

## ICNBME-2015 Program at a Glance

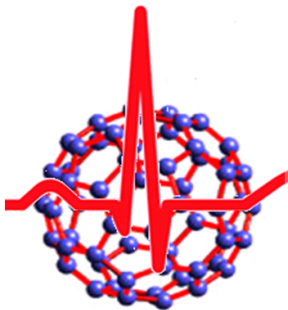
Sept. 22, 2015	9 <sup>00</sup> -22 <sup>00</sup>	Accommodation, Registration, Distribution of the Conference materials				
	19 <sup>30</sup>	Welcome Reception				
	8 <sup>00</sup> -9 <sup>30</sup>	Registration, Distribution of the Conference materials				
	9 <sup>30</sup> -11 <sup>00</sup>	CONFERENCE OPENING, WELCOME SPEECHES PLENARY SESSION PL-1 - Room 1				
	11 <sup>00</sup> -11 <sup>30</sup>	11:00 - 11:30 COFFEE BREAK				
	11 <sup>30</sup> -13 <sup>00</sup>	PLENARY SESSION PL-2 - Room 1				
	13 <sup>00</sup> -14 <sup>00</sup>	13:00 - 14:00 LUNCH				
Sept. 23, 2015	14 <sup>00</sup> -16 <sup>00</sup>	SECTION S1-1 Nanotechnologies and Nanomaterials Room 1	BME ENA WORKSHOP WS1-1 Biomedical engineering education Room 3	SECTION S3-1 Biomedical Instrumentation and Biosensors. Room 4	SECTION S5-1 Clinical Engineering, health informatics and cellular and tissue engineering. Room 2	
	16 <sup>00</sup> -16 <sup>30</sup>	16:00 - 16:30 COFFEE BREAK				
	16 <sup>30</sup> -18 <sup>30</sup>	SECTION S1-2 Nanotechnologies and Nanomaterials Room 1	SECTION S4-2 Biomedical signal and image processing. Room 3	SECTION S3-2 Biomedical Instrumentation and Biosensors. Room 4	SECTION S5-2 Clinical Engineering, Health Informatics and Cellular and Tissue Engineering. Room 2	
	19 <sup>30</sup> -21 <sup>30</sup>	19:30-21:30 CONFERENCE DINNER				
	21 <sup>30</sup>	21:30 Laser & light show				
Sept 24, 2015	9 <sup>00</sup> -11 <sup>00</sup>	HUMBOLDT KOLLEG WORKSHOP WS3-1 Science and Society- the Use of Light - Plenary Session Room 1				TEMPUS Project BME-ENA General Assembly Technical University of Moldova
	11 <sup>00</sup> -11 <sup>30</sup>	11:00 - 11:30 COFFEE BREAK				
	11 <sup>30</sup> -12 <sup>30</sup>	HUMBOLDT KOLLEG WORKSHOP WS3-2 Science and Society-the Use of Light Plenary Session Room 1		SECTION S2-1 Bio-nanotechnologies and Biomaterials. Room 4	WORKSHOP WS2-1 Nuclear and Radiation Safety and Security. Room 2	TEMPUS Project BME-ENA General Assembly Technical University of Moldova
	12 <sup>30</sup> -13 <sup>00</sup>	HUMBOLDT KOLLEG WORKSHOP WS3-3 The Use of Light, Room 1				
	13 <sup>00</sup> -14 <sup>00</sup>	13:00 - 14:00 LUNCH				
	14 <sup>00</sup> -15 <sup>40</sup>	SECTION S1-3 Nanotechnologies and Nanomaterials Room 3	HUMBOLDT KOLLEG WORKSHOP WS3-4 Recent progress in the light sources research, Room 1	SECTION S2-2 Bio-nanotechnologies and Biomaterials. Room 4	WORKSHOP WS2-2 Nuclear and Radiation Safety and Security. Room 2	TEMPUS Project BME-ENA General Assembly Technical University of Moldova
	15 <sup>40</sup> -16 <sup>10</sup>	15:40 - 16:00 COFFEE BREAK				
	16 <sup>00</sup> -17 <sup>00</sup>	SECTION S1-4 Nanotechnologies and Nanomaterials Room 3	HUMBOLDT KOLLEG WORKSHOP WS3-5 Recent Progress in the Light Sources Research, Room 1	WORKSHOP WS2-3 Nuclear and Radiation Safety and Security. Room 2	TEMPUS Project BME-ENA General Assembly Technical University of Moldova	
	16 <sup>30</sup> -18 <sup>30</sup>	16:30 - 18:30 POSTERS SESSION				
	17 <sup>00</sup>	17:00 SOCIAL EVENTS - Visit to Cricova				
Sept 25, 2015	9 <sup>00</sup> -11 <sup>00</sup>	SECTION S1-5 Nanotechnologies and Nanomaterials Room 3	HUMBOLDT KOLLEG WORKSHOP WS3-6 Theory and Applications of Light Sources, Room 1		TEMPUS Project BME-ENA General Assembly Room 4	
	11 <sup>30</sup> -12 <sup>00</sup>	11:30 - 12:00 COFFEE BREAK				
	12 <sup>00</sup> -12 <sup>45</sup>	PLENARY SESSION PL3 - Room 1				
	12 <sup>45</sup>	13:00 CLOSING CEREMONY				
	14 <sup>30</sup>	15:00-21:00 SOCIAL EVENTS - Researcher's night, Academy of Sciences of Moldova, Stefan cel Mare av. 1				
Sept. 26, 2015	9 <sup>00</sup> -14 <sup>00</sup>	09:00 - 14:00 A trip to Sorooca Fortress				
	16 <sup>00</sup>	16:00 Departure of Participants				



# **3<sup>rd</sup> INTERNATIONAL CONFERENCE on Nanotechnologies and Biomedical Engineering**

**September 23-26, 2015, Chisinau, Republic of Moldova**

## **Program**



**ICNBME - 2015**

**3<sup>rd</sup> INTERNATIONAL CONFERENCE  
on Nanotechnologies and  
Biomedical Engineering**

## PREFACE

This volume presents the Conference Program and Abstracts Book of the 3<sup>rd</sup> International Conference on Nanotechnologies and Biomedical Engineering (ICNBME) which was held on September 23-26, 2015 in Chisinau, Republic of Moldova. ICNBME-2015 continued the series of international conferences in the field of nanotechnologies and biomedical engineering with the main goal focused at bringing together scientists and engineers dealing with fundamental and applied research for reporting on the latest theoretical developments and applications in the fields involved.

The conference and related workshops covered a wide range of subjects of primary importance for research and development such as nanotechnologies and nanomaterials; bio-nanotechnologies and biomaterials; biosensors and biomedical instrumentation; biomedical signal and image processing; clinical engineering, health informatics and cellular and tissue engineering; biomedical engineering education; nuclear and radiation safety and security. Besides, the program includes the presentations presented at the special Symposium “Science and society: the use of light” organized in connection with the celebration of the International Year of Light and Light-based Technologies, following a global initiative adopted by the United Nations to raise awareness of how optical technologies promote sustainable development and provide solutions to worldwide challenges in areas such as energy, education, communications, health, and sustainability.

The papers reflect the results of multidisciplinary research undertaken by about one hundred of groups worldwide. Special attention is paid to the development of novel nanotechnologies and nanomaterials, in particular of bio-nanotechnologies and bio-nanomaterials. New bio-compatible materials are proposed for use in regenerative medicine, cellular and tissue engineering. Interesting data on novel chemical and biosensors are reported which are based on nanostructured metal oxides and hybrid nanocomposite materials. Considerable progress has been achieved at the intersection of nanotechnologies, information technologies and biomedicine as, for example, in health informatics, biomedical signal and image processing. New theoretical and experimental results are highlighted in such fields as superconductivity, novel magnetic materials, metamaterials, optoelectronic and photonic materials, photovoltaic structures, quantum dots, one- and two-dimensional nanomaterials, multifunctional hybrid materials like core-shell structures etc. The papers reflect the state-of-the-art in controlling the properties of several classes of nanocomposite materials for important future applications in various fields. It is worth to note that the presented works include also a number of review papers reflecting the fascinating history and recent achievements in the development of novel solid-state structures, nanoelectronic and optoelectronic devices like quantum rings and room temperature polariton laser.

We hope that the papers presented at the ICNBME-2015 will be of interest for established researchers working in multidisciplinary fields of science and technology, young scientists, students and broad community wishing to get up-to-date information on progress in the fast-developing areas of nanotechnology and biomedical engineering.

**Acad. Prof. Ion Tiginyanu, Prof. Victor Sontea**  
**Editors**

Chisinau, Republic of Moldova, August 2015

The Organizing Committee of the 3<sup>rd</sup> **International Conference on Nanotechnologies and Biomedical Engineering** highly appreciates the financial and technical support provided by the following institutions, agencies and enterprises:

- **Academy of Sciences of Moldova**
- **Technical University of Moldova**
- **State Medical and Pharmaceutical University "Nicolae Testemitanu" of the Republic of Moldova**
- **Moldavian Society of Biomedical Engineering**
- **Commision of the European Communities, TEMPUS IV program**
- **International Federation for Medical and Biological Engineering**
- **Alexander von Humboldt Foundation (Workshop)**
- **Swiss Agency for Development and Cooperation**
- **Supreme Council for Science and Technological Development of the Academy of Sciences of Moldova**
- **State Agency on Intellectual Property of the Republic of Moldova**
- **StarNet Company**



Tempus

Alexander von Humboldt  
Stiftung/Foundation

IFMBE



Liber să descoperi

## **3<sup>rd</sup> International Conference** *Nanotechnologies and Biomedical Engineering*

### ***Organized by***

- Technical University of Moldova
- Academy of Sciences of Moldova
- State Medical and Pharmaceutical University "Nicolae Testemitanu" of the Republic of Moldova
- Moldavian Society of Biomedical Engineering

## **Information Note**

*ICNBME-2015 continues the series of International Conferences in the field of nanotechnologies and biomedical engineering. The conference aims at bringing together scientists and engineers dealing with fundamental and applied research for reporting on the latest theoretical developments and applications in the fields involved.*

The Conference details are available through the website  
<http://www.icnbme.sibm.md>

**Program Committee**  
**Organizing Committee**

### **Address:**

168, Stefan cel Mare av., MD-2004, Chisinau, Republic of Moldova  
Tel.: 03732(2) 509910, Fax: 03732(2) 509910, GSM : 0373 79460338; 0373 69181485  
E-mail: [icnbme2015@gmail.com](mailto:icnbme2015@gmail.com), [sontea@mail.utm.md](mailto:sontea@mail.utm.md),  
Web: <http://www.icnbme.sibm.md/home.html>

The Conference will take place at the Labour Institute located at 10 Zimbrului street, Chisinau, Moldova. This building is located in the park area between two city districts: Rishkanovka and Chekani.

Participants registration will take place in the building of the Labour Institute, 10 Zimbrului street, Chisinau, Moldova on September 22 from 9.00 to 22.00 and on September 23 from 8.00 to 16.00.

Transport: minibus nr. 175

The conference will open at 9.30, September 23, 2015.

## **Language**

The official language of the Conference is **English**.

## Conference Chairs

- Ion Tiginyanu      Academy of Sciences of Moldova, Republic of Moldova
- Victor Sontea      Technical University of Moldova, Republic of Moldova

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<b>Andrei Sarua</b>	University of Bristol, United Kingdom
<b>Anatolie Sidorenko</b>	Ghitu Institute of Electronic Engineering and Nanotechnologies, Republic of Moldova



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<b>Vovc Victor</b>	Nicolae Testemițanu State Medical and Pharmaceutical University, Republic of Moldova



## PRESENTING AUTHORS INSTRUCTIONS

### Oral Presentations:

1. Please make your presence known to one of the chairmen 5 minutes before your session starts and be present during the entire session in which your presentation is scheduled. Time slot for plenary sessions is 90 minutes, including room switching time of 15 minutes.
2. Time slots for oral sessions are 90 minutes. Number of papers in each session is up to 6 meaning that 15 minutes is allocated for each presentation (20 minutes for invited presentations). However, there are exceptions to this rule; therefore, please refer to the final program for actual duration of your presentation.
3. Authors and Speakers must report to the Speakers Area in order to preview and upload their presentations. Files must be handed-in a minimum of 2 hours prior to the start of their session (for morning sessions starting at 9.00 h, please upload it the day before). We recommend that you take advantage of the early file uploading opportunity. More details are available at the conference web site <http://www.icnbme.sibm.md/>.
4. All session rooms will be equipped with a data projector and a computer. You do not need to bring your own laptop to the lecture room. Please prepare your presentations for display with aspect ratio 4:3.
5. When building your presentation, use standard fonts (e.g., Times New Roman, Arial, etc.). Basic fonts are included on the session room computers, but if an unusual font is used it may not display well.
6. Even if you have submitted your presentation files in advance, please plan to bring the latest version of your presentation to the session on a Windows-readable USB flash Drive or CD-ROM.
7. Computers in conference rooms are equipped with Windows 7, Microsoft Office 2010 package. Apple Mac computers will not be provided in any of the session rooms. If you are using Mac, please check compatibility with Microsoft Office 2010 package or use your own Mac computer if your presentation is created in Apple's "Keynote" presentation application. Videos handed in as an independent file must be coded under standard codec. Users are recommended to preview them in standard universal software, such as VLC Player or Quicktime.

### Posters:

Poster sessions are a valuable method for authors to present papers and meet with interested attendees for in-depth technical discussions. Therefore, it is important that you display your results clearly to attract people who have an interest in your work and your paper. Your poster should cover the **KEY POINTS** of your work. The ideal poster is designed to: attract attention; provide a brief overview of your work; initiate discussion and questions.

Use colors to highlight and make your poster more attractive, by using pictures, diagrams, cartoons, figures, etc., rather than only text wherever possible. There is however no specific template for the poster: font size and text are free.

Maximum outside dimensions of each poster, including the title, must not exceed 60 cm width x 84 cm height (A1 sheet).

### *SET UP AND DISMANTLING TIMES:*

A poster number display will be placed at the top corner of the board. Double sided tape will be supplied at each poster board.

Poster sessions will be held on Wednesday 24<sup>th</sup> according to the program.

Poster set up time: 15.30-16.30 h. Authors are requested to be next to their posters during poster session: 16.30-18.30 h.

## **Conference Sections**

**S1 Nanotechnologies and Nanomaterials**

**S2 Bio-nanotechnologies and Biomaterials**

**S3 Biomedical Instrumentation and Biosensors**

**S4 Biomedical signal and Image Processing**

**S5 Clinical Engineering, health Informatics and Cellular  
and Tissue Engineering**

**WS1 WORKSHOP on Biomedical Engineering Education**

**WS2 WORKSHOP on Nuclear and Radiation Safety and  
Security**

**WS3 HUMBOLDT KOLLEG WORKSHOP Science and  
Society - the Use of Light**



# CONFERENCE PROGRAM

## 23 September 2015

8<sup>00</sup> – 8<sup>30</sup> **Registration**

9<sup>30</sup> – 10<sup>00</sup> **Conference Opening**  
**Welcome speeches**

### PLENARY SESSION PL-1 *Room 1*

10:00 – 11:00

**Co-chairs:** *Ion Tighinyanu, Hidenori Mimura*

10<sup>00</sup> **PL-1.1 Oxide Semiconductors as Antiviral Agents: Herpes Therapy from Lab to Pharmacy**

Rainer Adelung

*Christian-Albrechts University of Kiel, Germany*

10<sup>30</sup> **PL-1.2 Exciton-polariton Laser**

Sveatoslav Moskalenko<sup>1</sup>, Ion Tiginyanu<sup>2</sup>

<sup>1</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova*

<sup>2</sup>*Ghitu Institute of Electronic Engineering and Nanotechnology, Academy of Sciences of Moldova, Chisinau, Moldova*

11:00 – 11:30 **COFFEE BREAK**

### PLENARY SESSION PL-2 *Room 1*

11:30 – 13:00

**Co-chairs:** *Rainer Adelung, Anatol Casian*

11<sup>30</sup> **PL-2.3 2D Materials Nanotechnologies Between Great Expectations and Lost Illusions**

Mircea Dragoman

*National Research and Development Institute in Microtechnology, Romania*

12<sup>00</sup> **PL-2.4 Active and Passive Electronics for Smart Implants**

Denys Makarov

*Institute for Integrative Nanosciences, Leibniz Institute for Solid State and Materials Research Dresden, Germany*

12<sup>30</sup> **PL-2.5 Ecotoxicity and Environmental-Impact Assessment of Nanoparticles**

Ashok Vaseashta

*Institute for Advanced Sciences Convergence & Int'l Clean Water Institute, Herndon, United States*

**13:00 – 14:00 LUNCH**

**SECTION S1**  
**Nanotechnologies and Nanomaterials**  
**14:00-18:30 Room 1**

**Co-chairs: Tito Huber, Albina Nikolaeva**

- 14<sup>00</sup> S1-1.1 Sensing Properties of Ultra-Thin TiO<sub>2</sub> Nanostructured Films Based Sensors (Invited)**  
V. Postica<sup>1</sup>, T. Reimer<sup>2,3,\*</sup>, E. Lazari<sup>1</sup>, N. Ababii<sup>1</sup>, S. Shishiyanu<sup>1</sup>, S. Railean<sup>1</sup>, V. Kaidas<sup>3</sup>, S. Kaps<sup>3</sup>, O. Lupan<sup>1,3</sup>, W. Benecke<sup>2</sup> and R. Adelung<sup>3</sup>  
<sup>1</sup>*Technical University of Moldova/Department of Microelectronics and Biomedical Engineering, Chisinau, Republic of Moldova*  
<sup>2</sup>*Fraunhofer Institute for Silicon Technologies (ISIT), Fraunhoferstr. Germany*  
<sup>3</sup>*University of Kiel/Institute for Materials Science/Functional Nanomaterials, Kiel, Germany*
- 14<sup>20</sup> S1-1.2 Role of Charge-Transfer Complexes in Regulation of Processes Associated with Redistribution Electron Density in Biocomposite Systems**  
O.V. Yaltychenko and E.Yu. Kanarovskii  
*Institute of Applied Physics, Academy of Sciences of Moldova, Kishinev, Republic of Moldova*
- 14<sup>35</sup> S1-1.3 Transfer of Heat Between Electrons and Phonons in Metallic Nanostructures**  
S. Cojocaru and D. V. Anghel  
*National Institute of Physics and Nuclear Engineering/Department of Theoretical Physics Magurele, Romania*
- 14<sup>50</sup> S1-1.4 Superconductivity on the Background of the State of the Spin Density Wave in Anisotropic Systems**  
M. E. Palistrant, V. A. Ursu and S. A. Palistrant  
*Institute of Applied Physics, AS of Moldova*
- 15<sup>05</sup> S1-1.5 The Impact of Porosification Upon Luminescence of HVPE Grown GaN and the Influence of the Porous Layer Upon the Quality of the Overgrown GaN Film**  
T. Braniste<sup>1</sup>, V. Popa<sup>1</sup>, D. Martin,<sup>2</sup> J.-F. Carlin,<sup>2</sup> V. Ursaki<sup>3</sup>, N. Grandjean<sup>2</sup> and I. Tiginyanu<sup>1,3</sup>  
<sup>1</sup>*National Center for Materials Study and Testing, Technical University of Moldova, Chisinau, Moldova*  
<sup>2</sup>*Laboratory of Advanced Semiconductors for Photonics and Electronics, ICMP, EPFL, Lausanne, Switzerland*  
<sup>3</sup>*Institute of Electronic Engineering and Nanotechnologies "D. Ghitu" of the Academy of Sciences of Moldova, Chisinau, Moldova*



- 15<sup>20</sup> S1-1.6 Nanolayers with Advanced Properties for Superconducting Spintronics**  
R. Morari, E. Antropov, E. Zasavitsky, A. Prepelita, A. Socrovisciuc, E. Condrea and A. Sidorenko  
*Ghitu Institute of Electronic Engineering and Nanotechnologies ASM, Chisinau, Moldova*

- 15<sup>35</sup> S1-1.7 Birefraction in CdP<sub>2</sub> photodiodes**  
I.G. Stamov<sup>1</sup>, N.N. Syrbu<sup>2</sup> and L. Nemerenco<sup>2</sup>  
<sup>1</sup>*T.G. Shevchenko State University of Pridnestrovie, Tiraspol, Republic of Moldova*  
<sup>2</sup>*Technical University of Moldova, Chisinau, Republic of Moldova*

## 16:00-16:30 COFFEE BREAK

**Co-chairs: Veaceslav Ursachi, Oleg Lupan**

- 16<sup>30</sup> S1-2.8 Fabrication of Bismuth Telluride Wire Thermoelectric Devices (Invited)**  
T.E. Huber<sup>1</sup>, S. Johnson<sup>1</sup>, K. A. Shirvani<sup>1</sup>, Q. Barclif<sup>1</sup>, T. Brower<sup>1</sup>, A. Nikolaeva<sup>2,3</sup> and L. Konopko<sup>2</sup>  
<sup>1</sup>*Howard University, Washington, USA.*  
<sup>2</sup>*Ghitu Institute of Electronic Engineering and Nanotechnologies, ASM, Chisinau, Moldova.*  
<sup>3</sup>*International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland*
- 16<sup>50</sup> S1-2.9 Prospect Nanostructured Material for Thermoelectric Sensors of Infrared Radiations (Invited)**  
A.I. Casian and I.I. Sanduleac  
*Faculty of Computers, Informatics and Microelectronics, Chisinau, Technical University of Moldova, Republic of Moldova*
- 17<sup>10</sup> S1-2.10 Removal of Barrier Oxide in the Anodized Aluminum Oxide Nanotemplates**  
N. Tsyntsaru<sup>1,2</sup>  
<sup>1</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova*  
<sup>2</sup>*Vilnius University, Faculty of Chemistry, Vilnius, Lithuania*
- 17<sup>25</sup> S1-2.11 Characterisation of Silicon Nanolayers Deposited by Plasma Enhanced Chemical Vapor Deposition on 3-D ZnO Templates for Hollow Silicon Microstructures**  
I. Hölken, S. Schröder and R. Adelung  
*Functional Nanomaterials, Institute for Materials Science, Faculty of Engineering, University of Kiel, Kiel, Germany*
- 17<sup>40</sup> S1-2.12 Thermoelectric Properties of Bi<sub>1-x</sub>Sb<sub>x</sub> Alloys, Wires and Foils**  
A. Nikolaeva<sup>1,2</sup>, L. Konopko<sup>1,2</sup>, V. Shepelevich<sup>4</sup>, V. Prokoshin<sup>4</sup>, S. Gusakova<sup>4</sup>, P. Bodiul<sup>1,3</sup>, I. Popov<sup>1</sup> and R. Gritsko<sup>1,3</sup>  
<sup>1</sup>*Institute of Electronic Engineering and Nanotechnologies D.Gitsu, ASM, Chisinau, Moldova*  
<sup>2</sup>*International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland*  
<sup>3</sup>*Technical State University, Chisinau, Moldova*  
<sup>4</sup>*Belarusian State University, Minsk, Belarus*



**17<sup>55</sup> S1-2.13 Excitonic Luminescence, X-ray Analysis and Local Band Structure of Chlorine Intercalated 2H- and 3R-MoS<sub>2</sub> polytypes**

S. Anghel<sup>1</sup>, Yu. Chumakov<sup>1</sup>, A. Colev<sup>1</sup>, V. Kravtsov<sup>1</sup>, L. Kulyuk<sup>1</sup>, C. Mamaliga<sup>1</sup>, A. Mitiglu<sup>1,3</sup>, K. Sushkevich<sup>2</sup>, G. Volodina<sup>1</sup>

<sup>1</sup> Institute of Applied Physics, Chisinau, Republic of Moldova

<sup>2</sup> State University of Moldova, Chisinau, Republic of Moldova

<sup>3</sup> Laboratoire National des Champs Magnétiques Intenses, Toulouse, France

**18<sup>10</sup> S1-2.14 Anisotropic Thermoelectric Generator Made from Single Crystal Bi Microwire**

L.A. Konopko<sup>1,2</sup>, A.A. Nikolaeva<sup>1,2</sup>, T.E. Huber<sup>3</sup> and A.K. Tsurkan<sup>1</sup>

<sup>1</sup> Ghitu Institute of Electronic Engineering and Nanotechnology, ASM, Chisinau, Moldova

<sup>2</sup> International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland

<sup>3</sup> Department of Chemistry, Howard University, DC 20059, Washington, USA

## SECTION S3

### Biomedical Instrumentation and Biosensors

**14:00-18:30 Room 4**

**Co-chairs: Dumitru Tsiulyanu, Sergo Dadunashvili**

**14<sup>00</sup> S3-1.1 Multilevel Signal Processing for Biomedical Nanodevices**  
(Invited)

S. Dadunashvili

Georgian Technical University, Tbilisi, Georgia

**14<sup>20</sup> S3-1.2 Electronic Circuits for Graphene-based Biosensor**

M. Raczyński<sup>1,2</sup>, Ł. Przeniosło<sup>1,2</sup>, M. Jaguszewski<sup>1,2</sup>, E. Martinez Miguez<sup>1,3</sup>, M. Jaskuła<sup>1</sup>, D. Matias<sup>1</sup>, A. Biedka<sup>1</sup>, P. Makiewicz<sup>1</sup>, M. Biegun<sup>1</sup>, E. Mijowska<sup>4</sup>, M. El Fray<sup>5</sup>, J. Podolski<sup>6</sup> and K. Penkala<sup>1</sup>

<sup>1</sup> West Pomeranian University of Technology, Department of Systems, Signals and Electronics Engineering, Szczecin, Poland

<sup>2</sup> West Pomeranian University of Technology, Faculty of Electrical Engineering, Department of Systems, Signals and Electronics Engineering, Biomedical Engineering Student Research Group "AKSON", Szczecin, Poland

<sup>3</sup> Universidad Politécnica de Madrid, Madrid, Spain

<sup>4</sup> West Pomeranian University of Technology, Institute of Chemical and Environment Engineering, Department of Nanotechnology, Szczecin, Poland

<sup>5</sup> West Pomeranian University of Technology, Department of Biomaterials and Microbiological Technologies, Szczecin, Poland

<sup>6</sup> NZOZ „Meditest. Diagnostyka Medyczna” Jacek Podolski, Szczecin, Poland

**14<sup>35</sup> S3-1.3 Pulsatile Mechanical Heart Assist Device**

F.A. Pleșoianu<sup>1</sup>, C.E. Pleșoianu<sup>2</sup>, C. Corciovă<sup>1</sup> and G. Tinică<sup>2,3</sup>

<sup>1</sup> University of Medicine and Pharmacy "Gr. T. Popa"/Faculty of Biomedical Engineering, Iasi, Romania

<sup>2</sup> University of Medicine and Pharmacy "Gr. T. Popa"/Faculty of Medicine, Iasi, Romania

<sup>3</sup> Institute of Cardiovascular Disease "Prof. Dr. George I. M. Georgescu", Iasi, Romania



#### 14<sup>50</sup> **S3-1.4 Aspects of the Estimation Methods to the Medical Rehabilitation Field**

M. Ignat<sup>1</sup>, A. M. Tudorache<sup>2</sup>, M. Ojoga<sup>2</sup>

<sup>1</sup>National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucuresti, Romania

<sup>2</sup>Excellency Centre on the Scientific Research of the Young, INCDIE ICPE CA, Informatics International High School, Bucuresti, Romania

#### 15<sup>05</sup> **S3-1.5 Effect of Dopant on Selectivity of CuO Nanostructured Films – Based Sensors**

V. Cretu<sup>1</sup>, V. Postica<sup>1</sup>, N. Ababii<sup>1</sup>, N. Magariu<sup>1</sup>, V. Sontea<sup>1</sup>, F. Schütt<sup>2</sup>, R. Adelung<sup>2</sup> and O. Lupan<sup>1,2</sup>

<sup>1</sup>Technical University of Moldova/Department of Microelectronics and Biomedical Engineering, Chisinau, Republic of Moldova

<sup>2</sup>University of Kiel/ Institute for Materials Science/Functional Nanomaterials, Kiel, Germany

#### 15<sup>20</sup> **S3-1.6 Fabrication MEMS Platform for Sensors Applications by Laser Micro Engraving**

A.V. Ivanova, K.Y. Oblov, S.A. Soloviev, N.N. Samotaev, B.V. Gurkovskiy and V.D. Mironov

Micro- and nanoelectronics department, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia

#### 15<sup>35</sup> **S3-1.7 UV effect on NO<sub>2</sub> Sensing Properties of Nanocrystalline In<sub>2</sub>O<sub>3</sub>**

A. Ilin<sup>1</sup>, N. Fantina<sup>1</sup>, M. Martyshov<sup>1</sup>, E. Forsh, P. Forsh<sup>1,2</sup> and P. Kashkarov<sup>1, 2, 3, 4</sup>

<sup>1</sup>Physics Department, Lomonosov Moscow State University, Moscow, Russia

<sup>2</sup>National Research Centre "Kurchatov Institute", Moscow, Russia

<sup>3</sup>Department of nano-, bio-, info- and cognitive technologies, Moscow Institute of Physics and Technology, Dolgoprudny, Russia

<sup>4</sup>Physics Department, Saint Petersburg State University, Saint Petersburg, Russia

### 16:00-16:30 COFFEE BREAK

Co-chairs: *Oleksandr Bogdan, Hariton Costin*

#### 16<sup>30</sup> **S3-2.8 Accuracy Analysis of Measurements in Electrochemical Biosensing (Invited)**

P. Makiewicz<sup>1</sup>, D. Matias<sup>1</sup>, M. Jaskuła<sup>1</sup>, M. Biegun<sup>1</sup>, K. Penkala<sup>1</sup>, E. Mijowska<sup>2</sup>, M. El Fray<sup>3</sup> and J. Podolski<sup>4</sup>

<sup>1</sup>West Pomeranian University of Technology, Department of Systems, Signals and Electronics Engineering, Szczecin, Poland

<sup>2</sup>West Pomeranian University of Technology, Institute of Chemical and Environment Engineering, Department of Nanotechnology, Szczecin, Poland

<sup>3</sup>West Pomeranian University of Technology, Department of Biomaterials and Microbiological Technologies, Szczecin, Poland

<sup>4</sup>NZOZ „Meditest. Diagnostyka Medyczna” Jacek Podolski, Szczecin, Poland

- 16<sup>50</sup> S3-2.9 Impedance Characterization of Gas Sensitive S - Te Based Quaternary Chalcogenides (Invited)**  
D. Tsiulyanu and M. Ciobanu  
*Department of Physics, Technical University, Chisinau, Republic of Moldova*
- 17<sup>10</sup> S3-2.10 Hydrogen Gas Sensor Based on Nanograined Pd/ $\alpha$ -MoO<sub>3</sub> belts**  
V. Cretu<sup>1</sup>, V. Postica<sup>1</sup>, D. Stoianov<sup>1</sup>, V. Trofim<sup>1</sup>, V. Sontea<sup>1</sup>, and O. Lupan<sup>1,2</sup>  
<sup>1</sup>*Technical University of Moldova/Department of Microelectronics and Biomedical Engineering, Chisinau, Republic of Moldova*  
<sup>2</sup>*University of Kiel/Institute for Materials Science/Functional Nanomaterials, Kiel, Germany*
- 17<sup>25</sup> S3-2.11 Sensitivity Evaluation of the Nanostructure-Enhanced BAW Mass Sensor**  
A. Zazerin<sup>1</sup>, V. Ulianova<sup>1</sup>, O. Bogdan<sup>2</sup> and A. Orlov<sup>1</sup>  
<sup>1</sup>*Microelectronics department, National technical University of Ukraine «Kyiv Polytechnic Institute», Kyiv, Ukraine*  
<sup>2</sup>*Scientific and Research Institute, National technical University of Ukraine «Kyiv Polytechnic Institute», Kyiv, Ukraine*
- 17<sup>40</sup> S3-2.12 A DVG003 Medical Device for Millimeter Wave Therapy**  
Iu. Sainsus, A. Conev, Iu. Russev, I. Bejan, N. Tomşa, V. Babac, S. Piatighin and A. Sidorenko  
*Institute of Electronic Engineering and Nanotechnology "D. Ghitsu", Chisinau, Republic of Moldova*
- 17<sup>55</sup> S3-2.13 Hypothermia Device Used in Medicine**  
V.P. Cojocaru, P.S. Tugui, T. Fedorisin, I.V. Postica and R. Galus  
*Ghitu Institute of Electronic Engineering and Nanotechnologie, Chisinau, Moldova*

## SECTION S5

### Clinical Engineering, Health Informatics and Cellular and Tissue Engineering

**14:00-18:30 Room 2**

**Co-chairs: Constantin Gaindric, Ion Bahnarel**

- 14<sup>00</sup> S5-1.1 SonaRes Platform for Development of Medical Informatics Applications (Invited)**  
S. Cojocaru, C. Gaindric, O. Popcova and I. Secrieru  
*Institute of Mathematics and Computer Science, Academy of Sciences of Moldova, Chisinau, Moldova*
- 14<sup>20</sup> S5-1.2 Middle Ear Monitoring in Children**  
S. Diacova<sup>1</sup>, I. Ababii<sup>1</sup>, M. Maniuc<sup>1</sup>, L. Danilov<sup>1</sup>, A. Chiaburu<sup>1</sup>, P. Ababii<sup>1</sup>, O. Sosnowska<sup>1</sup> and V. Desvignes<sup>2</sup>  
<sup>1</sup>*Department of Otorhinolaryngology, Pediatric Clinic, SMPhU "Nicolae Testemitanu", Chisinau, Moldova*  
<sup>2</sup>*Society "Médecines du Monde", Clermont-Ferrand, France*



- 14<sup>35</sup> S5-1.3 An Evaluation of the Accuracy and Reproducibility of Cephalometric Measurements Using Two Different Versions of Romexis Software**  
O. Ladunca (Rusu)<sup>1</sup>, A. Petcu<sup>2</sup>, D. Haba<sup>1</sup>, I. Zetu<sup>2</sup>, L.V. Boiculese<sup>3</sup>, C. Corciova<sup>4</sup> and M. Moscalu<sup>3</sup>  
<sup>1</sup>University of Medicine and Pharmacy "Grigore T. Popa", Department of Dento-Maxillo-Facial Radiology, Iasi, Romania  
<sup>2</sup>University of Medicine and Pharmacy "Grigore T. Popa", Department of Orthodontics, Iasi, Romania  
<sup>3</sup>University of Medicine and Pharmacy "Grigore T. Popa", Preventive Medicine and Interdisciplinarity Department, Iasi, Romania  
<sup>4</sup>University of Medicine and Pharmacy "Grigore T. Popa", Biomedical Sciences Department, Iasi, Romania
- 14<sup>50</sup> S5-1.4 Water as Receiver of Information from Digital Representations of Plant Objects Subjected to Thermal Stress Action: 1. Biological Indicator Testing**  
S. Maslobrod<sup>1</sup> and S. Kernbach<sup>2</sup>  
<sup>1</sup>Institute of Genetics, Physiology and Plant Protection of Academy of Sciences of Moldova, Chisinau, Moldova  
<sup>2</sup>Cybertronica Research, Research Center of Advanced Robotics and Environmental Science, Stuttgart, Germany
- 15<sup>05</sup> S5-1.5 Water as a Receiver of Information from Digital Representations of Plant Objects Subjected to Thermal Stress Action: 2. Instrumental Testing**  
S. Kernbach<sup>1</sup>, S. Maslobrod<sup>2</sup>, O. Kernbach<sup>1</sup> and E. Maslobrod<sup>2</sup>  
<sup>1</sup>Cybertronica Research, Research Center of Advanced Robotics and Environmental Science, Stuttgart, Germany  
<sup>2</sup>Institute of Genetics, Physiology and Plant Protection of Academy of Sciences of Moldova, Chisinau, Moldova
- 15<sup>20</sup> S5-1.6 BioR Medication in the Combined Treatment of Chronic Tonsillitis in Children**  
L. Danilov<sup>1</sup>, I. Ababii<sup>1</sup>, S. Ghinda<sup>2</sup>, M. Maniuc<sup>1</sup>, P. Ababii<sup>1</sup>, S. Diacova<sup>1</sup>, A. Bocan<sup>1</sup>, I. Cotelea<sup>1</sup>  
<sup>1</sup>Department of Otolaryngology, State University of Medicine and Pharmacy "Nicolae Testemitanu", Chişinău, Republic of Moldova  
<sup>2</sup>Laboratory of Immunology and Allergology "Chiril Draganiuc", Chişinău, Republic of Moldova
- 15<sup>35</sup> S5-1.7 Medical Devices Management Effectiveness in a Hospital**  
V. Sontea<sup>1</sup>, S. Gatcan<sup>2</sup>, C. Pislari<sup>2</sup>, V. Palii<sup>2</sup> and A. Iavorschii<sup>1</sup>  
<sup>1</sup>Technical University of Moldova, Chisinau, Moldova  
<sup>2</sup>Mother and Child Institute, Chisinau, Moldova

**16:00-16:30 COFFEE BREAK**

Co-chairs: V. Vovc, V. Sontea

**16<sup>30</sup> S5-2.8 Medical Devices Management Strategy in the Republic of Moldova (Invited)**

V.Sontea<sup>1</sup>, S.Morgoci<sup>2</sup>, Gh. Turcanu<sup>3</sup> and C.Pislaru<sup>4</sup>

<sup>1</sup>Technical University of Moldova, Chisinau, Moldova

<sup>2</sup>Center for Health Policies and Studies, Chisinau, Moldova

<sup>3</sup>Ministry of Health, Chisinau, Moldova

<sup>4</sup>Mother and Child Institute, Chisinau, Moldova

**16<sup>50</sup> S5-2.9 Quantum Information Processes in Protein Microtubules of Brain Neurons (Invited)**

N. A. Enaki<sup>1</sup>, V. I. Koroli<sup>1</sup>, S. Bazgan<sup>1</sup>, A. Nistoreanu<sup>1</sup>, S. Palistrant<sup>1</sup>, D. Bogoev<sup>1</sup>, M. Turcan<sup>1</sup>, T. Pislari<sup>1</sup>, Y. Boshneaga<sup>1</sup>, N. Lambropoulos<sup>2</sup>, S. Patel<sup>2</sup>, A. Khrennikov<sup>3</sup>, M. Marinucci<sup>4</sup>, S. C. Kwok<sup>5</sup>, L. Pannese<sup>6</sup>, M. Arniani<sup>7</sup>, R. Torrenti<sup>7</sup>, S. Maslobrod<sup>8</sup>, V. Scherbakov<sup>9</sup>, E. Kuznetsov<sup>9</sup>, I. Moldovanu<sup>10</sup>, O. Misic<sup>10</sup>, S. Odobescu<sup>10</sup>, A. Lupusor<sup>10</sup>, A. Cernei<sup>10</sup>, V. Vovc<sup>11</sup>, O. Arnaut<sup>11</sup>, N. Ciobanu<sup>11</sup>, P. Tuzlucov<sup>12</sup>, S. Kernbach<sup>13</sup>, A. Sorli<sup>14</sup> and V. Anisimov<sup>15</sup>

<sup>1</sup>Quantum Optics and Physical Kinetics Laboratory, Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova

<sup>2</sup>Department of Informatics, London South Bank University, London, UK

<sup>3</sup>Department of Mathematics, International Center for Mathematical Modelling in Physics and Cognitive Sciences, Linnaeus University, Vaxjo, Sweden

<sup>4</sup>Forschungszentrum Informatik, FZI, Karlsruhe, Germany

<sup>5</sup>DPhil, Neuroimaging Laboratory, Santa Lucia Foundation, Rome, Italy

<sup>6</sup>Imaginary SRL, Milano, Italy

<sup>7</sup>Sigma Orionis, Buropolis 1, Valbonne Sophia Antipolis, France

<sup>8</sup>Laboratory of Applied Genetics, Institute of Genetics and Plant Physiology, Academy of Sciences of Moldova, Chisinau, Moldova

<sup>9</sup>Laboratory of Algebra and Topology, Institute of Mathematics and Computer Science, Academy of Sciences of Moldova, Chisinau, Moldova

<sup>10</sup>Laboratory of Functional Neurology, Institute of Neurology and Neurosurgery, Chisinau, Moldova

<sup>11</sup>Department of Biophysics, University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Moldova

<sup>12</sup>Department of Radiotherapy, Institute of Oncology, Chisinau, Moldova

<sup>13</sup>Research Center of Advanced Robotics and Environmental Science, Stuttgart, Germany

<sup>14</sup>Foundations of Physics Institute, Association for development of Consciousness and Health, Idrija, Slovenia

<sup>15</sup>Institute of Power Engineering, Academy of Sciences of Moldova, Chisinau, Moldova

**17<sup>10</sup> S5-2.10 Collective Behavior of Water Molecules in Microtubules**

A. Nistoreanu

Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Republic of Moldova

**17<sup>25</sup> S5-2.11 Using CHAID Algorithm in Low-Risk Metabolic Syndrome Patients**

M.G. Felea<sup>1</sup>, V. Felea<sup>2</sup> and C.M. Gavrilescu<sup>1</sup>

<sup>1</sup>'Gr.T. Popa' University of Medicine and Pharmacy, 1st Medical Department, Discipline of Medical

Semiology, Iasi, Romania

<sup>2</sup>'Al. I. Cuza' University, Faculty of Informatics, Iasi, Romania

**17<sup>40</sup> S5-2.13 Method of Treatment of Immune Cell Disorder Caused by Ionizing Radiation**

L. Coretchi, I. Bahnarel and C. Spinu

National Centre of Public Health, Chisinau, Republic of Moldova



**17<sup>55</sup> S5-2.12 Study of Interoceptive Signals Perception in Patients with Panic Disorder and Eminent Respiratory Symptoms**

A. Ganenco, T. Besleaga, S. Lozovanu and V. Vovc

*State University of Medicine and Pharmacy „Nicolae Testemițanu”, Chisinau, Republic of Moldova*

**18<sup>10</sup> S5-2.14 The Modality of the Regeneration of the Intervertebral Lombar Disc in Osteochondrosis**

A. Cociug<sup>1</sup>, V. Nacu<sup>2</sup> and O. Macagonova<sup>2</sup>

<sup>1</sup>*Morphopathology, State Medical and Pharmaceutical University of Moldova „Nicolae Testemițanu”, Chișinău, Moldova*

<sup>2</sup>*Laboratory of Tissue Engineering and Cells Cultures, State Medical and Pharmaceutical University of Moldova „Nicolae Testemițanu”, Chișinău, Moldova*

## BME ENA WORKSHOP WS1

### Biomedical Engineering Education

**14:00-16:00 Room 3**

**Co-chairs: Zhivko Bliznakov, Anastassia Rodina-Theocharaki**

**14<sup>00</sup> WS1-1.1 Management and Implementation of the TEMPUS IV BME-ENA Project in the Field of Biomedical Engineering Education (Invited)**

Z. Bliznakov, A. Rodina-Theocharaki and N. Pallikarakis

*Biomedical Technology Unit, Department of Medical Physics, Faculty of Medicine, University of Patras, Rio - Patras, Greece*

**14<sup>20</sup> WS1-1.2 Medical Bioengineering Education in Iasi, Romania**

H. Costin<sup>1,2</sup>, L. Verestiuc<sup>1</sup>, D. Zaharia<sup>1</sup>, R. Ciorap<sup>1</sup>, C. Corciova<sup>1</sup>  
and G. Andrusac<sup>1</sup>

<sup>1</sup>*Grigore T. Popa University of Medicine and Pharmacy, Faculty of Medical Bioengineering, Iasi, Romania*

<sup>2</sup>*Institute of Computer Science of Romanian Academy, Iasi Branch*

**14<sup>35</sup> WS1-1.3 Biomedical Engineering Education in Republic of Moldova: Experience and Challenges**

V. Sontea, S. Railean, A. Seryakov, A. Iavorschi, I. Balmus

*Technical University of Moldova, Chisinau, Moldova*

**14<sup>50</sup> WS1-1.4 Development of the BME MSc Study Program in Georgia within the BME-ENA TEMPUS IV Project**

T. Sanikidze<sup>1</sup>, I. Gotsiridze<sup>2</sup>, G. Gigilashvili<sup>2</sup>, S. Dadunashvili<sup>2</sup>, D. Gegechkori<sup>3</sup>,  
I. Pkhakadze<sup>3</sup>, D. Nadareishvili<sup>1</sup>, S. Kiparoidze<sup>1</sup>, E. Shekiladze<sup>1</sup>, E. Gogilidze<sup>2</sup>,  
T. Pertaia<sup>3</sup>, E. Nyssen<sup>4</sup>, W. Chlewicki<sup>5</sup>, J. Górecka<sup>5</sup>, P. Makiewicz<sup>5</sup> and  
K. Penkala<sup>5</sup>

<sup>1</sup>*Tbilisi State Medical University (TSMU), Tbilisi, Georgia*

<sup>2</sup>*Georgian Technical University (GTU), Tbilisi, Georgia*

<sup>3</sup>*Akaki Tsereteli State University (ATSU), Kutaisi, Georgia*

<sup>4</sup>*Vrije Universiteit Brussel (VUB), Brussels, Belgium*

<sup>5</sup>*West Pomeranian University of Technology (ZUT-WPUT), Szczecin, Poland*

- 15<sup>05</sup> WS1-1.5 Application of Computational Phantoms and their 3D Print-outs for Educational Purposes**  
A. Marinov<sup>1</sup>, D. Ivanov<sup>1</sup>, Z. Bliznakov<sup>1</sup>, H. Bosman<sup>2</sup>, I. Buliev<sup>1</sup> and K. Bliznakova<sup>1</sup>  
<sup>1</sup>Department of electronics and microelectronics, Technical University of Varna, Varna, Bulgaria  
<sup>2</sup>Department of Radiology, Katholieke Universiteit Leuven, Leuven, Belgium
- 15<sup>20</sup> WS1-1.6 The Implementation of the BME-ENA Tempus Project in Ukraine**  
A. Orlov<sup>1</sup>, T. Volkhova<sup>1</sup>, V. Maksymenko<sup>2</sup> and T. Jarm<sup>3</sup>  
<sup>1</sup>National Technical University of Ukraine "Kyiv Polytechnic Institute", Department of Microelectronics, Kyiv, Ukraine  
<sup>2</sup>National Technical University of Ukraine "Kyiv Polytechnic Institute", Department of Biomedical Engineering, Kyiv, Ukraine  
<sup>3</sup>University of Ljubljana, Department of Biomedical Engineering, Ljubljana, Slovenia
- 15<sup>35</sup> WS1-1.7 Design and Content of Biomedical Curriculum for Biomedical Engineering Master's Program in the Republic of Moldova**  
V. Vovc, S. Lozovanu, A. Ganenco and N. Ciobanu  
Department of Human Physiology and Biophysics, State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Republic of Moldova
- 15<sup>50</sup> WS1-1.8 Biomedical Engineering Education in Georgia: Experience And Challenges**  
I. Gotsiridze  
Georgian Technical University, Tbilisi, Georgia

## 16:00-16:30 COFFEE BREAK

## SECTION S4

### Biomedical Signal and Image Processing.

17:00-18:30 Room 3

Co-chairs: Nicolae Jula, Radu Ciorap

- 16<sup>30</sup> S4-1.1 Hepatoprotective Activity of Leaf Extract of Laurus Nobilis L. Against CCL4 Induced Hepatotoxicity in Rats (Invited)**  
H. Vardapetyan, S. Tiratsuyan and A. Hovhannisyan  
Department of Medical Biochemistry and biotechnology, Russian-Armenian (Slavonic) University, Yerevan, Armenia
- 16<sup>50</sup> S4-1.2 Modeling of IMS Spectra in Medical Diagnostic Purposes**  
D.Y. Lipatov<sup>1</sup>, Y.R. Shaltaeva<sup>1</sup>, V.V. Belyakov<sup>1</sup>, A.V. Golovin<sup>1</sup>, V.S. Pershenkov<sup>1</sup>, V.V. Shurenkov<sup>1</sup> and D.Y. Yakovlev<sup>2</sup>  
<sup>1</sup>Department of Micro- and nanoelectronics, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation  
<sup>2</sup>Management of Business Projects department, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation





- 17<sup>05</sup> S4-P.3 Development of Digital Holographic Microscope for 3D Sensing of Biological Surface Morphology**  
E. Achimova  
*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova*
- 17<sup>20</sup> S4-1.4 An Automated Inertial Indoor Positioning and Fall Detection System for Elder**  
I.R. Edu<sup>1</sup>, F.C. Adochiei<sup>2</sup>, L. Grigorie<sup>3</sup>, A. Pasarica<sup>4</sup> and N. Jula<sup>1</sup>  
<sup>1</sup>*Military Technical Academy, Bucharest, Romania*  
<sup>1</sup>*University Politehnica of Bucharest, Bucharest, Romania*  
<sup>3</sup>*University of Craiova, Craiova, Romania*  
<sup>3</sup>*“Gheorghe Asachi” Technical University of Iasi, Iasi, Romania*
- 17<sup>35</sup> S4-1.5 Fluorescent Nanoscale Structures for Selective Medical Diagnostics**  
V.S. Osipovich, K.D. Yashin, S.K. Dzik and A.A. Bykov  
*Belarusian State University of Informatics and Radioelectronics (BSUIR), Information Systems and Technologies for Industrial Safety, Minsk, Republic of Belarus*
- 17<sup>50</sup> S4-1.6 Modelling Potential Distribution in ZnO with Different Thicknesses at GHz Frequencies**  
V.P. Cojocar, D. Vrabii, E. Rusu and N. Curmei  
*Ghitu Institute of the Electronic Engineering and Nanotechnologies, Academy of Sciences of Moldova, Chisinau, Moldova*
- 18<sup>05</sup> S4-1.7 Automated Morphometry of Neutrophilic Granulocytes – a Simple and Reliable Method of Assessment of the Wound Process Activity**  
R.M. Chornopyshchuk<sup>1</sup>, S.A. Sydorenko<sup>2</sup> and M.I. Burkovskyi<sup>1</sup>  
<sup>1</sup>*Vinnytsia National Pirogov Memorial Medical University, Vinnytsia, Ukraine*  
<sup>2</sup>*State Medical and Pharmaceutical University "N. Testemitanu", Chisinau, Moldova*

**19:30 CONFERENCE DINNER**

**Technical University of Moldova  
Str. Studentilor 5**

**21:30 Laser & Light Show**



**24 September 2015**

**HUMBOLDT KOLLEG WORKSHOP WS3**  
**Science and Society-the Use of Light**  
*Plenary Session*  
**9:00-11:00 Room 1**

**Co-chairs: Rainer Adelung, Hans Hartnagel**

**9<sup>00</sup> Opening remarks**

**9<sup>30</sup> WS3-1.1 Bioinspired Optical Materials**

C. Zollfrank

*Technical University Munich, Munich, Germany*

**10<sup>00</sup> WS3-1.2 Light Interacting with Interconnected Nanomaterials: from Extreme Absorbers to Fast Sensors**

R. Adelung

*Christian-Albrechts University of Kiel, Kiel, Germany*

**10<sup>30</sup> WS3-1.3 Plasmonic Effects for Enhanced Optical Mixing in View of THz Signal Generation**

H. Hartnagel and S. Al-Daffaie

*TU Darmstadt, Darmstadt, Germany*

**11:00-11:30 COFFEE BREAK**

**11<sup>30</sup> WS3-2.4 Theory of Catalytic Micro- and Nanoengines: From Self-Propulsion Mechanisms to Remediation of Polluted Water (Invited)**

V. Fomin

*Institute for Integrative Nanosciences, Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Germany*

**11<sup>55</sup> WS3-2.5 New take-off of Gallium Nitride (Invited)**

I. Tiginyanu

*Ghitu Institute of Electronic Engineering and Nanotechnologies, Chisinau, Moldova*



## HUMBOLDT KOLLEG WORKSHOP WS3

### The Use of Light

12:30-13:00 *Room 1*

Co-chairs: *Vladimir Fomin, Anatoli Sidorenko*

12<sup>20</sup> **WS3-3.6** The Use of Laser Technology at the State University of Balti  
P. Topala  
*Alecu Russo Balti State University, Moldova*

12<sup>40</sup> **WS3-3.7** IR Absorption by Free Carriers in Nanostructured Organic Crystals of Tetrathiotetracene-Iodide  
A. Casian  
*Technical University of Moldova, Chişinău, Moldova*

13:00 – 14:00 LUNCH

## HUMBOLDT KOLLEG WORKSHOP WS3

### Recent Progress in the Light Sources Research

14:00-17:00 *Room 1*

Co-chairs: *Mihai Macovei, Denis Nika*

14<sup>00</sup> **WS3-4.8** Exciton–Polariton Laser Under the Influence of the Landau Quantization, Rashba Spin-orbit Coupling and Zeeman Splitting  
S. Moskalenko  
*Institute of Applied Physics, Chisinau, Moldova*

14<sup>20</sup> **WS3-4.9** Spintronics and Optoelectronics - the Light Makes them Closer  
A. Sidorenko  
*Ghitu Institute of Electronic Engineering and Nanotechnologie, Moldova*

14<sup>40</sup> **WS3-4.10** Cavity Quantum Dynamics with Pumped Few-level Emitters  
M. Macovei  
*Institute of Applied Physics, Chisinau, Moldova*

15<sup>00</sup> **WS3-4.11** TiO<sub>2</sub> Nanotubular Structures, Synthesis and Different Applications  
M. Enachi  
*Technical University of Moldova, Chişinău, Moldova*

- 15<sup>20</sup> WS3-4.12 Laser - Magic Tool for Medical Applications**  
N. Ciobanu  
*State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Republic of Moldova*

## 15:40-16:00 COFFEE BREAK

- 16<sup>00</sup> WS3-5.13 Luminescence and Optical Second Harmonic Generation in Atomically Thin Layered Transition Metal Dichalcogenides**  
L. Kulyuk  
*Institute of Applied Physics, Chisinau, Moldova*
- 16<sup>20</sup> WS3-5.14 Hybrid Folded Phonons in Twisted Grapheme**  
D. Nika  
*State University of Moldova, Chisinau, Moldova*
- 16<sup>40</sup> WS3-5.15 Radiative Properties of GaSe and GaSe: Eu Nanolamellar Structures Intercalated with Cd**  
D. Untila and I. Evtodiev  
*State University of Moldova, Chisinau, Moldova*

## 13:00 –14:00 LUNCH

# SECTION S1

## Nanotechnologies and Nanomaterials

### 14:00-17:00 Room 3

**Co-chairs: Doina Mănăilă Maximean, Ala Cojocar**

- 14<sup>00</sup> S1-3.15 Study of a New Colloidal Composite: Polymer-Magnetite Particles/Lyotropic Liquid Crystal (Invited)**  
D. Mănăilă Maximean<sup>1</sup>, O. Dănilă<sup>1</sup>, B. Ștefănescu<sup>1</sup>, R. Bena<sup>1</sup>, C. Roșu<sup>1</sup>, D. Donescu<sup>2</sup>, and V. Eugeniu<sup>3</sup>  
<sup>1</sup>*Physics Department, Faculty of Applied Sciences, University „Politehnica” of Bucharest, Bucharest, Romania*  
<sup>2</sup>*National Institute for Research & Development in Chemistry and Petrochemistry, Bucharest, Romania*  
<sup>3</sup>*METAV-CD, Bucharest, Romania*
- 14<sup>20</sup> S1-3.16 Single Nanowire Nanosensors: A Case Study of the Effects of Metal Doping on ZnO (Invited)**  
O. Lupan<sup>1</sup>, L. Chow<sup>2</sup>, Th. Pauporte<sup>3</sup>, B. Viana<sup>3</sup>, and R. Adelung<sup>4</sup>  
<sup>1</sup>*Technical University of Moldova/Department of Microelectronics and Biomedical Engineering, Chisinau, Republic of Moldova*  
<sup>2</sup>*University of Central Florida/Department of Physics, Orlando, USA*  
<sup>3</sup>*PSL Research University, Chimie ParisTech – CNRS, Institut de Recherche de Chimie Paris, UMR8247, Paris, France*  
<sup>4</sup>*University of Kiel/ Institute for Materials Science/Functional Nanomaterials, Kiel, Germany*



- 14<sup>40</sup> S1-3.17 Birefractive Effects in Quantum Wells**  
A. Dorogan, V. Dorogan, N. Syrbu, A. Tiron  
*Technical University of Moldova, Chisinau, Moldova*
- 14<sup>55</sup> S1-3.18 Structural, Optical and Electrical Properties of ZnO:Al Thin Films Synthesized by Sol-gel Method**  
A. Rogachev<sup>1</sup>, A. Semchenko<sup>1</sup>, V. Sidsky<sup>1</sup>, V. Gaishun<sup>1</sup>, D. Kovalenko<sup>1</sup>, V. Gremenok<sup>2</sup>, H. Zaretskaya<sup>2</sup> and L. Sudnik<sup>3</sup>  
<sup>1</sup>*Francisk Skorina Gomel State University, Gomel, Belarus;*  
<sup>2</sup>*Scientific-Practical Materials Research Centre of the National Academy of Sciences of Belarus, Minsk, Belarus,*  
<sup>3</sup>*State Scientific Institutions Powder Metallurgy Institute, Minsk, Belarus*
- 15<sup>10</sup> S1-3.19 Effective Transfer of UV Energy to Red Luminescence in the Nanocomposites Polymer/Eu Coordination Compounds**  
V.I. Verlan<sup>1</sup>, M.S. Iovu<sup>1</sup>, I. Culeac<sup>1</sup>, O. Bordian<sup>1,2</sup>, V.E. Zubareva<sup>2</sup> and Iu. Nistor<sup>1</sup>  
<sup>1</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Republic of Moldova*  
<sup>2</sup>*Institute of Chemistry of the Academy of Sciences of Moldova, Chisinau, Republic of Moldova*
- 15<sup>25</sup> S1-3.20 Peculiarities of Seebeck Effect in Strained Bismuth Nanowires**  
E. Condrea<sup>1,2</sup>, A. Nicorici<sup>1</sup> and A. Gilewski<sup>2</sup>  
<sup>1</sup>*Institute of Electronic Engineering and Nanotechnologies, Academy of Science of Moldova, Chisinau, Republic of Moldova*  
<sup>2</sup>*International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland*
- 15<sup>25</sup> S1-3.21 Properties of Carbazole-based Azopolymer Used in Formation of Photoinduced Surface Relief Gratings**  
A. Meshalkin<sup>1</sup>, S. Robu<sup>1,2</sup>, E. Achimova<sup>1</sup>, Yu. Boiarinov<sup>1</sup>, A. Prisacar<sup>1</sup>, D. Shepel<sup>3</sup>, V. Abashkin<sup>1</sup> and G. Triduh<sup>1</sup>  
<sup>1</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova,*  
<sup>2</sup>*State University of Moldova, Chisinau, Moldova*  
<sup>3</sup>*Institute of Chemistry, Academy of Sciences of Moldova, Chisinau, Moldova*

## 15:40-16:00 COFFEE BREAK

**Co-chairs: Valentina Nikorich, Eduard Monaico**

- 16<sup>00</sup> S1-4.22 Electric Field Control of Magnetic and Polarizability Properties of Trimeric Mixed Valence Clusters**  
M M. Roman, O. Reu and S. Klokishner  
*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova*
- 16<sup>15</sup> S1-4.23 Two-dimensional Cavity Polaritons Under the Influence of the Landau Quantization, Rashba Spin-orbit Coupling and Zeeman Splitting**  
S.A. Moskalenko<sup>1</sup>, I.V. Podlesny<sup>1</sup>, E.V. Dumanov<sup>1</sup>, M.A. Liberman<sup>2</sup> and I. Lelyakov<sup>1</sup>  
<sup>1</sup>*Institute of Applied, Chisinau, Republic of Moldova*  
<sup>2</sup>*Nordita, KTH Royal Institute of Technology and Stockholm University, Stockholm, Sweden*

- 16<sup>30</sup> S1-4.24 Optical Properties of ZnAl<sub>2</sub>Se<sub>4</sub> Crystals**  
A. Tiron<sup>1</sup>, N. Syrbu<sup>1</sup> and V. Zalamai<sup>2</sup>  
<sup>1</sup>Technical University of Moldova, Chisinau, Moldova  
<sup>2</sup>Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova
- 16<sup>45</sup> S1-4.25 PbTe Nanoparticles Obtaining and Studies of Their Electrical Properties**  
V. Nikorich<sup>1</sup>, P. Ketrush<sup>1</sup>, A. Nikorich<sup>2</sup>, A. Todosichiuc<sup>2</sup>  
<sup>1</sup>Department of Physics and Engineering, Moldova State University, Chisinau, Moldova  
<sup>2</sup>Electronics Engineering and nanotechnologies Institute D. Ghițu of AS Republic of Moldova

## SECTION S2

### Bio-nanotechnologies and Biomaterials.

**11:00-17:00 Room 4**

**Co-chairs: Nimet Bolgen, Dorina Creanga**

- 11<sup>00</sup> S2-1.1 Biocompatible SPIONs with Superoxid Dismutase/Catalase Immobilized for Cardiovascular Applications (invited)**  
L. Lacramioara<sup>1</sup>, A. Diaconu<sup>2</sup>, M. Butnaru<sup>1</sup> and L. Verestiuc<sup>1</sup>  
<sup>1</sup>Gr.T.Popa University of Medicine and Pharmacy, Faculty of Medical Bioengineering, Iasi, Romania,  
<sup>2</sup>P.Poni Institute of Macromolecular Chemistry, 41 Grigore Ghica Voda Alley, Iasi, Romania
- 11<sup>20</sup> S2-1.2 Nanofibers for Tissue Engineering and Regenerative Medicine (Invited)**  
N. Bölgen<sup>1</sup> and A. Vaseashta<sup>2</sup>  
<sup>1</sup>Chemical Engineering Department, Mersin University, Mersin, Turkey  
<sup>2</sup>Institute for Advanced Sciences Convergence, and Int'l Clean Water Institute, NUARI, Herndon, VA USA
- 11<sup>40</sup> S2-1.3 Antimicrobial Reagents as Functional Finishing for Textiles Intended for Biomedical Applications. II. Metals and Metallic Compounds: Silver**  
F. Tanasa and M. Zanoaga  
"Petru Poni" Institute of Macromolecular Chemistry, Romanian Academy, Iasi, Romania
- 11<sup>55</sup> S2-1.4 Antimicrobial Reagents as Functional Finishing for Textiles Intended for Biomedical Applications. III. Other Metals and Metallic Compounds**  
M. Zanoaga and F. Tanasa  
"Petru Poni" Institute of Macromolecular Chemistry, Romanian Academy, Iasi, Romania



- 12<sup>10</sup> S2-1.5 Enhancement of Antioxidant and Antibacterial Activities by Immobilization of Natural Bactericide into Hybrid Supra-molecular Chitosan Bio-composite Gel**  
A. Gonta<sup>1</sup>, T. Lupascu<sup>1</sup>, I. Povar<sup>1</sup>, N. Timbaliuc<sup>1</sup>, T.E. Sukhanov<sup>2</sup>, V. Petrova<sup>2</sup> and I.A. Skorik<sup>2</sup>  
<sup>1</sup>*Institute of Chemistry, Academy of Sciences of Moldova, Chisinau, Moldova*  
<sup>2</sup>*Institute of Macromolecular Compounds, Russian Academy of Sciences, St.Petersburg, Russian Federation*

- 12<sup>25</sup> S2-1.6 New Perspective for Biomedical Productions: Application of Cast Amorphous Microwire for Electromagnetic Absorption**  
S.A. Baranov<sup>1,2</sup>  
<sup>1</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Republic of Moldova*  
<sup>2</sup>*Departament de Genie Physique, Ecole Polytechnique de Montreal, Montreal, Canada*

**13:00 – 14:00 LUNCH**

**Co-chairs: Liliana Verstiuc, Fulga Tanasa**

- 14<sup>00</sup> S2-2.7 Influence of Dispersed Solutions of Copper, Silver, Bismuth and Zinc Oxide Nanoparticles on Growth and Catalase Activity of *Penicillium funiculosum***  
T. Sirbu<sup>1</sup>, S.N.Maslobrod<sup>2</sup>, Yu.A. Mirgorod<sup>3</sup>, V.G. Borodina<sup>3</sup>, N.A. Borsch<sup>3</sup> and L.S. Ageeva<sup>3</sup>  
<sup>1</sup>*Institute of Microbiology and Biotechnology of ASM, Chisinau, Moldova*  
<sup>2</sup>*Institute of Genetics, Physiology and Plant Protection of ASM, Chisinau, Moldova*  
<sup>3</sup>*Southwest State University, Kursk, Russia*
- 14<sup>15</sup> S2-2.8 Genotoxicity of Nanoparticulate Zinc Ferrite – Possible Application in Plant Biotechnology**  
G. Vochita<sup>1</sup>, M. Oprisan<sup>2</sup>, M. Racuciu<sup>3</sup> and D. Creanga<sup>4</sup>  
<sup>1</sup>*Institute of Biological Research, Iasi, Romania*  
<sup>2</sup>*University Hospital "Sf. Spiridon", Iasi, Romania*  
<sup>3</sup>*L. Blaga Univ., Faculty of Sciences, Sibiu, Romania*  
<sup>4</sup>*Alexandru Ioan Cuza Univ., Physics Faculty, Iasi, Romania*
- 14<sup>30</sup> S2-2.9 Copper-Containing Polyoxometalates: Syntheses and Anticancer Activity Against the SH-SY5Y Human Neuroblastoma Cell Line**  
T. Gutul<sup>1</sup>, A. Dimoglo<sup>2</sup> and T. Mironic<sup>1</sup>  
<sup>1</sup>*Institute of Electronic Engineering and Nanotechnology "D. Ghitsu", Chisinau, Republic of Moldova*  
<sup>2</sup>*Gebze Technical University, Gebze- Kocaeli, Turkey*

**14<sup>45</sup> S2-2.10 Effect of Aqueous Dispersions with NPAg, NPCu, NPBi, and ZnNO, Millimeter-Wave Radiation, and Weak Magnetic Fields on the Germination of Triticale and Wheat Seeds under the Action of a Pathogenic Fungus and Low Temperatures**

S. N. Maslobrod<sup>1</sup>, Yy. A. Mirgorod<sup>2</sup>, G. A. Lupashku<sup>1</sup>, N. A. Borsch<sup>2</sup>, V. G. Borodina<sup>2</sup>, L. S. Ageeva<sup>2</sup>, A. Shibaev<sup>3</sup>, and I. Groisman<sup>3</sup>

<sup>1</sup>*Institute of Genetics, Physiology and Plant Protection, ASM, Chisinau, Moldova*

<sup>2</sup>*Southwest State University, Kursk, Russia*

<sup>3</sup>*Institute of Electronic Engineering and Nanotechnologies, ASM, Chisinau, Moldova*

**15<sup>00</sup> S2-2.11 Theoretical Treatment of Millimeter and Terahertz Radiation Action on Biological Media**

N. Ciobanu<sup>1,2</sup>, V. Vovc<sup>1</sup>, A. Saulea<sup>1</sup> and V. Tronciu<sup>3</sup>

<sup>1</sup>*Department of Human Physiology and Biophysics, State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Republic of Moldova*

<sup>2</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Republic of Moldova*

<sup>3</sup>*Department of Physics, Technical University of Moldova, Chisinau, Republic of Moldova*

**15<sup>15</sup> S2-2.12 Assessment of the Antimicrobial Activity of Polymer Materials with Added Nanosilica Modified by Silver Compounds**

M.D. Zheliba<sup>1</sup>, I.I. Gerashchenko<sup>2</sup>, L.V. Karabanova<sup>3</sup>, E.F. Voronin<sup>2</sup>, R.M. Chornopyschuk<sup>1</sup>, T.P. Osolodchenko<sup>4</sup> and M.I. Burkovskyi<sup>1</sup>

<sup>1</sup>*Vinnitsia National Pirogov Memorial Medical University, Vinnitsia, Ukraine*

<sup>2</sup>*Chuiko Institute of Surface Chemistry of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*

<sup>3</sup>*The Institute of Macromolecular Chemistry of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*

<sup>4</sup>*Mechnikov Institute of Microbiology and Immunology of the National Academy of Medical Sciences of Ukraine, Kharkiv, Ukraine*

**15:40-16:00 COFFEE BREAK**

**WORKSHOP WS2**

**Nuclear and Radiation Safety and Security.**

**11:30 -17:00 Room 2**

**Co-chairs: Matteo Gerlini, Artur Buzdugan**

**11<sup>30</sup> WS2-1.1 Nuclear Security as an Ongoing International Process (Invited)**

M. Gerlini

*Machiavelli Center, Department of Political and Social Sciences, University of Florence, Florence, Italy*

**12<sup>00</sup> WS2-1.2 Cyber Security in the Nuclear and Radiological Domain: Case Study of Republic of Moldova (Invited)**

A.A. Buzdugan<sup>1</sup> and A.I. Buzdugan<sup>1,2</sup>

<sup>1</sup>*National Nuclear Security Support Center, Technical University, Moldova*

<sup>2</sup>*National Agency for Regulation of Nuclear and Radiological Activities, Moldova*



**12<sup>20</sup> WS2-1.3 Nuclear Safeguards System Implementation in the Republic of Moldova**

E. Mursa and A. Buzdugan

*National Agency for Regulation of Nuclear and Radiological Activities, Moldova*

**13:00 – 14:00 LUNCH**

**14<sup>00</sup> WS2-2.4 Ion Mobility Spectrometer for Rapid Simultaneous Detection of Positive and Negative Ions (Invited)**

V. Vasilyev, V. Pershenkov, V. Belyakov, N. Samotaev, A. Golovin, E. Malkin, E. Gromov, I. Ivanov, M. Matusko, A. Ivanova and D. Lipatov

*Micro- and nanoelectronics department, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation*

**14<sup>20</sup> WS2-2.5 Theoretical Investigations of Nano-sensors for Radiation Processes (Invited)**

T. Marsagishvili, M. Machavariani, G. Tatishvili, R. Khositashvili, E. Tskhakaia, N. Ananiashvili, J. Metreveli and M. Kikabidze-Gachechiladze  
*R.Agladze Institute of Inorganic Chemistry and Electrochemistry of I. Javakhishvili Tbilisi State University, Tbilisi, Georgia*

**14<sup>40</sup> WS2-2.6 The Circuit Method for Decreasing of Sensitivity to ASET Effect for Bipolar Operational Amplifiers**

A.A. Lebedev, V.A. Felitsyn, V.A. Komleva and A.A. Komlev

*National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation*

**14<sup>55</sup> WS2-2.7 Experimental Equipment for Extraction of ELDRS Conversion Model Parameters and its Application for Estimation of Radiation Effects in Bipolar Devices**

A.S. Bakerenkov

*National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)/Department of Micro- and nanoelectronics, Moscow, Russian Federation*

**15<sup>10</sup> WS2-2.8 Strengthen of the Infrastructure for Radiation Safety as a Result of Implementing the European Union Directives**

A. Sidorencu and N. Vasilieva

*National Agency for Regulation of Nuclear and Radiological Activities, Moldova*

**15<sup>25</sup> WS2-2.9 Effects of Electromagnetic Field on Human's Health – A Short Review**

N. Gubceac<sup>1,2,3</sup>, V. Vovc<sup>2</sup>, and G. Lazar<sup>1</sup>

<sup>1</sup>*“Vasile Alecsandri” University of Bacau, Bacau, Romania*

<sup>2</sup>*State University of Medicine and Pharmacy “Nicolae Testemitanu”, Chisinau, Moldova*

<sup>3</sup>*Moldova State University, Chisinau, Moldova*

**15:40-16:00 COFFEE BREAK**



**Co-chairs: Matteo Gerlini, Serghei Railean**

- 16<sup>00</sup> WS2-3.10 Methods for the Self Calibration of Ion Mobility Spectrometer**  
V. Vasilyev, V. Pershenkov, N. Samotaev, V. Belyakov, A. Golovin,  
E. Malkin, E. Gromov, I. Ivanov, Y. Shaltaeva and D. Lipatov  
*Micro- and nanoelectronics department, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation*
- 16<sup>15</sup> WS2-3.11 Portal Monitor for Human Body Alpha-Radioactive Contamination Control**  
N. Samotaev, B. Gurkovskiy, V. Miroshnichenko, E. Onischenko and  
A. Simakov  
*Micro- and Nanoelectronics Department, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia*

# 25 September 2015

## HUMBOLDT KOLLEG WORKSHOP WS3 Theory and Applications of Light Sources 9:00-11:00 Room 1

Co-chairs: *Vasile Tronciu, Veaceslav Ursaki*

- 9<sup>00</sup> WS3-6.16 Semiconductor Lasers a Key Element for New Generation of Optoelectronic Systems**  
V. Tronciu  
*Technical University of Moldova, Chişinău, Moldova*
- 9<sup>20</sup> WS3-6.17 Random Lasers: 30 Years of Development**  
V. Ursaki  
*Institute of Applied Physics, Chisinau, Republic of Moldova*
- 9<sup>40</sup> WS3-6.18 Entanglement and Cooperative Effects Between the Mode Components of Raman Process in Cavity and Their Analogy with Atomic Collective Effects**  
N. Enaki  
*Institute of Applied Physics, Chisinau, Republic of Moldova*
- 10<sup>00</sup> WS3-6.19 Enhanced Efficiency of p-GaN/n-ZnO Light-emitting Diodes by using NiO and ZnSe Interlayers**  
V. Sirkeli  
*Comrat State University, Moldova*
- 10<sup>20</sup> WS3-6.20 Technology Transfer from Research Laboratory to Industry**  
A. Cojocaru  
*FUMT R&D Functional Materials GmbH, Germany*
- 10<sup>40</sup> WS3-6.21 Metal Oxide Nanowires for Photodetectors and Light Emitting Diodes**  
O. Lupan  
*Technical University of Moldova, Chişinău, Moldova*

### 11:00-11:30 COFFEE BREAK

- 11<sup>30</sup> WS3-6.22 Lasing Properties of ZnO nanostructures**  
V. Zalamai  
*Institute of Applied Physics, Chisinau, Republic of Moldova*

- 11<sup>45</sup> **WS3-6.23 Device for Controlled Hypothermia on Fuzzy Logic Algorithms**  
V. Cojocaru  
*Ghitu Institute of Electronic Engineering and Nanotechnologie , Moldova*
- 12<sup>00</sup> **WS3-6.24 2D Semiconductor-metal Quasi-periodic Structures for Photonics**  
E.Monaico  
*Technical University of Moldova, Chişinău, Moldova*
- 12<sup>20</sup> **Conclusions, Closing**

## SECTION S1

### Nanotechnologies and Nanomaterials

**9:00 -11:30 Room 3**

**Co-chairs: Pavel Topală, Mihai Macovei**

- 9<sup>00</sup> **S1-5.26 Spiropyran Based Smart Composites: Memorizing Polymer with Enhanced Molecular Switches**  
S. Shree<sup>1</sup>, M. Schulz-Senft<sup>2</sup>, X. Jin<sup>1</sup>, Y.K. Mishra<sup>1</sup>, A. Staubit<sup>2</sup> and R. Adelung<sup>1</sup>  
<sup>1</sup>University of Kiel, Functional Nanomaterials, Institute for Materials Science, Kiel, Germany  
<sup>2</sup>University of Kiel, Otto-Diels-Institute for Organic Chemistry, Kiel, Germany
- 9<sup>15</sup> **S1-5.27 Application of Nano-Oxide Films on the Surfaces of Parts Made of Titanium Alloys in Order to Increase Their Corrosion Resistance**  
P. Topala<sup>1</sup>, A. Ojegov<sup>1</sup> and P. Stoicev<sup>2</sup>  
<sup>1</sup>Alecu Russo Balti State University, Balti, Republic of Moldova  
<sup>2</sup>Technical University of Moldova, Chisinau, Republic of Moldova
- 9<sup>30</sup> **S1-5.28 Influence of Fe catalyst Morphology on the Growing of Carbon Nanotubes**  
A. Băra, C. Banciu, V. Marinescu, C. Morari and D. Pătroi  
*National Institute for Research and Development in Electrical Engineering ICPE- CA/Advanced Materials Department, Bucharest, Romania*
- 9<sup>45</sup> **S1-5.29 Cavity Field Suppression via Interference Effects**  
V. Ciornea, P. Bardetski and M.A. Macovei  
*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova*
- 10<sup>00</sup> **S1-5.30 ZnO Tetrapods and their Interconnected Networks: Growth and Multifunctional Applications**  
G. Modi<sup>1</sup>, I. Paulowicz<sup>2</sup>, V. Cretu<sup>3</sup>, O. Lupan<sup>2,3</sup>, I. Tiginyanu<sup>4</sup>, L. Kienle<sup>2</sup>, R. Adelung<sup>2</sup>, Y.Mishra<sup>2</sup>  
<sup>1</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology, India  
<sup>2</sup>Institute for Materials Science, University of Kiel, Kiel, Germany  
<sup>3</sup>Technical University of Moldova, Moldova  
<sup>4</sup>Ghitu Institute of Electronic Engineering and Nanotechnologie , Moldova



- 10<sup>15</sup> S1-5.31 Nanotechnological Application Based on CoFe<sub>2</sub>O<sub>4</sub> Nanoparticles and Electromagnetic Exposure on Agrotechnical Plant Growth**  
I. Bodale<sup>1</sup>, M. Oprisan<sup>2</sup>, C. Stan<sup>3</sup>, F. Tufescu<sup>4</sup>, M. Racuciu<sup>5</sup>, D. Creanga<sup>4</sup> and M. Balasoiu<sup>6,7</sup>  
<sup>1</sup>University of Agricultural Sciences and Veterinary Medicine, Iasi, Romania  
<sup>2</sup>University Hospital „Sf. Spiridon” Iasi, Romania  
<sup>3</sup>Politehnica University of Bucharest, Department of Physics, Bucharest, Romania  
<sup>4</sup>„Alexandru Ioan Cuza” University, Physics Faculty, Iasi, Romania  
<sup>5</sup>„L. Blaga” University, Faculty of Sciences, Sibiu, Romania  
<sup>6</sup>Joint Institute for Nuclear Research Dubna, Russia, <sup>7</sup>IFIN-HH Bucharest, Romania
- 10<sup>30</sup> S1-5.32 Slow Magnetic Relaxation in Dysprosium Based Single-Ion Magnets**  
K.Preuss<sup>1</sup>, R.Clerac<sup>2</sup>, O.Reu<sup>3</sup>, S.Ostrovsky<sup>3</sup>, A.Palii<sup>3</sup> and S.Klokishner<sup>3</sup>  
<sup>1</sup>University of Guelph, Dept. of Chemistry, Guelph, Ontario N1G2W1, Canada  
<sup>2</sup>Centre de Recherche Paul Pascal, CNRS, Universite de Bordeaux, France  
<sup>3</sup>Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova
- 10<sup>45</sup> S1-5.33 Chronic Toxicity of Silver Nanoparticles**  
I. Pavlovski, V.Goncear and C. Scutari  
State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Republic of Moldova
- 11<sup>00</sup> S1-5.34 Application of the Strengthening Nanostructured Coatings Obtained at Electrodischarge Treatment by Tool Electrodes Manufacturing from Al-Sn Alloy**  
E. Yurchenko  
T.G. Shevchenko Pridnestrovie State University. Tiraspol, Republic of Moldova

**11:30 – 12:00 COFFEE BREAK**

## PLENARY SESSION PL3

**12:00 - 13:00 Room 1**

**Co-chairs:** *Ion Tiginyanu, Victor Sontea*

**12<sup>00</sup> PL-3.6 High Quantum Efficiency Photocathode using Surface Plasmon Resonance**

Hidenori Mimura

*Research Institute of Electronics, Shizuoka University, Japan*

## 12:40 CLOSING CEREMONY

**14:30 SOCIAL EVENTS - *Researcher's night, Academy of Sciences of Moldova, Stefan cel Mare av. 1***

# 26 September 2015

**9:00-14:00 A trip to Soroca Fortress**

# POSTERS SESSION

## September 24, 16:30 - 18:30

**Responsibles:** *Ion Pocaznoi, Vasile Postica*

### **SECTION S1 Nanotechnologies and Nanomaterials**

#### **1. S1-P.35 Influence of Resonant Optical Phonons on Intersubband Magnetoabsorption in Nanowires**

E.P. Sinyavskii<sup>1</sup>, E.Yu. Kanarovskii<sup>1</sup> and N.S. Kostyukevich<sup>2</sup>

<sup>1</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Kishinev, Republic of Moldova*

<sup>2</sup>*T.G. Shevchenko State University of Pridnestrov'e, Tiraspol, Republic of Moldova*

#### **2. S1-P.36 Peculiarity of High-Field Galvanomagnetic Effects in Bicrystals of Bi and its Alloys with Sb**

F. M. Muntyanu<sup>1,2</sup>, A. Gilewski<sup>2</sup>, V. Chistol<sup>4</sup> and K. Rogacki<sup>2,3</sup>

<sup>1</sup>*Institute of Electronic Engineering and Industrial Technologies, Academy of Sciences of Moldova, Chisinau, Moldova*

<sup>2</sup>*International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland*

<sup>3</sup>*Institute of Low Temperatures and Structural Research, Polish Academy of Sciences, Wroclaw, Poland*

<sup>4</sup>*Technical University of Moldova, Chisinau, Moldova*

#### **3. S1-P.37 Nanomultilayer As<sub>2</sub>S<sub>3</sub>:Mn-Se Systems: Properties and Use as the Recording Media**

O. Paiuk<sup>1</sup>, A. Meshalkin<sup>2</sup>, G. Triduh<sup>2</sup>, A. Prisacar<sup>2</sup>, E. Achimova<sup>2</sup>, A. Stronski<sup>1</sup>, V. Abashkin<sup>2</sup>, O. Lytvyn<sup>1</sup>, O. Senchenko<sup>1</sup> and A. Gubanova<sup>3</sup>

<sup>1</sup>*V. Lashkaryov Institute of Semiconductor Physics NAS of Ukraine, Kyiv, Ukraine*

<sup>2</sup>*Institute of Applied Physics of the Academy of Sciences of Moldova, Chisinau, Moldova*

<sup>3</sup>*Kamianets-Podilsky National University, Kamianets-Podilsky, Ukraine*

#### **4. S1-P.38 Perspectives of Bulk and Nanosized II-VI Compounds for Light-emission Application**

I. Radevici<sup>1,2</sup>, K. Sushkevich<sup>2</sup>, G. Colibaba<sup>2</sup>, H. Huhtinen<sup>1</sup>, D. Nedeoglo<sup>2</sup> and P. Paturi<sup>1</sup>

<sup>1</sup>*Wihuri Physical Laboratory, University of Turku, Turku, Finland*

<sup>2</sup>*Faculty of Physics and Engineering, Moldova State University, Chisinau, Moldova*

#### **5. S1-P.39 Detection in the Contacts with HTSC - InSb: Numerical Modeling of the Contact Area Role**

Ia.I. Kerner

*"D. Ghitu" Institute of Electronic Engineering and Nanotechnologies, Chişinău, Moldova*

#### **6. S1-P.40 X-Ray Photoelectronic Spectroscopy of GaN, AlGaIn layers, Grown on Silicon by the Chemical Transport Reactions Method**

S. Raevschi<sup>1</sup>, V. Botnariuc<sup>1</sup>, L. Gorceac<sup>1</sup>, T. Potlog<sup>1</sup>, M. Dobromir<sup>2</sup> and D. Luca<sup>2</sup>

<sup>1</sup>*Department of Physics, Moldova State University, Chisinau, Moldova*

<sup>2</sup>*Department of Physics, Al. I. Cuza University, Iasi, Romania*

**7. S1-P.41 Effect of Spin Coating Technique on Mechanical Properties of Silicophosphate Thin Film Doped by Neodymium**

D. Grabco<sup>1</sup>, O. Shikimaka<sup>1</sup>, M. Elisa<sup>2</sup>, B. Sava<sup>2</sup>, L. Boroica<sup>3</sup>, E. Harea<sup>1</sup>, C. Pyrtsac<sup>1</sup>, A. Prisacaru<sup>1</sup>, I. Feraru<sup>2</sup>, Z. Barbos<sup>1</sup> and Ia. Vreme<sup>1</sup>

<sup>1</sup>Institute of Applied Physics, Chisinau, Moldova

<sup>2</sup>Institute of Optoelectronics Bucurest-Magurele, Romania

<sup>3</sup>National Institute for Laser, Plasma & Radiation Physics, Romania

**8. S1-P.42 Characterization of TiO<sub>2</sub> Nanoparticles and ZnO/TiO<sub>2</sub> Composite Obtained by Hydrothermal Method**

E. Rusu<sup>1</sup>, V. Ursaki<sup>1</sup>, T. Gutul<sup>1</sup>, P. Vlazan<sup>2</sup> and A. Siminel<sup>3</sup>

<sup>1</sup>Institute of Electronic Engineering and Nanotechnologies "D. Ghitu" of the Academy of Sciences of Moldova, Chisinau, Moldova

<sup>2</sup>National Institute for Research and Development in Electrochemistry and Condensed Matter, Timisoara, Romania

<sup>3</sup>Institute of Applied Physics of the Academy of Sciences of Moldova, Chisinau, Moldova

**9. S1-P.43 Slow Relaxation of Magnetization in a Family of Linear Mn<sup>III</sup>M<sup>III</sup>Mn<sup>III</sup> (M = Fe, Ru, Os) Compounds**

M.Revenco, M.Secu<sup>1</sup>, S.Ostrovsky<sup>2</sup>, O.Reu<sup>2</sup>, A.Palii<sup>2</sup>, O.Palamarciuc<sup>1</sup>, K.Pedersen<sup>3</sup>, R.Clerac<sup>3</sup> and S.Klokishner<sup>2</sup>

<sup>1</sup>State University of Moldova, Chişinău, Moldova

<sup>2</sup>Institute of Applied Physics, Academy of Sciences of Moldova, Chişinău, Moldova

<sup>3</sup>Centre de Recherche Paul Pascal, CNRS, Universite de Bordeaux, France

**10. S1-P.44 Excitonic Crystal in Nanotechnology**

S. Pyshkin

<sup>1</sup>Institute of Applied Sciences, Chisinau, Republic of Moldova

**11. S1-P.45 Entanglement Among Photon and Phonon Degrees of Freedom**

S. Cârlig<sup>1,2</sup>

<sup>1</sup>Institute of Applied Physics, Chişinău, Republic of Moldova

<sup>2</sup>Institute of Electronic Engineering and Nanotechnologies, Chişinău, Republic of Moldova

**12. S1-P.46 Anticipated Synchronization of Passive Dispersive Reflector Semiconductor Laser**

N. Ciobanu<sup>1</sup>, S. Rusu<sup>2</sup> and V. Tronciu<sup>2</sup>

<sup>1</sup>State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Republic of Moldova

<sup>2</sup>Technical University of Moldova, Chisinau, Republic of Moldova

**13. S1-P.47 Observation of Electron Spin Relaxation Time in Pnpn Structured GaAs**

A. Morozumi<sup>1</sup>, T. Ito<sup>1</sup>, M. Ichida<sup>2</sup>, and H. Ando<sup>2</sup>

<sup>1</sup>Research Institute of Electronics, Shizuoka University, Japan

<sup>2</sup>Department of Physics, Faculty of Science and Engineering, Konan University, Japan

**14. S1-P.48 Activation Process of GaAs NEA Photocathode and its Spectral Sensitivity**

K. Mitsuno, T. Masuzawa, Y. Hatanaka, Y. Neo and H. Mimura

Research Institute of Electronics, Shizuoka University, Hamamatsu, Japan



15. **S1-P.49 Evaluation of Spin Relaxation Time by Polarization- and Time-Resolved Pump and Probe Measurements**  
S. Fuma<sup>1</sup>, T. Ito<sup>1</sup>, H. Goto<sup>2</sup>, M. Ichida<sup>3</sup>, and H. Ando<sup>3</sup>  
<sup>1</sup>Research Institute of Electronics, Shizuoka University, Japan  
<sup>2</sup>NTT Basic Research Laboratories, NTT Corporation, Japan  
<sup>3</sup>Department of Physics, Faculty of Science and Engineering, Konan University
  
16. **S1-P.50 Features of Nanotemplates Manufacturing on the II-VI Compound Substrates**  
G.V. Colibaba<sup>1,2</sup>, E.V. Monaico<sup>3</sup>, E.P. Goncareenco<sup>1</sup>, I. Inculet<sup>1</sup> and I.M. Tiginyanu<sup>3</sup>  
<sup>1</sup>Moldova State University, , Chisinau, Republic of Moldova  
<sup>2</sup>Kazan Federal University, Kazan, RF  
<sup>3</sup>Technical University of Moldova, Chisinau, Republic of Moldova
  
17. **S1-P.51 Suppression of Phonon Heat Conduction in Cross-section Modulated Nanowires**  
C. Isacova, A. Cocemasov, D. Nika  
Moldova State University Moldova
  
18. **S1-P.52 Problem Formula of the Giant Impressed Electric Field Strength to Single Transmembrane with Nanopore Structures**  
M. Ignat<sup>1</sup>, L. Florescu<sup>2</sup>  
<sup>1</sup>Institutul National de Cercetare-Dezvoltare in Inginerie Electrica ICPE-CA, Bucuresti, Romania  
<sup>2</sup>Excellency Centre on the Scientific Research of the Young, INCDIE ICPE CA Informatics International High School, Bucuresti, Romania
  
19. **S1-P.53 Preparation of Fine Bentonite Suspensions in Cavitation Fields**  
P.G. Dumitras, M.K. Bologa and T.D. Shemyakova  
Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova
  
20. **S1-P.54 Investigation of the Generalized Anderson Impurity Model**  
V.A. Moskalenko<sup>1,2</sup>, L.A. Dohotaru<sup>3</sup>, D.F. Digor<sup>1</sup> and I.D. Cebotari<sup>1</sup>  
<sup>1</sup>Institute of Applied Physics, Moldova Academy of Sciences, Chisinau, Moldova  
<sup>2</sup>BLTP, Joint Institute for Nuclear Research, Dubna, Russia  
<sup>3</sup>Technical University of Moldova, Chisinau, Moldova
  
21. **S1-P.55 The Generalization of Scientific and Educational Materials on Nanoelectronics**  
V.M.Spivak<sup>1</sup>, A.G.Vlasiuk<sup>1</sup> and M.S.Tirsu<sup>2</sup>  
<sup>1</sup>National University of Ukraine, "Kiev Polytechnic Institute", Kiev, Ukraine  
<sup>2</sup>Institute of Power Engineering of ASM, Chisinau, Moldova
  
22. **S1-P.56 Polaron Theory of the Emission Current in a Cathode-Adsorbed Nanofilm System at the Initial Stage of a High-Voltage Gas Discharge**  
Y. A. Barengolts<sup>1</sup> and S. I. Beril<sup>2</sup>  
<sup>1</sup>Department of Mathematical Analysis, Shevchenko Dniester State University, Tiraspol, Moldova  
<sup>2</sup>Department of Theoretical Physics, Shevchenko Dniester State University, Tiraspol, Moldova



23. **S1-P.57 Zero Frequency Spectrum of 3-D Metal Photonic Crystals Obtained by the 3-D Kronig–Penney Model**  
V.V. Sergentu<sup>1</sup> and V.V. Ursaki<sup>2</sup>  
<sup>1</sup>*Institute of Applied Physics of the Academy of Sciences of Moldova, Chisinau, Moldova*  
<sup>2</sup>*Institute of Electronic Engineering and Nanotechnologies “D. Ghitu” of the Academy of Sciences of Moldova, Chisinau, Moldova*
  
24. **S1-P.58 The Influence of External Cavity Optical Feedback on the Dynamics of Quantum Dots Lasers**  
A. Sanduta, S.S. Rusu and V.Z. Tronciu  
*Department of Physics, Technical University of Moldova, Chisinau, Republic of Moldova*
  
25. **S1-P.59 Conditions for Plasma Obtaining in the Gaseous Media and its Application in Nanotechnology**  
A. Hirbu  
*Alec Russo Balti State University, Balti, Republic of Moldova*
  
26. **S1-P.60 XRD and XPS of Cd<sub>2</sub>SnO<sub>4</sub> Thin Films Obtained by Spray Pyrolysis**  
T. Potlog<sup>1</sup>, V. Botnariuc<sup>1</sup>, S. Raevschi<sup>1</sup>, M. Dobromir<sup>2</sup> and D. Luca<sup>2</sup>  
<sup>1</sup>*Department of Physics and Engineering, Moldova State University, Chisinau, Moldova*  
<sup>2</sup>*Department of Physics Al. I. Cuza University, Iasi, Romania*
  
27. **S1-P.61 Quasisurface Nonlinear Waves in Symmetric Three–Layer Structure with Metamaterial Film**  
O.V. Korovai  
*T.G. Shevchenko Pridnestrovian State University, Tiraspol, Moldova*
  
28. **S1-P.62 On Determination of Gyrotory Characteristics of Optically Active Crystals**  
I.G. Stamov, D.V. Tkachenko  
*Department of Physics and Mathematics, Dniester State University, Tiraspol, Moldova*
  
29. **S1-P.63 Amplification of THz Radiation in the System of Excitons and Biexcitons**  
D.A. Markov and L.Yu. Nad’kin  
*T.G. Shevchenko Pridnestrovian State University, Tiraspol, Moldova*
  
30. **S1-P.64 Features of Stimulated Atomic–Molecular Conversion with the Formation of Heteronuclear Molecules in Bose–Einstein Condensates**  
A.P. Zingan<sup>1</sup> and P.I. Khadzhi<sup>2</sup>  
<sup>1</sup>*Dniester State University /Physics and math’s, Lecturer, Tiraspol, Moldova*  
<sup>2</sup>*Institute of Applied Physics /Physics and math’s, Professor, Kishinev, Moldova*
  
31. **S1-P.65 Optical Properties and the Stability at Radiation for Monocrystals ZnIn<sub>2</sub>S<sub>4</sub>**  
E. Arama<sup>1</sup>, E. Gheorghita<sup>2</sup>, V. Pîntea<sup>3</sup>, A. Maciuga<sup>3</sup>, N. Gubceac<sup>1</sup>  
<sup>1</sup>*State University of Medicine and Pharmacy „Nicolae. Testemițanu”, Chisinau, Republic of Moldova*  
<sup>2</sup>*Tiraspol State University, Chisinau, Republic of Moldova*  
<sup>3</sup>*Technical University of Moldova, Chisinau, Republic of Moldova*



### 32. **S1-P.66** Alternative technology for artificial stimulation of the motility of the gastrointestinal tract

V. Popa<sup>1</sup>, V. Hotineanu<sup>2</sup>, A. Scorpan<sup>2</sup>, A. Cazac<sup>2</sup>, T. Braniste<sup>1</sup>, I. Tiginyanu<sup>1</sup>

<sup>1</sup>National Center for Materials Study and Testing, Technical University of Moldova, Chisinau, Moldova

<sup>2</sup>State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Moldova

## **SECTION S2 Bio-nanotechnologies and Biomaterials**

### 33. **S2-P.13** Functional Ecofriendly Coatings for Marine Applications

I. Hölken, M. Hoppe, R. Adelung and M. Baum

Functional Nanomaterials, Institute for Materials Science, Faculty of Engineering, University of Kiel, Kiel, Germany

### 34. **S2-P.14** Biological Evaluation of Slip Casting Hydroxyapatite Intended for Cranioplasty

D. Talpeanu<sup>1</sup>, Ch. Tardei<sup>1</sup>, F. Grigore<sup>1</sup>, M. Lucaci<sup>1</sup>, G. Velciu<sup>1</sup>, A. Dumitru<sup>1</sup> and D. Savu<sup>2</sup>

<sup>1</sup>National Institute of Research and Development for Electrical Engineering, INCDIE ICPE-CA, Bucharest, Romania.

<sup>2</sup>National Institute for C&D in Physics and Nuclear Engineering, IFIN-HH, Magurele, Ilfov, Romania.

### 35. **S2-P.15** Antibacterial Properties of the Nanoparticles with the Zinc Sulfide Quantum Dots

A.M. Miesnikov, L.I. Grebenik, T.V. Ivahnuk and L.F. Sukhodub

Sumy State University, Ministry of Education and Science of Ukraine Sumy, Ukraine

### 36. **S2-P.16** A Novel Bioactive Compound of Palladium(II) with Mercaptoethanol (*Invited*)

D.B. Tagiyev<sup>1</sup>, A.N. Azizova<sup>1</sup>, S.R. Imamverdieva<sup>2</sup> and M.M. Asadov<sup>1</sup>

<sup>1</sup>Institute of Catalysis and Inorganic Chemistry, ANAS, Baku, Azerbaijan

<sup>2</sup>Institute of Control Systems, ANAS, Baku, Azerbaijan

### 37. **S2-P.17** New Opportunities For Biomedicine

C. Yu. Zenkova, I. V. Soltys and P. A. Ryabiy

Optics, Printing & Publishing Department, Chernivtsy National University, Chernivtsy, Ukraine

## **SECTION S3 Biomedical Instrumentation and biosensors**

### 38. **S3-P.14** Transmission of Resistance Sensor Signals over Multi-Wire Line with Losses

A. Penin and A. Sidorenko

Ghitu Institute of Electronic Engineering and Nanotechnologies, Academy of Sciences of Moldova, Chisinau, Moldova Republic

### 39. **S3-P.15 Projective Geometry Invariants of Human Body and Multi-Port Electrical Circuits**

A. Penin

*Ghitu Institute of Electronic Engineering and Nanotechnology, Academy of Sciences of Moldova, Chisinau, Moldova*

### 40. **S3-P.16 Photocatalytic Applications of Doped Zinc Oxide Porous Films Grown by Magnetron Sputtering**

L. Ghimpu<sup>1</sup>, T. Reimer<sup>2,3,4</sup>, D. Smazna<sup>2</sup>, M. Hoppe<sup>2</sup>, W. Benecke<sup>4</sup>, A. Bejenari<sup>1</sup>, A. Cojocaru<sup>2,6\*</sup>, O. Lupan<sup>2,5</sup>, R. Adelung<sup>2</sup> and I. Tiginyanu<sup>1,5</sup>

<sup>1</sup>*Institute of Electronic Engineering and Nanotechnologies, Academy of Sciences of Moldova, Chisinau, Republic of Moldova*

<sup>2</sup>*Institute for Materials Science, Christian Albrechts University of Kiel, Kiel, Germany*

<sup>3</sup>*Technology for Silicon Based Micro- and Nanosystems, Institute for Electrical Engineering University of Kiel, Kiel, Germany*

<sup>4</sup>*Fraunhofer Institute for Silicon Technologies (ISIT), Itzehoe, Germany*

<sup>5</sup>*Department of Microelectronics and Biomedical Engineering, Technical University of Moldova, Chisinau, Republic of Moldova*

<sup>6</sup>*FUMT R&D Functional Materials GmbH, Kiel, Germany*

## **SECTION S4 Biomedical Signal and Image Processing**

### 41. **S4-P.8 Bioengineering the Dream**

R. Negoescu

*National Institute of Public Health, Romania*

### 42. **S4-P.9 Features in Infrared Image Processing of Biotissue with Internal Heat Source**

A.P. Ivanov and V.V. Barun

*Institute of Physics, Belarus National Academy of Sciences, Minsk, Belarus*

### 43. **S4-P.10 Restoringn Spatial Phase Distribution of Complex Optical Fields for Biomedicine Application**

C. Yu. Zenkova, P. A. Riabyi and D. I. Ivanskiy

*Optics, Printing&Publishing Department, Chernivtsy National University,Chernivtsy, Ukraine*

## **SECTION S5 Clinical Engineering, Health Informatics and Cellular and Tissue Engineering**

### 44. **S5-P.15 Water Contaminants Monitoring in Moldova**

L. Nastasiuc<sup>1</sup>, O. Bogdevici<sup>1</sup>, A. Overcenco<sup>1</sup>, V. Smyslov<sup>1</sup>, V. Yakunin<sup>1</sup>, A. Sidorenko<sup>1</sup> and A. Vaseashta<sup>2</sup>

<sup>1</sup>*Ghitu Institute of Electronic Engineering and Nanotechnologies, Chişinău, Moldova*

<sup>2</sup>*International Clean Water Institute, Herndon, VA, USA*

### 45. **S5-P.16 Bio-functionalized atelocollagen-polysaccharide hydrogels**

A. Luca, O. Rachita, L. Verestiuc, M. Butnaru

*"Gheorghe Asachi" Technical University, Faculty of Chemical Engineering and Environment Protection, Iasi, Romania*

**46. S5-P.17 Prophylaxis Monitoring of the State of Human Respiratory Organs**

H.N. Rozorinov and N.I. Chichikalo

*State University of Telecommunications, Kiev, Ukraine***WORKSHOP WS2 Nuclear and Radiation Safety and Security****47. WS2-P.12 Numerical Estimation of the Radiation Hardness of Bipolar Integrated Circuits in Various Irradiation Conditions of Space Environment**A.S. Bakerenkov, V.S. Pershenkov, A.S. Rodin, V.A. Felitsyn and  
A.G. Miroshnichenko*National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)/Department of  
Micro- and nanoelectronics, Moscow, Russian Federation***48. WS2-P.13 Nuclear and Radiological Activities regulation in Moldova**

V. Bold

*National Agency for Regulation of Nuclear and Radiological Activities, Moldova***49. WS2-P.14 Promotion of Nuclear and Radiation Security Education in Technical University of Moldova**A. Buzdugan<sup>1</sup>, S. Railean<sup>2</sup> and V. Sontea<sup>2</sup><sup>1</sup>*National Agency for Regulation of Nuclear and Radiological Activities, Chisinau, Moldova*<sup>2</sup>*Technical University of Moldova, Chisinau, Moldova***HUMBOLDT KOLLEG WORKSHOP WS3 - Science and Society-the Use of Light****50. WS3-P.25 Fabrication of Ultrathin GaN Membranes with Relatively Large Sizes for Practical Applications**

V. Ciobanu, T. Braniste, V. Popa, O. Gridenco, M. Batiri and I. Tiginyanu

**51. WS3-P.26 Modeling of the Structural Transition In The Nanostructured Tetrathiotetracene-Iodide Crystal**

S. Andronic

**52. WS3-P.27 Expected Thermoelectric Properties of Nanostructured TTT(TCNQ)<sub>2</sub> Crystals**

I.I. Sanduleac

**53. WS3-P.28 Luminescent and Optical Spectroscopy of ZnO Crystals Obtained by New Method Based on the Halide Vapor Transport**

G.V. Colibaba, I.I. Shtepliuk, E.P. Goncareenco, I. Inculet

**54. WS3-P.29 Synchronization of Chaos of Quantum Dots Lasers under the Influence of External Cavity Optical Feedback**

A. Sanduța, T. Oloinic, S.S. Rusu V.Z. Tronciu

**55. WS3-P.30 Chaos-based Optical Communication of Semiconductor Lasers with Air Gaps**

T. Oloinic, S.S. Rusu, V.Z. Tonciu

**56. WS3-P.31 Behaviour of Endothelial Cells on Surfaces Functionalized by GaN Nanoparticles**

T. Braniste, I. Tiginyanu, T. Horvath, S. Raevschi, S. Cebotari, M. Lux, A. Haverich and A. Hilfiker

**57. WS3-P.32 X-Ray Diffraction and Photocurrent Measurements in  $\text{CH}_3\text{NH}_3\text{PbI}_3$  Perovskite**

I. Plesco

**58. WS3-P.33 Multi Sections Semiconductor Lasers with an Air Gap for Chaos Based Communication**

I. Antohi, T. Oloinic, A. Sanduța, S.S. Rusu, V.Z. Tronciu