



The 3rd International Conference on Nanomaterials: Fundamentals and Applications

NFA 2017

SCIENTIFIC AND SOCIAL PROGRAMME

09.10.2017 - 11.10.2017

**Štrbské Pleso, High Tatras, Slovakia
Hotel Patria**

INTERNATIONAL CONFERENCE

High Tatras, 2017

08. 10. 2017

SUNDAY

18:00 – 20:00 Registration

09. 10. 2017

MONDAY

08:00 – 09:00 Registration

09:00 – 09:15 Opening ceremony

**SECTION 4. Advanced preparation methods and characterization
techniques of nanomaterials**

Chairman: Andrej Oriňak

09:15 – 09:45 INVITED LECTURE: Guido Schmitz

(Institute of Materials Science, University of Stuttgart, Germany)

Research on top of the tip:

Interfaces and reactions in nanostructured matter

09:45 – 10:05 Ján Labuda, A. Koutsogiannis, J. Sochr, D. Diamantidou, J. Blaškovičová, V. Svitková, **Nanoparticles and UV-C induced DNA damage (*Institute of Analytical Chemistry, Slovak University of Technology in Bratislava, Slovakia*)**

10:05 – 10:25 Yasin Kanbur, U. Tayfun, **Mechanical, thermal, fire resistance and morphological characterizations of surface modified carbon nanotube reinforced thermoplastic polyurethane composites (*Karabuk University, Metallurgical and Materials Engineering, Turkey*)**

10:25 – 10:45 Mariusz Malko, A. Wróblewska, P. Miądlicki, **Short characteristic and applications of chosen natural nanomaterials (*West Pomeranian University of Technology Szczecin, Department of Chemical Engineering and Technology, Szczecin*)**

10:45 – 11:05 Coffee break

11:05 – 11:25 Amir Bagheri Garmarudi, M. Khanmohammadi, F. Askarian, **Process monitoring in Fabrication of Nano Structures by Infrared Spectroscopy: TiO₂ as a Case Study** (*Chemistry Department, Faculty of Science, Imam Khomeini International University, Iran*)

11:25 – 11:45 Emmanuel Abu-Danso, S. Peräniemi, J. Vepsäläinen, S. Holopainen, A. Bhatnagar, **Removal of cadmium (Cd²⁺) from Water using Cellulose Nanofibers and Nano-Clay Composite** (*Department of Environmental and Biological Sciences, University of Eastern Finland, Finland*)

11:45 – 12:05 ~~Hasan Gocmez, M. Tuncer, I. Bogomol, **Chemical synthesis and densification of nanocrystalline zirconium diboride powders**~~ (*Department of Material Science and Engineering, Dumlupınar University, 43030 Kutahya, Turkey*)

12:05 – 13:00 LUNCH

SECTION 3. Nanomaterials for energy applications

Chairman: Ladislav Kavan

13:00 – 13:30 INVITED LECTURE: Pedro Gomez-Romero

(Institut Catala de Nanociencia I Nanotecnologia, ICN2, Barcelona, Spain)

What could be better than graphene for energy storage?

13:30 – 13:50 Ján Tkáč, T. Bertok, L. Lorencova, L. Belicka, A. Holazova, E. Chocholova, F. Kveton, P. Kasak, **Nanomaterials employed for electrochemical sensing, biosensing and energy applications** (*Institute of Chemistry, Slovak academy of Sciences, Dubravska cesta 9, 845 38, Bratislava, Slovakia*)

13:50 – 14:10 Irina Tiuliukova, N.A. Rudina, E.V.Parkhomchuk, **Crystal size and morphology of silicoaluminophosphate SAPO – 11: strategy and parameters of synthesis** (*Boreskov Institute of Catalysis SB RAS, 5 Lavrentieva St., Novosibirsk 630090, Russia*)

14:10 – 14:30 R. Oriňaková, Andrea Straková Fedorková, K. Gavalierová, T. Kazda, P. Gómez-Romero, **Characterization of Sulfur Composite Cathodes for High Performance Li-S Batteries** (*P. J. Safarik University, Department of Physical Chemistry, Košice, Slovakia*)

14:30 – 14:50 E. Shembel, T. Pastushkin, V. Redko, O. Markevych, O. Kolomoiets, **Binder free Silicon/Graphite anode: Breakthrough in Li-Ion Batteries** (*Enerize Corporation, Coral Springs, FL, 33067, USA and Scientific Research Laboratory of Chemical Power Sources Ukrainian State University of Chemical Technology, Dnipro, 49005, Ukraine*)

14:50 – 15:10 Coffee break

SECTION 5. New applications and new properties of nanomaterials

Chairman: Andrea Straková Fedorková

15:10 – 15:40 INVITED LECTURE: Pavel A. Levkin

(Institute of Toxicology and Genetics, Institute of Organic Chemistry, Karlsruhe, Germany)

Designing Biofunctional Interfaces with Special Wettabilities

15:40 – 16:00 Marián Palcut, P. Priputen, L. Ďuriška, I. Černičková, J. Janovec, **Corrosion resistance of structurally complex phases in Al–Co alloys**, (*Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology in Trnava, Slovakia*)

16:00 – 16:20 Florian Schutz, M. Bähge, K. Scheurell, G. Scholz, M. Feist, E. Kemnitz, **Development of Complex Fluoro Aluminates via Fluorolytic Sol-Gel Synthesis** (*Department of Chemistry, Humboldt-Universität zu Berlin, Brook-Taylor-Straße, Germany*)

16:20 – 16:40 Amr M. Abdelghany, H. A. Elbatal, **Structural Peculiarities of Silver nanoparticles containing Barium Borate Glass and Effects of Gamma Irradiation**, (*Spectroscopy Department, National Research Center, Cairo, Egypt*)

16:40 – 17:00 N. Aliyeva, A. Aliyeva, S. Osmanova, E. Mammadov, Etibar Ismailov, **Acidity of Nanostructured Zr/Al Oxide Based Catalysts for Conversion of C₂-C₄ Alcohols to Olefins Based on the Data of EPR Spectra of Adsorbed Spin Probes**, (*Institute of petrochemical processes, Azerbaijan National Academy of Sciences, Azerbaijan*)

17:00 – 18:00 POSTER SESSION

19:00 Dinner in „KOLIBA“ with traditional Slovak food and music

10. 10. 2017

TUESDAY

SECTION 4. Advanced preparation methods and characterization techniques of nanomaterials

Chairman: Vlasta Brezová

09:00 – 09:30 INVITED LECTURE: Antonios Kelarakis

(University of Central Lancashire, School of Physical Sciences and Computing, Preston PR12HE, U.K)

Current Trends in Nanostructured Materials

09:30 – 09:50 Murat Ates, Y. Bayrak, O. Yoruk, S. Caliskan, **Reduced graphene oxide / Titanium oxide Nanocomposite Synthesis via Microwave-assisted Method and Supercapacitor behaviors**, (*Department of Chemistry, Faculty of Arts and Sciences, Namik Kemal University, Degirmenalti Campus, Turkey*)

09:50 – 10:10 Kamil Awskiuk, J. Rysz, M.M. Marzec, P. Dabczynski, A. Budkowski, **The effect of the perpendicular electric field on structure formation in solution-cast composites of conjugated and dielectric polymers**, (*M. Smoluchowski Institute of Physics, Jagiellonian University, Poland*)

10:10 – 10:30 Murat Ates, S. Caliskan, E. Ozten, **Polypyrrolle/Ag nanoparticle/graphene nanocomposites as a symmetric device for supercapacitors**, (*Department of Chemistry, Faculty of Arts and Sciences, Namik Kemal University, Degirmenalti Campus, Turkey*)

10:30 – 10:50 Coffee break

SECTION 1. Nanomaterials, nanocomposites and nanostructured surfaces

Chairman: Elena Shembel

10:50 – 11:20 INVITED LECTURE: Ladislav Kavan

(J. Heyrovský Institute of Physical Chemistry, v.v.i., Academy of Sciences of the Czech Republic, Prague)

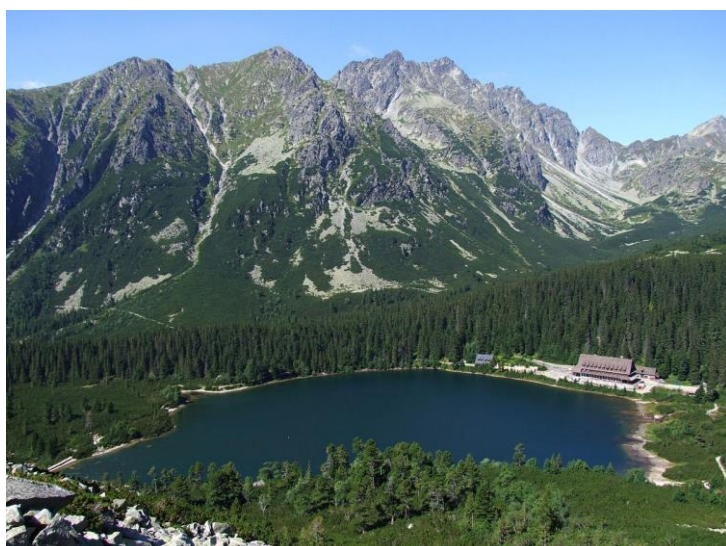
Conduction Band Engineering in Semiconducting Oxides: Fundamentals and applications

- 11:20 – 11:40** Shaxla Tagiyeva, N. M. Aliyeva, E. E. Mammadov, E. H. Ismailov,
Hydrogenation of carbon dioxide to methanol over catalysts based on silica - alumina modified with Zr-, Pd-salts, (*Institute of Petrochemical Processes of National Academy of Sciences Azerbaijan, Baku, Azerbaijan*)
- 11:40 – 12:00** Ilie Daniel Timpu, B. I. Dogaru, M. C. Popescu, F. Burlec, C. Tuchilus,
Structural evaluation of antimicrobial nanocomposite films, (*“Petru Poni” Institute of Macromolecular Chemistry of Romanian Academy, Iasi, Romania*)
- 12:00 – 12:20** Abdelghani Boucheham, A. Karaali, A. Manseri, **Effect of Anodizing Potentials on Corrosion Behavior of Anodic TiO₂ Nanotubes Grown on Ti6Al4V Substrates**, (*Laboratoire de Thermodynamique et Traitement de Surfaces des Matériaux, Département de Physique Faculté des Sciences Exactes, Université des Frères Mentouri- Constantine1, Algeria*)

12:20 – 13:20 LUNCH

13:45 Excursion to the mountains - Popradske Pleso

Warm clothes, raincoat/umbrella and sports shoes are recommended if you want to take a trip to the mountains. Special mountain insurance is provided by Infocenter Strbske Pleso for 1 € per day.



19:00 Dinner in Hotel Patria, Restaurant “Slnko”

20:00 Conference Room - BEST POSTER PRIZE RESULTS

11. 10. 2017

WEDNESDAY

SECTION 1. Nanomaterials, nanocomposites and nanostructured surfaces

Chairman: Ján Tkáč

09:00 – 09:30 INVITED LECTURE: Vlasta Brezová

(Slovak Technical University, Bratislava, Slovakia)

The role of X- and Q-band EPR spectroscopy in the characterization of titania nanocrystalline systems

09:30 – 09:50 Elena Shembel, V. Redko, T. Pastushkin, L. Yashchenko, N. Yarova, A. Markevich, **Nanostructured Transparent Polymer For Encapsulate PV Modules. Replace Glass, Increase Efficiency (*Enerize Corporation, Coral Springs, FL, 33067, USA and Scientific Research Laboratory of Chemical Power Sources Ukrainian State University of Chemical Technology, Dnipro, 49005, Ukraine*)**

SECTION 2. Bioinspired and medical nanomaterials

09:50 – 10:10 Emilia Tomaszewska, K. Ranzoszek-Soliwoda, G. Celichowski, E. Mackiewicz, P. Orłowski, M. Krzyżowska, J. Grobelny, **Silver nanoparticles and plant extracts complexes as stimulants for the healing process of skin wounds, (*Department of Materials Technology and Chemistry, Faculty of Chemistry, University of Lodz, Poland*)**

10:10 – 10:30 Andrea Castelli, A. Polovitsyn, L. Manna, M. P. Arciniegas, **Synthesis and Self-Assembly of Emitting Bone-Shaped Colloidal Nanocrystals, (*Nanochemistry Department, Istituto Italiano di Tecnologia, Via Morego, Genova, Italy*)**

10:30 – 10:50 Stefan Fasbender, S. Allani, C. Wimmenauer, R.P. Cadeddu, K. Raba, J. Fischer, B. Bulat, M. Luysberg, C. Seidel, T. Heinzl, R. Haas, **Exposure of Primary Human Leukocytes and Hematopoietic Stem Cells to Graphene Quantum Dots, (*Condensed Matter Physics Laboratory, Heinrich-Heine-University, Düsseldorf, Germany*)**

10:50- 11:10 Coffee break

SECTION 5. New applications and new properties of nanomaterials

Chairman: Renáta Oriňaková

11:10 – 11:40 INVITED LECTURE: Ján Dusza

(Institute of Materials Research, Slovak Academy of Sciences, Košice, Slovak Republic)

Nanomechanical Testing of Hard Materials

11:40 – 12:00 Mária Lalkovičová, Radiobiological Research in Laboratory of Radiation

Biology of JINR, (*Laboratory of Radiation Biology, Joint Institute for Nuclear Research, Joliot-Curie 6, 141980, Dubna, Moscow Region, Russia and Slovak Academy of Sciences in Košice, Institute of Experimental Physics, Watsonova 47, 04001 Košice, Slovakia*)

12:00 – 12:20 Ewelina Mackiewicz, P. Giesz, M. Cieślak, J. Grobelny, G. Celichowski,

Silver nanowires – synthesis, modification and use to obtain multifunctional fabrics, (*Department of Materials Technology and Chemistry, Faculty of Chemistry, University of Lodz, Poland*)

12:20 – 13:20 LUNCH

13:20 – 13:40 Mohamed Deyab, Novel nanocomposites based on epoxy and nano sized

phthalocyanine for corrosion protection applications, (*Egyptian Petroleum Research Institute (EPRI), Nasr City, Cairo, Egypt*)

13:40 – 14:00 Jayprakash Dargad, Synthesis, structural, and transport properties of

chemically deposited nanostructured CdMnS thin films, (*Dayanand Science College, Latur-413 531, M.S, India*)

14:00 – 14:20 Salim Kermadi, S. Sali, L. Zougar, M. Boumaour, Annealing duration effect

on optical, structural and morphological properties of ultrasonic sprayed Cu₂ZnSnS₄ films, (*Laboratoire des Modules Photovoltaïques, Centre de*

*Recherche en Technologie des Semi-conducteurs pour l'Energétique
Merveilles, Algiers)*

14:20 CLOSING CEREMONY, PARTICIPANTS PHOTO

LIST OF POSTERS

Session I-III

Nanomaterials, nanocomposites and nanostructured surfaces

Bioinspired and medical nanomaterials

Nanomaterials for energy applications

P1 Relaxation Dynamics of a Multihierarchical Polymer Network Consisting of Dual Sierpinski Gasket and Regular Dendrimer

A. Jurjiu, T. Biter, F. Turcu

P2 Transport Through a Strongly Interacting Quantum Dot Coupled to Graphene Electrodes

L. Mathe, I. Grosu

P3 Modification of screen-printed electrode by silver nanoparticles for bioapplication

M. Heckova, R. Orinakova, M. Streckova

P4 Unusual Bending Properties of Carbon Nanotubes - a Consequence of Different Stiffness in Tension and Compression?

M. Kupkova, M. Kupka

P5 Chiral Plasmonic Helicene Nanoassemblies

J. Janoušek, L. Bednárová, M. Šámal, J. Neburková, J. Vávra, J. Rybáček, P. Matějka, P. Cígler, I. G. Stará, I. Starý

P6 Nanoceramic composites based on organomagnesiumoxanealumoxanes

T. Apukhtina, G. Shcherbakova, M. Varfolomeev, A. Rumina, N. Krivtsova, A. Drachev

P7 Deposition of Cobalt Oxide Nanowires and their Possible Use in Electronic

J. Maca, J. Libich, M. Sedlarikova, S. Piazza, G. Ferrara

P8 A new double layer epoxy nano composite coating for corrosion protection of Petroleum Equipments

Ashraf M. El-Saeed, Maher A. El Sockary, Samya I. El Sherbiny, Fatma A. Morsy, Mohamed A. ELleithy

P9 Thin-Layer FeS₂ Electrodes Synthesized by Electrolysis for Li and Li-Ion Batteries

R. Apostolova

P10 Preparation of carbon fibers with embedded metal and metal/phosphide nanoparticles as favourable electrocatalysts for hydrogen evolution reaction

M. Strečková, R. Orinakova, E. Mudra, M. Sabalova, J. Dusza

P11 Design of thermal model of supercapacitor

M. Frivaldsky, P. Drgona

P12 Surface protective layers for the Li-S cathodes
T. Kazda,

P13 Synthesis of rGO/nanoclay/PVCz Nanocomposites and Supercapacitor Applications
M. Ates, E. Osten

P14 Fabrication and Characterisation of Nanocomposites for Post Lithium-ion Batteries
Dominika Capková, Andrea Straková Fedorková, Günter Fafilek

Session IV - VII

Advanced preparation methods and characterization techniques of nanomaterials

New applications and new properties of nanomaterials

Nanofertilizers

Nanomaterials and components for electronic devices

P15 Evaluating the molecular interactions in nanocomposite films using PCA and 2DIR correlation spectroscopy

M. C. Popescu, B. I. Dogaru, C. M. Popescu

P16 Structure and sorption properties of CNC reinforced PVA films

B. I. Dogaru, M. C. Popescu, C. M. Popescu

P17 Synthesis and Characterization of Vanadium-Doped Titanium Dioxide Nanotubes

M. T. Aytakin Aydın, H. Levent Hoşgün

P18 Nano-oxide ceramics based on organoelementoxanes

G. Shcherbakova, T. Apukhtina, P. Storozhenko, M. Varfolomeev, A. Ashmarin

P19 Isomerization of alpha-pinene over halloysite – the effect of temperature

P. Miądlicki, A. Wróblewska, M. Malko

P20 Isomerization of alpha-pinene over mesoporous Ti-MCM-41 catalyst – the effect of temperature

P. Miądlicki, A. Wróblewska, M. Malko

P21 Doping Concentration in Nano-structures Using X-ray Fluorescence

J. Sharma, A. Tiwari, S. Sharma

P22 Scanning ion selective electrode technique as a sensitive method for probing buffer activity of polyelectrolyte layers

H. M. Maltanova, S. K. Poznyak, D. V. Andreeva, M. C. Quevedo, A. C. Bastos, J. Tedim and E. V. Skorb

P23 Silver nanowires modified with metal oxides for conductive materials preparation
E. Mackiewicz, P. Giesz, M. Cieślak, G. Celichowski

P24 Oxidation of R-(+)-limonene over montmorillonite with tert-buthyl hydroperoxide
M.W. Malko, A. Wróblewska, P. Miądlicki

P25 Studies on the properties of montmorillonite used as the catalyst in the oxidation of R-(+)-limonene with hydrogen peroxide
M.W. Malko, A. Wróblewska, P. Miądlicki

P26 Low cost preparation of slow-release fertilizer of natural clinoptilolite by ammonia enrichment
J. Macko, A. Orinak, F. Mihok

P27 Role of Dissociation in Evaluation Quality of Fertilizers
F. Mihok, A. Orinak

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