

**12<sup>th</sup> NATIONAL MEDICAL PHYSICS  
AND BIOMEDICAL ENGINEERING CONFERENCE-NMPEC-2016**  
with international participation

*NEW TECHNOLOGIES FOR EXPLORATION AND TREATMENT IN MEDICINE*

03-05 November 2016  
Inter Expo Center-IEC- Sofia, Bulgaria

**Scientific Program**

**Thursday, November 3**

Time	Session	Name	Place/Hall
10:00-18:00		<b>Registration</b>	Registration desk
13:30-14:00		<b>Opening ceremony-</b>	Musala
14:00-15:30		<b>Session Radiology and Roentgenology 1</b> <b>Chair Professor Boris Tenchov, President of BSBPE</b>	Musala
14:00-14:45	<b>PL1</b>	<b>Slavik Tabakov</b> “Medical Imaging Equipment – 50 years of progress, related education, impact on medicine and current trends”	Musala
14:45-15:00	<b>O1-1</b>	<b>Peter Trindev</b> “60 years from the invention of Anger gamma camera”	Musala
15:00-15:15	<b>O1-2</b>	<b>Simona Avramova-Cholakova, D. Kostova-Lefterova</b> “Pilot study of patient doses from digital breast tomosynthesis in Bulgaria”	Musala
15:15-15:30	<b>O1-3</b>	<b>Anna Zagorska, Ts. Tsrunchev, Z. Buchacliev, P. Arsova, J. Vassileva</b> “Development of a new TLD holder for eye lens dosimetry in interventional radiology”	Musala
15:30-16:00		<b>Coffee Break</b>	Vihren
16:00-17:30		<b>Session Biomedical Engineering</b> <b>Chair Professor Virginia Tsapaki, Secretary General of IOMP</b>	Musala
16:00-16:30	<b>PL2</b>	<b>Giovanni Bortolan, I. Simova, I. Gruev, I. Christov, S. Georgieva</b> “Comparative study of T-wave alternans in elderly and young competitive athletes”	Musala
16:30-16:45	<b>O2-1</b>	<b>J. Przondziono, W. Walke, J. Szala, J. Wiczorek</b> “Ultrasound imaging: signal acquisition, new advanced processing for biomedical and industrial applications”	Musala
16:45-17:00	<b>O2-2</b>	<b>Lubomir Traikov, A. Dzambazova, R. Hadjiolova, V. Velchev, D. Vasilev, J. Petrova</b> “Complex analysis of asymptomatic carotid stenosis and restenosis-according parameters- ABI, FMD and IMT of human carotid arteries-restenosis as a consequence of the local strain stress”	Musala
17:00-17:15	<b>O2-3</b>	<b>Ivan Tsanev, A. Dimov, G. Kasparyan</b> “National Database for Patient Dose Registration and Analysis in Diagnostic Radiology”	Musala
17:15-17:30	<b>O2-4</b>	<b>Sergey Podtaev, N. Zubareva, A. Parshakov, E. Smirnova</b> “Detection of Endothelial Dysfunction Using Skin Temperature Oscillations Analysis”	Musala

17:30-19:00		<b>Coffee Break</b>	Vihren
17:30-19:00	<b>P</b>	<b>Poster session</b>	Vihren
19:00-20:30		<b>Welcome Reception</b>	Panorama
20:30-00:30		<b>Student Ice Breaker</b>	Panorama

## Friday, November 4

Time	Session	Name	Place/Hall
09:00-18:00		<b>Registration</b>	Registration desk
09:00-10:30		<b>Session Radiology and Roentgenology 2</b> <b>Chair Professor Slavik Tabakov, President of IOMP</b>	Musala
09:00-09:30	<b>PL3</b>	<b>Virginia Tsapaki</b> “Incidents and accidents in imaging departments. What’s next?”	Musala
09:30-09:45	<b>O3-1</b>	<b>Pavlina Pike, L. Johnson</b> “Strategies for minimizing patient radiation dose in interventional fluoroscopy”	Musala
09:45-10:00	<b>O3-2</b>	M. Dimcheva, <b>Peter Trindev</b> “National survey on the accuracy of dose calibrations”	Musala
10:00-10:15	<b>O3-3</b>	<b>Kristina Bliznakova, I. Buliev, Z. Bliznakov</b> “Education and training related to anthropomorphic phantoms for medical physics experts”	Musala
10:15-10:30	<b>O3-4</b>	<b>Desislava Kostova-Lefterova, F. Simeonov, D. Ivanova</b> “Tracking the effect of optimisation in a paediatric radiology department”	Musala
10:30-11:00		<b>Coffee Break</b>	Vihren
11:00-13:00		<b>Session Biophysics</b> <b>Chair Assist. Prof. Lubomir Traikov, Chairman of Organizing Committee</b>	Musala
11:00-11:30	<b>PL4</b>	<b>Boris Tenchov</b> “Nanotechnologies in gene therapy – non-viral vectors for nucleic acid delivery”	Musala
11:30-11:45	<b>O4-1</b>	<b>Roxana Popescu, A.I. Apostol, E. A. Andronescu, M. Grumezescu, D. Savu</b> “Fabrication of functionalized magnetite nanoparticles with applications in drug delivery systems”	Musala
11:45-12:00	<b>O4-2</b>	<b>Miroslav Karabaliev, B. Tacheva</b> “Electrochemical approach to investigate drug-nanoparticles interactions”	Musala
12:00-12:15	<b>O4-3</b>	<b>Rositsa Marinova, P. Petkov, L. Litov</b> “CG molecular dynamics study of indolicidin in water solution”	Musala
12:15-12:30	<b>O4-4</b>	<b>Virginia Doltchinkova, P. Angelova, S. Petrova</b> “Vipoxin effects on the surface electrical properties and membrane transport of protons in human erythrocytes”	Musala

12:30-12:45	<b>O4-5</b>	<b>Alexander G. Dimitrov</b> “Transformation of phenomenological models of sodium-potassium pump into biophysically based ones”	Musala
12:45-13:00	<b>O4-6</b>	<b>Andrey Popatanasov, A. Trifonov</b> “Modification with short laser pulses of collagen derived matrices crosslinked with D-fructose for potential use in the regenerative medicine”	Musala
13:00-14:00		<b>Lunch time</b>	
14:00-16:00	<b>RT</b>	<b>Round Table Discussion – Problems of Education in Bulgaria</b> (dedicated to the 4th International Day of Medical Physics) <b>EDUCATION IN MEDICAL PHYSICS: THE KEY TO SUCCESS</b>  <b>Moderators:</b> <b>Professor Athanas Kristev</b> , Secretary General of Medical University-Plovdiv, Dept. Medical Physics and Biophysics, <b>Assoc. Professor Leander Litov</b> , Sofia University “St. Kliment Ohridski”, Faculty of Physics	Musala
16:00-16:30		<b>Coffee Break</b>	Vihren
16:30-18:30		<b>BSBPE members meeting</b>	Musala
19:00-		<b>Conference Dinner and BSBPE 45th Anniversary Meeting</b>	Panorama

## Saturday, November 5

Time	Session	Name	Place/Hall
09:00-11:00		<b>Session Radiology and Roentgenology 3</b> <b>Chair Assoc. Prof. Peter Trindev, Past President of BSBPE</b>	Musala
09:00-09:15	<b>PL5</b>	<b>Slavik Tabakov</b> “MTF and Contrast Inversion”	Musala
09:15-09:30	<b>O5-1</b>	<b>Pavlina Pike, L. Johnson</b> “CT dose optimization and tracking across multiple facilities”	Musala
09:30-09:45	<b>O5-2</b>	<b>Simona Avramova-Cholakova, E. Petrova, S. Shalamanov, I. Dyakov</b> “Radiation exposure of patients from whole body examinations on new PET-CT system”	Musala
09:45-10:00	<b>O5-3</b>	<b>Simona Avramova-Cholakova, E. Petrova, S. Shalamanov, I. Dyakov</b> “Radiation exposure of patients from two procedures on new SPECT-CT system”	Musala
10:00-10:15	<b>O5-4</b>	<b>Desislava Kostova-Lefterova, V. Hadzhiyska, Sh. Masso, F. Vasileva</b> “Survey of practice and dose optimisation strategies in paediatric PET/CT procedures”	Musala
10:15-10:30	<b>O5-5</b>	<b>Nely Gesheva-Atanasova, D. Stoeva</b> “Comparison of 3D conformal radiotherapy and helical tomotherapy for irradiation of the breast and regional lymphatic”	Musala
10:30-11:00	<b>O5-6</b>	<b>Nadir Küçük</b> , “Evaluation of SRS/SBRT Treatment using Dosimetric Metrics”	Musala
11:00-11:30		<b>Coffee Break</b>	Vihren

11:30-13:00		<b>Session Non-Ionizing Radiation</b> <b>Chair Assoc. Prof. Michaela Ivanova, National Center of Public Health Protection and Analysis Sofia</b>	Musala
11:30-12:00	<b>PL6</b>	<b>Marko S. Markov</b> "Bulgarian contribution in electromagnetic biology and medicine"	Musala
12: 00-12:15	<b>O6-1</b>	<b>Nikolai Atanasov</b> , G. Atanasova, L.Traikov, M. Kouzmanova, M. Markov, L.Veselinova, A. Stefanov "Evaluation of a microwave system for hyperthermia treatment of cancer in animals"	Musala
12:15-12:30	<b>O6-2</b>	<b>Petia Ivanova</b> , M. Israel "Data from the national noise measuring system in the urbanized regions of Bulgaria"	Musala
12:30-12:45	<b>O6-3</b>	<b>Emil Georgiev</b> , T. Marov, V. Ivanov, G. Kirova "Development of magnetic resonance imaging phantom for tissue selective techniques"	Musala
12:45-13:00	<b>O6-4</b>	J. Ryaby, <b>Marko Markov</b> "Electromagnetic stimulation in musculoskeletal tissue repair"	Musala
13:00-13:15		<b>NMPEC-2016 Closing ceremony</b>	Musala
15:30-18:30		<b>Sightseeing tour Sofia and surroundings</b>	

## POSTERS

### Poster Session Ionizing and Non-Ionizing Radiation

- P01 Dimov A.**, Kasparyan G., Tsanev I., Vassileva F. "Application of EFOMP and EUREF Quality Control protocols in evaluation of a modern full field digital mammography system"
- P02 Gancheva M.**, Krastev B., Gesheva–Atanasova N. "Evaluation the feasibility of VMAT treatment plan verification with Octavius 4D phantom using different dosimetry criteria"
- P03 Ivanova N.**, Chaushev B., Ivanova S. "Life in radiation"
- P04 Ivanov L.** "Dose-Area product meter with extended functionality"
- P05 Ivanov L.** "Active ionizing chamber with analog and digital mode of operation"
- P06 Ivanov L.** "Variable packet length protocol (VPL protocol) for real time data transmission"
- P07 Shalamanova Ts.**, Topalova Iv. "Analysis and evaluation of electromagnetic exposure in urban area with high density of sources"

### Poster Session Biophysics

- P08 Abarova S.**, Koynova R., Traikov L., Tancheva L., Tenchov B. "Protectant Drug Efficacy Against Scopolamine-Induced Dementia In Mice, A DSC Approach"
- P09 Alexandrov S. A.**, Todorov R. K., Exerowa D. R. "The role of Ca<sup>2+</sup> on stability of foam films from lysophosphatidylcholine and Curosurf"
- P10 Al Sharif M.**, Alov P., Tsakovska I., Pajeva I. „Pharmacophore modeling of PPAR $\gamma$ partial agonist"
- P11 Bangyozova M.**, **Jordanova A.**, Tsanova A., Stoyanova V., Stoimenova E., Christova E., Lalchev Z. "Methods of diagnostic of neonatal respiratory distress syndrome based on gastric aspirates samples in order to appropriate therapy"

- P12 Chakalov I.,** Ivanova P., Traikov L. “Estimation of biomechanical force of action as a function of three different chewing forces studied by image densitometry analysis”
- P13 Dimitrov V.G.,** Dimitrov A.G., Arabadzhiev T.I., Dimitrova N.A. “Effect of changes in muscle fiber geometry on extracellular potentials”
- P14 Djenev I.** “Investigation of the influence of the endotoxin on the deformability of red blood cells in vitro”
- P15 Dzambazova A.,** Kafozoff Nicole-Ellen, Traikov L., Tashev R., Abarova S., Petrova J., Ohkubo C. “Intravital microscopy study of structural and functional integrity of Blood Brain Barrier (BBB) during experimental induced tumor growth in vivo- influence of endothelial S1PR1 regulation”
- P16 Ilieva D.** “Temperature-dependent, spatial and temporal controlled azobenzene polymeric materials”
- P17 Mancheva K.,** Stephanova D.I., Wolf W., Kossev A. “The effect of co-activation of antagonist muscles on recruitment curve during transcranial magnetic stimulation”
- P18 Nicole-Ellen Kafozoff,** Achilles Gerou-Christov, Traikov L., Antonov I., Hadjiolova R. Atanasov N., Atanasova G. “High frequency electromagnetic field induced hyperthermia for treatment of artificially induced breast cancer in rats”
- P19 Nikolova A.,** Keranov I., Michel M., Vladkova T., Kostadinova A. “Characterisation and biological response of electrospun amphiphilic poly (Dimethylsiloxane-B-acrylic Acid) fibrous scaffolds”
- P20 Parvanova B. K., Ivanov I. T.** “Thermal dielectroscopy study of under-membrane erythrocyte skeleton. Data processing and presentation”
- P21 Popatanasov A.** “A low-cost differential thermal analysis (DTA) apparatus for measuring the thermal properties and behavior of protein and carbohydrate-based hydrogels”
- P22 Radeva D.,** Dimitrova St., Pavlova B., Paunov M., Kouzmanova M., Dankov K., Tsonev Ts., Velikova V., Goltsev V. “Plant health estimation using prompt chlorophyll a fluorescence imaging in leaves of two varieties of bean plants”
- P23 Semkova S.,** Nikolova B., Murayama S., Stoyanova E., Tsoneva I., Zhelev Zh., Aoki I., R. Bakalova “Visualization of passive and electro-assisted delivery of quantum dot-labeled nanoparticles in vitro and in vivo using fluorescent and magnetic resonance imaging”
- P24 Sezanova B.,** Antonova B., Naidenov E., Tenchov B. “Changes in the state of the plasma proteome and cerebrospinal fluid in Glioblastoma multiforme”
- P25 Stoichev S.,** Andreeva T., Taneva S., Krastev R. “Optimization of polyelectrolyte multilayer coatings for biofunctionalization of cardiovascular stents by incorporation of graphene oxide”
- P26 Vassilev P.,** Tashev R., Ardasheva R., Prissadova N., Slavchev V., Turiyski V., Kristev A. “Combined in vivo and in vitro biophysical methods for investigation of abdominal hypertensive rats”
- P27 Vladkova R.** “Ordering of the numerous cytochrome *bc<sub>1</sub>* X-ray crystal structure in a sequence of events during substrate processing in the Q<sub>0</sub> site of the complex”
- P28 Zaharinova S.,** Abarova S, Tancheva L, Stoeva S., Paypanova T., Koynova R., Tenchov B. "Effects of synthetic neuropeptides (neurotensins) on drug-induced neurodegenerative disorders"
- P29 Zasheva A.,** Abarova S., Tenchov B. "Corticosteroid interactions with human serum albumin"
- P30 Zaytseva E.,** Deperas-Kaminska M., Kutsalo P., Mitsyn G., Molokanov A., Gaevsky V., Wojcik A. “Cytogenetic radio-sensitivity of human peripheral blood lymphocytes to protons and gamma rays”