

A JOINT INTERNATIONAL SUMMER SCHOOL-
CONFERENCE



"Advanced Materials and Technologies"
and
"European Doctorate in Physics and Chemistry
of Advanced Materials"



27-31 August 2010, Palanga, Lithuania

Programme

August 27, Friday

14:00 – 20:00 Arrival and registration

August 28, Saturday

Chairman – prof. S. Tamulevičius

8:30 – 8:45 **Opening**

8:45 – 9:30 Prof. E. Juzeliūnas (University of Cambridge, UK) **Silicon electrochemistry – expanding horizons of photovoltaics**

9:30 – 11:00 Prof. V. Kažukauskas (Vilnius University, Lithuania) **Organic photovoltaics for solar energy harvesting: status quo and challenges related to charge transport**

11:00 – 11:15 **Coffee break**

11:15 – 12:00 Prof. A. Ramanavičius (Vilnius University, Lithuania) **Nanostructured conducting polymers for sensor design**

12:00 – 12:45 Prof. E. Butkus (Vilnius University, Lithuania) **Crystal engineering and supramolecular architectures designed by bicyclic organic molecules**

12:45 – 13:30 Dr. Y. Oztekin (Selcuk University, Turkey) **Recent developments on ion-exchange membranes and electro-membrane processes**

13:30 – 14:15 Dr. A. Žalga (Vilnius University, Lithuania) **Preparation and characterization of different molybdate-wolframate materials**

14:15 – 18:00 **Break**

18:00 – 22:00 **Discussions and welcome party**

August 29, Sunday

Chairmen – prof. E. Juzeliūnas, prof. V. Kažukauskas

8:30 – 9:15 Dr. P. Öhberg (Heriot Watt University, UK) **Quantum nano-cantilevers**

9:15 – 10:45 Dr. J.S. Hammond (Physical Electronics, USA) **Multi-layer thin film characterization of semiconductor materials, organic electronics and biomaterials**

10:45 – 11:00 **Coffee break**

11:00 – 12:30 Dr. A. Braun (EMPA, Switzerland) **Probing energy materials at the molecular scale with X-ray spectroscopy and neutron scattering**

12:30 – 14:00 Dr. A. Daugla (Seagate Technology, USA) **Exploring material properties at nanoscale: current status and new trends**

14:00 – 16:00 **Break**

16:00 – 22:00 **Excursion** (Lithuanian beer and basketball)



August 30, Monday

Chairmen – Dr. A. Braun, Dr. A. Daugela

8:30 – 9:15 Dr. B. Vengalis (Semiconductor Physics institute of Center for physical sciences and Technology, Lithuania) **Recent advances in spintronics devices and related materials**

9:15 – 10:00 Dr. J. D. Holmes (University College Cork, Ireland) **Synthesis and Applications of Si and Ge Nanowires**

10:00 – 10:45 Prof. J. Vaitkus (Vilnius University, Lithuania) **Defect engineering for modification of semiconductor parameters**

10:45 – 11:00 **Coffee break**

11:00 – 12:30 Prof. C. Templier (Université de Poitiers, France) **How nitrogen atoms occupying the interstitial sites of austenitic stainless steels affect their properties?**

12:30 – 13:15 Dr. E. Andersson (Heriot Watt University, UK) **Introduction to quantum information science** (will be given by P. Öhberg)

13:15 – 16:00 **Break**

16:00 – 18:00 **Poster Session**

Chairman – prof. C. Templier

Poster Session

METHODS OF ANALYSIS	
P1	D. Bernatavius, L. Augulis <i>Thermography in Physical Research</i>
P2	A. Bertašienė <i>Analysis of Low Velocity Measurements Peculiarities and Difficulties Concerned with Practical Applications</i>
P3	P. Maruschak, R. Bishchak <i>Localized Deformation of Heat Resistant Steel with Multiple Cracks at Mesolevel</i>
P4	S. Burinskas, J. Dudonis <i>Optical Characterisation of the Intermixing of Gd₂O₃/CeO₂ Multilayer Thin Films</i>
P5	T. Šeponis, E. Gaubas, S. Sakalauskas, A. Uleckas <i>Evaluation of Barrier and Carrier Generation Parameters in Neutron Irradiated Si Pin Diodes by Transient Technique</i>
P6	K. Dudek, J. Kozuch <i>Studies on Viscoelastic Behavior of Polymers</i>
P7	S. Fomins, M. Ozoliš <i>Multispectral Analysis of Color Deficiency Tests and Modeling of Cones Influence on Perception of Color</i>
P8	J. Kirlyte, A. Kausaite-Minkstimiene, A. Ramanaviciene, A. Ramanavicius <i>The Impact of Antibody Immobilization Technique on the Binding Capacity of SPR Immunosensor</i>
P9	A. Kalinko, A. Kuzmin <i>Crystal Structure Refinement Using EXAFS</i>
P10	K. Luse, M. Ozolins, V. Karitans <i>Influence of Location of Retro Reflective Signs on Recognition of Pedestrian in Reduced Visibility Conditions</i>
P11	V. Minialga, R. Paulauskas <i>Laser – Thermovision Investigation of Materials Thermal Conductivity</i>
P12	G. Pavlovics, J. Dolacis, M. Daugaviete, D. Cirule, A. Antons <i>Changes of the Physico-mechanical Properties in the Stem Longitudinal and Transverse Directions for Wild Cherry (Prunus avium L.) wood</i>
P13	J. Hoyland, C. Kunstmann-Olsen, M. Radziwon <i>Lab-on-Chip Flow Cytometry</i>
P14	E. Rušinskas, M. Rutkauskas <i>Measurement of Breakdown Potentials for Discharge in Different Gases</i>
P15	S. Šadreikaitė, D. Ambrazaitienė, A. Žukauskaitė <i>Biological Treatment of Contaminated Soil by Oil Products</i>
P16	O. Sakharova <i>Using of Complexing Agents for the Dissolution of Sparingly Soluble Materials Based on Lanthanides Fluorides for Further Determination of Fluorine</i>
P17	A. S. Swinarew, B. Swinarew, Z. Grobelny, A. Stolarzewicz, J. Gabor <i>The Molecular Mass Analysis of Star-shaped Poly(propylene oxide) with the Use of Size Exclusion Chromatography (SEC)</i>
P18	A. Uleckas, E. Gaubas, J. Vaitkus, T. Šeponis <i>In situ Control of Carrier Trap Characteristics in Si Structures during Irradiation by Penetrative Protons</i>
P19	A. Užupis, K. Nemaišauskas, E. Šarauskis, E. Katkevičius, S. Buragienė <i>An Influence of Autumnal Soil Cultivation to CO₂ Gas Emission</i>
P20	J. Voronovič, N. German, A. Ramanavičienė, A. Ramanavičius <i>The Influence of Gold Nanoparticles for Detection of Glucose Using GO_x Modified Biosensors</i>
P21	T. Tamulevičius, R. Šepečys, V. Morkūnas, V. Kopustinskias, M. Andrulevičius, S. Tamulevičius <i>Modelling and Fabrication of Wave Beam Splitters for Visible Light</i>
P22	T. Tamulevičius, R. Šepečys, V. Morkūnas, V. Kopustinskias, M. Andrulevičius, Š. Meškinius, S. Tamulevičius <i>Micro Fabrication of Diamond Like Carbon Grating for Spectroscopy Applications</i>
SURFACES AND NANOSTRUCTURES	
P23	K.V. Bordo, M. Schiek, M. Es-Souni, S. Habouti, H.-G. Rubahn <i>Mesoporous Thin Film Templates for the Synthesis of Nanowires and Nanotubes</i>
P24	C. O'Regan, S. Barth, N. Petkov, J. D. Holmes <i>Electron Microscopy Analysis of Nanoscale Materials</i>
P25	J. Jakuseva, G. Meziniskis <i>PZT Piezoceramic Films Preparation by Sol-gel Technique</i>

P26	A.J. Janavius, R. Purlys, R. Rinkas <i>Supercrystallization of NaCl from Solution Irradiated by Soft X-rays</i>
P27	L. Jin, H. Qiu, Y. Wang <i>Interaction of Methanol with Perfect and Defective ZnO Surfaces</i>
P28	S.Khalameida, V.Sydorchuk, V.Zazhigalov, R.Leboda, J. Skubiszewska-Ziba <i>Photocatalytic Properties of Milled Nanodispersed Barium Titanate and Its Precursors</i>
P29	T.V. Fesenko, I.V. Laguta, P.O. Kuzema, O.M. Stavinskaya <i>Laser Desorption/Ionization of 3-Hydroxyflavone Complex with Fe on Silica and Titania Films</i>
P30	M. Maciulevicius, M. Brikas, G. Raciukaitis <i>Picosecond Laser Pulse Ablation and Fragmentation of Silver Nanoparticles</i>
P31	J. Mech, R. Kowalik, A. Podborska, P. Kwolek, K. Szaciłowski <i>Nanophotonic Logic Devices in Information Processing</i>
P32	R. Meija, J. Andzane, J. Prikulis, S. Kubatkin, J.D. Holmes, D. Erts <i>Development and Characterization of Nanoelectromechanical Switches</i>
P33	B. Narijauskaitis, A. Palevius, A. Juraitis, G. Janušas <i>High Frequency Vibration Application in Process of Thermal Replication of Microstructures</i>
P34	G.V. Nechyporenko, O.V. Mischanuk, P.O. Kuzema <i>Saline Melt Synthesis and Characterisation of Calcium Hydroxy- and Fluorapatites</i>
P35	O. Lotty, S. Barth, J. D. Holmes <i>Controllable Synthesis of Single Crystalline Uniform Arrays of Silicon Nanowires</i>
P36	A. Pastare, J. Katkevichs, A. Viksna, D. Erts <i>Electrochemical Fabrication of Au Nanowires</i>
P37	I. Pastore, D. Erts <i>Preparation of Ordered Nanodot Arrays Using Ultra Thin Anodized Aluminum Oxide Mask</i>
P38	R. Poplauskis, U. Malinovskis, I. Muiznieks, D. Erts <i>Small Volume Fluid Transfers into Living Cells Using Nano Injector Based on Nanoporous Probe</i>
P39	J. Andželis, R. Popausks, P. Birjukovs, J. Prikulis, R. Lõhmus, D. Erts <i>Studies of Dynamic Force Interactions Using Tuning Fork Resonators inside SEM and TEM</i>
P40	V.Sydorchuk, L.Belyakova, R.Leboda, J. Skubiszewska-Ziba <i>Some New Approaches in the Synthesis of Compositions Silica/Cyclodextrin</i>
P41	A. Sutka, G. Mezinskas, A. Pludons <i>Combustion Synthesis, Electrical and Microstructural Properties of Ni_{1-x}Zn_xFe₂O₄ Ferrites</i>
P42	A. Zarins, A. Supe, G. Kizane, L. Baumane, I. Steins, R. Knitter <i>Silica Influence on Lithium Orthosilicate Radiation Defects Formation and Accumulation</i>
P43	U. Gertners <i>Surface Relief Modulation Phenomena by Light Induced Interference</i>
P44	R. Krutokhvostov <i>Magnetic Circular Dichroism Effects in Non-magnetic Colloidal Nanocrystals</i>
P45	G. Marcins, M. Chubarov, J. Butikova, I. Tale, R. Kalendarjov <i>Structure and Characteristics of Laser Crystallized Amorphous Si Films</i>
P46	A. Tamulevičienė, Š. Meškinius, V. Kopustinskas, S. Tamulevius <i>SiO_x Doped Amorphous Carbon Films for Optical Applications</i>
CERAMICS	
P47	M. Duce, E. Birks, M. Antonova, M. Kundzinsh <i>Phase Transitions in Modified Na_{1/2}Bi_{1/2}TiO₃-SrTiO₃ Solid Solutions</i>
P48	A. Jankeviciute, A. Kareiva <i>Synthesis of Leucite from Molecular Precursor</i>
P49	K. Klemkaitis, I. Prosyevas, A. Khinsky, A. Kareiva <i>Incomplete Reconstruction of Layered Double Hydroxide with Transition Metals (Ni, Co)</i>
P50	L. Mahnicka, R. Svinka <i>Effect of SiO₂ on the Properties of Porous Corundum-Mullite Ceramic</i>
P51	I. Smeltere, M. Antonova, A. Kalvane, O. Grigs, M. Livinsh <i>The Effect of Dopants on Sintering and Microstructure of Lead-Free KNN</i>
POLYMERS AND COMPOSITES	
P52	I. Elksnite, I. Reinholds, J. Zicans, M. Kalnins <i>Thermal Analysis, Mechanical and Rheological Behaviour of Melt Manufactured Polyethylene/Liquid Crystal Polymer Blends</i>
P53	D. Gudeika, R. Lygaitis, J.V. Gražulevius <i>New Electron-transporting Naphthalene Diimide Containing Polymers</i>
P54	M. Halitovs, G. Kizane, A. Vitins, E. Pajuste, A. Kirillova, J. Gabrusenoks <i>Disposition of Accumulated Tritium in the CFC Tiles of Jet Fusion Reactor</i>
P55	E. Langer, H. Kuczynska <i>Self-stratifying Epoxy/Acrylic Compositions</i>
P56	M. Lenartowicz, G. Rymarz, T. Zak, J. Kozuch <i>Glass Reinforced Engineering Plastics – Static and Dynamic Methods for Mechanical Properties Determination</i>
P57	I. Milašauskaitė, V. Ostaševičius, R. Daukševičius, V. Baltrušaitis, V. Grigaliūnas, I. Prosyevas <i>Development and Experimental Characterization of PVDF Structure Intended for Energy Harvesting Applications</i>
P58	D. Peckus, A. Devižis, V. Gulbinas, D. Hertel <i>Charge Carrier Generation via Exciton-Exciton Annihilation in Fluorine Based Conjugated Polymers</i>
P59	M. Žikūnas, L. Augulis, L. Puodžiukynas, V. Gražulevičienė, M. Gumbyt <i>Mechanical Properties of Biodegradable Polymeric Composites</i>

ADVANCED ENGINEERING MATERIALS	
P60	I. Padleckien , V. Rubežien , G. Minkuvien , J. Baltušnikait <i>Development and Investigation of Camouflage Textile Materials</i>
P61	M. Sasnauskas, D. Vai iukynien , V. Vaitkevi ius, V. Sasnauskas <i>Effect of Permutite on the Properties of Hardened Cement Paste</i>
P62	K.Šileika, I. Skiedrait <i>The Development of Electromagnetic Field Generator for Control of Ferrum-based Nanoparticles</i>
P63	V. Zubkovs, E. Pajuste, G. iz ne, P. Birjukovs, A. V ti š, J. Jansons <i>Study of the Beryllium Pebbles Structure after High Temperature Treatment</i>
P64	V. Kumšlytis, R. Skindaras, A.V. Valiulis <i>The Structure and Properties of 5%Cr-0.5%Mo Steel Welded Joints after Natural Ageing and Post-Weld Heat Treatment</i>
ELECTRONIC AND OPTICAL MATERIALS	
P65	J. Jurkevi ius, A. Katelnikovas, P. Vitta, A. Žukauskas, A. Kareiva, T. Jüstel, G. Tamulaitis <i>Investigation of Quantum Efficiency of YMASG:Ce Phosphor</i>
P66	V.Kalendra, V.Kažukauskas, N.Vainorius, J.V.Vaitkus <i>Photoconductivity Spectra and Deep Levels in the Irradiated and Annealed Si Detectors</i>
P67	Ž. Kaminskien , J. Stonkut , I. Prosy evas, J. Puišo, A. Guobien <i>Synthesis of Silver Plasmonic Nanoparticles via “Green” Chemistry Approach</i>
P68	M. Karali nas, E. Kuokštis, S.Y. Ting, J.J. Huang, C.-C. Yang <i>Optical Properties of CdZnO Multiple Quantum Wells</i>
P69	A. Mekys, V. Kudriašov, J. Ruseckas, G. Juzeli nas <i>Manipulation of Slow Light with Optical Vortices in Quantum Gases</i>
P70	G. Kunakova, J. Bukins, P. Birjukovs, J. Prikulis, J.D. Holmes, D. Erts <i>Characterization of Free Standing and Inside Membrane Encapsulated Bi₂S₃ and Sb₂S₃ Nanowires</i>
P71	P.Malinovskis, A.Mekys, J.Storasta <i>Defects Reactions in Irradiated CdTe Crystals</i>
P72	M. Ozolinsh, R. Kashtaljāna, Martín <i>Eye Optical Power Dispersion Impact on Colour Stimuli Perception</i>
P73	A. Pausus, E. Kassaliete <i>Dependence of Depth of Focus on Pupil Size and Subject’s Age</i>
P74	X. Liu, J. Kjelstrup-Hansen, H. Boudinov, H.-G. Rubahn <i>Space-Charge Assisted Electron Tunneling in AC-Driven Organic Light Emitting Transistors</i>
P75	N. Vai i nait , L. Augulis <i>Optical Properties of Retro-reflective Materials</i>
P76	R. Šeperys, V. Mork nas, I. Gražulevi i t , T. Tamulevi ius, M. Andrulevi ius, S. Tamulevi ius <i>Hologram Origination with Animated Effect Employing Dot Matrix Printer</i>
P77	M. Andrulevi ius, T. Tamulevi ius, L. Puodžiukynas, R. Šeperys, V. Mork nas, S. Tamulevi ius <i>Formation of 2D/3D Holograms with Laser-Hidden Image</i>
P78	K. Šliužien , V. Lisauskas, B. Vengalis, G. Grigali nait Voncevi ien <i>Magnetoresistive Properties of Heterostructures Formed Between Ferromagnetic La_{2/3}Sr_{1/3}MnO₃ and Organic Semiconductor</i>
P79	E. Navickas, M. Gerstl, J. Fleig <i>In and across plane conductivity measurements of nano range thickness YSZ films</i>

August 31, Tuesday

Chairman – prof. C. Templier

8:30 – 9:15 Prof. F. Basile (Università di Bologna, Italy) **Catalysis for hydrogen production**

9:15 – 10:00 Prof. A. Krotkus (Centre for Physical Sciences and Technology, Lithuania) **Dilute bismides and their applications in optoelectronic devices**

10:00 – 10:45 Prof. Y. Dekhtyar (Riga Technical University, Latvia) **Prethreshold electron emission for characterization and targeting applications of nanoobjects**

10:45 – 11:30 Prof. E. Kuokštis (Vilnius University, Lithuania) **Carrier Localization and Radiative Recombination in Nitride-Based Semiconductor Compounds**

11:30 – 11:45 Coffee break

12:00 Departure