IST 2008 – IEEE Workshop on Imaging Systems and Techniques Final Program
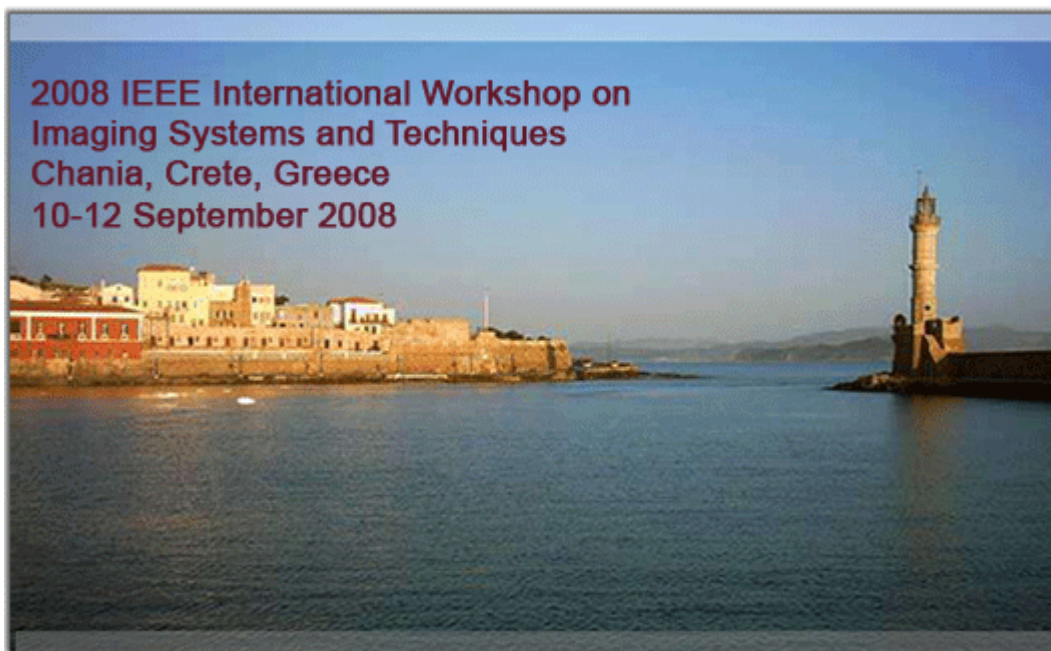

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Chairman's Welcome Message

On behalf of the Technical Committee of the IEEE International Workshop on Imaging Systems and Techniques (IST 2008), I welcome you to Greece! We are in the historic town of Chania, located on the beautiful island of Crete. Chania is considered one of the loveliest towns in Greece, as well as one of the more picturesque towns in Crete. Its many historical heritages, combined with its natural beauty, offers a unique blend of color and warmness. According to archaeological excavations, Chania stands on the site of ancient Kydonia, a large city which flourished during the Roman period.

This is the fifth consecutive year, following the successful events in Stresa, Italy; Niagara Falls, Canada; Minori, Italy; and Krakow, Poland. Scientists from all over the world meet to explore the physical and engineering principles, development and applications of new imaging technologies, systems, measurements, and techniques. IST offers an informal setting devoted to the encouragement of broad discussion of imaging methodologies, shaping the future, and identifying emerging imaging trends. This workshop deals with the design, development, evaluation and applications of imaging systems, instrumentation, measuring techniques, and image processing algorithms, aimed at enhancing the detection process and image quality.

Before my prologue, I would like to thank and highlight the outstanding efforts of the Technical Co-chairs of IST 2008: Prof. Kostantina Nikita (National Technical University of Athens), who also serves as the Honorary Chair of this event, Prof. Matteo Pastorino (University of Genoa, Italy), Prof. Wuqiang Yang (University of Manchester, UK), Prof. Cesare Svelto (Polytechnic of Milan, Italy), and Prof. George Zentai (Varian Medical Systems). I would like also thank Prof. Demetrios Karas for his outstanding efforts to host and organize the Special Sessions on MRS Methodologies within IST. Many thanks go to the anonymous and dedicated reviewers, which did an excellent job to preserve quality and promote academic excellence and scholarship. Special acknowledgements to the Workshop Administrator, Chris Dyer (Conference Catalysts), Sue Kingston, George Giannakakis (NTUA) and Laya Polychronaki (NTUA) for their outstanding efforts towards the organization of this event. Finally, I would like to extend my sincere thanks to the University of Akron Research Foundation (UARF), the National Technical University of Athens (NTUA), the Technical chamber of Greece, the Archaeological Department of Crete, and The Department of Hellenic Education, for their generous sponsorships towards the realization of IEEE IST 2008.

I would like first to offer some guidance regarding emerging trends in the Imaging arena. Thereafter, I would like to highlight some future directions that I believe should guide our efforts.

First, the multifaceted field of imaging requires drastic adaptation to the rapid changes of our society, economy, environment, and technological revolution. There is an urgent need to address and propose dynamic and innovative solutions to problems which tend to be either complex and static, or rapidly evolving with time and with a lot of unknowns. For instance, the battle against cancer, fight against terror, monitoring of space resources and enhanced awareness, management of natural resources, and environmental monitoring, are some of the areas that need to be addressed with urgency. The complexity of the involved imaging scenarios, and demanding design parameters such as speed, signal-to noise ratio, high specificity, high contrast and spatial resolution, high-scatter rejection, complex background, and harsh environment, necessitates the development of a multifunctional, scalable, and efficient imaging suite of sensors; solutions driven by innovation, operating on diverse detection and imaging principles.

The search for efficient medical imaging techniques capable of providing physiological information at the molecular level, is an important area of research. Advanced metabolic and functional imaging

techniques, operating on multiple physical principles, using high resolution, high selectivity nanoimaging techniques, making use of quantum dots, nanoparticles, biomarkers, and nanostructures, PEBBLE nanosensors, imaging microarray chips, and nanoclinics for optical diagnostics and targeted therapy, can play an important role in the diagnosis, and treatment of cancer. It can also provide efficient drug-delivery imaging solutions for disease treatment, with increased sensitivity and specificity.

Similarly, enhanced standoff detection, classification, identification and surveillance techniques, for comprehensive civilian and military target protection and enhanced space situational awareness (SSA), can open new frontiers of research and applications in the defense arena and homeland security. For instance, the development of potential imaging sensor architectures, enhanced remote sensing systems, ladars, lidars, and radars which can provide monitoring data capable to ensure a continuous monitoring of various imaging/physical/chemical/parameters under different operating scenarios, (using both active and passive detection principles, reconfigurable and scalable focal plane array architectures (FPA) architectures, reliable standoff detection systems for efficient detection of explosives, and enhanced airport and sea port security), are very challenging problems to the technical community.

Secondly, I would like to address the needs regarding the establishment of an International School on Imaging within the Society. This School would promote the exploration of novel physical and engineering imaging principles, along with the advancement and generation of new knowledge related to the design, development, and applications of novel imaging technologies. The School would offer enhanced interaction among a multidisciplinary group of scientists and engineers from all over the world, offering at the same time, unsurpassable imaging training to the new generation of scientists and engineers, and enhanced leadership skills. As you understand, the opportunities for the advancement of knowledge are tremendous. I would like to thank all of you who contributed to this initiative and let's continue working together towards the realization of this project.

Lastly, an IEEE Industry-Academia Forum has been established into the TC-22 Technical Committee on Imaging Systems, within our Society. This visionary idea belongs to Steve Adam, who always shares a special place in our spirit. This forum is chaired by George Zendai, R&D Program Manager at Varian Medical Systems, and myself. I plan to organize a round table in Chania, present the mission and goals of this Forum, and set strategic goals and timelines. I believe your presence and feedback is very important to this meeting.

I hope you enjoy your stay in Chania, Greece and find the 2008 IEEE International Workshop on Imaging Systems and Techniques (IST 2008) a rewarding opportunity for exchange of new ideas and advancement of knowledge.

Prof. George K. Giakos
General Chair
Chairman TC-22 Imaging Systems

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IST 2008 PROGRAM

September 10, 2008
18:00-19:30 - Guided tour in the old city of Chania
19:30 - Opening and welcome reception at KAM

September 11, 2008
7:30 - **Registration**
7:45 - **Opening Ceremony**
Prof. Konstantina Nikita (National Technical University of Athens, GR)

Welcome message
8:00 - *Looking at the Future: Endocrinology Imaging*
Prof. George. K. Giakos, General Chair (University of Akron, OH, US)

BALLROOM A

8:15 - Keynote Speaker
X-ray Imaging for Homeland Security
George Zentai (Varian Medical Systems, US)

Special session *"Advanced Medical Imaging Techniques"*
Chair: Prof. Konstantina Nikita (National Technical University of Athens, GR)

8.45 - *Towards Brain Imaging using THz Technology*
Paraskevas Bakopoulos ,(National Technical University of Athens, GR)
Irene Karanasiou (National Technical University of Athens, GR)
Panagiotis Zakynthinos (National Technical University of Athens, GR)
Nikos Pleros (Aristotle University of Thessaloniki, GR)
Hercules Avramopoulos (National Technical University of Athens, GR)
Nikolaos Uzunoglu (National Technical University Athens, GR)

9:00 - *Novel Multiphase Optical Nanodomains, Metamaterials, and their Role into Molecular Imaging, Endocrinology, Nanophotonics, and Optical Microfluidics*
George Giakos (The University of Akron, US)

9:15 - *Thyroid Volume determination by single photon tomography and 3D processing for activity dose estimation*
Maria Lyra (University of Athens, GR
John Striligas (Medical Imaging Center, GR)
Maria Gavrilleli (University of Athens, GR)
Christos Chatzijiannis (University of Athens, GR)
Katerina Skouroliakou (Technical Institute of Athens, GR)

Special session *"PET/SPECT/CT "*:
Chair: George Zentai (Varian Medical Systems, US)

9:30 - *Investigation of the performance of Ce3+ doped single crystal scintillators covering radiotherapy and PET/CT imaging conditions*
Ioannis Valais (University of Patras, GR)
Christos Michail (University of Patras, GR)
Stratos David (University of Patras, GR)
George Panayiotakis (University of Patras, GR)
George Foundos (Technological Educational Institute of Athens, GR)
Ioannis Kandarakis (Technological Educational Institute of Athens, GR)
Theodoros Pashalis (Medical Center of Athens, GR)

9:45 - *A comparative investigation of Lu2SiO5:Ce and Gd2O2S:Eu phosphor scintillators for use in a medical imaging detectors*
Christos Michail (University of Patras, GR)
Stratos David (University of Patras, GR)
Andrianos Toutountzis (University of Patras, GR)
Ioannis Valais (Medical School, University of Patras, GR)
George Panayiotakis (University of Patras, GR)
George Fountos (Technological Educational Institution of Athens, GR)
Nektarios Kalivas (Technological Educational Institution of Athens, GR)
Ioannis Kandarakis (Technological Educational Institute of Athens, GR)

10:00 - *Small animal positron emission tomography using a dual head prototype based on PSPMTs and FPGA readout*
N. Efthimiou (University of Patras, GR)
George Panayiotakis (University of Patras, GR)
Alexandra Varvarigou (National Center for Scientific Research Democitus, GR)
Penelope Bouziotis (National Center for Scientific Research, GR)
George Loudos (Technological Educational Institute of Athens, GR)
Ioannis Kandarakis (Technological Educational Institute of Athens, GR)
John McKisson (Thomas Jefferson National Accelerator Facility, US)
Stan Majewski (Thomas Jefferson National Accelerator Facility, US)

BALLROOM B

8:15 - Keynote Speaker
Medical and Industrial Applications of Inverse Scattering Based Microwave Imaging Techniques
Prof. Matteo Pastorino (University of Genoa, IT)

Special Session: "Advanced Detection and Imaging Techniques"
Chair: Prof. Matteo Pastorino (University of Genoa, IT)

8:45 - Imaging of Buried Antipersonnel Landmines by Direction-Sensitive Scintillation Detectors for Neutron Activated Prompt Gamma-rays
Fabrizio Pisacane (ENEA, IT)
Raffaele Scafa (ENEA, IT)
Pier Giuseppe Gabrielli (ENEA, IT)
Maurizio Salmi (RTS Instruments, IT)

9:00 - *Combining Multi-Pulse Excitation and Chirp Coding in Contrast Enhanced Echographic Imaging*
Marco Crocco (University of Genoa, IT)
Paolo Pellegretti (Esaote S.p.A., IT),
Claudia Sciallero (University of Genoa, IT)
Andrea Trucco (University of Genoa, IT)

9:15 - Performance Tests of Sonographic Instruments for the Measure of Flow Speed
Franco Marinozzi ("SAPIENZA University of Rome, IT)
Fabiano Bini ("SAPIENZA" University of Rome, IT)
Annunziata D'Orazio ("SAPIENZA" University of Rome, IT)
Andrea Scorza (University of Rome ROMA TRE, IT)

Special Session: Molecular Imaging Techniques
Chair: George Filippidis (IESL - Forth, GR)

9:30 - *Noise reduction in fluorescence Optical Projection Tomography*
Alex Darrell (FORTH, GR)
Kostas Marias (FORTH, GR)
Michael Brady (University of Oxford, UK)
Heiko Meyer (FORTH, GR)
Udo Birk (FORTH, GR)
Jorge Ripoll (FORTH, GR)

9:45 - **Spectral Analysis of Optical Coherence Tomography Images**
Costas Pitris (University of Cyprus, CY)
Andreas Kartakoulis (University of Cyprus, CY)
Panayiotis Ioannides (University of Cyprus, CY)

10:00 - *In vivo imaging of cellular structures and processes in Caenorhabditis elegans, using non-linear microscopy*
George Filippidis (IESL - Forth, GR)
E. J. Gualda (IESL - Forth, GR)
A. Stefan (IESL - Forth, GR)
M. Mari (IESL - Forth, GR)
C. Fotakis (IESL - Forth, GR)
G. Voglis (IMBB – Forth, GR)
M. Vlachos (IMBB – Forth, GR)
N. Tavernarakis (IMBB – Forth, GR)

10:15 *- Polarimetric Imaging of Multi-Index of Refraction Biological Phantoms utilizing Efficient Molecular Optical Imaging Techniques*
George Giakos (The University of Akron, US)
Keerthisrivatsav Valluru (The University of Akron, US)

BALLROOM A

Special Session: *Digital Radiography*
Chair: Dimitris Iakovidis (University of Athens, GR)

10:45 - *Digital Mammography texture analysis by computer assisted image processing*
Maria Lyra (University of Athens, GR)
Stavroula Lyra (Red Cross Hospital, Athens, GR)
Basil Kostakis (University of Athens, GR)
Spyros Drosos (University of Athens, GR)
Constantine Georgosopoulos (Diagnostic Imaging Center, GR)
Katerina Skouroliakou (Technical Institute of Athens, GR)

11:15 - *Mammographic Imaging Performance: Histogram Quantitative Metrics Using Monte Carlo Generated Images*
Harry Delis (University of Patras, GR)
Eleni Costaridou (University of Patras, GR)
George Panayiotakis (University of Patras, GR)
George Spyrou (Academy of Athens, GR)

Special Session: Imaging Systems and Techniques
Chair: Dr. John Stoitsis (National Technical University of Athens, GR)
Co-Chair: Eleni Kostaridou (University of Patras, GR)

11:30 - *Automatic Segmentation of the Lung Fields in Portable Chest Radiographs based on Bazier Interpolation of Salient Control Points*
Dimitris Iakovidis (University of Athens, GR)
George Papamichalis (Chest Hospital of Athens "Sotiria", GR)

11:45 - *Microwave imaging of foreign bodies inside wood trunks*
Andrea Salvade (University of Applied Sciences of Southern Switzerland, CH)
Matteo Pastorino (University of Genoa, IT)
Ricardo Monleone (University of Applied Sciences of Southern Switzerland, CH)
Andrea Randazzo (University of Genoa, IT)
Thomas Bartesaghi (University of Applied Sciences of Southern Switzerland, CH)
Giovanni Bozza (University of Genoa, IT)
Samuel Poretti (University of Applied Sciences of Southern Switzerland, CH)

12:00 - *First Prototype of a Near Infrared Tomograph for Mapping the Myocardial Oxygenation in Small Animal Isolated Hearts*
Valentina Hartwig (University of Pisa, IT)
Giulio Giovannetti (Institute of Clinical Physiology, CNR, Pisa, IT)
Claudia Kusmic (CNR, IT)
Carlo Quartieri (University of Pisa, IT)
Nicola Vanello (Uniersity of Pisa, IT)
Ilario Puglia (University of Pisa, IT)
Luigi Landini (University of Pisa, IT)
Antonio L'Abbate (Scuola Superiore S. Anna, IT)

BALLROOM B

Special Session: *"Nuclear Medicine Techniques"*
Chair: Angelos Amanatiadis (Democritus University of Thrace, GR)
Co-Chair: George Panayiotakis (National Technical University of Athens, GR)

11:00 - *Simulation Study for Optimizing the Injected Dose of Clinical PET systems*
Nicolas Karakatsanis (National Technical University of Athens, GR)
Anastasios Parasyris (National Technical University of Athens, GR)
Konstantina Nikita (National Technical University of Athens, GR)
George Loudos (Technological Educational Institute of Athens, GR)

11:15 - *Myocardial Perfusion SPECT Imaging De-noising: A Phantom Study*
Panayiotis Korfiatis (University of Patras, GR)
Anthi Karatrantou (University of Patras, GR)
Spyros Skiadopoulos (University of Patras, GR)
Nikolaos Arikidis (University of Patras, GR)
Eleni Costaridou (University of Patras, GR)
George Panayiotakis (University of Patras, GR)
Dimitrios Apostolopoulos (University of Patras, GR)
Pavlos Vasilakos (Univerity of Patras, GR)

11:30 - *Rapid whole body screening and imaging via Diffusion Weighted Imaging with Body Signal suppression, parameter optimization and quality assessment.*
Anastasios Karatopis (University of Patras, GR)
Stavros Anastasopoulos (Vioiatriki, GR)
Sotirios Drakopoulos (Vioiatriki, GR)
Marrouso Douskou (Vioiatriki, GR)
George Panayiotakis (University of Patras, GR)
Ioannis Kandarakis (Technological Educational Institute of Athens, GR)

11:45 - *Performance Evaluation Techniques for Image Scaling Algorithms*
Angelos Amanatiadis (Democritus University of Thrace, GR)
Ioannis Andreadis (Democritus University of Thrace, GR)

12:15 - Lunch Break

BALLROOM A

2:00 - Keynote Speaker
Electrical capacitance tomography and its industrial applications
Prof. Wuqiang Yang (The University of Manchester, UK)

Special Session: Optical Imaging Systems and Techniques
Chair: Prof. Cesare Svelto (Politechnico di Milano, IT)

2:30 - *Optical Barrier and 4-Quadrant Imaging for Contact-Less Detection of Geometrical Dimension of a Steam Turbine*
Alessandro Pesatori (Politecnico di Milano, IT)
Michele Norgia (Politecnico di Milano, IT)
Cesare Svelto (Politecnico di Milano, IT)
Enrico Pignone (Ansaldo Energia SpA, IT)

2:45 - *Distance Errors Correction for the Time of Flight (ToF) Cameras*
Dragos Falie (Universitatea Politehnica Bucuresti, RO)
Vasile Buzuloiu (Universitatea Politehnica Bucuresti, RO)

3:00 - The Design of 2K—2K High Performance CCD Camera for Astronomical Imaging
Yuanyuan Shang (Capital Normal University, CN)
Yong Guan (Capital Normal University, CN)
Sen Ma (Capital Normal University, CN)
Yu Song (Capital Normal University, CN)

3:15 - *Dynamic Range Enhancement Algorithms for CMOS Sensors With Non-Destructive Readout*
Anton Kachatkou (University of Manchester, UK)
Roelof van Silfhout (University of Manchester, UK)

3:30 - Coffee Break

BALLROOM B

2:00 - Keynote Speaker
Novel Optical Imaging Technologies for in vivo Diagnosis and Screening
Prof. Costas Balas (Technical University of Crete, GR)

Special Session: Medical Imaging Devices and Techniques
Chair: Prof. Costas Balas (Technical University of Crete, GR)

2:30 - *Simulating dynamic B-mode ultrasound image data of the common carotid artery*
John Stoitsis (National Technical University of Athens, GR)
Spyretta Golemati (National Technical University of Athens, GR)
Vassiliki Koropouli (National Technical University of Athens, GR)
Konstantina Nikita (National Technical University of Athens, GR)

2:45 - *Effect of detector blurring on spatial resolution in magnification mammography: A Monte Carlo study*
Matthaios Koutalonis (University of Patras, GR)
Harry Delis (University of Patras, GR)
Eleni Costaridou (University of Patras, GR)
George Panayiotakis (University of Patras, GR)
George Spyrou (Academy of Athens, GR)

3:00 - *High-Precision Representation of High-speed Scene Dynamics with a Neuromorphic Imaging System*
Ahmed Nabil Belbachir (Austrian Research Centers GmbH - ARC, AT)
Michael Hofstätter (Austrian Research Centers GmbH - ARC, AT)
Richard Bjetak (Austrian Research Centers GmbH - ARC, AT)
Peter Schoen (Austrian Research Centers GmbH - ARC, AT)

3:15 - *A contactless multi-frequency brain radiometric imaging and hyperthermia treatment apparatus: the use of dielectric matching materials in phantom experiments*
Ioannis Gouzouasis (National Technical University of Athens, GR)
Konstantinos Karathanasis (National Technical University of Athens, GR)
Irene Karanasiou (National Technical University of Athens, GR)
Nikolaos Uzunoglu (National Technical University Athens, GR)

3:30 - Coffee Break

BALLROOM A

4:00 - Special Session: Image Analysis and Measurements
Chair: Prof. Wuqiang Yang (The University of Manchester, UK)

4:00 - A *single rod multi-modality multi-interface level sensor using an AC current source*
Abdulgader Hwili (The University of Manchester, UK)
Wuqiang Yang (The University of Manchester, UK)

4:15 - *Temperature Distribution Measurement and Control of Extrusion Process by Tomography*
Yanjuan Yang (South China University of Technology, CN)
Wuqiang Yang (The University of Manchester, UK)
Hanru Zhong (South China University of Technology, CN)

4:30 - *A Compact Electrical Capacitance Tomography System*
Jimmy Kjaersgaard-Rasmussen (Technical University of Denmark, DK)
Wuqiang Yang (The University of Manchester, UK)

4:45 - *An impedance-analyser-based multi-channel imaging system and its applications*
Xiao Hui Hu (University of Manchester, UK)
Min Yang (University of Manchester, UK)
Yi Li (University of Manchester, UK)
Wuqiang Yang (The University of Manchester, UK)
Maria Manrique de Lara (Schlumberger Cambridge Research, UK)

5:00 - Visual Organization of Hip Joint Osteoarthritis Data in Low-Dimensional Biplots
Christos Theoharatos (University of Patras, GR)
Spiros Fotopoulos (University of Patras, GR)
Elias Panagiotopoulos (University of Patras, GR)
Ioannis Boniatis (University of Patras, GR)
George Panayiotakis (University of Patras, GR)

BALLROOM B

Special Session: Image Analysis, Processing and Devices
Chair: Michele Ceccarelli (University of Sannio, Italy)

4:00 – A Texture Based Approach for Ocean Surface Wind Detection in SAR Images
Michele Ceccarelli (University of Sannio, IT)
Monia De Filippo (Univesity of Sannio, IT)
Maurizio di Bisceglie (University of Sannio, IT)
Carmela Galdi (University of Sannio, IT)

4:15 - Proof of Concept for the Extensibility Attribute of an ISAR Simulator for Studies in Target Glint
Theodoros Kostis (University of the Aegean, GR)

4:30 - Preprocessing Of Images Obtained From High Temperature Vision System
Anna Fabijaska (Technical University of Lodz, PL)
Dominik Sankowski (Technical University of Lodz, PL)

4:45 - Anomaly Size Estimation by Neural Networks Based on Electrical Impedance Tomography Boundary Measurements
Saeed Rezajoo (University of Tehran, IR)
Gholam Ali Hossein-Zadeh (University of Tehran, IR)

5:00 - Research on a Method to Extend Dynamic Range of CMOS APS
Yuanyuan Shang (Capital Normal University, CN)
Weigong Zhang (Capital Normal University, CN)
Yong Guan (Capital Normal University, CN)
Xiaohui Tan (Capital Normal University, CN)

5:15 - Molecular Imaging of the myoskeletal system through Diffusion Weighted and Diffusion Tensor Imaging with Parallel Imaging Techniques
A. Karatopis (Vioiatriki Diagnostic Center, GR)
S. Anastasopoulos (Vioiatriki Diagnostic Center, GR)
S. Drakopoulos (Vioiatriki Diagnostic Center, GR)
M. Douskou (Vioiatriki Diagnostic Center, GR)
George Panagiotakis (University of Patras, GR)
I. Kandarakis (Technological Educational Institution of Athens, GR)

5:30-6.30 Round Table: IEEE Industry-Academia Forum (BALLROOM A)
Coordinators: George C. Giakos, George Zentai

7:30 - Dinner

POSTER PRESENTATION
Chairs: Irene Karanassiou, George Panayiotakis (University of Patras, GR), Eleni Kostaridou (University of Patras, GR)

A Linear Sampling Approach to Crack Detection in Microwave Imaging
Giovanni Bozza (University of Genoa, IT)
Massimo Brignone (University of Verona, IT)
Matteo Pastorino (University of Genoa, IT)
Michele Piana (University of Verona, IT)
Andrea Randazzo (University of Genoa, IT)

Enhanced Nonlinear Inverse Scattering through Linear Super-Resolution Techniques

Giovanni Bozza (University of Genoa, IT)
Claudio Estatico (University of Cagliari, IT)
James Nagy (Emory University, US)
Matteo Pastorino (University of Genoa, IT)
Andrea Randazzo (University of Genoa, IT)

Evaluation Method and Result of 4K—4K CCD Sensor for LAMOST Project

Yuanyuan Shang (Capital Normal University, CN)
Yong Guan (Capital Normal University, CN)
Weigong Zhang (Capital Normal University, CN)
Qingping Ge (Capital Normal University, CN)

Computer aided insights on obscure cases of breast cancer diagnosis

Ioannis Andreadis (National Technical University of Athens, GR)

Computer aided insights on obscure cases of breast cancer diagnosis

Ioannis Andreadis (National Technical University of Athens, GR)
Konstantina Nikita (National Technical University of Athens, GR)
G. Giannakopoulou (Hippocration Hospital, GR)
D. Koulocheri (Hippocration Hospital, GR)
G. Zografos (Hippocration Hospital, GR)
A. Antaraki (Informatics Laboratory-Biomedical Research Foundation, Academy of Athens, GR)
P. Ligomenides (Informatics Laboratory-Biomedical Research Foundation, Academy of Athens, GR)
G. Spyrou (Informatics Laboratory-Biomedical Research Foundation, Academy of Athens, GR)

Development of an integrated breast tissue density classification software system

Sevastianos Chatzistergos (National Technical University of Athens, GR)
John Stoitsis (National Technical University of Athens, GR)
Konstantina Nikita (National Technical University of Athens, GR)
A. Papaevangelou (Thriasio Hospital, GR)

Improving Image Reconstruction in Electrical Impedance Tomography by Modifying the Forward Solution

Saeed Rezajoo (University of Tehran, IR)
Gholam Ali Hossein-Zadeh (University of Tehran, IR)

A Novel SVD Based Algorithm for Pose Estimation

Veronika Putz (University of Linz, AT)
B. G. Zagar (University of Linz, AT)

Motion Analysis of Hand Writing Characters

Tetsuya Sano (System Enterprise Co.,Ltd, JP)
Hiroyuki Ukida (The University of Tokushima, JP)
Hideki Yamamoto (Okayama University, JP)

A Distributed Image Processing Support System

Naoufel Khayati (LI3, TN)
W. Lejouad-Chaari (LI3, TN)
S. Sevestre-Ghalila (Université Paris 5, MAP5, FR)

Measurement of Wheelchair Size for Analyzing Transfer Motion for SCI Patients
Yoshio Tanimoto (Kibikogen Rehabilitation Center, JP)
Kuniharu Nanba (Kibikogen Rehabilitation Center, JP)
Akihiro Tokuhiro (Kibikogen Rehabilitation Center, JP)
Hideki Yamamoto (Okayama University, JP)
Hiroyuki Ukida (The University of Tokushima, JP)

3D Shape, Color and Specular Estimation Using Image Scanner with Multiple Illuminations
Hiroyuki Ukida (The University of Tokushima, JP)
Yoshio Tanimoto (Kibikogen Rehabilitation Center, JP)
Tetsuya Sano (System Enterprise Co.,Ltd, JP)
Hideki Yamamoto (Okayama University, JP)

Optimization of two systems, suitable for high resolution SPECT using parallel hole and pinhole collimators
George Loudos

Imaging Techniques for Skull Radiography using CT images
Toshinori Maruyama (Okayama University, JP)
Hideki Yamamoto (Okayama University, JP)

September 12, 2008

BALLROOM B

Special Sessions of IST 2008 on MRS Methodologies
Organized by Prof. Dimitrios A. Karras (Chalkis Institute of Technology, GR), Danielle Graveron-Demilly (Université de Lyon, FR), Dirk Van Ormondt (Delft University of Technology, NL)

INVITED TALKS on MRS Methodologies
Chair: Prof. Dimitrios A. Karras (Chalkis Institute of Technology, GR)

8:00 - *Reliability Testing of in vivo 1H-MRS-signals and Elimination of Signal Artifacts by Median Filtering*
Johannes Slotboom (University Hospital and Inselspital, CH)
Dirk van Ormondt (Delft University of Technology, NT)

8:30 - *MRS in Clinical Practice. Application to Brain Tumour MRS*
Margarida Julià-Sapé (Ciber-Bbn, ES)
Carles Arús (Universitat Autònoma de Barcelona, ES)

9:00 – 10:05
Special Session 1: Recent Advances on MRS Acquisition Techniques
Chair: Danielle Graveron-Demilly (Université de Lyon, FR)

9:00 - *In vivo animal NMR studies using implantable micro-coil*
Aziz Kadjo (Université Lyon 1, FR)
N. Baxan (Université Lyon 1, FR)
André Briguet (Université Lyon 1, FR)
Danielle Graveron-Demilly (Université Lyon 1, FR)
Latifa Fakri-Bouchet (Creatis-LRMN, FR)
Raymond Cespuglio (Université Lyon 1, FR)
Colette Rousset (Université Lyon 1, FR)

9:13 *Assessment and optimization of TEA-PRESS sequences in 1H MRS and MRSI of the breast*
Anastasios Karatopis (University of Patras, GR)
Stavros Anastasopoulos (Vioiatriki, GR)
Sotirios Drakopoulos (Vioiatriki, GR)
Marrouso Douskou (Vioiatriki, GR)
Ioannis Kandarakis (Technological Educational Institute (TEI) of Athens, GR)
George Panayiotakis (University of Patras, GR)

9:26 - *Simulation of steady state free precession acquisition mode in coupled spin systems for fast MR spectroscopic imaging*
Zenon Starcuk (Institute of Scientific Instruments ASCR, CZ)
Oliver Strbak (Institute of Scientific Instruments ASCR, CZ)
Jana Starcukova (Institute of Scientific Instruments ASCR, CZ)
Danielle Graveron-Demilly (Université de Lyon, FR)

9:39 - *Ab initio calculations of NMR spin-Hamiltonian parameters for the polyamines of prostate tissue*
Z. Atieh (Université Lyon 1, FR)
A. R. Allouche (Université Lyon 1, FR)
M. Frécon (Université Lyon 1, FR)
Danielle Graveron-Demilly (Université Lyon 1, FR)
F. Fauvelle (CRSSA/BCM, FR)

9:52 - *Comparison of two approaches to model the macromolecule spectrum for the quantification of short TE 1H MRS spectra*
Cristina Cudalbu (Ecole Polytechnique Federale de Lausanne, CH)
Vladimir Mlynarik (Ecole Polytechnique Federale de Lausanne, CH)
Lijing Xin (Ecole Polytechnique Federale de Lausanne, CH)
Rolf Gruetter (Ecole Polytechnique Federale de Lausanne, CH)

10:05 - Coffee Break

10:25 - 11:20
Special Session 2: Advanced Signal Processing for MRS
Chairs: Jean-Pierre Antoine (Université catholique de Louvain, BE) & Prof. Dimitrios A. Karras (Chalkis Institute of Technology, GR)

10:25 - *Lineshape Estimation in In Vivo MRS without using a Reference Signal*
Emil Popa (Creatis-LRMN, FR)
Danielle Graveron-Demilly (Université Lyon 1, FR)
Enrico Capobianco (CRS4 Bioinformatics Laboratory, IT)
Ronald de Beer (Delft University of Technology, NL)
Dirk van Ormondt (Delft University of Technology, NL)

10:38 - *Morlet Wavelet Analysis of Magnetic Resonance Spectroscopic Signals with Macromolecular Contamination*
Aimamorn Suvichakorn (Universita catholique de Louvain, BE)
Hélène Ratiney (Université Lyon 1, FR)
Adriana Bucur (Université Lyon 1, FR)
Sophie Cavassila (Université Lyon 1, FR)
Jean-Pierre Antoine (Université catholique de Louvain, BE)

10:51 - *Improvement of lineshape estimation for MRS signals*
Maria Osorio Garcia (Katholieke Universiteit Leuven, BE)
Diana Sima (Katholieke Universiteit Leuven, BE)
Jean-Baptiste Poullet (Katholieke Universiteit Leuven, BE)
S. Van Huffel (Katholieke Universiteit Leuven, BE)
Dirk van Ormondt (Delft University of Technology, NL)

11:04 - *A New Modification of Singular Value Decomposition using Independent Component Analysis with Applications to MRS Imaging Quantification*
Vasileios Stamatopoulos (Biomedical Research Foundation of the Academy of Athens, GR)
A. Moise (Chalkis Institute of Technology, GR)
Dimitrios Karras (Chalkis Institute of Technology, GR)

11:20 – 12:30
Special Session 3: MRS & MRI Systems
Chair: Ioannis Boniatis (University of Patras, GR)

11:20 - *A Computer-Based System for the Discrimination Between Normal and Degenerated Menisci From Magnetic Resonance Image*
Ioannis Boniatis (University of Patras, GR)
George Panayiotakis (University of Patras, GR)
Elias Panagiotopoulos (University of Patras, GR)

11:33 - *An automated supervised method for the diagnosis of Alzheimer's disease based on fMRI data using weighted voting schemes*
Evanthia Tripoliti (University of Ioannina and Biomedical Research Institute-FORTH, GR)
Dimitrios Fotiadis (University of Ioannina, GR)
Maria Argyropoulou (University of Ioannina, GR)

11:46 - *jMRUI Version 4 : A Plug-in Platform*
D. Stefan (Alter Systems, FR)
A. Andrasecu (Alter Systems, FR)
E. Popa (Université Lyon 1, FR)
H. Rabeson (Université Lyon 1, FR)
O. Strbak (Institute of Scientific Instruments of the ASCR, CZ)
Z. Starcuk (Institute of Scientific Instruments of the ASCR, CZ)
M. Cabanas (Universitat Aut`onoma de Barcelona, ES)
D. van Ormondt (Delft University of Technology, NL)
Danielle Graveron-Demilly (Université Lyon 1, FR)

11:59 - *Robust Speech Recognition in the presence of noise using medical data*
Theo Athanaselis (ILSP, GR)
Stelios Bakamidis (ILSP, GR)
Giorgos Giannopoulos (ILSP, GR)
Ioannis Dologlou (ILSP, GR)
Evita Fotinea (ILSP, GR)

12:12 - *Texture Analysis of Spinal Cord Signal in Pre- and Post-Operative T2-Weighted Magnetic Resonance Images of Patients With Cervical Spondylotic Myelopathy*
Ioannis Boniatis (University of Patras, GR)
George Panayiotakis (University of Patras, GR)
George Klironomos (University of Patras, GR)
George Gatzounis (University of Patras, GR)