

# **BIOME P 2017 - Conference on Bio-Medical Instrumentation and related Engineering and Physical Sciences**

*Organized by the*

***Department of Biomedical Engineering  
Technological Educational Institute (TEI) of Athens,  
Athens University of Applied Sciences/ Greece***

**Thursday 12 to Friday 13, October 2017**

## **PROGRAMME**

### **Thursday 12, October 2017**

9:00 – 12:00 **Registration**

9:15 – 9:30 **Welcome Speeches**

- Prof. M. Venetikou **Rector** of TEI of Athens, Greece
- Prof. S. Athinaios, **Dean**, Faculty of Technological Applications, TEI of Athens, Greece
- Prof. I. Kandarakis, **Head of the Department of Biomedical Engineering T.E.**

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**Oral Sessions (9:30 – 18:30)**


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**9:30 – 11:00 Session 1. Medical Imaging and Radiation Monitoring**
**Session Chairpersons:** *G. Fountos, S. David*
**9:30 - 9:45 Digital Breast Tomosynthesis - New technique in Breast Imaging**
*Y. Sdralis*

KMS medical

**9:45 - 10:00 Evaluation of Scintillation Response of ZnSMn Quantum Dots under X-ray irradiation**
*G. Saatsakis<sup>1</sup>, I. Valais<sup>2</sup>, C. Michail<sup>2</sup>, C. Fountzoula<sup>3</sup>, G. Fountos<sup>2</sup>, V. Koukou<sup>2</sup>, N. Martini<sup>2</sup>, N. Kalyvas<sup>2</sup>, I. Kandarakis<sup>2</sup>, G. S. Panayiotakis<sup>1</sup>*
<sup>1</sup>Department of Medical Physics, Medical School, University of Patras, Greece

<sup>2</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>3</sup>Department of Medical Laboratories, Technological Educational Institute of Athens, Greece

**10:00- 10:15 Performance Characteristics of a Personal Gamma Spectrometer based on a SiPM array for Radiation Monitoring Applications**
*E. Kefalidis<sup>1</sup>, I. Kandarakis<sup>1,2</sup>, S. David<sup>1,2</sup>*
<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Radiation Physics, Materials Technology and Biomedical Imaging Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

**10:15 - 10:30 Comparative Evaluation of Cesium Iodine Scintillators Coupled to a Silicon Photomultiplier (SiPM): Effect of Thickness and Doping on the Scintillators**
*E. Monachesi<sup>1</sup>, A. Dezi<sup>1</sup>, M. D'Ignazio<sup>1</sup>, L. Scalise<sup>2</sup>, L. Montalto<sup>2</sup>, N. Paone<sup>2</sup>, D. Rinaldi<sup>3</sup>, G. Loudos<sup>4</sup>, S. David<sup>4</sup>*
<sup>1</sup>Faculty of Engineering, Università Politecnica delle Marche, Ancona, Italy

<sup>2</sup>Dipartimento di Ingegneria Industriale e Scienze Matematiche, Università Politecnica delle Marche, Ancona, Italy

<sup>3</sup>Dipartimento di Fisica e Ingegneria dei Materiali e del Territorio

<sup>4</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

**10:30 - 10:45 Structural Characterization and Absolute Luminescence Efficiency Evaluation of Gd<sub>2</sub>O<sub>2</sub>S High Packing Density Ceramic Screens Doped with Tb<sup>3+</sup> and Eu<sup>3+</sup> for further Applications in Radiology**
*A. Dezi<sup>1</sup>, E. Monachesi<sup>1</sup>, M. D'Ignazio<sup>1</sup>, L. Scalise<sup>2</sup>, L. Montalto<sup>2</sup>, N. Paone<sup>2</sup>, D. Rinaldi<sup>3</sup>, P. Mengucci<sup>3</sup>, G. Loudos<sup>4</sup>, A. Bakas<sup>5</sup>, C. Michail<sup>6</sup>, I. Valais<sup>6</sup>, C. Fountzoula<sup>7</sup>, G. Fountos<sup>6</sup>, S. David<sup>4,6</sup>*
<sup>1</sup>Faculty of Engineering, Università Politecnica delle Marche, Ancona, Italy

<sup>2</sup>Dipartimento di Ingegneria Industriale e Scienze Matematiche, Università Politecnica delle Marche, Ancona, Italy

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<sup>4</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

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<sup>6</sup>Radiation Physics, Materials Technology and Biomedical Imaging Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>7</sup>Department of Medical Laboratories, Technological Educational Institute of Athens, Greece

**10:45 - 11:00 Experimental Evaluation of  $Gd_3Al_2Ga_3O_{12}$ : Ce (GAGG: Ce) Single Crystals Coupled to a Silicon Photomultiplier (SiPM) under High Gamma Ray Irradiation Conditions**

*A. Metallinos<sup>1</sup>, E. Kefalidis<sup>1</sup>, I. Kandarakis<sup>1, 2</sup>, S. David<sup>1, 2</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Radiation Physics, Materials Technology and Biomedical Imaging Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

**11:00 - 11:30 Coffee Break**

**11:30 – 13:00 Session 2. Image Processing and Reconstruction**

**Session Chairpersons:** *A. Gaitanis, G. A. Kastis*

**11:30 – 11:43 Towards a Standardization Method for Textural Analysis in Preclinical FDG PET images**

*A. Gkolfinopoulou<sup>1</sup>, G. A. Kastis<sup>2, 3</sup>, A. Gaitanis<sup>4</sup>*

<sup>1</sup>Technological Educational Institute of Athens, Department of Biomedical Engineering, Greece.

<sup>2</sup>Research Center of Mathematics, Academy of Athens, Greece.

<sup>3</sup>Institute for Nuclear & Radiological Sciences & Technology, Energy & Safety, National Center for Scientific Research “Demokritos”, Athens, Greece

<sup>4</sup>Biomedical Research Foundation of the Academy of Athens (BRFAA), Greece.

**11:43 – 11:56 Validation of Recent Developments in STIR Library for GE SIGNA PET/MR Scanner Using Real Data**

*P. Wadhwa<sup>1, 2</sup>, K. Thielemans<sup>3</sup>, C. Tsoumpas<sup>1</sup>*

<sup>1</sup>University of Leeds, Div. of Biomedical Imaging, Leeds, United Kingdom of Great Britain and Northern Ireland, UK

<sup>2</sup>Imanova UK, Centre for Imaging Science, London, United Kingdom of Great Britain and Northern Ireland

<sup>3</sup>University College London, Institute of Nuclear Medicine, London, United Kingdom of Great Britain and Northern Ireland, UK

**11:56 - 12:09 Ray Tracing Generalized Backprojection-Filtration Algorithm for Positron Emission Tomography**

*S. Sánchez<sup>1</sup>, A. Iborra<sup>1</sup>, P. Conde<sup>1</sup>, J. M. Álvarez-Gómez<sup>1</sup>, A. Soriano<sup>1</sup>, A. González-Montoro<sup>1</sup>, A. Aguilar<sup>1</sup>, G. Cañizares<sup>1</sup>, E. Lamprou<sup>1</sup>, S. Iranzo<sup>1</sup>, L. Moliner<sup>1</sup>, F. Sánchez<sup>1</sup>, A. J. González<sup>1</sup>, J. M. Benlloch<sup>1</sup>, M. J. Rodríguez-Álvarez<sup>1</sup>*

<sup>1</sup>Institute for Instrumentation in Molecular imaging (i3M), Valencia, Spain

<sup>2</sup>Laboratory of Medical Information Processing (LaTIM - INSERM UMR 1101), Brest, France.

**12:09 - 12:22 Strategies of Statistical Windows in PET Image Reconstruction to Improve the User's Real Time Experience**

*L. Moliner<sup>1</sup>, C. Correcher<sup>2</sup>, V. Gimenez<sup>1</sup>, V. Ilisie<sup>1</sup>, S. Sanchez<sup>1</sup>, J. Alvarez<sup>1</sup>, M. J. Rodriguez<sup>1</sup>*

<sup>1</sup>Institute for Instrumentation in Molecular imaging (i3M), Valencia, Spain

<sup>2</sup>Bruker Española, S.A, Spain.

**12:22 - 12:35 Cumulative Sums for Masking in Nuclear Medicine Image Reconstruction**

*N. E. Protonotarios<sup>1,2</sup>, G. M. Spyrou<sup>3,4</sup>, G. A. Kastis<sup>1</sup>*

<sup>1</sup>Research Center of Mathematics, Academy of Athens, Greece

<sup>2</sup>Department of Mathematics, National Technical University of Athens, Greece

<sup>3</sup>Center of Systems Biology, Biomedical Research Foundation of the Academy of Athens, Greece

<sup>4</sup>Bioinformatics ERA Chair, The Cyprus Institute of Neurology and Genetics, Nicosia, Cyprus

**12:35 – 12:48 Improving PET Sensitivity with a Compton Algorithm**

*V. Ilisie, L. Moliner, V. Gimenez, A. Aguilar, E. Lamprou, A. Gonzalez, F. Sanchez, J. M. Benlloch*

Instituto de Instrumentación para Imagen Molecular (I3M), Centro Mixto CSIC - Universitat Politècnica de València, Camino de Vera S/N, Spain

**12:48 – 13:01 Evaluation of the Spline Reconstruction Technique under the NEMA NU 4-2008 Standards**

*A. Vrachliotis<sup>1, 4</sup>, G. A. Kastis<sup>2, 3</sup>, A. Gaitanis<sup>4</sup>, L. Costaridou<sup>1</sup>*

<sup>1</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

<sup>2</sup>Research Center of Mathematics, Academy of Athens, Greece.

<sup>3</sup>Institute for Nuclear & Radiological Sciences & Technology, Energy & Safety, National Center for Scientific Research “Demokritos”, Athens, Greece

<sup>4</sup>Biomedical Research Foundation, Academy of Athens (BRFAA), Greece.

**13:01 – 13:14 Synthesis of Simultaneous Real Time Dynamic Positron Emission Tomography Data Using an Almost Continuous Respiratory Signal and Magnetic Resonance Imaging Data**

*I. Polycarpou<sup>1</sup>, C. Tsoumpas<sup>2</sup>*

<sup>1</sup>Department of Health Sciences, European University Cyprus, Cyprus

<sup>2</sup>Division of Biomedical Imaging, Leeds Institute for Cardiovascular and Metabolic Medicine, School of Medicine, University of Leeds, UK

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**13:15 - 14:00 Lunch Break**

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**14:00 - 15:00 Session 3. Round table “Boosting Nanomedicine through the Efficient Application of Biomedical Engineering”**

*Session Chairpersons: D. Glotsos, L. Fysikopoulos*

**14:00 - 14:15 Simulations for Magnetic Induced Hyperthermia**

*K. Papadopoulos*

Department of Medical Physics, Medical School, University of Patras, Greece

14:15 - 14:30 **In Vivo Imaging During Magnetic Induced Hyperthermia**

L. Fysikopoulos

BET Solutions R&D Athens, Greece

14:30 - 14:45 **Applications in Bone Regeneration**

P. Papadimitroulas

BET Solutions R&D Athens, Greece

14:45 - 15:00 **Applications in Cardiology**

T. Kostou

Department of Medical Physics, Medical School, University of Patras, Greece

15:00 - 15:30 **Coffee Break**

15:30 - 17:00 **Session 4. Safety and Quality in Health Care**

**Session Chairpersons:** *B. Spyropoulos, M. Kallergi*

15:30 - 15:45 **Emerging Nano-technologies as reflected on recent and relevant industrial property documents**

B. Spyropoulos, E. Apostolatos, S. Kallivokas, P. Bakogiorgos, T. Politis, M. Neroupos, P. Papadaki, D. Trichas

Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

15:45 - 16:00 **Emerging Radiotherapy Technologies: Facilities Equipment, Safety and Innovation**

B. Spyropoulos, E. Apostolatos, S. Kallivokas, P. Bakogiorgos, T. Politis, M. Neroupos, P. Papadaki, D. Trichas

Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

16:00 - 16:15 **Applications and Impact of 5G and IoT on Health Services by the year 2025 as predicted on Relevant Patent-Documents**

M. Bania<sup>1</sup>, B. Spyropoulos<sup>1, 2</sup>

<sup>1</sup>Graduate Program "Information Technologies in Medicine and Biology", Department of Informatics and Telecommunications, National and Kapodistrian University of Athens, Greece

<sup>2</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

16:15 - 16:30 **Quality Assurance in Point of Care Arterial Blood Gases Measurements**

K. Lydakis, B. Spyropoulos

Department of Biomedical Engineering, Technological Education Institute of Athens, Greece

**16:30 - 16:45 ICT-Driven Smart Green Hospitals: Reducing Superfluous Cost**

*B. Spyropoulos<sup>1, 2</sup>, A. Alexandropoulos<sup>2</sup>, N. Boci<sup>2</sup>, E. Chatziapostolou<sup>2</sup>, E. Frappa<sup>2</sup>, E. Georgiadou<sup>2</sup>, I. Louts<sup>2</sup>, I. Pantelakis<sup>2</sup>, M. Poultsaki<sup>2</sup>, M. Xenaki<sup>2</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Graduate Program “Information Technologies in Medicine and Biology”, Department of Informatics and Telecommunications, National and Kapodistrian University of Athens, Greece

**16:45 - 17:00 The Smart Hospital Room: Discerning among Myth and Reality**

*B. Spyropoulos*

Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

**17:00 - 17:30 Coffee Break**

<b>17:30 - 18:30 Session 5. Round table “Radiation Protection: New BSS Directive and Current Trends”</b>
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<i>Session Chairpersons: E. P. Efstathopoulos, G. S Panayiotakis</i>
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**The Implication of DRLs using the New Directive. A Case Report from University Hospital of Patras**

*G. A. T. Messaris<sup>1</sup>, G. S. Panayiotakis<sup>1, 2</sup>*

<sup>1</sup>Department of Medical Physics, University Hospital of Patras, Greece

<sup>2</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

**Overview of the 2013/59 Euratom Basic Safety Standards Directive****-Radiation Protection of Workers**

*K. Platoni*

2nd Department of Radiology, University General Hospital “Attikon”, School of Medicine, National and Kapodistrian University of Athens, Greece

**-Radiation Protection of Patients**

*S. Triantopoulou*

Athens General Children's Hospital “Pan. & Aglaia Kyriakou”, Athens, Greece

**-Equipment Requirements**

*I. Stathopoulos*

2nd Department of Radiology, University General Hospital “Attikon”, School of Medicine, National and Kapodistrian University of Athens, Greece

**The impact of Radiation Protection Culture**

*A. Ploussi*

**Parallel Poster Session-A (10:30– 18:30)**

**Session Chairpersons:** *S. Kostopoulos, C. Michail*

**Thursday 12, October 2017 (24 Posters)**

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**1. 3D Printing X-ray Quality Control Phantoms. A Low Contrast Paradigm**

*I. Kapetanakis, G. Fountos, C. Michail, I. Valais, N. Kalyvas*

Department of Biomedical Engineering, Technological Educational Institute Egaleo Greece

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**2. 3D Tomographic Imaging with the  $\gamma$ -Eye Planar Scintigraphic Gamma Camera**

*H. Tunnicliffe<sup>1,2</sup>, M. Georgiou<sup>3</sup>, G. Loudos<sup>4,5</sup>, A. Simcox<sup>1,2</sup>, C. Tsoumpas<sup>2</sup>*

<sup>1</sup>School of Physics and Astronomy, University of Leeds, UK

<sup>2</sup>Division of Biomedical Imaging, Institute of Cardiovascular and Metabolic Medicine, University of Leeds, UK

<sup>3</sup>BET Solutions, Research & Development, Athens, Greece

<sup>4</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>5</sup>National Centre for Scientific Research NCSR "Demokritos", Institute of Nuclear and Radiological Sciences and Technology, Energy and Safety, Athens, Greece

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**3. A Digital Data Acquisition Scheme for SPECT and PET Small Animal Imaging Detectors for Theranostic Applications**

*M. Georgiou, E. Fysikopoulos, G. Loudos*

Department of Biomedical Engineering, Technological Educational Institution of Athens, Greece

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**4. A Mathematical Model for Texture Simulation in Microscopy**

*D. Glotsos<sup>1</sup>, S. Kostopoulos<sup>1</sup>, P. Ravazoula<sup>2</sup>, C. Stefanoudakis<sup>1</sup>, P. Bavela<sup>1</sup>, D. Cavouras<sup>1</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Department of Pathology, University Hospital of Patras, Greece

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**5. A Pilot Database of Biomedical Engineering Companies**

*A. Ilias, D. Glotsos*

Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

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**6. A Real Time ECG Signal Processing Application for Arrhythmia Detection on Portable Devices**

*A. Georganis<sup>1</sup>, N. Doulgeraki<sup>1</sup>, P. Asvestas<sup>2</sup>*

<sup>1</sup>Department of Informatics and Telecommunications, National and Kapodistrian University of Athens,

Greece

<sup>2</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

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### **7. ABC Triblocks as Nanocarriers for Curcumin**

*A. Skandalis, S. Pispas*

Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece

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### **8. Antepartum Fetal Monitoring and Spectral Analysis of Preterm Birth Risk**

*A. Pasarica<sup>1</sup>, D. Nemescu<sup>2</sup>, D. Arotaritei<sup>3</sup>, C. Rotariu<sup>3</sup>*

<sup>1</sup>Department of Telecommunications, “Gheorghe Asachi” Technical University of Iasi, Romania

<sup>2</sup>Department of Obstetrics and Gynecology, “Grigore T. Popa” University of Medicine and Pharmacy, Romania

<sup>2</sup>Department of Biomedical Sciences, “Grigore T. Popa” University of Medicine and Pharmacy, Romania

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### **9. Artifacts Quantification of Metal Implants in MRI**

*I. Vrachnis<sup>1</sup>, G. Vlachopoulos<sup>1</sup>, T. Marris<sup>2</sup>, L. Costaridou<sup>1</sup>*

<sup>1</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

<sup>2</sup>Department of Medical Physics, Faculty of Medicine, University of Crete, Iraklion, Greece

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### **10. Biocompatible Polyoxazoline Polymers as Gene Vectors**

*E. Vlasi, A. Papagiannopoulos, S. Pispas*

Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece

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### **11. Block Copolymers with Regulated Amphiphilicity as Nanocarriers for Gene Delivery**

*M. Kafetzi, S. Pispas*

Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece

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### **12. Body Mass Index and Patient Dose in Fluoroscopically Guided Lumbar Discectomy and Fusion**

*V. Metaxas<sup>1</sup>, G. Messaris<sup>1</sup>, G. Gatzounis<sup>2</sup>, F. Tzortzidis<sup>2</sup>, D. Konstantinou<sup>2</sup>, G. Panayiotakis<sup>1</sup>*

<sup>1</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

<sup>2</sup>Department of Neurosurgery, School of Medicine, University of Patras, Greece

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### **13. Breast Radiation Dose in Digital Mammography**

*A. Lekatou<sup>1</sup>, G. Messaris<sup>1</sup>, V. Metaxas<sup>1</sup>, P. Antzele<sup>2</sup>, G. Tzavellas<sup>2</sup>, G. Panayiotakis<sup>1</sup>*

<sup>1</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

<sup>2</sup>Department of Radiology, University Hospital of Patras, Greece

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#### 14. Computational Study of the Optimum Gradient Magnetic Field for the Navigation of Spherical Particles into Targeted Areas

*E. G. Karvelas<sup>1,2</sup>, N. K. Lampropoulos<sup>1</sup>, D. I. Papadimitriou<sup>1</sup>, I. E. Sarris<sup>1</sup>*

<sup>1</sup>Department of Energy Technology, Technological & Educational Institute of Athens, Greece

<sup>2</sup>Department of Civil Engineering, University of Thessaly, Volos, Greece

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#### 15. Design and Implementation of a Brain Computer Interface System for Controlling a Robotic Claw

*D. Angelakis<sup>1</sup>, S. Zoumis<sup>1</sup>, P. Asvestas<sup>1</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

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#### 16. Determination of the Physical State of Drug in Furosemide-Eudragit Microspheres

*A. Ostróżka-Cieślak<sup>1</sup>, B. Sarecka-Hujar<sup>1</sup>, T. Krzykawski<sup>2</sup>*

<sup>1</sup>Department of Pharmaceutical Technology, Chair of Applied Pharmacy, School of Pharmacy with the Division of Laboratory Medicine in Sosnowiec Medical University of Silesia, Poland

<sup>2</sup>Department of Earth Sciences, University of Silesia, Poland

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#### 17. Development and Evaluation of a Portable Spirometer, Implementing Calorimetric Anemometry Principle

*S. Diamantaras, T. Koutsis, I. Famelis, G. Kaltsas*

Department of Electronic Engineering, Technological Educational Institute of Athens, Greece

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#### 18. Devices and Tasks of Objective Dynamic Balancing Assessment – Results of a Systematic Literature Review

*B. Petró<sup>1</sup>, A. Papachatzopoulou<sup>2</sup>, R. M. Kiss<sup>1</sup>*

<sup>1</sup>Department of Mechatronics, Optics and Mechanical Engineering Informatics, Budapest University of Technology and Economics, Hungary

<sup>2</sup>Department of Mechanical Engineering, University of Thessaly, Greece

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#### 19. Dosimetric Validation of the Convolution and TMR 10 Dose Algorithms of the GammaPlan Treatment Planning System

*A. Logothetis<sup>1</sup>, E. Zoros<sup>1</sup>, E. P. Pappas<sup>1</sup>, E. Pantelis<sup>1</sup>, A. Dimitriadis<sup>2</sup>, I. Paddick<sup>2</sup>, P. Karaiskos<sup>1</sup>*

<sup>1</sup>Medical Physics Laboratory, Medical School, National and Kapodistrian University of Athens, Greece

<sup>2</sup>Medical Physics Limited, London, UK

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#### 20. EBT3 Film Dosimetry for the QA of kV X-ray Radiation Therapy

*H. Prentou<sup>1</sup>, K. Kourioti<sup>2</sup>, E. Zoros<sup>1</sup>, P. Papagiannis<sup>1</sup>*

<sup>1</sup>Medical Physics Laboratory, Medical School, National and Kapodistrian University of Athens, Greece

<sup>2</sup>Physics Department, National and Kapodistrian University of Athens

### **21. Examining the Spatial Frequency Components of a Digital Dental Detector**

*A. Anastasiou<sup>1</sup>, C. Michail<sup>1,2</sup>, V. Koukou<sup>2</sup>, N. Martini<sup>2</sup>, A. Bakas<sup>2,3</sup>, F. Papastamati<sup>1</sup>, P. Maragkaki<sup>1</sup>, L. Lavdas<sup>2,3</sup>, G. Fountos<sup>1,2</sup>, I. Valais<sup>1,2</sup>, N. Kalyvas<sup>1,2</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Laboratory of Radiation Physics Materials Technology and Biomedical Imaging, Technological Educational Institute of Athens, Greece

<sup>3</sup>Department of Medical Radiologic Technologists, Technological Educational Institute of Athens, Greece

### **22. Eye-Related Hazards Associated with Blue Light Radiation Emitting Modern Lighting Sources, Mobile Screen, Computers and Tablets**

*I. Sianoudis<sup>1</sup>, G. Mitsou<sup>2</sup>, D. Melanitis<sup>1</sup>, I. Valais<sup>3</sup>*

<sup>1</sup>Department of Optics & Optometry, Technological Educational Institute (TEI) of Athens, Greece

<sup>2</sup>Department of Energy Technology Engineering, Technological Educational Institute (TEI) of Athens, Greece

<sup>3</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

### **23. Histology Image Collection Library**

*D. Glotsos<sup>1</sup>, S. Kostopoulos<sup>1</sup>, P. Ravazoula<sup>2</sup>, D. Cavouras<sup>1</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Department of Pathology, University Hospital of Patras, Greece

### **24. X-ray Irradiation Affects the Biomechanical Properties of Human Red Blood Cells**

*E. Spyratou<sup>1</sup>, J. Antonakos<sup>1</sup>, K. Platoni<sup>1</sup>, M. Makropoulou<sup>2</sup>, E. Efstathopoulos<sup>1</sup>*

<sup>1</sup>2nd Department of Radiology, Medical School, National and kapodistrian University of Athens, Athens, Greece

<sup>2</sup>Physics Department, Faculty of Applied Mathematical and Physical Sciences, National Technical University of Athens, Zografou Campus, Athens, Greece

**Friday 13, October 2017**

9:00 – 12:00 Registration

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**Oral Sessions (9:30 – 18:00)**

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**9:30 – 11:00 Session 1. Radiation Dosimetry**

**Session Chairpersons:** *N. Kalyvas, I. Valais*

**9:30 - 9:45 Foetus Dose Estimation in Typical Diagnostic Nuclear Medicine Procedures**

*M-A. Vasileiou, A. Stefanoyiannis, X. Geronikola Trapali, I. Armeniakos, T. Liotsou, E. Efstathopoulos, S. Chatziioannou*

Department of Radiology, Nuclear Medicine Division, University General Hospital of Athens "Attikon", Greece

**9:45 - 10:00 Development of a Phase Space Source Model for Monte Carlo Dosimetry in Gamma Knife Applications**

*A. Logothetis<sup>1</sup>, E. P. Pappas<sup>1</sup>, E. Zoros<sup>1</sup>, E. Pantelis<sup>1</sup>, A. Dimitriadis<sup>2</sup>, I. Paddick<sup>2</sup>, P. Karaiskos<sup>1</sup>*

<sup>1</sup>Medical Physics Laboratory, Medical School, National and Kapodistrian University of Athens, 75 Mikras Asias, 115 27, Athens, Greece

<sup>2</sup>Medical Physics Limited, London, UK

**10:00 - 10:15 Patient Radiation Dose in Extracorporeal Lithotripsy**

*A. Moulita<sup>1</sup>, G. Messaris<sup>1</sup>, A. Hadjiconstanti<sup>1</sup>, A. Lekatou<sup>1</sup>, E. Liatsikos<sup>2</sup>, G. Panayiotakis<sup>1</sup>*

<sup>1</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

<sup>2</sup>Department of Urology, School of Medicine, University of Patras, Greece

**10:15 - 10:30 Automated Measurements of Metabolic Tumor Volume and Metabolic Parameters in Lung PET/CT Imaging**

*F. Orologas, P. Saitis, M. Kallergi*

Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

**10:30 - 10:45 Influence of Multiple Brain Metastases' Size and Number on the Quality of SRS – VMAT Dose Delivery**

*G. Prentou<sup>1</sup>, E. Koutsouveli<sup>2</sup>, E. Pantelis<sup>1</sup>, P. Papagiannis<sup>1</sup>, E. Georgiou<sup>1</sup>, P. Karaiskos<sup>1</sup>*

<sup>1</sup>Medical Physics Laboratory, Medical School, National and Kapodistrian University of Athens, Greece

<sup>2</sup>Medical Physics Department, Hygeia Hospital, Athens, Greece

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**11:00 - 11:30 Coffee Break**

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**11:30 – 13:00 Session 2. Nanotechnology in Biological Sciences****Session Chairpersons:** *E. P. Efstathopoulos, K. Platoni***11:30 - 11:43 Two Dimensional Drug Diffusion between Nanoparticles and Fractal Tumors***S. Samioti<sup>1</sup>, K. Karamanos<sup>2</sup>, A. Tsiantis<sup>3</sup>, A. Papathanasiou<sup>4</sup>, I. Sarris<sup>5</sup>*<sup>1</sup>Department of Mechanical Engineering, University of Thessaly, Greece<sup>2</sup>Department of Energy Technology, TEI of Athens, Greece<sup>3</sup>Department of Mechanical Engineering, University of Thessaly, Greece<sup>4</sup>Department of Mechanical Engineering, University of Thessaly, Greece<sup>5</sup>Department of Energy Technology, TEI of Athens, Greece**11:43 - 11:56 Applications of Nanotechnology in Radiological Imaging***A. Ploussi<sup>1</sup>, K. Platoni<sup>1</sup>, E. Efstathopoulos<sup>1</sup>*

2nd Department of Radiology, University General Hospital “Attikon”, School of Medicine, National and Kapodistrian University of Athens, Greece

**11:56 - 12:09 Nanoparticles: Nanotoxicity Aspects***E. Vlastou<sup>1,2</sup>, M. Gazouli<sup>3</sup>, A. Ploussi<sup>2</sup>, K. Platoni<sup>2</sup>, E. Efstathopoulos<sup>2</sup>*<sup>1</sup>Athens General Children's Hospital “Pan. & Aglaia Kyriakou”, Athens, Greece<sup>2</sup>2nd Department of Radiology, University General Hospital “Attikon”, School of Medicine, National and Kapodistrian University of Athens, Greece<sup>3</sup>Department of Basic Medical Science, Laboratory of Biology, School of Medicine, University of Athens, Greece**12:09 - 12:22 Physico-Chemical Characterization and Basic Research Principles of Mixed/Chimeric Delivery Platforms***N. Pippa<sup>1,2</sup>, S. Pispas<sup>2</sup>, C. Demetzos<sup>1</sup>*<sup>1</sup>Department of Pharmaceutical Technology, Faculty of Pharmacy, National and Kapodistrian University of Athens, Greece<sup>2</sup>Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece**12:22 - 12:35 Applications of Nanotechnology in Nuclear Medicine Imaging***C. Tsoukalas, P. Bouziotis*

Radiochemical Studies Laboratory, Institute of Nuclear &amp; Radiological Sciences &amp; Technology, Energy &amp; Safety, National Center for Scientific Research “Demokritos”, Athens, Greece

**12:35 - 12:48 Advances in Drug Delivery Nano Systems***C. Demetzos*

Department of Pharmacy, Section Pharmaceutical Technology, Laboratory of Pharmaceutical Technology and nanoTechnology, National and Kapodistrian University of Athens, Greece

**12:48 – 13:00 Block Copolymer based Protein Nanocarriers: Hierarchical Self-Assembly and Responsiveness***A. Papagiannopoulos, S. Pispas*

13:00 - 14:00 **Lunch Break**

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**14:00 – 15:30 Session 3. Therapeutic-Clinical Applications**

**Session Chairpersons:** *E. C. Ventouras, G. K. Matsopoulos*

**14:00 - 14:13 Review and Comparison of Geometric Distortion Correction Schemes in MR Images Used in Stereotactic Radiosurgery Applications**

*E. P. Pappas<sup>1</sup>, D. Dellios<sup>1,2</sup>, I. Seimenis<sup>2</sup>, A. Moutsatsos<sup>1</sup>, E. Georgiou<sup>1</sup>, P. Karaiskos<sup>1</sup>*

<sup>1</sup>Medical Physics Laboratory, Medical School, National and Kapodistrian University of Athens, Greece

<sup>2</sup>Medical Physics Laboratory, Medical School, Democritus University of Thrace Alexandroupolis, Greece

**14:13 - 14:26 Evaluation of Quantitative MRI Sequences for T1 Brain Mapping**

*P. Tsalios<sup>1</sup>, C. Pernet<sup>2</sup>, M. Thrippleton<sup>2</sup>, A. Glatz<sup>2</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Centre for Clinical Brain Sciences, University of Edinburgh, UK.

**14:26 - 14:39 Comparative Analysis of Methods for Extracting Vessel Network on Breast MRI Images**

*B. Gaizer<sup>1</sup>, K. Vassiou<sup>2</sup>, E. Lavdas<sup>3</sup>, D. Arvanitis<sup>4</sup>, I. Fezoulidis<sup>2</sup>, D. Glotsos<sup>5</sup>*

<sup>1</sup>Department of Mechatronics, Optics and Mechanical Engineering Informatics; Budapest University of Technology and Economics

<sup>2</sup>Department of Radiology, Medical School of Thessaly, University Hospital of Larissa, Greece

<sup>3</sup>Department of Medical Radiologic Technology, Technological Educational Institute of Athens, Greece

<sup>4</sup>Department of Anatomy, School of Health Sciences, University of Larissa, Greece

<sup>5</sup>Medical Image and Signal Processing Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

**14:39 - 14:52 Computation of an MRI Brain Atlas from a Population of Parkinson's Disease Patients**

*L. Angelidakis<sup>1</sup>, I. Papageorgiou<sup>2</sup>, C. Damianou<sup>1</sup>, M. N. Psychogios<sup>2</sup>, P. Lingor<sup>3</sup>, K. von Eckardstein<sup>4</sup>, S. Hadjidemetriou<sup>1</sup>*

<sup>1</sup>Department of electrical engineering, computer engineering and informatics, Cyprus University of Technology, Limassol, Cyprus

<sup>2</sup>Department of diagnostic and interventional neuroradiology, University Medical Center Goettingen, University of Goettingen, Germany

<sup>3</sup>Department of neurology, University Medical Center Goettingen, University of Goettingen, Germany

<sup>4</sup>Department of neurosurgery, University Medical Center Goettingen, University of Goettingen, Germany

**14:52 - 15:05 Effects of Inaccurate Identification of Interictal Epileptiform Pileptiform Discharges in Concurrent EEG-fMRI**

*K. Gkiatis<sup>1</sup>, K. Bromis<sup>1</sup>, I. Kakkos<sup>1</sup>, I. S. Karanasiou<sup>2</sup>, G. K. Matsopoulos<sup>1</sup>, K. Garganis<sup>3</sup>*

<sup>1</sup>Department of Electrical and Computer Engineering, National Technical University of Athens, Greece

<sup>2</sup>Department of Mathematics and Engineering Sciences, Hellenic Military University, Athens, Greece

<sup>3</sup>Epilepsy Monitoring Unit, "St. Luke's" Hospital, Thessaloniki, Greece

**15:05 - 15:18 Brain Functional Connectivity in Small Cell Lung Cancer Population after Chemotherapy Treatment: AN ICA fMRI Study**

*K. Bromis<sup>1</sup>, I. Kakkos<sup>1</sup>, K. Gkiatis<sup>1</sup>, I. S. Karanasiou<sup>2</sup>, G. K. Matsopoulos<sup>1</sup>*

<sup>1</sup>Department of Electrical and Computer Engineering, National Technical University of Athens, Greece

<sup>2</sup>Department of Mathematics and Engineering Sciences, Hellenic Military University, Athens, Greece

**15:18 - 15:30 Electroencephalographic Coherence Investigation in Psychiatric Patients Undergoing the Primitive Expression Form of Dance Therapy**

*E. C. Ventouras<sup>1</sup>, M. Argyri<sup>1</sup>, M. Lalou<sup>1</sup>, A. Margariti<sup>2,3</sup>, P. Chondraki<sup>2</sup>, N.-T. Economou<sup>2</sup>, H. Tsekou<sup>2</sup>, T. Paparrigopoulos<sup>2</sup>, P. Ktonas<sup>2</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institution of Athens, Greece

<sup>2</sup>Department of Psychiatry, 1st Psychiatric Clinic, Eginition Hospital, Medical School, University of Athens, Greece

<sup>3</sup>Department of Theater Studies, University of Peloponnese, Nafplion, Greece

**15:30 - 16:00 Coffee Break**

**16:00 - 17:45 Session 4. Biomedical Applications**

**Session Chairpersons:** *I. Kalatzis, P. Asvestas*

**16:00 - 16:13 Automated Breast Ultrasound for Ductal Pattern Reconstruction: Ground Truth File Generation and CADE Evaluation**

*D. Manousaki<sup>1</sup>, A. Panagiotopoulou<sup>1</sup>, V. Bizimi<sup>2</sup>, M. S. Haynes<sup>3</sup>, S. Love<sup>4</sup>, M. Kallergi<sup>1</sup>*

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<sup>2</sup>2<sup>nd</sup> Radiology Department, University Hospital "Attikon", Athens, Greece

<sup>3</sup>Jet Propulsion Laboratory (JPL), Pasadena, CA, USA

<sup>4</sup>Dr. Susan Love Research Foundation, Encino, CA, USA

**16:13 - 16:26 A Disposable Flexible Moisture Sensor Directly Printed on Paper for Medical Applications**

*D. Barmpakos<sup>1</sup>, A. Segkos<sup>2</sup>, C. Tsamis<sup>2</sup>, G. Kaltsas<sup>1</sup>*

<sup>1</sup>Department of Electronic Engineering, Technological Educational Institute of Athens, Greece

<sup>2</sup>Institute of Nanoscience and Nanotechnology (INN), NCSR Demokritos, Athens, Greece

**16:26 - 16:39 Artificial Optical Radiation, a Real Occupational Hazard of the Electromagnetic Spectrum**

*G. A. Gourzoulidis<sup>1</sup>, C. Kappas<sup>2</sup>*

<sup>1</sup>Hazardous Agents Department, OHS Directorate, Hellenic Ministry of Labor, Athens, Greece

<sup>2</sup>Department of Medical Physics, Medical School, University of Thessaly, Greece

16:39 - 16:52 **Classification of Error Related Brain Activity in an Auditory Identification Task with Conditions of Varying Complexity**

*I. Kakkos<sup>1</sup>, K. Gkiatis<sup>1</sup>, K. Bromis<sup>1</sup>, P. Asvestas<sup>2</sup>, I. Karanasiou<sup>3</sup>, E. M. Ventouras<sup>2</sup>, G. Matsopoulos<sup>1</sup>*

<sup>1</sup>Department of Electrical and Computer Engineering, National Technical University of Athens, Greece

<sup>2</sup>Department of Biomedical Engineering, Technological Educational Institution of Athens, Greece

<sup>3</sup>Department of Mathematics and Engineering Sciences, Hellenic Military University, Athens, Greece

16:52 - 17:05 **A Software Platform for the Analysis of Dermatology Images**

*M. Vlasi, V. Mavraganis, P. Asvestas*

Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

17:05 - 17:18 **Monitoring, Tracking, and Recording Pancreas-Related Health Issues in Real Time**

*T. Chrysikos<sup>1</sup>, I. Zisi<sup>1</sup>, C. Katsini<sup>2</sup>, G. Raptis<sup>2</sup>, S. Kotsopoulos<sup>1</sup>*

<sup>1</sup>Electrical and Computer Engineering, University of Patras, Greece

<sup>2</sup>Human Opsis, Patra, Greece

17:18 - 17:30 **Electronic Management of Medical Records: The Vital Role of Electronic Patient File**

*V. Manoli*

Philologist, Librarian and Information Scientist, MA in Sciences of Education, MBA

17:30 – 17:43 **Laser-Induced Refractive Index Modification of Intraocular Lenses**

*C. Bacharis<sup>1</sup>, G. Tsilikas<sup>1</sup>, I. Sianoudis<sup>2</sup>, M. Makropoulou<sup>1</sup>, A. Serafetinides<sup>1</sup>*

<sup>1</sup>Department of Physics, School of Applied Mathematical and Physical Sciences, National Technical University of Athens (NTUA), Greece

<sup>2</sup>Department of Optics & Optometry, Technological Educational Institute (TEI) of Athens, Greece

**Scientific Awards // Closing of Conference**

**Parallel Poster Session-B (10:30– 18:30)**

*Session Chairpersons: V. Koukou, N. Matrini*

**Friday 13, October 2017 (24 Posters)**

**1. Identification of Arteries and Veins from Cerebral Angiography**

*I. Tache*

Dept. of Automatic Control and Systems Engineering, University Politehnica of Bucharest, Romania

**2. Image Processing for Biomedical Images using Fractal Analysis**

*A. Dumitrescu, D. Popescu*

Department of Automatic Control and System Engineering, University Politehnica of Bucharest, Romania

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### **3. Infrared Thermography Quantitative Image Processing**

*A. Skouroliakou<sup>1</sup>, I. Kalatzis<sup>2</sup>, N. Kalyvas<sup>2</sup>, T.B. Grivas<sup>3</sup>*

<sup>1</sup>Department of Energy Technology Engineering, Technological Educational Institute (TEI) of Athens, Greece

<sup>2</sup>Department of Biomedical Engineering, Technological Educational Institute (TEI) of Athens, Greece

<sup>3</sup>Department of Orthopaedics and Traumatology, Tzaneio General Hospital of Piraeus, Greece

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### **4. Institutional Patient Doses in Multislice Computed Tomography**

*A. Moka<sup>1</sup>, G. Messaris<sup>1</sup>, A. Hadjikonstanti<sup>1</sup>, P. Zampakis<sup>2</sup>, C. Kalogeropoulou<sup>2</sup>, G. Panayiotakis<sup>1</sup>*

<sup>1</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

<sup>2</sup>Department of Radiology, School of Medicine, University of Patras, Greece

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### **5. Measuring the Refractive Index of Intraocular Lenses Modified by Femtosecond LASER and UV Radiation**

*C. Bacharis<sup>1</sup>, G. Tsilikas<sup>1</sup>, M. Makropoulou<sup>1</sup>, A. Serafetinides<sup>1</sup>, I. Valais<sup>3</sup>, E. Chalkiadaki<sup>2</sup>, G. Mitsou<sup>4</sup>, I. Sianoudis<sup>2</sup>*

<sup>1</sup>Department of Physics, School of Applied Mathematical and Physical Sciences, National Technical University of Athens (NTUA), Greece

<sup>2</sup>Department of Optics & Optometry, Technological Educational Institute (TEI) of Athens, Greece

<sup>3</sup>Department of Biomedical Engineering, Technological Educational Institute (TEI) of Athens, Greece

<sup>4</sup>Department of Department of Energy Technology Engineering, Technological Educational Institute (TEI) of Athens, Greece

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### **6. Non-Invasive Spectroscopic Techniques in the Diagnosis of Non-Melanoma Skin Cancer**

*E. Drakaki<sup>1</sup>, I. Sianoudis<sup>1</sup>, M. Makropoulou<sup>2</sup>, A. Serafetinides<sup>2</sup>, C. Dessinioti<sup>3</sup>, E. Stefanaki<sup>3</sup>, A. Stratigos<sup>3</sup>, C. Antoniou<sup>3</sup>, A. Katsambas<sup>3</sup>, E. Christofidou<sup>3</sup>*

<sup>1</sup>Dept. of Optics & Optometry, Technological Educational Institute of Athens, Greece

<sup>2</sup>School of Applied Mathematical and Physical Sciences, National Technical University of Athens, Greece

<sup>3</sup>University of Athens, Dept. of Dermatology, Hospital A. Syggros, Athens, Greece

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### **7. Numerical Assessment of Brain Tumor Pharmacokinetics after Blood-Brain/Blood-Tumor Barrier Disruption with Focused Ultrasound**

*Y. Guo<sup>1</sup>, M. O. Bernabeu<sup>2</sup>, C. Arvanitis<sup>1</sup>*

<sup>1</sup>School of Mechanical Engineering, Department of Biomedical Engineering, Georgia Institute of Technology, Atlanta, Georgia, USA

<sup>2</sup>Centre for Medical Informatics, Usher Institute, University of Edinburgh, Edinburgh, UK

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## 8. Performance Evaluation of Two DR Radiography Systems and Patient Dose in Chest Examination

*J. Antonakos, J. Kagkiouzis, P. Tsionopoulou, C. Basiliou, E. Efstathopoulos*

2<sup>nd</sup> Department of Radiology, University of Athens, Greece

## 9. Polymer Based Thin Film Screen Preparation Technique

*I. Valais<sup>1</sup>, C. Michail<sup>1</sup>, C. Fountzoula<sup>2</sup>, G. Fountos<sup>1</sup>, G. Saatsakis<sup>3</sup>, A. Karabotsos<sup>4</sup>, G.S. Panayiotakis<sup>3</sup>, I. Kandarakis<sup>1</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institute (T.E.I.) of Athens, Greece

<sup>2</sup>Department of Medical Laboratories, Technological Educational Institute (T.E.I.) of Athens, Greece

<sup>3</sup>Department of Medical Physics, Medical School, University of Patras, Greece

<sup>4</sup>Department of Conservation of Antiquities and Works of Art, Technological Educational Institute (T.E.I.) of Athens, Greece

## 10. Pulse Shape Estimation of Nuclear Medicine Photodetectors using a Bi-Exponential Fitting Model

*E. Fysikopoulos<sup>1,2</sup>, M. Georgiou<sup>1,2</sup>, G. Loudos<sup>1</sup>*

<sup>1</sup>Department of Biomedical Engineering, Technological Educational Institution of Athens, Greece

<sup>2</sup>BET Solutions, R & D – Athens, Greece

## 11. Resolution Properties of a Calcium Tungstate (CaWO<sub>4</sub>) Thin Screen Coupled to a CMOS Imaging Detector

*V. Koukou<sup>1</sup>, N. Martini<sup>1</sup>, I. Valais<sup>2</sup>, A. Bakas<sup>3</sup>, N. Kalyvas<sup>2</sup>, G. Fountos<sup>2</sup>, I. Kandarakis<sup>2</sup>, C. Michail<sup>2</sup>*

<sup>1</sup>Department of Medical Physics, Medical School, University of Patras, Greece

<sup>2</sup>Radiation Physics, Materials Technology and Biomedical Imaging Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>3</sup>Department of Radiology & Radiation Therapy, Technological Educational Institute of Athens, Greece

## 12. Spatial Resolution of Lu<sub>2</sub>O<sub>3</sub>:Eu Thin Screens Coupled to a High Resolution CMOS Imaging System

*I. Seferis<sup>1,2</sup>, J. Zeler<sup>2</sup>, C. Michail<sup>3</sup>, I. Valais<sup>3</sup>, G. Fountos<sup>3</sup>, N. Kalyvas<sup>3</sup>, A. Bakas<sup>4</sup>, I. Kandarakis<sup>3</sup>, E. Zych<sup>2</sup>, G. S. Panayiotakis<sup>1</sup>*

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<sup>2</sup>Faculty of Chemistry, University of Wroclaw, 50-383 Wroclaw, Poland

<sup>3</sup>Radiation Physics, Materials Technology and Biomedical Imaging Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

<sup>4</sup>Department of Radiology & Radiation Therapy, Technological Educational Institute of Athens, Greece

## 13. Spectroscopic Measurements and Estimation of Dangers by the Protection of Sun Radiation with Sunglasses

*I. Sianoudis<sup>1</sup>, G. Mitsou<sup>2</sup>, I. Valais<sup>3</sup>*

<sup>1</sup>Department of Optics & Optometry, Technological Educational Institute (TEI) of Athens, Greece

<sup>2</sup>Department of Department of Energy Technology Engineering, TEI of Athens, Greece

<sup>3</sup>Department of Department of Biomedical Engineering, TEI of Athens, Greece

#### **14. Study of the Dopamine Effect into Cell Solutions by Impedance Analysis**

*G. Paivana<sup>1</sup>, T. Apostolou<sup>1</sup>, G. Kaltsas<sup>2</sup>, S. Kintzios<sup>1</sup>*

<sup>1</sup>Department of Biotechnology, Agricultural University of Athens, Greece

<sup>2</sup>Department of Electronic Engineering, Technological Educational Institute of Athens, Greece

#### **15. The Effect of X-ray Irradiation on Intraocular Lens Implants**

*S. Ellas<sup>1</sup>, J. Antonakos<sup>1</sup>, K. Platoni<sup>1</sup>, C. Bacharis<sup>2</sup>, M. Makropoulou<sup>2</sup>, A. Serafetinides<sup>2</sup>, E. Efsthathopoulos<sup>1</sup>*

<sup>1</sup>2<sup>nd</sup> Department of Radiology, Medical School, National and kapodistrian University of Athens, Greece

<sup>2</sup>Physics Department, Faculty of Applied Mathematical and Physical Sciences, National Technical University of Athens, Greece

#### **16. The Examination of the Binder on the Optical Performance of Phosphor Materials Used in Medical Imaging Systems**

*G. Kleideri, P. Liaparinis*

Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

#### **17. The Formation of Chimeric Nanomorphologies, as a Reflection of Naturally Occurring Thermodynamic Processes**

*N. Naziris<sup>1</sup>, N. Pippa<sup>1,2</sup>, V. Chrysostomou<sup>2</sup>, S. Pispas<sup>2</sup>, C. Demetzos<sup>1</sup>, M. Libera<sup>3</sup>, B. Trzebicka<sup>3</sup>*

<sup>1</sup>Section of Pharmaceutical Technology, Department of Pharmacy, School of Health Sciences, National and Kapodistrian University of Athens, Greece

<sup>2</sup>Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece

<sup>3</sup>Centre of Polymer and Carbon Materials, Polish Academy of Sciences, Zabrze, Poland

#### **18. The Role of Particle Packing of Powder Phosphor-Based X-ray Detectors through Monte Carlo Simulation Techniques**

*P. Liaparinis<sup>1</sup>, N. Kalyvas<sup>1</sup>, E. Katsiotis<sup>1</sup>, I. Kandarakis<sup>1</sup>*

<sup>1</sup>Radiation Physics, Materials Technology and Biomedical Engineering, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

#### **19. The Role of Surgeon on Patient Dose During Fluoroscopically Guided Lumbar Discectomy and Fusion**

*V. Metaxas<sup>1</sup>, G. Messaris<sup>1</sup>, G. Gatzounis<sup>2</sup>, F. Tzortzidis<sup>2</sup>, D. Konstantinou<sup>2</sup>, G. Panayiotakis<sup>1</sup>*

<sup>1</sup>Department of Medical Physics, School of Medicine, University of Patras, Greece

**20. The Use of Scanning Microscopy and X-ray Energy Dispersion Analysis to Evaluate Orodispersible Tablets**

*B. Sarecka-Hujar<sup>1</sup>, R. Balwiercz<sup>2</sup>, A. Ostróżka-Cieślak<sup>1</sup>, R. Dyja<sup>1</sup>, D. Lukowiec<sup>3</sup>, A. Jankowski<sup>1</sup>*

<sup>1</sup>Medical University of Silesia in Katowice, School of Pharmacy with the Division of Laboratory Medicine in Sosnowiec, Department of Pharmaceutical Technology, Sosnowiec, Poland

<sup>2</sup>Silesian Medical College in Katowice, Poland

<sup>3</sup>Silesian University of Technology, Department of Materials Processing Technology, Management and Computer Techniques in Materials, Gliwice, Poland

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**21. The Utility of the Drug-To-Lipid Ratio at the Optimization of the Liposomal Formulation**

*M. Chountoulesi<sup>1</sup>, N. Naziris<sup>1</sup>, N. Pippa<sup>1</sup>, C. Demetzos<sup>1</sup>*

<sup>1</sup>Section of Pharmaceutical Technology, Department of Pharmacy, School of Health Sciences, National and Kapodistrian University of Athens, Greece

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**22. Thermo-Responsive Drug Nanocarriers based on Novel PNIPAM-b-POEGA Amphiphilic Block Copolymers**

*D. Giaouzi<sup>1</sup>, S. Pispas<sup>2</sup>*

Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece

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**23. Towards the Experimental Assessment of the DQE in SPECT Scanners**

*G. Fountos, C. Michail*

Radiation Physics, Materials Technology and Biomedical Imaging Laboratory, Department of Biomedical Engineering, Technological Educational Institute of Athens, Greece

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**24. Initial Evaluation of New Radiochromic Micelle 3D Dosimeter Formulations**

*K. Kouvati<sup>1</sup>, K. Kwiatos<sup>2</sup>, L. Petrokokkinos<sup>3</sup>, M. Jaszczak<sup>2</sup>, P. Papagiannis<sup>1</sup>, M. Kozicki<sup>2</sup>*

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<sup>2</sup>Department of Man-Made Fibres, Lodz University of Technology

<sup>3</sup>Physics Department, National and Kapodistrian University of Athens, Greece

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