Laboratorio de Materiales y Superficie, Unidad Asociada al CSIC, Dptos Física Aplicada, Universidad de Málaga, 29071 Málaga, Spain, J.P Espinos, Instituto de Ciencias de Materiales de Sevilla, CSIC, c/ Americo Vespucio s/n, 41092 Sevilla, Spain
- F/PI.23** PHOTOLUMINESCENCE STUDIES ON CdS-CBD FILMS GROWN BY USING DIFFERENT S/Cd RATIOS
J. Aguilar-Hernández, J. Sastre-Hernández, R. Mendoza-Pérez, N. Ximello-Quiebras, O. Vigil-Galán, G. Contreras-Puente, M. Cárdenas-García, Escuela Superior de Física y Matemáticas – I.P.N., Edificio No. 9, U.P.A.L.M., 07738 Mexico D.F., México
- F/PI.24** RAMAN AND PHOTOREFLECTANCE STUDY OF CuIn_{1-x}Ga_xSe₂ EPITAXIAL LAYERS
S. Theodoropoulou(a), D. Papadimitriou(a), N. Rega(b), S. Siebentritt(b) and M.Ch. Lux-Steiner(b), (a)National Technical University of Athens, Department of Physics, 15780 Athens, Greece, (b)Hahn-Meitner Institut, Glienicker Strasse 100, 14109 Berlin, Germany
- F/PI.25** SELF-ORGANIZED GROWTH OF GE ISLANDS ON SI(100) SUBSTRATES
B. Pivac, I. Kovacevic, P. Dubcek, N. Radic, R. Boskovic Institute, P.O. Box 180, Zagreb, Croatia, S. Bernstorff, Sincrotrone Trieste, SS 14, km 163.5, Basovizza (TS), Italy, A. Slaoui, Phase, CNRS, 23 rue du Loess, Strasbourg, France
- F/PI.26** QUANTUM CONFINEMENT IN SILICON AND GERMANIUM CAPPED NANOCRYSTALLITES
L.E. Ramos, J. Furthmueller, and F. Bechstedt, Institut fuer Festkoerpertheorie und -optik, Friedrich-Schiller-Universitaet Jena, Max-Wien-Platz 1, 07743 Jena, Germany
- F/PI.27** NEW LOW BAND-GAP ALTERNATING POLYFLUORENE DERIVATIVES FOR USE IN PHOTOVOLTAIC CELLS
Nam Sung Cho(a), Sang Kyu Lee(a), Do-Hoon Hwang(b) and Hong-Ku Shim(a), (a)Center for Advanced Functional Polymers, Department of Chemistry and School of Molecular Science (BK21), Korea Advanced Institute of Science and Technology, Dae- jon 305-701, Korea, (b)Department of Applied Chemistry, Kumoh National Institute of Technology, Kumi 730-701, Korea
- F/PI.28** USING SILICON NANOSTRUCTURES FOR THE IMPROVEMENT OF SILICON SOLAR CELLS' EFFICIENCY
J. De la Torre, G. Bremond, M. Lemiti, G. Guillot, Laboratoire de Physique de la Matière, UMR-CNRS 5511, INSA de Lyon, Bât.502, 20 Av. Albert Einstein, 69621 Villeurbanne cedex, France, P. Mur, N. Buffet, CEA-DRT-LETI, 17 rue des Martyrs, 38054 Grenoble cedex 9, France
- F/PI.29** AN AMORPHOUS SIC/SI PHOTODETECTOR WITH VOLTAGE-SELECTABLE SPECTRAL RESPONSE
P. Louro(a), M. Fernandes(a), A. Fantoni(a), Y. Vygranenko(a), G. Lavareda(b), C.N. Carvalho(b), M. Vieira(a), (a)DEETC-ISEL, (b)CFM-UTL; Portugal
- F/PI.30** PHOTOVOLTAIC EFFECT IN THIN VARIABLE-GAP P-N STRUCTURES WITH NON-MONOTONOUS BAND GAP PROFILE
B.S. Sokolovskii, V.K. Pysarevskii, Ivan Franko National University, 50 Dragomanov Str., 79005 Lviv, Ukraine

- F/PI.31** PHTHALOCYANINES INCORPORATED INTO HOT WIRE-CVD GROWN SILICON
U. Weiler, K. Schwanitz, T. Mayer and W. Jaegermann Darmstadt University of Technology, Department of Material Science, Surface Science Division Petersenstr. 23, 64287 Darmstadt, Germany
- F/PI.32** HYSTERESIS-LIKE BEHAVIOUR OF THE THERMOELECTRIC VOLTAGE IN PHOTOVOLTAIC MATERIALS
P. Díaz-Chao, A. Pascual, I. J. Ferrer, C. Sánchez, Department of Material Physics C-IV, Autonomous University of Madrid, UAM, Cantoblanco, 28049 Madrid, Spain
- F/PI.33** SCREEN-PRINTING AS A DEPOSITION TECHNIQUE FOR FLEXIBLE POLYMER SOLAR CELL MODULES
T. Aernouts, P. Vanlaeke, J. Poortmans, P. Heremans, IMEC, Kapeldreef 75, 3001 Leuven, Belgium
- F/PI.34** SOLAR CELLS BASED ON CADMIUM TELLURIDE NANOPARTICLE-POLYMER COMPOSITES
Sandeep Kumar, Thomas Nann, Moritz Riede, Birger Zimmermann, Michael Niggemann, Freiburg Materials Research center, Albert Ludwigs Universität Freiburg, Stefan Meier Str. 21, Freiburg 79104, Germany, Frank Dierscheke, Max Planck Institute for Polymer Research, Ackermannweg 10, 55128 Mainz, Germany
- F/PI.35** EFFECT OF SUBSTRATE MATERIAL ON STRUCTURAL AND OPTICAL PROPERTIES OF THIN METALLPHTHALOCYANIN FILMS
V.L. Berkovits, V.V. Krivolapchuk, M.M. Mezdrogina, E.I. Terukov, T.A. Eurre, Ioffe Physico-Technical Institute, Polytechnicheskaya 26, Petersburg 124021, Russia
- F/PI.36** SOLAR CELLS BASED ON POLYMER BLENDS WITH A MAXIMUM IPCE OF 40 %, AND A POWER CONVERSION EFFICIENCY OF 1.2%
M. Koetse, J. Sweelssen, K. Hoekerd, H. Schoo, TNO, PO Box 6235, 5600 HE Eindhoven, The Netherlands, and S. Veenstra, J. Kroon, ECN, Solar Energy, PO Box 1, 1755 ZG Petten, The Netherlands, DPI, P.O. Box 902, 5600 AX Eindhoven, The Netherlands
- F/PI.37** SYNTHESIS AND PROPERTIES OF POLYTHIOPHENE/MOLECULAR LINKER/TITANIA NANOSTRUCTURED MATERIALS FOR PHOTOVOLTAIC DEVICES
Leeyih Wang, Center for Condensed Matter Sciences and Hui-Ru Liu, Institute of Polymer Science and Technology, National Taiwan University, Taipei, Taiwan
- F/PI.38** ELECTROCHEMICAL DEPOSITION OF P3HT/PCBM NANOSTRUCTURE
S. Fantini and M. Firon, Laboratoire Cellules et composants, DRT-LITEN/DSEN/GENEC/L2C, CEA Saclay, 91191 Gif-sur-Yvette cedex, France
- F/PI.39** SOLID STATE DYE SENSITISED SOLAR CELLS: A COMPARATIVE STUDY USING DIFFERENT NANO-TITANIUM-DIOXIDE
C.S. Karthikeyan, M. Thelakkat, M. Willert-Porada, Germany
- F/PI.40** TiO₂ THIN LAYERS WITH CONTROLLED MORPHOLOGY FOR ETA (EXTREMELY THIN ABSORBER) SOLAR CELLS
Anca Duta, Simona Manolache, Centre for Sustainable Energy, Transilvania University of Brasov, Eroilor 29, 500036 Brasov, Romania, Marian Nanu, Albert Goossens, Joop Schoonman, TU Delft, Julianalaan 136, 2628 Delft, The Netherlands
- F/PI.41** NOVEL POLY(3-METHYLTHIOPHENE)-TiO₂ HYBRID MATERIALS FOR PHOTOVOLTAIC CELLS
Yi-Jun Lin(a), Hsueh-Pei Lu(b), Leeyih Wang(c,d) and Wen-Yen Chiu(a,d), (a)Department of Chemical Engineering, National Taiwan University, Taipei, Taiwan, (b)Institute of Organic and Polymeric Materials, National Taipei University of Technology, Taipei, Taiwan, (c)Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan, (d)Institute of Polymer Science and Engineering, National Taiwan University, Taipei, Taiwan
- F/PI.42** HIGH RESOLUTION XPS AND ARUPS STUDY OF THIN ORGANIC FILMS ON METALLIC SUBSTRATES
A. Bendounan, J. Ziroff, F. Forster, F. Schmitt, E. Umbach, A. Schöll and F. Reinert, Experimentelle Physik II, Universitaet Wuerzburg, Am Hubland, 97074 Wuerzburg, Germany
- F/PI.43** OPTICAL AND ELECTRICAL PROPERTIES OF NEW POSS ANCHORED POLYFLUORENE THIN FILMS
L. Fenenko, ISP of NASU, 45 Pr. Nauky, 03028, Kyiv, Ukraine; IJRC, Shizuoka University, 3-5-1 Johoku, Hamamatsu 432-8011, Japan, Y. Nakanishi, H. Kominami, T. Aoki, A. Nakamura, RIE, Shizuoka University, 3-5-1 Johoku, Hamamatsu 432-8011, Japan, P. Smertenko, S. Svehnikov, ISP of NASU, 45 Pr. Nauky, 03028 Kyiv, Ukraine
- F/PI.44** THEORETICAL DESCRIPTION OF HOPPING TRANSPORT IN DISORDERED MATERIALS FOR SOLAR CELLS
S.D. Baranovskii, O. Rubel, P. Thomas, Department of Physics and Material Sciences Centre, Philipps University Marburg, 35032 Marburg, Germany
- F/PI.45** TiO₂-COATED CARBON NANOCAPSULES FOR PHOTOVOLTAIC APPLICATIONS
Hui-Chi Huang, Gan-Lin Huang, Chin-I Lin, Hsin-Lung Chen, Yu-Der Lee, Taiwan
- F/PI.46** CONTROL OF EXCITON DIFFUSION IN SUBSTITUTED MESO-TETRAPHENYLPORPHYRIN THIN FILMS
Annemarie Huijser(a), Tom J. Savenije(a), Jessica E. Kroeze(b) and Laurens D.A. Siebbeles(a), (a)Opto-Electronic Materials Section, DelftChemTech, Delft University of Technology, The Netherlands and (b)Centre for Electronic Materials and Devices, Imperial College London, U.K.

- F/PI.47** INCLUDING EXCITONS IN SEMICONDUCTOR SOLAR CELL MODELLING
 Marc Burgelman and Ben Minnaert, University of Gent, Electronics and Information Systems (ELIS), Pietersnieuwstraat 41, 9000 Gent, Belgium
- F/PI.48** GROUND STATE CHARGE-TRANSFER INTERACTION DECREASES PHASE SEPARATION IN DONOR-ACCEPTOR CONJUGATED POLYMER FILMS
 S.G. Elizarov, A.E. Ozimova, V.V. Bruevich, D.Yu. Paraschuk, International Laser Center, Moscow State University, Moscow 119992, Russia, S.A. Arnautov, E.M. Nechvolodova, Semenov Institute of Chemical Physics, Russian Academy of Sciences, ul. Kosygina 4, Moscow 119991, Russia
- F/PI.49** CHARGE CARRIER DYNAMICS IN SOLID-STATE DYE-SENSITIZED SOLAR CELLS
 Jessica E. Kroeze(a), Narukuni Hirata(a), Tom J. Savenije(b) and James R. Durrant(a), (a)Centre for Electronic Materials and Devices, Imperial College London, U.K., (b)Opto-Electronic Materials Section, DelftChemTech, Faculty of Applied Sciences, Delft University of Technology, The Netherlands
- F/PI.50** NANOSTRUCTURE OF SELF-ASSEMBLED ROD-COIL BLOCK COPOLYMER FILMS FOR PHOTOVOLTAIC APPLICATIONS
 T. Heiser(a), G. Adamopoulos(b), M. Brinkman(c), U. Giovanella(b), S. Ould-Saad(a) C. Brochon(b), K. van de Wetering(b), and G. Hadziioannou(b), (a)PHASE-CNRS, 67037 Strasbourg Cedex 2, France, (b)LIPHT-ECPM, 67087 Strasbourg Cedex 2, France, (c)ICS-CNRS, 67083 Strasbourg Cedex, France
- F/PI.51** COMPOSITIONAL DEPENDENCE OF THE PERFORMANCE OF CONJUGATED POLYMER/FULLERENE BULK HETEROJUNCTION SOLAR CELLS
 V.D. Mihailetchi, L.J.A. Koster, P.W.M. Blom, C. Melzer, B. de Boer, Materials Science Centre, University of Groningen, Nijenborgh 4, 9747 AG Groningen, The Netherlands, J.K.J. van Duren, R.A.J. Janssen, Laboratory of Macromolecular and Organic Chemistry, Eindhoven University of Technology, PO Box 513, 5600 MB Eindhoven, The Netherlands
- F/PI.52** CHARGE TRANSPORT IN CONJUGATED POLYMER/ZINC OXIDE NANOPARTICLES BULK HETEROJUNCTION SOLAR CELLS
 L.J.A. Koster, W.J. van Strien, P.W.M. Blom, Materials Science CentrePLUS, University of Groningen, Nijenborgh 4, 9747 AG, Groningen, The Netherlands, W.J.E. Beek and R.A.J. Janssen, Molecular Materials and Nanosystems (M2N), Laboratory of Macromolecular and Organic Chemistry, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands
- F/PI.53** LARGE AREA POLYMER SOLAR CELLS ON FLEXIBLE SUBSTRATES
 S. Sensfuss, M. Al-Ibrahim, H. Schache, A. Konkin, Thuringian Institute for Textile and Plastics Research, Breitscheidstrasse 97, D-07407 Rudolstadt, Germany; D. A. M. Egbe, Friedrich-Schiller-University Jena, Institute for Organic Chemistry and Macromolecular Chemistry, Humboldtstr.10, D-07743 Jena, Germany; F. Apsel, U. Mieth, Ze Be S GmbH Wolfen, Center for Coating- & Special Measurement, Chemiepark Bitterfeld Wolfen Areal A, Edisonstrasse 4, D-06766 Wolfen, Germany; U. Herzau-Gerhardt, Leipzig University of Applied Science, Department of Polygraphic Technique, PF 30 11 66, D-04251 Leipzig, Germany
- F/PI.54** PHOTOVOLTAIC CELLS BASED ON SUMBE DEPOSITION OF ORGANIC AND HYBRID MATERIALS
 N. Coppède, T. Toccoli, F. Siviero, A. Pallaoro, S. Chiarani, A. Mayer*, A. Boschetti and S. Iannotta, IFN-CNR Istituto di Fotonica e Nanotecnologie Sez. Trento *Visiting from Cornell University
- F/PI.55** NITROXIDE RADICALS BEARING TRIARYLAMINE MOIETY : SYNTHESIS, ELECTRONIC STRUCTURE AND HOLE-TRANSPORTING PROPERTY FOR ORGANIC ELECTRONICS
 Takashi Kurata(a), Kenichiro Koshika(a), Fumiaki Kato(a), Junji Kido(b), Hiroyuki Nishide(a), (a)Department of Applied Chemistry, Waseda University, Tokyo, Japan, (b)Department of Polymer Science and Engineering, Yamagata University, Yonezawa, Japan
- F/PI.56** ENHANCED THERMOOXIDATIVE AND NIR PHOTO STABILITY OF CONJUGATED POLYMER CHARGE TRANSFER COMPLEX
 S.A. Arnautov, E.M. Nechvolodova, Institute of Chemical Physics, Russian Acad. Sci., 4 Kosygina St., Moscow 119991, Russia, A.N. Shchegolikhin, Institute of Biochemical Physics, Russian Acad. Sci., 4 Kosygina St., Moscow 119991, Russia
- F/PI.57** SOLVENT INDUCED CHANGES OF THE ELECTRONIC STRUCTURE OF THE TiO₂/DYE INTERFACE DETERMINED BY PHOTOELECTRON SPECTROSCOPY
 Konrad Schwanz, Ulrich Weiler, Thomas Mayer, Wolfram Jaegermann Surface Science Division, Institute of Materials Science, Darmstadt University of Technology, Petersenstr. 23, 64287 Darmstadt, Germany
- F/PI.58** RECOMBINATION OF PHOTOGENERATED AND INJECTED CHARGE CARRIERS IN p-CONJUGATED POLYMER /FULLERENE BLENDS
 G. Sliuzys, G. Juška, K. Arlauskas, Department of Solid State Electronics, Vilnius University, Sauletekio 9, 01513, Vilnius, Lithuania; A. Pivrikas, R. Österbacka, Department of Physics, Åbo Akademi University, Porthasgatan 3, 20500 Turku, Finland; A. Mozer, M. Scharber, N. S. Sariciftci, Linz Institute for Organic Solar Cells (LIOS), Physical Chemistry, Johannes Kepler University Linz, Altenbergerstr. 69, 4040 Linz, Austria

Wednesday, June 1, 2005
Mercredi 1er juin 2005

Afternoon
Après-midi

Session IV

Session chairs: **A. Aberle, B. Rech**

- F-IV.01** 14:00 -Invited- EPITAXIAL THIN-FILM SI SOLAR CELLS
G. Beaucarne, IMEC, 3001 Leuven, Belgium
- F-IV.02** 14:30 PROPERTIES OF THIN LAYERS AND INTERFACES OF Si-BASED HETEROJUNCTION SOLAR CELLS
A.G. Ulyashin, E. Monakhov, A.Yu. Kuznetsov, B.G. Svensson, University of Oslo, Department of Physics, Centre for Material Science and Nanotechnology, Sem Saelands vei 24, P.O.Box 1048 Blindern, 0316 Oslo, Norway
- F-IV.03** 14:45 OPTIMISATION OF AMORPHOUS AND POLYMORPHOUS SILICON THIN LAYERS FOR FORMATION OF FRONT SIDE HETEROJUNCTION SOLAR CELLS ON P-TYPE CRYSTALLINE SILICON SUBSTRATE
Y. Veschetti, J-C. Muller, PHASE-CNRS (UPR 292), 23 rue du Loess, BP20, 67037 Strasbourg Cedex 02, France, **A.S. Gudovskikh**, J-P. Kleider, LGEP (UMR 8507, CNRS), Ecole Supérieure d'Électricité, 11 rue Joliot-Curie, Plateau de Moulon, 91192 Gif-sur-Yvette Cedex, France, **E.Rolland**, P-J. Ribeyron, CEA-Grenoble, 17 rue des Martyrs, 38054 Grenoble cedex 9, France, **J. Damon-Lacoste**, **P. Roca i Cabarrocas**, LPICM (UMR 7647, CNRS) Ecole Polytechnique, 91128 Palaiseau Cedex, France
- F-IV.04** 15:00 -Invited- THE PROGRESS AND PERSPECTIVES OF MICROCRYSTALLINE SI SOLAR RESEARCH
B. Rech, Institute of Photovoltaics, Forschungszentrum Juelich GmbH, Germany
- F-IV.05** 15:30 RECOMBINATION TRAFFIC IN HIGHLY CRYSTALLIZED UNDOPED MICROCRYSTALLINE SI FILMS STUDIED BY STEADY STATE PHOTOCONDUCTIVITY
Sanjay K. Ram and Satyendra Kumar, Department of Physics, Indian Institute of Technology Kanpur, Kanpur-208016, India and **R. Vanderhaghen**, **B. Drevillon** and **P. Rocca i Cabarrocas**, Laboratoire de Physique des Interfaces et des Couches Minces (UMR 7647 du CNRS), Ecole Polytechnique, 91128 Palaiseau Cedex, France
- F-IV.06** 15:45 ROLE OF PLASMA INDUCED SUBSTRATE HEATING DURING HIGH RATE GROWTH OF MICROCRYSTALLINE SILICON SOLAR CELLS
M.N. van den Donker, **R. Schmitz**, **W. Appenzeller**, **B. Rech**, Institute of Photovoltaics, Forschungszentrum Juelich GmbH, Germany, **W.M.M. Kessels**, **M.C.M. van de Sanden**, Department of Physics, Eindhoven University of Technology, The Netherlands
- 16:00 **BREAK**

Session V

Session chairs: **J. Nelson, U. Scherf**

- F-V.01** 16:30 -Invited- MOLECULAR AND SUPRAMOLECULAR ENGINEERING OF FUNCTIONAL-CONJUGATED SYSTEMS
J. Roncali, Groupe Systèmes Conjugués Linéaires, CIMMA, UMR CNRS 6200, Université d'Angers, France
- F-V.02** 17:00 BROAD PHOTOCURRENT SPECTRAL RESPONSE WINDOW OF SOLAR CELLS WITH LOW-BANDGAP COPOLYFLUORENE AND C70-FULLERENE
Xiangjun Wang(a), **Erik Perzon**(b), **Juan Luis Delgado**(c), **Fernando Langa**(c), **Mats Andersson**(b) and **Olle Inganäs**(a), (a)Biomolecular and organic electronics, (IFM), Linköping University, 581 83 Linköping, Sweden, (b)Materials and Surface Chemistry, Chalmers University of Technology, 412 96 Göteborg, Sweden, (c)Facultad de Ciencias del Medio Ambiente, Universidad de Castilla-La Mancha, 45071, Toledo, Spain
- F-V.03** 17:15 ORGANIC BULK HETEROJUNCTION SOLAR CELLS: TUNING TOWARDS HIGH EFFICIENCIES
M. Koppe, **D. Muehlbacher**, **M. Morana**, **C. Waldauf**, **P. Denk**, **M.C. Scharber**, **C.J. Brabec**, Konarka Austria, R&D, Altenberger Str. 69, 4040 Linz, Austria
- F-V.4** 17:30 LOW-BANDGAP POLYMER:FULLERENE SOLAR CELLS
M.M. Wienk, **M.P. Struijk**, **A.A.C. Broeren**, **G. Ridolfi**, **R.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
- 17:30-19:00 **POSTER SESSION II**
- 19:00 **AWARD CEREMONY**
The symposium organizers and the candidates to the graduate student award are requested to attend.

CONFERENCE RECEPTION

POSTER SESSION II
Wednesday, June 1, 2005
17:30 – 19:00

- F/PII.01** A NOVEL APPROACH FOR CO-FIRING OPTIMIZATION IN RTP FOR THE FABRICATION OF LARGE AREA MC-Si SOLAR CELL
S.K. Dhungel, Kyunghae Kim, U. Gangopadhyay, Jinsu Yoo, Sang-il Mun, Junsin Yi, Korea
- F/PII.02** STRUCTURAL, OPTICAL AND ELECTRICAL PROPERTIES OF QUASIMONOCRYSTALLINE SILICON THIN FILMS OBTAINED BY RAPID THERMAL ANNEALING OF POROUS SILICON LAYERS
M. Hajji, M. Khardani, H. Rahmouni, B. Bessais, H. Ezzaouia, H. Bouchriha, Institut national de Recherche Scientifique et Technique, Laboratoire de Photovoltaïque et des Semiconducteurs, BP 95, 2050 Hammam-Lif, Tunisia, Laboratoire de physique des Semiconducteurs et des Composants Electroniques Faculté des Sciences de Monastir, Rue de Kairouan 5000 Monastir, Tunisia, Laboratoire de Physique de la Matière Condensée, Faculté des Sciences de Tunis
- F/PII.03** PERFORMANCES OF AN IN-LINE PECVD SYSTEM USED TO PRODUCE HIGH EFFICIENCY POLIMORPHOUS/NANOCRYSTALLINE SILICON SOLAR CELLS
N. Martins(a), P. Canhola(a), L. Raniero(b), S. Zhang(b), M. Quintela(b), E. Fortunato(c), I. Ferreira(c), R. Martins(b), (a)PORTSOL-Sociedade Portuguesa de Sistemas Fotovoltaicos, Lda, Capa Rota, Manique de Cima, 2714-513 Sintra, Portugal, (b)CEMOP and (c)CENIMAT- Departamento de Materiais, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Campus da Caparica, 2829-516 Caparica, Portugal
- F/PII.04** CW LASER CRYSTALLIZATION OF AMORPHOUS SILICON FOR PHOTOVOLTAICS
Seong Jin Park(a,b), Ki Hyung Kim(a), Byung Kwon Choo(a), Eun Hyun Kim(a), Jin Jang(a), Young Jin Lim(b), Yu Mi Ku(a), (a)Advanced Display Research Center, Kyung Hee University, Dongdaemoon-ku, Seoul 130-701, Korea, (b)SBU Development Center, BOE TFT-LCD SBU, Ichon-si, Gyeonggi-do 467-701, Korea
- F/PII.05** APPLICATION OF THIN POROUS SILICON LAYER FOR FRONT SURFACE PASSIVATION AT REAR-CONTACTS SOLAR CELLS
O. Nichiporuk(a,b), A. Kaminski(b), M. Lemiti(b), A. Fave(b), S. Litvinenko(a), V. Skryshevsky(a), (a)Radiophysics Department, Taras Shevchenko National University, 64 Vladimirska, 01033, Kiev, Ukraine, (b)Laboratoire de Physique de la Matière, UMR 5511, INSA de Lyon, Bât. Blaise Pascal, 7 avenue Jean Capelle, 69621 Villeurbanne Cedex, France
- F/PII.06** ANALYSIS OF STRUCTURE AND DEFECTS IN THIN SILICON FILMS DEPOSITED FROM HYDROGEN DILUTED SILANE
G. van Elzakker(a), V. Nádazdy(b), F.D. Tichelaar(c), J.W. Metselaar(a), and M. Zeman(a), (a)Delft University of Technology, DIMES, P.O. Box 5053, 2600 GB, Delft, The Netherlands, (b)Institute of Physics SAS, Dúbravská cesta 9, 845 11 Bratislava, Slovak Republic, (c)Delft University of Technology, National Centre for High Resolution Electron Microscopy, Rotterdamseweg 137, 2628 AL, Delft, The Netherlands
- F/PII.07** ELECTRICAL CHARACTERIZATION OF NOVEL SI SOLAR CELLS
Ozge Tuzun, Sener Oktik, Physics Department, Mugla University, 48000 Mugla, Turkey, Semsettin Altindal, Tofig Mammadov, Physics Department, Gazi University, 06500 Ankara, Turkey
- F/PII.08** HIGH-RATE GROWTH OF HIGHLY-CRYSTALLIZED Si FILMS FROM VHF INDUCTIVELY-COUPLED PLASMA CVD
Nihan Kosku and Seiichi Miyazaki, Graduate School of Advanced Sciences of Matter, Hiroshima University, Japan
- F/PII.09** CONDUCTIVE SIC AS AN INTERMEDIATE LAYER FOR CSITF SOLAR CELLS
S. Janz, S. Reber, F. Lutz, C. Schetter, Fraunhofer Institute for Solar Energy Systems, Heidenhofstrasse 2, 79110 Freiburg, Germany
- F/PII.10** NICKEL ASSISTED METAL INDUCED CRYSTALLIZATION OF SILICON: EFFECT OF NATIVE SILICON OXIDE LAYER
L. Pereira(a), R.M.S. Martins(b), N. Schell(b), F.M. Braz Fernandes(a), E. Fortunato(a), R. Martins(a), (a)Departamento de Ciência dos Materiais, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa and CEMOP, Campus da Caparica, 2829-516 Caparica, Portugal, (b)Forschungszentrum Rossendorf, P.O. Box 510119, 01314 Dresden, Germany
- F/PII.11** MICROCRYSTALLINE SILICON THIN FILMS GROWN AT HIGH DEPOSITION RATE BY PECVD
G. Ambrosone(a), U. Coscia(a), S. Lettieri(a), C. Minarini(b), P. Maddalena(a), (a)INFM-Coherentia and Dipartimento di Scienze Fisiche, Università di Napoli "Federico II", Complesso Universitario Monte S. Angelo, Via Cintia, 80126 Napoli, Italy, (a)ENEA, Research Center, Località Granatello, 80055 Portici (Na), Italy
- F/PII.12** EFFECT OF PLASMA PARAMETERS ON THE AMORPHOUS TO MICROCRYSTALLINE SILICON TRANSITION
E. Katsia, E. Amanatides, D. Mataras and D. E. Rapakoulas Plasma Technology Laboratory, Department of Chemical Engineering, University of Patras, P.O. Box 1407, Patras 26504, Greece
- F/PII.13** ELECTRONIC PROPERTIES OF INTRINSIC AND DOPED AMORPHOUS SILICON CARBIDE FILMS
M. Vetter, C. Voz, R. Ferré, I. Martín, A. Orpella, J. Puigdollers, R. Alcubilla, Departament d'Enginyeria Electrònica, Universitat Politècnica de Catalunya, Gran Capità s/n, Mòdul C4, 08034 Barcelona, Spain, S. Janz, Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstr. 2, 79110 Freiburg, Germany, J. Andreu, Departament de Física Aplicada i Òptica, Universitat de Barcelona, Diagonal 647, 08028 Barcelona, Spain

- F/PII.14** FORMATION OF OHMIC CONTACTS TO LOW-RESISTIVE Cd(1-x)Mg(x)Te FOR PHOTOVOLTAIC APPLICATIONS
Yu.V. Vorobiev, J. Gonzalez-Hernandez, CINVESTAV Unidad Queretaro, Libramiento Norponiente 2000, Fracc. Real de Juriquilla, 76230 Queretaro, QRO, Mexico, and O.A. Parfenyuk, M.I. Ilashchuk, K.S. Ulyanitsky, P.M. Gorley, Yuri Fedkovych Chernivtsi National University, 2 Kotsyubynsky Str., 58102, Chernivtsi, Ukraine
- F/PII.15** THE INFLUENCE OF OXYGEN TREATMENT ON ELECTRICAL PROPERTIES OF PbS THIN FILMS DEPOSITED AT ROOM TEMPERATURE BY CHEMICAL BATH
L. Raniero(a), C.L. Ferreira(b), L. Cruz(b), A. Pinto(b), R. Alves(b), E. Fortunato(a) and R. Martins(a), (a)Departamento de Ciência dos Materiais, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa and CEMOP, Campus da Caparica, 2829-516 Caparica, Portugal, (b)Departamento de Ciência dos Materiais, Instituto Militar de Engenharia, Praça General Tibúrcio nº 80, Praia Vermelha, Rio de Janeiro 22290-270, Brasil
- F/PII.16** ROLE OF HYDROGEN PLASMA ON ELECTRICAL AND OPTICAL PROPERTIES OF ZnO:Ga, ITO and ZnO:In TRANSPARENT AND CONDUCTIVE COATINGS
L. Raniero, I. Ferreira, A. Pimentel, A. Gonçalves, S. Zhang, E. Fortunato and R. Martins, Departamento de Materiais, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa and CEMOP, Campus da Caparica, 2829-516 Caparica, Portugal
- F/PII.17** INTERDIFFUSION DURING THE PREPARATION OF CuInSe₂/CuGaSe₂ AND CuInSe₂/CuAlSe₂ BILAYER FILMS
C.H. Lin, G.R. Cheng, G.P. Liu and B.H. Tseng, Institute of Materials Science and Engineering, National Sun Yat-Sen University, Kaohsiung 804, Taiwan
- F/PII.18** MICROSTRUCTURAL STUDY ON SULFIDE CONVERSION PROCESSES OF CuInSe₂ G.P. Liu and B.H. Tseng, Institute of Materials Science and Engineering, National Sun Yat-Sen University, Kaohsiung 804, Taiwan
- F/PII.19** COMPARATIVE STUDIES OF THE PROPERTIES FOR CDS FILMS DEPOSITED ON DIFFERENT SUBSTRATES BY RF SPUTTERING
Byung-Sik Moon, Jae-Hyeong Lee, Hakkee Jung, School of Electronics & Information Engineering, Kunsan National University, Korea
- F/PII.20** PREPARATION AND CHARACTERIZATION OF CuInSe₂ NANO-PARTICLES AND NANORODS
W.L. Lu(a), H.Y. Wu(b), Y.S. Hu(b) and B.H. Tseng(a), (a)Institute of Materials Science and Engineering, National Sun Yat-Sen University, Kaohsiung 804, Taiwan, (b)Union Chemical Laboratories, ITRI (Industrial Technology Research Institute)
- F/PII.21** NANOSTRUCTURED METAL-OXIDES SOLAR CELLS BASED ON PbS ABSORBER
A. Belaidi, T. Guminskaya, N. Allsop and T. Dittrich, Hahn-Meitner-Institut Berlin, Glienicker Str. 100, 14109 Berlin, Germany
- F/PII.22** A PHOTOLUMINESCENCE AND STRUCTURAL ANALYSIS OF CuInS₂ – ON-Cu-TAPE SOLAR CELLS (CISCuT)
Jochen Van Gheluwe(a), Jorg Versluys(a), Dirk Poelman(a), Johan Verschraegen(b), Marc Burgelman(b), Paul Clauws(a), (a)Ghent University, Department of Solid State Sciences, Gent, Belgium, (b)Ghent University, Electronics and Information Systems (ELIS), Gent, Belgium
- F/PII.23** SEEBECK COEFFICIENT EVOLUTION DURING THE Fe TO FeS₂ THIN FILM REACTION
A. Pascual(a), J.R. Ares(b), P. Díaz-Chao(a), I.J. Ferrer(a), C. Sánchez(a), (a)Departament of Material Physics C-IV, Autonomous University of Madrid, UAM, Cantoblanco, 28049 Madrid, Spain, (b)GKSS Forschungszentrum, Max Plack Strasse 1, 21502 Geesthacht, Germany
- F/PII.24** CHARACTERIZATION OF Cu(In,Ga)Se₂ THIN FILMS USING REFLECTED SHG
L. Kulyuk, G. Buinitskaya, V. Goremichin, V. Mirovitskii, Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau 2028, Republic of Moldova; E. Mishina, N. Sherstyuk, Moscow Institute of Radioengineering, Electronics and Automation, prosp. Vernadskogo 78, 119454 Moscow, Russia; K. Ramanathan, National Renewable Energy Laboratory 1617 Cole Boulevard, Golden CO 80401, USA
- F/PII.25** EXTRACTION OF FEATURES FROM 2-D LATERALLY SUB-MICRON RESOLVED PHOTOLUMINESCENCE FROM Cu(Ga,In)Se₂ ABSORBERS BY FOURIER TRANSFORMS AND MINKOWSKI-SPACE OPERATIONS
R. Fuhrmann, L. Gütay, R. Brüggemann, G.H. Bauer, Institute of Physics, Faculty of Mathematics and Natural Sciences, Carl von Ossietzky University, 26111 Oldenburg, Germany
- F/PII.26** HOMOGENEITY OF SINGLE PHASE Cu(In,Ga)Se₂ PRODUCED BY SELENIZATION OF METAL PRECURSORS: AN OPTICAL INVESTIGATION
J.R. Botha, S.A. Schumacher, A.W.R. Leitch, Physics Department, Nelson Mandela Metropolitan University, PO Box 77000, Port Elizabeth, South Africa, V. Alberts, Physics Department, University of Johannesburg, PO Box 524, Johannesburg, South Africa
- F/PII.27** ADMITTANCE SPECTROSCOPY OF CADMIUM FREE AND CdS BASED CIGS SOLAR CELLS
Z. Djebbour, A. Dubois, D. Mencaraglia, LGEP-Supélec, 11 rue Joliot Curie, 91192 Gif-sur-Yvette, France and N. Naghavi, J.F. Guillemoles, D. Lincot, LECA-ENSCP, 11 rue Pierre et Marie Curie, 75231 Paris, France
- F/PII.28** PREPARATION AND CHARACTERIZATION OF Cu(In,Ga)Se₂ LAYERS BY SELENIZATION OF ELECTRODEPOSITED Cu-In-Ga PRECURSORS
M. Ganchev, E. Tzvetkova, N. Stratieva, Central Laboratory of Solar Energy and New Energy Sources, Bulgarian Academy of Sciences, 72 Tzarigradsko Chaussee, 1784 Sofia, Bulgaria, J. Kois, S. Bereznev, O. Volobujeva, Tallinn University of Technology, Department of Materials Science, Ehitajate tee 5, 19086 Tallinn, Estonia, M. Kaelin and A. Tiwari, Thin Film Physics Group, ETH Zürich, Technoparkstr. 1, 8005 Zürich, Switzerland

- F/PII.29** GEL POLYMER ELECTROLYTES BASED ON PVDF-HFP COPOLYMER FOR DYE SENSITIZED SOLAR CELLS
G. Nazmutdinova, S. Sensfuss, Thuringian Institute for Textile and Plastics Research, Breitscheidstrasse 97, 07407 Rudolstadt, Germany; C. Prah, R. Kern, Freiburg Materials Research Center FMF, Stefan-Meier-Street 21, 79104 Freiburg, Germany
- F/PII.30** COMPARISON OF THE ELECTRICAL CHARACTERISTICS OF FOUR 2,5-SUBSTITUTED POLY(P-PHENYLENE VINYLENE) DERIVATIVES WITH DIFFERENT SIDE CHAINS
I. Van Severen(a), M. Breselge(b), L. Lutsen(b), P. Adriaensens(a), J. Manca(a), D. Vanderzande(a,b), T. Cleij(a), (a)Limburgs Universitair Centrum, Institute for Materials Research (IMO), Division Chemistry, Universitaire Campus, Building D, 3590 Diepenbeek, Belgium; (b)IMEC, Division IMOMECE, Wetenschapspark 1, 3590 Diepenbeek, Belgium
- F/PII.31** THERMALLY INDUCED ORDER IN PPV-DERIVATIVES
L. Breban(a), L. Lutsen(b), M. Breselge(b), J. D'Haen(b), G. Vanhoyland(a), J. Manca(a), D. Vanderzande(a,b), P. Adriaensens(a), (a)Limburgs Universitair Centrum, Institute for Materials Research (IMO), Universitaire Campus, Building D, 3590 Diepenbeek, Belgium; (b)IMEC, Division IMOMECE, Universitaire Campus, Wetenschapspark 1, 3590 Diepenbeek, Belgium
- F/PII.32** SIZE-DEFINED ALL-ORGANIC DONOR ACCEPTOR BLENDS BASED ON 3DTEMPLATES
Chiara Dionigi, Fabio Biscarini, J. Francois Moulin, Massimiliano Cavallini, Institute for Nanostructured Materials Studies (ISMN) - CNR Bologna Division, Giovanna Barbarella, Laura Favaretto, Institute for Organic Synthesis and photoreactivity (ISOF) - CNR Bologna, Italy
- F/PII.33** EXCIPLEX DYNAMICS IN A BLEND OF CONJUGATED POLYMERS WITH ELECTRON DONATING AND ACCEPTING PROPERTIES (MDMO-PPV AND PCNEPV)
T. Offermans, P.A. van Hal, S.C.J. Meskers and R.A.J. Janssen, Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands and M.M. Koetse, TNO Science and Industry, P.O. Box 6235, 5600 HE Eindhoven, The Netherlands and Dutch Polymer Institute (DPI), P.O. Box 902, 5600 AX Eindhoven, The Netherlands
- F/PII.34** MONTE-CARLO SIMULATIONS OF GEMINATE ELECTRON-HOLE PAIR DISSOCIATION IN A MOLECULAR HETEROJUNCTION: A TWO-STEP DISSOCIATION MECHANISM
T. Offermans, S.C.J. Meskers and R.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
- F/PII.35** MULTIFREQUENCY (X,W-BAND) ESR AND LESR study OF P3DDT/PCBM COMPOSIT SOLID FILMS. PHOTOINDUCED CHARGE SEPARATION.POLARON DIFFUSION DYNAMICS
A. Konkin, H.-K.Roth, S.Sensfuss, M. Schroedner, Department of Functional polymer Systems TITK, Breitscheidstrasse 97, 07407 Rudolstadt, Germany, and V. Krinichnyi, Institute of Problems of Chemical Physics, 142432 Chernogolovka, Russia, and A. Aganov, R.Garipov, Kazan State University, Physical department, 420008 Kazan, Russia
- F/PII.36** PHOTOVOLTAIC RESPONSE OF MULTILAYER HETEROJUNCTIONS ACHIEVED BY VACUUM DEPOSITION OF ORGANIC MOLECULES
W. Hojeij, B. Brousse, B. Ratier, A. Moliton, UMOP FRE-CNRS 2701, Faculté des Sciences et Techniques, 123 Av. Albert Thomas, F87060 Limoges Cedex, France
- F/PII.37** SOLID STATE ORGANIC/INORGANIC HYBRID PHOTOVOLTAICS : HOW SOL-GEL CHEMISTRY ALLOWS TO OPTIMIZE SOLAR CELL EFFICIENCY
E. Lancelle-Beltran(a), P. Prené(a), C. Boscher(a), P. Belleville(a), P. Buvat(a), S. Lambert(a), C. Sanchez(b), (a)Département Matériaux, CEA/Le Ripault, BP 16, 37260 Monts, France, (b)Laboratoire de Chimie de la Matière Condensée, CNRS UMR 7574, Université Pierre et Marie Curie, 4 Place Jussieu, 75252 Paris Cedex 05, France
- F/PII.38** 3,4-PHENYLENEDIOXYTHIOPHENE: A NEW BUILDING BLOCK FOR FUNCTIONAL CONJUGATED SYSTEMS
S. Roquet, P. Leriche, I. Perepichka, P. Frère, J. Roncali, Groupe Systèmes Conjugués Linéaires, CIMMA, UMR 6200 CNRS, Université d'Angers, 2 Bd Lavoisier, 49045 Angers, France
- F/PII.39** NOVEL PHOTOACTIVE MATERIALS OF POLY(ETHYLENEDIOXYTHIOPHENE)-POLY(STYRENESULFONATE)/TiO₂ CORE-SHELL NANOPARTICLES
Hsiao-Yen Lee(a), Leeyih Wang(b), and Syang-Peng Rwei(a), (a)Institute of Organic & Polymer Materials, National Taipei University of Technology, Taipei, Taiwan, (b)Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan
- F/PII.40** DEFECT STATES INVESTIGATION IN POLY(2-METHOXY,5-(2'ETHYL-HEXYLOXY)-1,4-PHENYLENE VINYLENE) (MEH-PPV)
T.P. Nguyen(a), P. Le Rendu(a), O. Gaudin(b), A. J.T. Lee(b), R.B. Jackman(b), (a)Laboratoire de Physique des Matériaux et Nanostructures, Institut des Matériaux Jean Rouxel, 2 rue de la Houssinière BP32229, 44322 Nantes, France, (b)University College London, Torrington Place, London, U.K., (c)Department of Applied Chemistry, National Chiao Tung University, Hsinchu, Taiwan
- F/PII.41** CATALYTIC PLATINUM LAYERS FOR DYE SOLAR CELLS. A COMPARATIVE STUDY
Guram Khelashvili(a,b), Silke Behrens(a), Claudia Weidentaler(c), Helmut Bönemann(c), (a)Forschungszentrum Karlsruhe, ITC-CPV, P.O. Box 3640, 76021 Karlsruhe, Germany, (b)University of Heidelberg, Heidelberg, Germany, (c)Max-Planck-Institut für Kohlenforschung, Kaiser-Wilhelm-Platz 1, 45470 Mülheim a.d. Ruhr, Germany

- F/PII.42** IMPEDANCE SPECTROSCOPY ON POLYMER-FULLERENE COMPOSITES
M. Knipper, J. Parisi, Energy and Semiconductor Research Laboratory, Department of Physics, University of Oldenburg, 26111 Oldenburg, Germany, C. Waldauf, C. Brabec, Konarka Technologies, Altenberger St. 69, 4040 Linz, Austria, V. Dyakonov, Faculty of Physics and Astronomy, University of Würzburg, Am Hubland, 97074 Würzburg, Germany
- F/PII.43** A NEW ENCAPSULATION SOLUTION FOR ORGANIC SOLAR CELLS
G. Dennler, C. Lungenschmied, H. Neugebauer, N.S. Sariciftci, Linz Institute for Organic Solar Cells (LIOS), Physical Chemistry, Johannes Kepler University, Altenbergerstrasse 69, 4040 Linz, Austria, G. Czeremuszkin, M. Latrèche, NOVA-PLASMA Inc., 41 Durham, Dollard des Ormeaux, QC H9G 1Z9, Canada, M.R. Wertheimer, Groupe des Couches Minces (GCM) and Department of Engineering Physics, Ecole Polytechnique, C.P. 6079, Station Centre-Ville, Montréal, QC H3C 3A7, Canada
- F/PII.44** PHOTOVOLTAIC EFFICIENCY OF ORGANIC SOLAR CELLS: ELECTROMAGNETIC FIELD OPTIMIZATION
F. Monestier, J.J. Simon, P. Torchio, L. Escoubas, M. Cathelinaud, Fresnel Institute, EGIM Nord Dom. Univ. de St-Jérôme, 13397 Marseille Cedex 20, France, S. Alem and J.M. Nunzi, ERT Cellules Solaires Photovoltaïques Plastiques, Université d'Angers, 49045 Angers, France
- F/PII.45** PREPARATION OF TITANIA LAYERS WITH DIFFERENT MORPHOLOGIES BY AN AQUEOUS SOLUTION-GEL METHOD
I. Truijen(a), G. Vanhoyland(a), J. D'Haen(b), M.K. Van Bael(a,b), H. Van den Rul(a,b), J. Mullens(a), L.C. Van Poucke(a), (a)Laboratory of Inorganic and Physical Chemistry, IMO, Limburgs Universitair Centrum, building D, 3590 Diepenbeek, Belgium, (b)IMEC vzw, Division IMOMECE, Wetenschapspark 1, 3590 Diepenbeek, Belgium
- F/PII.46** CAPACITANCE AND FIELD-DRIVEN ELECTRON TRANSPORT IN ELECTROCHEMICALLY SELF-ASSEMBLED NANOPOROUS ZNO/DYE HYBRID FILMS
T. Oekermann, C. Boeckler and J. Caro, University of Hannover, Institute of Physical Chemistry and Electrochemistry, Callinstrasse 3-3A, 30167 Hannover, Germany, T. Yoshida and H. Minoura, Gifu University, Graduate School of Engineering, Environmental and Renewable Energy Systems Division, Yanagido 1-1, Gifu 501-1193, Japan
- F/PII.47** NOVEL FUNCTIONAL MATERIALS FOR SOLID-STATE DYE-SENSITISED SOLAR CELLS
Narukuni Hirata, Jessica E. Kroeze, Saif A. Haque and James R. Durrant, Centre for Electronic Materials and Devices, Department of Chemistry, Imperial College London, U.K.
- F/PII.48** RECOMBINATION DYNAMICS IN POLY-THIOPHENE, AND POLY-VINYLENE : PCBM ORGANIC SOLAR CELLS
Steffan Cook, James Durrant, Centre for Electronic Materials and Devices, Department of Chemistry, Imperial College, Exhibition Road, South Kensington, London SW7 2AZ, U.K., Stelios Choulis, Youngkyoo Kim, Jenny Nelson, Donal Bradley, Centre for Electronic Materials and Devices, Department of Physics, Imperial College, Exhibition Road, South Kensington, London SW7 2AZ, U.K.
- F/PII.50** POLYTHIOPHENE BASED BULK HETEROJUNCTION SOLAR CELLS : MORPHOLOGY AND ITS IMPLICATIONS
P. Vanlaeke(a,b), A. Swinnen(b), I. Haeldermans(b), G. Vanhoyland(b), T. Aernouts(a), D. Cheyns(a), C. Deibel(a), J. D'Haen(b), P. Heremans(a), J. Manca(b) and J. Poortmans(a), (a)Imec vzw, Kapeldreef 75, 3001 Leuven, Belgium, (b)Institute for Materials Research (IMO), Limburgs Universitair Centrum (LUC), Wetenschapspark 1, 3590 Diepenbeek, Belgium
- F/PII.51** A NOVEL THIOPHENE-BASED CONJUGATED POLYMER FOR PLASTIC SOLAR CELLS
A. Fraleoni-Morgera(a), L. Setti(a), S. Cheylan(b), J. Puigdollers(c), C. Voz(c), R. Alcubilla(c) and G. Badenes(b), (a)Dept. Of Industrial and Materials Chemistry, Univ. of Bologna, V. Risorgimento 4, 40136 Bologna, Italy, (b)ICFO - Institut de Ciències Fotòniques, NEXUS II, c. Jordi Girona 29, 08034 Barcelona, Spain, (c)Departamento de Ingeniería Electrónica, Universidad Politécnica de Cataluña, UPC, Barcelona, Spain
- F/PII.52** OPTICAL AND PHOTOELECTRONIC PROPERTIES OF MELANIN FILMS
V. Capozzi(a,b), G.Perna(a,b), A. Gallone(a), P.Carmone(a), E. Mezzenga(a), G. Quartucci(a), R. Cicero(c), G. Guida(c), P. Zanna(c), M. Ambrico(d), V. Augelli(e), P.F. Biagi(e), T. Ligonzo(e) and L. Schiavulli(e), (a)Dipartimento di Scienze Biomediche, Università di Foggia, Viale Pinto, 71100 Foggia, Italy, (b)Istituto Nazionale di Fisica della Materia, Sezione di Bari, Via Amendola 173, 70126 Bari, Italy, (c)Dipartimento di Biochimica Medica e Biologia Medica, Sezione di Biologia Medica, Facoltà di Medicina e Chirurgia, Università degli Studi di Bari, Policlinico, 70126 Bari, Italy, (d)Istituto di Metodologie Inorganiche e dei Plasmi del C.N.R., Via Orabona 4, 70126 Bari, Italy, (e)Dipartimento Interateneo di Fisica dell'Università di Bari, Via Amendola 173, 70126 Bari, Italy
- F/PII.53** INFLUENCE OF NANOSCALE MORPHOLOGY IN SMALL MOLECULAR ORGANIC SOLAR CELLS
M. Vogel, B. Johnev, J. Strotmann and K. Fostiropoulos, Hahn-Meitner-Institut Berlin, Glienicke Str. 100, 14109 Berlin, Germany
- F/PII.54** ELECTRONIC TRANSPORT PROPERTIES ASPECTS AND STRUCTURE OF POLYMER -FULLERENE BASED ORGANIC SEMICONDUCTORS FOR PHOTOVOLTAIC DEVICES
G. Adamopoulos(a), T. Heiser(b), U. Giovanella(a), K.I. van de Wetering(a), C. Brochon(a), T. Zorba(c), K.M. Paraskevopoulos(c) and G. Hadziioannou(a) (a)Laboratoire d'Ingénierie des Polymères pour les Hautes Technologies (L.I.P.H.T.), Ecole Européenne Chimie Polymères Matériaux (E.C.P.M.) 25 Rue Becquerel, 67087 Strasbourg Cedex 02, France, (b)Laboratoire de Physique et Applications des Semiconducteurs, 23 Rue du Loess, BP 20, 67037 Strasbourg Cedex 02, France, (c)Physics Department, Solid State Physics Section, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece

F/PII.55

INFLUENCE OF THE NATURE OF NANOMETRIC TiO₂ PARTICLES ON THE PHOTOVOLTAGE IN DSSC

S. Cassaignon(a), M. Koelsch(a), J-F. Guillemoles(b), J-P. Jolivet(a), (a)Laboratoire Chimie de la Matière Condensée, CNRS UMR 7574, Université Pierre et Marie Curie (Paris VI), 4 place Jussieu, 75252 Paris Cedex 05, France, (b)CNRS-EDF, joint Laboratory on Thin Film Solar Cells Research, UMR 7575, EDF R&D, 6 quai Wattier, 78401 Chatou, France

Thursday, June 2, 2005
Jeudi 2 juin 2005

Morning
Matin

Session VI

Session chairs: **S. Shaheen, J. Roncali**

- F-VI.01** 8:30 -Invited- CHARGE GENERATION AND RECOMBINATION IN ORGANIC SOLAR CELLS: THE ROLE OF MOLECULAR PACKING AND DIMENSIONALITY
Jérôme Cornil University of Mons-Hainaut, Laboratory for Chemistry of Novel Materials Place du Parc 20, 7000 Mons, Belgium
- F-VI.02** 9:00 PHOTOINDUCED CHARGE AND ENERGY TRANSFER IN MOLECULAR-DOPED CONJUGATED POLYMERS
D. Veldman and R.A.J. Janssen, Eindhoven University of Technology, Den Dolech 2, 5612 AZ Eindhoven, The Netherlands
- F-VI.03** 9:15 EFFICIENCY LIMITING MORPHOLOGICAL FACTORS OF MDMO-PPV:PCBM PLASTIC SOLAR CELLS
H. Hoppe(a), T. Glatzel(b), M. Niggemann(c), M. Drees(a), C. Winder(a), W. Schwinger(d), F. Schaeffler(d), A. Hinsche), M.Ch. Lux-Steiner(b), N.S. Sariciftci(a), (a)Linz Institute for Organic Solar Cells (LIOS), Physical Chemistry, Johannes Kepler University Linz, Altenbergerstr. 69, 4040 Linz, Austria, (b)Hahn-Meitner Institute, Solar Energy Research, Glienicke Str. 100, 14109 Berlin, Germany, c)Fraunhofer Institute for Solar Energy Systems (ISE), Heidenhofstr. 2, 79110 Freiburg, Germany, (d)Institut für Halbleiter- und Festkörperphysik Johannes Kepler University Linz, Altenbergerstr. 69, 4040 Linz, Austria
- F-VI.04** 9:30 -Invited- MODELLING OF MOLECULAR PHOTOVOLTAIC DEVICES
Jenny Nelson, Amanda J. Chatten, and James Kirkpatrick, Centre for Electronic Materials and Devices, Department of Physics, Imperial College London SW7 2BW, U.K., James R. Durrant, Centre for Electronic Materials and Devices, Department of Chemistry, Imperial College London SW7 2AZ, U.K.
- F-VI.05** 10:00 ELECTRODEPOSITION OF ZnO/ DYE HYBRID THIN FILMS FOR SOLAR CELL APPLICATIONS
T. Yoshida and H. Minoura, Environmental and Renewable Energy systems Division, Graduate School of Engineering, Gifu University, Yanagido 1-1, Gifu 501-1193, Japan

10:15

BREAK

Session VII

Session chairs: **S. Gall, G. Beaucarne**

- F-VII.01** 10:45 -Invited- THE NUCLEATION, MORPHOLOGY AND STRUCTURAL PROPERTIES OF NANOCRYSTALLINE SILICON THIN FILMS GROWN BY HOT-WIRE CVD OR PECVD
M.M. Al-Jassim, H.R. Moutinho, K.M. Jones, Yanfa Yan, National Renewable Energy Laboratory, Golden CO 80401, USA and Chris Wronski, Penn State University, University Park, PA 16802, USA
- F-VII.02** 11:15 LINK BETWEEN ENHANCED CARRIER MOBILITIES AND DOS PROFILES IN a-Si:H
M. Brinza and G.J. Adriaenssens, University of Leuven, Halfgeleiderfysica, Celestijnenlaan 200D, 3001 Leuven, Belgium
- F-VII.03** 11:30 CORRELATION BETWEEN STRUCTURE AND OPTICAL PROPERTIES OF Si-BASED NANOCRYSTALLINE ALLOYS DEPOSITED BY PECVD
M.M. Giangregorio, M. Losurdo, A. Sacchetti, P. Capezzuto, G. Bruno, Institute of Inorganic Methodologies and of Plasmas IMIP-CNR and INSTM- sec.Bari, via Orabona 4, 70126 Bari, Italy
- F-VII.04** 11:45 TEMPERATURE EFFECT AND STRESS ON MICROCRYSTALLINE SILICON THIN FILMS DEPOSITED UNDER HIGH PRESSURE PLASMA CONDITIONS
E. Amanatides(a), E. Katsia(a), D. Mataras(a), A. Soto(b), G.A. Voyiatzis(b), (a)Plasma Technology Laboratory, Department of Chemical Engineering, University of Patras, P.O. Box 1407, Patras 26504, Greece, (b)FORTH/ICE-HT, P.O. Box 1414, 26504 Patras, Greece
- F-VII.05** 12:00 DEVELOPMENT OF SIMPLE INTERDIGITATED SOLAR CELL AND MONOLITHIC MODULE PROCESSES FOR POLYCRYSTALLINE SILICON THIN FILMS
L. Gordon, K. Van Nieuwenhuysen, L. Carnel, D. Van Gestel, G. Beaucarne, and J. Poortmans IMEC vzw, Kapeldreef 75, 3001 Leuven, Belgium

12:15

LUNCH

Session VIII

Session chairs: M. Contreras, J. Cornil

- F-VIII.01** 14:00 -Invited- FLEXIBLE THIN FILM SOLAR CELLS FOR SPACE APPLICATIONS
K. Otte, Solarion Leipzig, Germany
- F-VIII.02** 14:30 CHEMICAL ELABORATION OF WELL DEFINED CU(IN,GA)SE₂ SURFACES. INFLUENCE ON THE PHOTOVOLTAIC PERFORMANCE
B. Canava, A. Etcheberry, IREM-Université de Versailles-Saint Quentin, 45 ave des Etats Unis, 78035 Versailles Cedex, France, O. Roussel, J.F. Guillemoles, IRDEP UMR EDF-CNRS ENSCP 7174, 78401 Chatou cedex, France
- F-VIII.03** 14:45 CuGaSe₂-CuGa₃Se₅ PHASE TRANSITION IN CCSVT GROWN THIN FILMS
S. Lehmann, D Fuertes Marrón, M. Rusu, S. Wiesner, M. Bär, A. Grimm, I. Kötschau, I. Lauer mann, S. Sokoll, Ch.-H. Fischer, Th. Schedel-Niedrig and M.Ch. Lux-Steiner, Department of Solar Energy, Hahn-Meitner Institut Berlin, Glienicke Str.100, 14109 Berlin, Germany, Ch.Jung and W.Gudat, BESSY GmbH, Albert Einstein Str.15,12489 Berlin, Germany
- F-VIII.04** 15:00 GROWTH of ZnSe/ F16ZnPc COMPOSITES AND CHARACTERISATION BY XPS, UPS, ABSORBANCE, AND RAMAN SPECTRA
Eric Manke, Ulrich Weiler, Thomas Mayer and Wolfram Jaegermann; Materials Science Institute, Technical University Darmstadt, Petersenstraße 23, 64287 Darmstadt, Germany
- F-VIII.05** 15:15 -Invited- NEW MATERIALS FOR ORGANIC AND NANOSTRUCTURED HYBRID SOLAR CELLS
S. Shaheen(a), D. Olson(b), W. Mitchell(a), N. Kopidakis(a), M. White(c), J. Piri s(a), A. Miedaner(a), C. Curtis(a), G. Rumbles(a), B. Gregg(a), D. Ginley(a), (a)National Renewable Energy Laboratory, Golden CO 80401, USA, (b)Dept. of Physics, Colorado School of Mines, Golden CO 80401, USA, (c)Dept. of Physics, University of Colorado at Boulder, Boulder CO 80309, USA
- F-VIII.06** 15:45 FUNCTIONAL MICROPRISM SUBSTRATES FOR ORGANIC SOLAR CELLS
Michael Niggemann, Markus Glatthaar, Andreas Gombert, Andreas Hinsch, Peter Lewer, Moritz Riede, Jochen Wagner, Volker Wittwer, Birger Zimmermann, Fraunhofer Institute Solar Energy Systems (ISE), Heidenhofstr.2, 79110 Freiburg, Germany
- F-VIII.07** 16:00 HYBRID ZnO:CONJUGATED POLYMER SOLAR CELLS PREPARED FROM A ZnO PRECURSOR
W.J.E. Beek, M.M. Wienk, R.A.J. Janssen, Eindhoven University of Technology, PO Box 513, 5600 MB Eindhoven, The Netherlands; L.H. Slooff, J.M. Kroon, ECN Solar Energy, PO Box 1, 1755 ZG Petten The Netherlands
- 16:15 **BREAK**
- F-VIII.08** 16:30 -Invited- PHOTO-SENSITIZED SOLAR CELLS
Michael Graetzel, EPFL, CH
- F-VIII.09** 17:00 OPTIMIZATION OF ELECTRON TRANSFER PROCESSES IN DYE SENSITIZED NANOCRYSTALLINE SOLAR CELLS
Saif A. Haque(a), Samantha Handa(a), David R. Klug(b) and James R. Durrant(a), (a)Centre for Electronic Materials and Devices and (b)Centre for Biological and Biophysical Science, Department of Chemistry, Imperial College London, Exhibition Road, South Kensington, London SW7 2AY, U.K.
- F-VIII.10** 17:15 DYE-SENSITIZED SOLAR CELLS BASED ON NANOCOMPOSITE ORGANIC-INORGANIC MATERIALS
Panagiotis Lianos(a), Elias Stathatos(a), Vasko Jovanovski(b), Boris Orel(b), (a)University of Patras, Engineering Science Dept., 26500 Patras, Greece, (b)National Institute of Chemistry, Hajdrihova 19, 1000 Ljubljana, Slovenia
- 17:30-19:00 **POSTER SESSION III**

POSTER SESSION III
Thursday, June 2, 2005
17:30 – 19:00

- F/PIII.01** POROUS SILICON DAMAGE ENHANCED PHOSPHOROUS AND ALUMINIUM GETTERING OF P TYPE CZOCHRALSKI SILICON
M. Hassen, A. Ben Jaballah, M. Hajji, H. Rahmouni, B. Bessais, A. Selmi, H. Ezzaouia, Institut National de Recherche Scientifique et Technique, Laboratoire de Photovoltaïque et des Semiconducteurs, PB 95, 2050 Hammam-Lif, Tunisia, Laboratoire de Physique des Semiconducteurs et des Composants Electroniques, Faculté des Sciences de Monastir, Rue de Kairouan 5000 Monastir, Tunisia
- F/PIII.02** INVESTIGATION OF THE INFLUENCE OF THE PRECURSOR MATERIALS ON THE PROCESS OF ALUMINUM-INDUCED CRYSTALLIZATION OF A-SI
V. Grigorov, O. Angelov, M. Sendova-Vassileva, D. Dimova-Malinovska, Central Laboratory for Solar Energy and New Energy Sources, BAS, 72 Tzarigradsko Chaussee Blvd, 1784 Sofia, Bulgaria
- F/PIII.03** INTERFACE PROPERTIES OF a-Si:H/c-Si HETEROJUNCTION SOLAR CELLS FROM ADMITTANCE SPECTROSCOPY
A.S. Gudovskikh, J.-P. Kleider, Laboratoire de Génie Électrique de Paris (UMR 8507, CNRS) Universités Paris VI et Paris XI, École Supérieure d'Électricité, 11 Rue Joliot-Curie, 91192 Gif-sur-Yvette Cedex, France, J. Damon-Lacoste, P. Roca i Cabarrocas, LPICM (UMR 7647, CNRS) Ecole Polytechnique, 91128 Palaiseau Cedex, France, Y. Veschetti, J.-C. Muller, Laboratoire PHASE (UPR 292, CNRS), 23 rue du Loess, BP20, 67037 Strasbourg Cedex 02, France, P.-J. Ribeyron, E. Rolland, CEA-Grenoble, 17 rue des Martyrs, 38054 Grenoble cedex 9, France
- F/PIII.04** ELECTRICAL PROPERTIES OF AMORPHOUS AND NANOCRYSTALLINE HYDROGENATED SILICON FILMS OBTAINED BY IMPEDANCE SPECTROSCOPY
I. Ferreira, L. Raniero, E. Fortunato and R. Martins, Portugal
- F/PIII.05** MODEL BASED OPTIMIZATION OF THE GROWTH PROCESS PARAMETERS OF A THIN SILICON SHEET GROWN BY EDGE-DEFINED FILM-FED GROWTH (E.F.G.) METHOD IN THE PRESENCE OF THE PRESSURE
L. Braescu(a), A. M. Balint(b), R. Szabo(a), St. Balint(a), (a)Department of Applied Mathematics, West University of Timisoara, Blv. V. Parvan 4, 300223 Timisoara, Romania, (b)Department of Physics, West University of Timisoara, Blv. V. Parvan 4, 300223 Timisoara, Romania
- F/PIII.06** DEFECT STATES IN MICROCRYSTALLINE SILICON PROBED BY PHOTOLUMINESCENCE SPECTROSCOPY
T. Merdzhanova(a,b), R. Carius(a), S. Klein(a), F. Finger(a) and D. Dimova-Malinovska(b), (a)Institut für Photovoltaik, Forschungszentrum Jülich GmbH, 52425 Jülich, Germany, (b)Central Laboratory for Solar Energy and New Energy Sources, Bulgarian Academy of Sciences, 72 Tzarigradsko Chaussee, 1784 Sofia, Bulgaria
- F/PIII.07** THEORETICAL INVESTIGATION OF MACROPOROUS SILICON PHOTSENSITIVITY
Bogdan S. Sokolovskii and Lyubomyr S. Monastyrskii, I. Franko National University, Electronics Department, 50 Dragomanov Street, 79005 Lviv, Ukraine
- F/PIII.08** MICROCRYSTALLINE SILICON-CARBON FILMS DEPOSITED BY SILANE-METHANE MIXTURE HIGHLY DILUTED IN HYDROGEN
U. Coscia, G. Ambrosone, S. Lettieri, P. Maddalena, INFN-Coherentia and Dipartimento di Scienze Fisiche, Università di Napoli "Federico II", Complesso Universitario Monte S. Angelo, Via Cintia, 80126 Napoli, Italy
- F/PIII.09** POLY-SI FILMS PREPARED BY THERMAL CVD ON FLOWABLE OXIDE LAYERS COATED CERAMIC SUBSTRATES
A. Focsa(a), A. Slaoui(a), F. Snijkers(b), P. Leempoel(c), G. Beaucarne(d), J. Poortmans(d), (a)Laboratoire PHASE-CNRS, 23 Rue du Loess, BP 20 CR, 67037 Strasbourg Cedex 2, France, (b)Vito, Boeretang 200, 2400 Mol, Belgium, (c)Dow Corning s.a., Rue Jules Bordet Parc industriel, 7180 Seneffe, Belgium, (d)IMEC, Kapeldreef 75, 3001 Leuven, Belgium
- F/PIII.10** PROGRESS IN THIN FILM FREE-STANDING MONOCRYSTALLINE SILICON SOLAR CELLS
H.J. Kim, V. Depauw, L. Carnel, G. Agostinelli, G. Beaucarne and J. Poortmans, IMEC vzw, Kapeldreef 75, 3001 Leuven, Belgium
- F/PIII.11** BIFACIAL HETEROJUNCTION SILICON SOLAR CELLS BY HOT-WIRE CVD WITH OPEN-CIRCUIT VOLTAGES EXCEEDING 600 mV
C. Voz(a), D. Muñoz(a), M. Fonrodona(b), I. Martin(a), J. Puigdollers(a), J. Bertomeu(b), J. Andreu(b), R. Alcubilla(a), (a)Universitat Politècnica de Catalunya, Departament d'Enginyeria Electrònica, c/ Jordi Girona 1-3, Campus Nord – C4, 08034 Barcelona, Spain, (b)Universitat de Barcelona, Departament de Física Aplicada i Òptica, Avda. Diagonal 647, Planta 4, 08028 Barcelona, Spain
- F/PIII.12** ELECTRODEPOSITION OF CuInSe₂ THIN FILMS ONTO Mo-GLASS SUBSTRATES
J. Kois, S. Bereznev, M. Altosaar and E. Mellikov, Tallinn University of Technology, Department of Materials Science, Ehitajate tee 5, 19086 Tallinn, Estonia
- F/PIII.13** ELECTRODEPOSITED (Cu-In-Se)/POLYPYRROLE PV STRUCTURES
S. Bereznev, J. Kois, I. Golovtsov, A. Õpik, E. Mellikov, Tallinn University of Technology, Department of Materials Science, Ehitajate tee 5, 19086 Tallinn, Estonia and Ya. Vertsimakha, Institute of Physics of Ukrainian National Academy of Science, Molecular Photoelectronics, Prospect Nauki 46, 03650 Kiev, Ukraine

- F/PIII.14** THREE-STAGE EVAPORATION OF Cu(In,Ga)S₂ SOLAR CELL ABSORBER FILMS WITHOUT KCN TREATMENT AND Na CONTROL
R. Kaigawa(a), T. Wada(b), S. Bakehe(c), R. Klenk(c), (a)Department of Electronics and Informatics, Ryukoku University, Seta, Otsu 520-2194, Japan, (b)Department of Materials Chemistry, Ryukoku University, Seta, Otsu 520-2194, Japan, (c)Hahn-Meitner Institut, Abteilung SE2, Glienickestr.100, 14109 Berlin, Germany
- F/PIII.15** ELECTRICAL PROPERTIES OF CuGaSe₂ SINGLE CRYSTALS AND POLYCRYSTALLINE COEVAPORATED THIN FILMS
A. Amara, A. Hendaoui, A. Drici, M. Guerioune, LEREC, Département de Physique, Université de Annaba, BP12 Annaba, Algérie, J.C. Bernède, LPSE-FSTN, Université de Nantes, 2 rue de la Houssinière, PB 92208, 44322 Nantes Cedex 3, France
- F/PIII.16** EFFECTS OF CdSe ABSORBER GRAIN SIZE ON ZnO/CdSe/CuSCN Eta-SOLAR CELLS PERFORMANCE
R. Tena-Zaera, A. Katty, S. Bastide and C. Lévy-Clément, LCMTR, Institut des Sciences Chimiques Seine Amont, CNRS, 2/8 rue Henri Dunant, 94320 Thiais, France
- F/PIII.17** ANALYSIS OF Ge- IMPLANTATED AND THERMAL TREATED CuGaSe₂ THIN FILMS
S. Doka(a), M. Rusu(a) , S. Lehmann(a) , A. Meeder(b), D. Fuertes Marrón(a), E. Arushanov(c), N. Fabre(d), S. Fiechter(a), Th. Schedel-Niedrig(a), M.Ch. Lux-Steiner(a), (a)Hahn-Meitner-Institut, Glienicke Str. 100, 14109 Berlin, Germany, (b)Sulfurcell Solartechnik GmbH, Barbara-McClintock-Str.11, 12489 Berlin, Germany, (c)Institute of Applied Physics, Academy of Sciences of the Republic Moldova, Academiei 5, Chisinau 277028, Moldova, (d)LAAS- CNRS, 7 Avenue du Colonel Roche, 31077 Toulouse Cedex 4, France
- F/PIII.18** FORMATION OF HIGH-QUALITY CIGS ABSORBER LAYERS BY TWO-STAGE RF-MAGNETRON SPUTTERING IN Se VAPOUR
A.F. da Cunha, F. Kurdesau, P.M.P. Salome, Departamento de Física, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal and V.B. Zaleski, Institute of Electronics of NAS of Belarus, Logosky tract, 22, 220090 Minsk, Belarus
- F/PIII.19** CHARACTERIZATION OF SPRAYED CuInS₂ FILMS ANNEALED IN HYDROGEN SULFIDE ATMOSPHERE
M. Krunks, A. Mere, A. Katerski, V. Mikli, M. Grossberg, J. Krustok, Department of Materials Science, Tallinn University of Technology, Ehitajate 5, Tallinn 19086, Estonia
- F/PIII.20** LAYERS OF CdTe AND CdS OBTAINED BY PLD ON ITO SUBSTRATES
A. Bylica(b), P. Sagan(a), G. Wisz(a), M. Bester(a), M. Kuzma(a), (a)Institute of Physics, University of Rzeszow, Rejtana 16A, 35-959 Rzeszow, Poland, (b)Institute of Technology, University of Rzeszow, Rejtana 16A, 35-959 Rzeszow, Poland
- F/PIII.21** ANNEALING OF CBD CADMIUM SULFIDE THIN FILMS FOR PHOTOVOLTAICS
J. Hiie, K. Muska, O. Volobueva, T. Dedova, J. Kois, V. Valdna, Tallinn University of Technology, Department of Materials Science, Ehitajate tee 5, 19086 Tallinn, Estonia
- F/PIII.22** INFLUENCE OF THE FLUORINE DOPING ON THE OPTICAL PROPERTIES OF CdS THIN FILMS FOR PHOTOVOLTAIC APPLICATIONS
N. Armani(a), G. Salviati(a), A. Podestà(b), A. Bosio(b) and N. Romeo(b), (a)CNR-IMEM Institute, Parco Area delle Scienze, 37/A, 43010 Parma, Italy, (b)Università di Parma, Dipartimento di Fisica - INFN, Parco Area delle Scienze, 7/A, 43100 Parma, Italy
- F/PIII.23** SPRAY DEPOSITION OF SOLID-STATE NANOCOMPOSITE CuInS₂/TiO₂ SOLAR CELLS
Marian Nanu, Joop Schoonman, and Albert Goossens, Laboratory for Inorganic Chemistry, Delft Institute for Sustainable Energy, Delft University of Technology, Julianalaan 136, 2628 BL Delft, The Netherlands
- F/PIII.24** STABILITY OF THE COPPER, CHLORINE AND OXYGEN DOPED CADMIUM TELLURIDE THIN FILMS
V. Valdna, J. Hiie and V. Mikli, Department of Materials Science, Tallinn University of Technology, 5 Ehitajate Rd., 19086 Tallinn, Estonia
- F/PIII.25** ELECTRICAL AND OPTICAL PROPERTIES OF ZnO:Al FILMS FOR TANDEM SOLAR CELLS
Sang Won Jeon(a,b), Jeon Chul Lee(a), chung hyun lim(a), Jae Ho Yun(a), Seok Ki Kim(a), Byung Ok Park(b), Jin Soo Song(a) and Kyung Hoon Yoon(a), (a)Solar Cells Research Center, Korea Institute of Energy Research (KIER), (b)Dep. of Inorganic Materials Engineering, KyungPook National University, Korea
- F/PIII.26** DURABLE TiN/TiN_x METALLIC CONTACTS FOR SOLAR CELLS
G. Matenoglou, S. Kassavetis, S. Logothetidis, D. Papadimitriou, Aristotle University of Thessaloniki, Greece
- F/PIII.27** OPTICAL AND STRUCTURAL PROPERTIES OF FESE₂ THIN FILMS OBTAINED BY SELENIZATION OF SPRAYED AMORPHOUS IRON OXIDE FILMS
B. Ouertani, M. Saadoun, B. Bessaïs, H. Ezzaouia, Institut National de Recherche Scientifique et Technique, Laboratoire de Photovoltaïque et des Matériaux Semi-conducteurs, BP 95, 2050 Hammam-Lif, Tunisie, J. Ouerfelli, Faculté des Sciences de Tunis, Laboratoire de Physique de la Matière Condensée (LPMC), El Manar II – Tunis, Tunisie, M. Zribi, Ecole Nationale des Ingénieurs de Tunis, Laboratoire de Photovoltaïques et des Matériaux Semiconducteurs, El Manar II – Tunis, Tunisie
- F/PIII.28** GISAXS STUDY OF SiO/SiO₂ SUPERLATTICE
I. Kovacevic, B. Pivac, P. Dubcek, N. Radic, R. Boskovic Institute, P.O. Box 180, Zagreb, Croatia, S. Bernstorff, Sincrotrone Trieste, SS 14, km 163.5, Basovizza (TS), Italy, A. Slaoui, Phase, CNRS, 23 rue du Loess, Strasbourg, France

- F/PIII.29** ELECTRICAL PROPERTIES OF THE CdS/InP HETEROSTRUCTURES FOR PHOTOVOLTAIC APPLICATIONS
M. Purica, E. Budianu, National Institute for R&D in Microtechnologies, PO Box. 38-160, 023573, Bucharest, Romania, E. Rusu, P. Arabadji, Institute of Applied Physics, Chisinau, R. Moldova
- F/PIII.30** DOWN-CONVERSION PROPERTIES OF LUMINESCENT SILICON NANOSTRUCTURES FORMED AND PASSIVATED IN HNO₃-BASED SOLUTIONS
B. González- Díaz(a), P. Haro-González(a), D. Borchert(*), C. Hernández-Rodríguez(a), R. Guerrero-Lemus(a), (a)Departamento de Física Básica, Universidad de La Laguna, Astrofísico Francisco Sánchez, 38204 La Laguna, S/C de Tenerife, Spain, (b)Auf der Reihe 2, Institut für Solare Energiesysteme, Fraunhofer Institut, 45884 Gelsenkirchen, Germany
- F/PIII.31** FEATURES OF ELECTRONIC PROPERTIES OF A2B6 THIN FILMS DEPOSITED FROM A SOLUTION IN MICRO – AND NANOELECTRONICS
A.H. Kazimzade, A.Sh. Abidinov, M.A. Jafarov, E.F. Nasirov, Azerbaijan
- F/PIII.32** ELECTRICAL, PHOTOELECTRICAL PROPERTIES AND CRYSTAL STRUCTURE OF A2B6 FILMS, GROWN BY LASER SPUTTERING
A.I. Savchuk, B.M. Gritsyuk, O.V. Galochkin, M.M. Ryzhuk, S.Y. Paranchich, Department of Physics of Semiconductors and Nanostructures, Chernivtsi National University, 58012 Chernivtsi, Ukraine
- F/PIII.33** PROCESSABLE LOW- AND HIGH MOLECULAR WEIGHT C60 DERIVATIVES FOR MOLECULAR ELECTRONICS APPLICATIONS
A.B. Sieval, Biomade Technology, Nijenborgh 4, 9747AG Groningen, The Netherlands and F. Brouwer, L.M. Popescu, and J.C. Hummelen, Molecular Electronics, Nijenborgh 4, 9747AG Groningen, The Netherlands
- F/PIII.34** INFLUENCE OF SOLVENT AND ANNEALING TEMPERATURE ON STRUCTURAL AND OPTICAL PROPERTIES OF POLY(3-HEXYLTHIOPHENE)/FULLERENE COMPOSITE FILMS
Tobias Erb, Uladzimir Zhokhavets, Gerhard Gobsch Institute of Physics, Ilmenau Technical University, Weimarer Str. 32, 98693 Ilmenau, Germany, Maher Al-Ibrahim, Oliver Ambacher Center for Micro- and Nanotechnologies, Ilmenau Technical University, Gustav-Kirchhoff-Str. 7, 98693 Ilmenau, Germany
- F/PIII.35** REVIEW: SELF-ASSEMBLED THIN FILMS FROM BUILDING BLOCKS OF FULLERENE C60/ C60 OXYGEN DERIVATIVES/ DS-DNA ON SILICON FOR PHOTOVOLTAIC CHIP: NANOSTRUCTURE, CONDUCTIVITY AND PHOTSENSITIVITY
A. Veligura(a), P. Scharff(b), J.M. Kohler(b), I. Lysko(a), D. Zherebetskiy(a), O. Ivanyuta(a), A. Gorchinskiy(a), E. Buzaneva(a), (a)National Taras Shevchenko University of Kyiv, Medical Radiophysics Department, The Scientific and Training Center “Physical and Chemical Material Science” of this University and NASU; 64, Vladimirska Str., 01033, Kiev, Ukraine; (b)Technische Universität Ilmenau, Institut für Physik / FG Chemie, Postfach 100565, 986884 Ilmenau, Germany
- F/PIII.36** INFLUENCE OF ELECTRODE MATERIAL ON THE BUILT-IN POTENTIAL AND PHOTOVOLTAIC PERFORMANCE OF ORGANIC BULK HETEROJUNCTION SOLAR CELLS
B. Zimmermann, N. Mingirulli, M. Glatthaar, M. Niggemann, M. Riede, A. Hirsch, Fraunhofer Institute Solar Energy Systems ISE, Heidenhofstrasse 2, D-79110 Freiburg i. Breisgau, Germany
- F/PIII.37** EFFECTS OF SOLVENT AND ANNEALING ON THE IMPROVED PERFORMANCE OF SOLAR CELLS BASED ON POLY(3-HEXYLTHIOPHENE):FULLERENE
Maher Al-Ibrahim, Jutta Uziel, Oliver Ambacher, Technical University of Ilmenau, Center for Micro- and Nanotechnologies, Gustav-Kirchhoff-Str. 7, 98693 Ilmenau, Germany, Steffi Sensfuss, TITK Institute, Department of Functional Polymer Systems, Breitscheidstr. 97, 07407 Rudolstadt, Germany, Uladzimir Zhokhavets, Tobias Erb, Gerhard Gobsch, Technical University of Ilmenau, Institute of Physik, Weimarer Str. 32, 98693 Ilmenau, Germany
- F/PIII.38** PHOTSENSITIVE TITANIUM OXIDE SOLS AND GELS FOR SOLAR ENERGY CONVERSION AND STORAGE
A. Rouet, E. Puzenat, M. Richard, T. Cottineau, Y. Piffard, L. Brohan Institut des Matériaux Jean Rouxel, UMR 6502, 2 rue de la Houssinière, B.P. 32229, 44322 Nantes cedex 3, France
- F/PIII.39** PREPARATION OF A POROUS TiO₂ LAYER FOR USE IN PHOTOVOLTAIC DEVICES BY DEPOSITION OF HYDROTHERMALLY SYNTHESIZED NANOPARTICLES
J. Beusen(a), G. Vanhoyland(a), J. D’Haen(b), M.K. Van Bael(a,b), H. Van den Rul(a,b), J. Mullens(a), L.C. Van Poucke(a), (a)Laboratory of Inorganic and Physical Chemistry, IMO, Limburgs Universitair Centrum, Building D, 3590 Diepenbeek, Belgium, (b)IMEC vzw, Division IMOMECE, Wetenschapspark 1, 3590 Diepenbeek, Belgium
- F/PIII.40** THIOPHENE-CONTAINING DEFECT-FREE ARYLENE-ETHYNYLENE-ALT-ARYLENE-VINYLENE POLYMERS: SYNTHESIS; CHARACTERISATION, ELECTROLUMINESCENT AND PHOTOVOLTAIC PROPERTIES
D.A.M. Egbe(a), H. Hoppe(b), T. Kietzke(c), C. Bader(a), K. Schmidtke(a), D. Mühlbacher(d), N.S. Sariciftci(b), D. Neher(c), (a)Institut für Organische Chemie und Makromolekulare Chemie der Friedrich-Schiller Universität, Humboldtstr. 10, 07743 Jena, Germany, (b)Linzer Institut für Organische Solarzelle, Johannes Kepler Universität Linz, Altenbergerstr. 69, 4040 Linz, Austria, (c)Soft Matter Physics, Am neuen Palais 10, University of Potsdam, 14469 Potsdam, Germany, (d)Konarka Austria Forschungs- u. Entwicklungs GmbH, Gruberstr. 40-42, 4010 Linz, Austria
- F/PIII.41** THERMAL CHARACTERIZATION OF POLYTHIOPHENE/FULLERENE PHOTOACTIVE LAYER AND ANNEALING EFFECTS ON SOLAR CELLS PERFORMANCES
S. Luzzati, R. Cugola, U. Giovanella, F. Bertini, M. Catellani, ISMAC-CNR, Via Bassini 15, 20133 Milano, Italy

- F/PIII.42** POLYMER ORGANIC LAYER EFFECT ON Si SOLAR CELLS PERFORMANCE
T. Ya. Gorbach, P.S. Smertenko, S.V. Svechnikov, V. Lashkarev Institute of Semiconductors Physics, National Academy of Sciences of Ukraine, 45 prospekt Nauki, 03028 Kyiv, Ukraine; and M. Kuzma, Institute of Physics, Rzeszów University, Rejtana 16a, 35-309 Rzeszów, Poland
- F/PIII.43** DIELECTRIC SPECTROSCOPY STUDIES OF POLYMER-FULLERENE SOLAR CELLS
A. Ltaief(a,b), R. Ben Chaâbane(a), A. Bouazizi(a), J. Davenas(b), P. Alcouffe(b) and H. Ben Ouada(a), (a)Laboratoire de Physique et Chimie des Interfaces, Faculté des Sciences de Monastir, Avenue de l'Environnement, 5019 Monastir, Tunisie, (b)Ingénierie des Matériaux Polymères-LMPB, UMR CNRS-INS-UCBL 5627, Université Claude Bernard-Lyon 1, 43 Boulevard du 11 Novembre 1918, 69100 Villeurbanne, France
- F/PIII.44** SYNTHESIS OF TRIBLOCKCOPOLYMERS WITH N- AND P-TYPE SEMICONDUCTING SEQUENCES AND THEIR PHOTOVOLTAIC BEHAVIOR
Hartmut Krueger, Manuel Thesen, Silvia Janietz, Bert Fischer Fraunhofer Institute Applied Polymer Research, Geiselbergstr. 69, 14476 Potsdam, Germany
- F/PIII.45** NOVEL POLY 3,4-ETHYLENEDIOXYTHIOPHENE (PEDOT) DERIVATIVES BEARING ELECTRON ACCEPTOR MOIETIES
Rafael Gómez(a), Egon Reinold(b), Peter Bäuerle(b), José L. Segura(a,b), (a)Departamento de Química Orgánica, Facultad de Química, Universidad Complutense, Avda. Complutense s/n, 28040 Madrid, Spain, (b)Department of Organic Chemistry II (Organic Materials and Combinatorial Chemistry), University of Ulm, Albert-Einstein Allee 11, 89081 Ulm, Germany
- F/PIII.46** INVESTIGATION OF INJECTION AND TRANSPORT PROPERTIES IN POLYTHIOPHENE AND METHANOFULLERENE FILMS AND BLENDS
E. v. Hauff, B. Bohnenbuck, V. Dyakonov, and J. Parisi, Germany
- F/PIII.47** INTERPRETATION OF MEASUREMENTS ON MEH-PPV:PCBM (1:4) BULK HETEROJUNCTION SOLAR CELLS
Ben Minnaert, Marc Burgelman, Gent University, Electronics and Information Systems, Pietersnieuwstraat 41, 9000 Gent, Belgium and Tom Aernouts, IMEC vzw, Kapeldreef 75, 3001 Leuven, Belgium
- F/PIII.48** SYNTHESIS AND NANOSTRUCTURAL CHARACTERIZATION OF TiO₂ AEROGEL FOR PHOTOVOLTAIC DEVICES
L. Baia(a), A. Peter(b), V. Cosoveanu(c), E. Indrea(d) and V. Danciu(c), (a)Faculty of Physics, Babes-Bolyai University, 400084 Cluj-Napoca, Romania, (b)Faculty of Sciences, North University of Baia Mare, Baia Mare, Romania, (c)Faculty of Chemistry, Babes-Bolyai University, 400028 Cluj-Napoca, Romania, (d)National Institut for Research and Development of Isotopic and Molecular Technologies, 400203 Cluj-Napoca, Romania
- F/PIII.49** ENHANCED PHOTOVOLTAIC PERFORMANCE FROM CARBON NANOTUBE – POLYMER BLENDS
D.L. Carroll, The Center for Nanotechnology and Molecular Materials, Department of Physics, Wake Forest University, Winston-Salem NC 27109, USA; Seamus Curran, Department of Physics, New Mexico State University, Las Cruces NM 88001, USA
- F/PIII.50** CONTROLLING RECOMBINATION KINETICS OF HYBRID POLYMER / METAL OXIDE SOLAR CELLS
P. Ravirajan(a,c), A. M. Peiró(b), M. Mohr(a), J. R. Durrant(b), D.D.C.Bradley(a) and J. Nelson(a), Centre for Electronic Materials and Devices, Dept. of Physics(a) and Chemistry(b), Imperial College London, London, UK and Dept. of Physics(c), University of Jaffna, Sri Lanka
- F/PIII.51** AGEING OF PLASTIC SOLAR CELLS: PHOTO-DEGRADATION OF MDMO-PPV
S. Chambon(a), A. Rivaton(b), J.L. Gardette(b), M. Firon(a), L. Lutsen(c), D. Vanderzande(c), (a)CEA Saclay, DRT/LITEN/DSEN/GENEC/L2C, 91191 Gif sur Yvette, France, (b) LPMM Laboratoire de Photochimie Moléculaire et Macromoléculaire, UMR Université Blaise Pascal/CNRS 6505, 63177 Aubière cedex, France, (c)IMEC, IMOMEC Divison, Limburg Universitair Centrum, Building D, SBG/OS department, 3590 Diepenbeek, Belgium
- F/PIII.52** EXPLORING THE LIMITS OF HYBRID METALOXIDE /CONJUGATED POLYMER PHOTOVOLTAIC CELLS
L.H. Slooff, S.C. Veenstra, J.M. Kroon, ECN, Solar Energy, PO Box 1, 1755 ZG Petten, The Netherlands, and M.M. Koetse, J. Sweelssen, TNO, PO Box 6235, 5600 HE Eindhoven, The Netherlands, DPI P.O. Box 902, 5600 AX Eindhoven, The Netherlands
- F/PIII.53** IMPLEMENTATION OF A SUBMICROMETER PATTERNING TECHNIQUE OF AZOPOLYMER FILMS FOR THE OPTIMISATION OF PHOTOVOLTAIC SOLAR CELLS EFFICIENCY
L. Rocha, C. Cocoyer, C. Fiorini, C. Sentein, P. Raimond, B. Geffroy, CEA Saclay, DRT-LITEN/DSEN/SPVS/L2C, bât. 451, 91191 Gif-sur-Yvette cedex, France, and J.-M. Nunzi, ERT Cellules Solaires Photovoltaïques Plastiques, Laboratoire POMA, UMR-CNRS 6136, Université d'Angers, 2 Boulevard Lavoisier, 49045 Angers cedex, France
- F/PIII.54** A MICROSTRUCTURAL AND DEVICE PERFORMANCE STUDY OF SOLAR CELLS WITH DIFFERENTLY FABRICATED TITANIA LAYERS
Zhibin Xie(a) 1, Bernard M. Henry(a), Kiril R. Kirov(a), Hannah Smith(a), Christopher R.M. Grovenor(a), Hazel E. Assender(a), G. Andrew D. Briggs(a), Mitsuru Kano(b) and Yusuke Tsukahara(b), (a)Department of Materials, University of Oxford, Parks Road, Oxford OX1 3PH, U.K., (b) Technical Research Institute, Toppan Printing Co., Ltd., Takanodai-Minami 4-2-3, Sugito-machi, Kitakatsushika-gun, Saitama 345, Japan
- F/PIII.55** PENTACENE:PERYLENE CO-DEPOSITED SOLAR CELL
Ajay K Pandey, K.N.Narayanan Unni and Jean-Michel Nunzi, Laboratoire POMA, UMR CNRS 6136, Université d'Angers, 49045 Angers, France

- F/PIII.56** PENTACENE PHOTOVOLTAIC DIODES OBTAINED BY PLD
G. Wisz, I. Virt, M. Kuzma, A. Wal, P. Sagan, Institute of Physics, Rzeszów University, Rejtana 16a, 35-309 Rzeszów, Poland
- F/PIII.57** HYBRID BULK HETEROJUNCTION SOLAR CELL: BLENDS OF ZnO SEMICONDUCTING NANOPARTICLES AND CONJUGATED POLYMER
W.J.E. Beek, M.M. Wienk, R.A.J. Janssen, Eindhoven University of Technology, PO Box 513, 5600 MB Eindhoven, The Netherlands

Friday, June 3, 2005
Vendredi 3 juin 2005

Morning
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Session IX

Session chairs: **M. Mazzer, A. Slaoui**

- F-IX.01** 8:30 -Invited- NOVEL SEMICONDUCTOR SOLAR CELL STRUCTURES: THE QUANTUM DOT INTERMEDIATE BAND SOLAR CELL
A. Martí(a), N. López(a), E. Antolín(a), E. Cánovas(a), C. Stanley(b), C. Farmer(b), L. Cuadra(c) and A. Luque(a), (a)Instituto de Energía Solar-UPM, ETSIT de Madrid, Ciudad Universitaria sn, 28040 Madrid, Spain, (b)Department of Electronics and Electrical Engineering, University of Glasgow, Glasgow G12 8QQ, U.K., (c)Departamento de Teoría de la Señal y Comunicaciones - Escuela Politécnica Superior, Universidad de Alcalá, Ctra. Madrid-Barcelona, km. 33,600, 28805 Alcalá de Henares (Madrid), Spain
- F-IX.02** 9:00 -Invited- PHOTON CONFINEMENT IN THIN FILM III-V SOLAR CELLS OBTAINED BY EPITAXIAL LIFT-OFF
J.J. Schermer, Experimental Solid State Physics III, Institute for Molecules and Materials, Radboud University Nijmegen, Toernooiveld 1, 6525 ED Nijmegen, the Netherlands
- F-IX.03** 9:30 -Invited- NANOSTRUCTURED SILICON FOR THIRD GENERATION SOLAR CELL
G. Conibeer, Centre for Photovoltaic Engineering, The University of New South Wales, UNSW Sydney NSW 2052, Australia
- 10:00 **BREAK**

Session X

Session chairs: **K. Otte, A. Jäger-Waldau**

- F-X.01** 10:30 -Invited- PERFORMANCE OF THIN FILM MODULES
R. Kenny, JRC-ISPRA, Italy
- F-X.02** 11:00 DAMP HEAT STABILITY AND ANNEALING BEHAVIOUR OF ALUMINUM DOPED ZINC OXIDE FILMS PREPARED BY MAGNETRON SPUTTERING
T. Tohsophon, B. Rech, J. Hüpkens, S. Calnan, W. Beyer, Institute of Photovoltaics, Forschungszentrum Juelich GmbH, 52425 Juelich, Germany and N. Sirikulrat Physics Department, Faculty of Science, Chiang Mai University, 50200 Chiang Mai, Thailand
- F-X.03** 11:15 PHOTOLUMINESCENCE, OPEN CIRCUIT VOLTAGE, AND PHOTOCURRENTS IN Cu(In,Ga)Se₂ SOLAR CELLS WITH LATERAL SUBMICRON RESOLUTION
L. Güttay, T. Jürgens, G.H. Bauer, Institute of Physics, Carl von Ossietzky University Oldenburg, F.R. Germany
- F-X.04** 11:30 SEMIEMPIRICAL TIGHT BINDING MODELING OF ELECTRONIC STRUCTURE OF Cd-BASED TERNARY/BINARY II-VI HETEROSTRUCTURES
Özden Akinci, H. Hakan Gürel and Hilmi Ünlü, Computational Science Division, Informatics Institute, Istanbul Technical University, Maslak Istanbul 80626, Turkey and Department of Physics, Faculty of Science and Letters, Istanbul Technical University, Maslak Istanbul 80626, Turkey
- F-X.05** 11:45 HIGH-RESOLUTION MAPPING OF NONUNIFORM CARRIER TRANSPORT AT CONTACTS TO POLYCRYSTALLINE CDTE/CDS SOLAR CELLS
E. Sutter and P. Sutter, Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton NY 11978, USA
- F-X.06** 12:00 RAMAN AND PHOTOREFLECTANCE STUDY OF CuIn_{1-x}Ga_xSe₂ EPITAXIAL LAYERS
S. Theodoropoulou(a), D. Papadimitriou(a), N. Rega(b), S. Siebentritt(b) and M.Ch. Lux-Steiner(b), (a)National Technical University of Athens, Department of Physics, 15780 Athens, Greece, (b)Hahn-Meitner Institut, Glienicke Strasse 100, 14109 Berlin, Germany
- 12:15 **CLOSING**
- 12:30 **LUNCH**