

**WEDNESDAY, 8 JULY, 2009**
**13:15 - 13:30: WELCOME**
**13:30 - 14:30: PLENARY LECTURE**
**"Optimization Problems and Mathematical Optimization Methods"**  
**by Prof. A. Kanarachos, Frederick University, Cyprus**
**PARALLEL SESSIONS**
**WEDNESDAY 14:30 -15:50**

Wednesday, July 8<sup>th</sup> 14:30-15:50 **Room : NAOUSSA**

**AIR, SEA & HUMAN TRANSPORT MODELLING**

*Chairmen: Panayotov A., Georgas N.*

- 14:30-14:50** "Optimizing and Streamlining the Process of Airport Analysis".  
*Panayotov A.*
- 14:50-15:10** "On the Congestion of Bosporous Straits".  
*Kontinakis N.*
- 15:10-15:30** "Marine Forecasting for the New York Urban Waters and Harbor Approaches: The Design and Automation of NYHOPS".  
*Georgas N., Blumberg A., Bruno M., Runnels D.*
- 15:30-15:50** "Advanced Techniques for Understanding and Modelling Travel Behaviour in Greece"  
*Politis I., Basbas S.*

Wednesday, July 8<sup>th</sup> 14:30-15:50 **Room : EDESSA**

**SIMULATION OF BIOLOGICAL FLOWS & DIAGNOSIS**

*Chairmen: Tabirca S., Sotiropoulos F.*

- 14:30-14:50** "Three Dimensional Transient Blood Flow Through a Stenosis: Transient Simulations"  
*Hussain I., Langdom C.R.*
- 14:50-15:10** "Numerical Simulation of Fluid-Structure Interaction in 3-D Engineering and Biological Flows"  
*Borazjani I., Behara S., Sotiropoulos F.*
- 15:10-15:30** "Tumor Growth Prediction Using the Gopertz Model"  
*Paltanea M., Tabirca S., Chen Y.-J., Tangney M.*
- 15:30-15:50** "3D Cell Visualisation"  
*Gao X.-F., Tabirca S., Tangney M.*

Wednesday, July 8<sup>th</sup> 14:30-15:50 **Room : KOZANI**

**ENGINEERING APPLICATIONS SESSIONS**

*Chairmen: Wang J., El-Katatny I.*

- 14:30-14:50** "Integrated Analysis System of Afterburning in 2Xst 18 Cogeneration Power Plant"  
*Barbu E., Zavodnic F., Ionescu S., Vilag V.*
- 14:50-15:10** "Optimization of Desulfurization Process for Fluidized Bed Combustors"  
*Wang J., Anthony E.*
- 15:10-15:30** "PIGASOS – A New Computer Package for Simulation and Optimization of Gas Sweetening Plants that Use Aqueous Amine Solutions"  
*Lattas S.*
- 15:30-15:50** "Evaluation of the Effect of Furnace Configuration in Top Submergence Gas Injection Systems Using an Air-Water Model"  
*El-Katatny I., Yang W., Morsi Y.*

**PARALLEL SESSIONS****WEDNESDAY 16:20 -17:40**

Wednesday, July 8<sup>th</sup> 16:20-17:40 **Room : NAOUSSA**

**MODELLING OF BUILDING BEHAVIOUR**

*Chairmen: Al-Waked R., Chen T.*

- 16:20-16:40** “Hybrid Cooling of a Hospital Ward-CFD Analysis”  
*Al-Waked R.*
- 16:40-17:00** “Experimental Verification of Control of Asymmetric Building Vibrations by Tuned Liquid Column Gas Dampers”  
*Khalid B., Ziegler F.*
- 17:00-17:20** “Numerical Investigation of the Natural Ventilation of a Building”  
*Nikolopoulos N., Nikolopoulos A., Nikas K.-S.*
- 17:20-17:40** “Validation of Daylight Simulation Tools, Radiance, Adeline and DOE2”  
*Cheng T., Chen T.*

Wednesday, July 8<sup>th</sup> 16:20-17:40 **Room : EDESSA**

**HUMAN STRUCTURE FEM MODELLING.**

*Chairmen: O'Driscoll C., Stanley W.*

- 16:20-16:40** “A Finite Element Analysis of a Total HIP Arthroplasty Using Modular HIP Implants with Respect to Material Properties”  
*Theodorou E., Megas P., Provatidis C.*
- 16:40-17:00** “Re-Analysis of the Shearing Stresses in the Cement Mantle in a Model of an Implanted Exeter™ Prostheses (a) on the Transverse Component of the HIP Reaction and (b) With and Without a Collar”  
*O'Driscoll C., Stanley W., Colgan D., McTague D., Little E.*
- 17:00-17:20** “A Preliminary Three Dimensional Investigation of the Radiocarpal Joint Using the Finite Element Method”  
*Xypnitos F., Papachristou G., Grigoris P., Chronopoulos E., Kaselouris E., Venetsanos D.T., Provatidis D., Kollialou E., Efsthopoulos N.*
- 17:20-17:40** “Finite Element Modelling of Yarn Balloon in the Ring Spinning”  
*Mardani Mehrabad N., Safar Johari M., Aghdam M., Mardani Mehrabad A.*

Wednesday, July 8<sup>th</sup> 16:20-17:40 **Room : KOZANI**

**MODELLING OF CASTING PROCESSES.**

*Chairmen: Abuluwefa H.T., Kim S.-Y.*

- 16:20-16:40** “Manufacture of Large Prototype Using Hollow Solid Model”  
*Song H.-B., Park B.-H., Park D.-K., Kim T.-H., Jeon E.-C.*
- 16:40-17:00** “A Study on the Master Model Application of Vacuum Casting Using Hollow Solid Model”  
*Kim T.-H., Kim S.-Y., Han M.-S., Park Y.-C., Jeon E.-C.*
- 17:00-17:20** “Design and Verification for Mold Support of Low Pressure Vacuum Injection”  
*Kim S.-Y., Ahn K.-W., Park H.-S., Kim H.-S., Ahn C.-W., Jeon E.-C.*
- 17:20-17:40** “Surface Decarburization of High Carbon Steel in Multi Component Gases”  
*Abuluwefa H.-T.*

<b>THURSDAY 9 JULY, 2009</b>
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**PARALLEL SESSIONS****THURSDAY 09:30 -10:50**

Thursday 9 July 09:30-10:50 **Room : NAOUSSA**  
**STRUCTURAL MODELLING OF VEHICLES AND FUEL TANKS**  
**Organized by : Kanarachos S.**

*Chairmen: Kanarachos S., Yildirim A.M.*

- 09:30-09:50** "The Influence of Residual Stresses on the Behaviour of Vehicle Structures During Manufacturing"  
*Papadakis L.*
- 09:50-10:10** "An Investigation Regarding Fatigue Life on Composite Fuel Tanks Subjected to Road Loads"  
*Kanarachos S., Demosthenous G., Pantelalis N.*
- 10:10-10:30** "Weight Minimization of Composite Fuel Tanks Produced with the Light RTM Method and Subjected to ADR loads"  
*Kanarachos S., Demosthenous G., Pantelalis N.*
- 10:30-10:50** "A Hybrid Electric Heavy Duty Truck for Cargo Hybrid"  
*Caliscan K., Y.Sanim Unlusoy, Koukseven I., Arikan K., Kilic V., Kockan I., Yildirim M.A.*

Thursday 9 July 8<sup>th</sup> 09:30-10:50 **Room : EDESSA**  
**MINI-SYMPOSIUM**  
**"MEDICAL IMAGING" – SESSION I**  
**Organized by Panayiotakis G. and Kandarakis I.**

*Chairmen: Valais I., Fountos G*

- 09:30-09:50** "Effective Doses in Standard and New Examinations in Radiology and Nuclear Medicine" *Invited speech*  
*Fountos G., Samartzis A.*
- 09:50-10:10** "Quantitative Assessment of PET/CT Spatial Resolution and Alignment Error Determination"  
*Syggelopoulos L., Karatopis A., Samartzis A., Fountos G., Kandarakis I., Panayiotakis G.*
- 10:10-10:30** "Luminescence Efficiency of Gd<sub>2</sub>O<sub>2</sub>S: Eu Powder Phosphors as X-Ray to Light Converter for use in Digital Mammography Detectors"  
*Michail C., Toutountzis A., Valais I., Seferis M., Georgousis M., Fountos G., Kandarakis I., Panayiotakis G.*
- 10:30-10:50** "Assessment of Image Quality in SPECT Systems via the Implementation of a Novel Flood Source Technique"  
*Fountos G., Zanglis A., Michail C., Kalatzis I., Cavouras D., Samartzis A., Kounadi E., Valsamaki P., Gerali S., Nikiforidis G, Kandarakis I.*

Thursday 9 July 8<sup>th</sup> 09:30-10:50 **Room : KOZANI**  
**FLUID MECHANICS – ENGINEERING APPLICATIONS**

*Chairmen: Mathioulakis D., Tsahalidis J.*

- 09:30-09:50** "A Vowel Production Study, Using Cylindrical Tubes: A Static and Dynamic Case"  
*Mouzakitis A., Toulaitos C., Mathioulakis D.*
- 09:50-10:10** "Dynamic Modelling of a Wet Sub Vehicle"  
*Cammarata A., La Rosa G., Leonardi R.*
- 10:10-10:30** "Towards a Helmholtz's Type Wave Resonance of Greek Harbours"  
*Stergiopoulos V., Stergiopoulou A., Stergiopoulos G.*
- 10:30-10:50** "Air Flow Characteristics in an Industrial Wood Pallet Drying Kiln"  
*Tzempelikos D., Filios A., Margaris D.*

**PARALLEL SESSIONS****THURSDAY 11:20 -12:40**Thursday 9 July 8<sup>th</sup> 11:20-12:40 **Room : NAOUSSA****NONLINEAR PROBLEMS***Chairmen: Filipovic M., Bratsos A.*

- 11:20-11:40** “Comparison of Advanced Collocation Methods for the Solution of Ordinary Differential Equations”  
*Provatidis C., Isidorou S.*
- 11:40-12:00** “Contribution to New Interpretation of the Euler-Bernoulli Equation”  
*Filipovic M.*
- 12:00-12:20** “A Numerical Scheme for the Modified Burger’s Equation”  
*Bratsos A., Petrakis L.*
- 12:20-12:40** “Higher Order Galerkin/Ritz Approximations in 1-D Eigenvalue Problems”  
*Provatidis C.*

Thursday 9 July 8<sup>th</sup> 11:20-12:40 **Room : EDESSA****MINI-SYMPOSIUM****“MEDICAL IMAGING” – SESSION II****Organized by Panayiotakis G. and Kandarakis I.***Chairmen: Loudos G., Liaparinos P.*

- 11:20-11:40** “Advanced MRI Compatible PET Detectors” – **Invited speech**  
*Loudos G.*
- 11:40-12:00** “Novel High Resolution T2 and T2\* Mapping Methods for Iron Deposition Determination”  
*Karatopis A., Anastasopoulos S., Drakopoulos S., Kandarakis I., Douskou M., Panayiotakis G.*
- 12:00-12:20** “MRI Spatial Resolution Limits: Assessment of Various Sequences and Parallel Imaging Methods”  
*Karatopis A., Anastasopoulos S., Drakopoulos S., Kandarakis I., Douskou M., Panayiotakis G.*
- 12:20-12:40** “Luminescence Efficiency of Fast Yttrium Aluminum Garnet Phosphor Screens for Use in Digital Breast Tomosynthesis Detectors”  
*David S., Michail C., Valais I., Seferis I., Varaboutis G., Gatsos S., Toutountzis A., Fountos G., Kandarakis I., Panayiotakis G.*

Thursday 9 July 8<sup>th</sup> 11:20-12:40 **Room : KOZANI****NUMERICAL & EXPERIMENTAL FLUID MECHANICS****Organized by Mathioulakis D.***Chairmen: Porumbel I., Labropulu F.*

- 11:20-11:40** “Numerical Simulation and Experimental Measurements in a Gas Turbine Exhaust Jet”  
*Porumbel I., Florean F., Ionescu S., Hritcu C., Sandu C.*
- 11:40-12:00** “Non-Newtonian Obligue Stagnation-Point Flow Towards a Stretching Surface”  
*Labropulu F., Pop J., Hussain I.*
- 12:00-12:20** “Aerodynamic Loading of a Box-Type Biplane Configuration”  
*Asproulis J., Lekas Th., Mathioulakis D.S.*
- 12:20-12:40** “Flow Velocity Measurements Inside a Self-Oscillating Collapsible Tube”  
*Kounadis D., Mathioulakis D.S.*

**PARALLEL SESSIONS****THURSDAY 14:30 -15:50**Thursday 9 July 8<sup>th</sup> 14:30-15:50 **Room : NAOUSSA****MECHANICS OF COMPOSITE STRUCTURES***Chairmen: Shevtsov S., Anifantis N.*

- 14:30-14:50** "Post-Impact Permanent Deformation of Circular Glare Fiber-Metal Laminates"  
*Tsamasphyros G., Bikakis G.*
- 14:50-15:10** "Weight Minimization of Circular Glare Fiber Metal Laminated Plates Subjected to Lateral Indentation"  
*Tsamasphyros G., Bikakis G.*
- 15:10-15:30** "Young's Modulus Prediction of CNT-Reinforced Composites Incorporating Interfacial Adhesion Conditions"  
*Georgantzinou S., Giannopoulou G., Anifantis N.*
- 15:30-15:50** "Transient Analysis of a Piezoelectric Shunt Damping for Composite Beam Vibration Suppression"  
*Shevtsov S., Bragin S., Snegina N., Samochenko I., Axenov V.*

Thursday 9 July 8<sup>th</sup> 14:30-15:50 **Room : EDESSA****MINI-SYMPOSIUM****"MEDICAL IMAGING" – SESSION III****Organized by Panayiotakis G. and Kandarakis I.***Chairmen: Tsantis S., Kalyvas N.*

- 14:30-14:50** "Monte Carlo Simulations in Medical Imaging" - **Invited speech**  
*Liaparinos P.*
- 14:50-15:10** "Detectors for Imaging in Radiation Therapy" – **Invited speech**  
*Valais I., Xydias P.*
- 15:10-15:30** "Implementation of a Software Phantom for the Assessment of Contrast Detail in Digital Radiography"  
*Liaskos M., Michail C., Kalyvas N., Toutontzis A., Fountos G., Cavouras D., Kandarakis I.*
- 15:30-15:50** "Accelerating the Design of Probabilistic Neural Networks for Computer Aided Diagnosis on Mammography, Employing Graphics Processing Units"  
*Sidiropoulos K., Cavouras D., Pagonis N., Dimitropoulos N., Stonham J.*

Thursday 9 July 8<sup>th</sup> 14:30-15:30 **Room : KOZANI****MECHANICS OF FLEXIBLE COMPONENTS***Chairmen: Lopez De Lacalle L., Kosse V.*

- 14:30-14:50** "Modelling of the Turning of Flexible Components"  
*Lopez de Lacalle L., Urbicain G., Campa F., Lamikiz A.*
- 14:50-15:10** "Mathematical and Experimental Modelling of New Torque Arms with Elastic Elements for Shaft-Mounted Drives"  
*Kosse V., Yarlagadda P.*
- 15:10-15:30** "Adaptive Mesh Generation Based on Coon's Interpolation for Solid FEM Modelling"  
*Dimitriou V.*

**PARALLEL SESSIONS****THURSDAY 16:20 -17:40**

Thursday 9 July 8<sup>th</sup> 16:20-17:40 **Room : NAOUSSA**  
**FLOW SIMULATION FOR INDUSTRIAL ENGINEERING OPTIMIZATION**  
**Organized by : Margaris D.**

*Chairmen: Margaris D., Tsalhis D.*

- 16:20-16:40** "Parametric Study Performance of a Centrifugal Pump based on Simple and Double ARC Blade Design Method"  
*Kyparisis S., Douvi E., Panagiotopoulos E., Margaris D., Filios A.*
- 16:20-17:00** "CFD Evaluation for Turbulent Natural Convection in Rectangular Enclosures"  
*Skyllakos A., Filios A., Margaris D., Vrachopoulos M.*
- 17:00-17:20** "Numerical and Experimental Studies on the Performance of a Two-Phase Centrifugal Separator"  
*Kefalas P., Margaris D.*
- 17:20-17:40** "Prediction the Slug-Churn Transition in Two and Three-Phase Flow Air-Lift Pump"  
*Mitkas K., Margaris D., Samaras V., Avgerinos N.*

Thursday 9 July 8<sup>th</sup> 16:20-17:20 **Room : EDESSA**  
**MINI-SYMPOSIUM**  
**"MEDICAL IMAGING" – SESSION IV**  
**Organized by Panayiotakis G. and Kandarakis I.**

*Chairmen: Kounadi E., Kalatzis I.*

- 16:20-16:40** "The Use of Modulation Transfer Function as an Overall Quality Control Parameter in PET/CT"  
*Samartzis A., Fountos G., Kalatzis I., Michail C., Zanglis A., Cavouras D., Datsiris I., Kounadi E., Vattis D., Kandarakis I, Nikiforidis G.*
- 16:20-17:00** "Image Quality in Digital Radiography. First Results of an Analytical Modeling Approach"  
*Spyropoulou V., Kalyvas N., Gaitanis A., Kandarakis I., Panayiotakis G.*
- 17:00-17:20** "Improving the Classification Accuracy of Computer Aided Diagnosis Through Multimodality Breast Imaging"  
*Pagonis N., Cavouras D., Sidiropoulos K., Sakelaropoulos G., Nikiforidis G.*

Thursday 9 July 8<sup>th</sup> 16:20-17:40 **Room : KOZANI**  
**ENGINEERING APPLICATIONS – SESSION II**

*Chairmen: Kosse V., Rigatos G.*

- 16:20-16:40** "MPI Extensions – An Overview"  
*Margaris A., Souravlas S., Roumeliotis M.*
- 16:20-17:00** "Mathematical and Computer Modelling of Engine Piston Heat Flow Using Finite Element Analysis"  
*Meng C.-C., Kosse V., Yarlagadda P.*
- 17:00-17:20** "Robust Power System Stabilization Using Kharitonov's Exremal Gain Margin Theorem"  
*Rigatos G.*
- 17:20-17:40** "Influence of the Electric Field Inhomogeneity, the Voltage Polarity and the Electrode Grounding on the Dielectric Behavior of Small Air Gaps"  
*Maglaras A., Maglaras L., Giannakopoulou K.*



**PARALLEL SESSIONS****FRIDAY 11:20 -12:40**Friday 10 July 11:20-12:40 **Room : NAOUSSA****ENGINEERING APPLICATION SESSION II***Chairmen: Georgiev I., Gholipoori A.*

- 11:20-11:40** "Policy Based Extraction and Insertion for Document Streams in Concurrent and Computer-Aided Engineering"  
*Georgiev I., Georgiev K.I., Beltcheva O.*
- 11:40-12:00** "A Computer Model for Simulating Sunflower Growth and Yield"  
*Gholipoori A., Sedghi M., Sharifi S.R., Heydari A.*
- 12:00-12:20** "A Study of Vibrations of a Crankshaft Having a Crack"  
*Boiangiu M., Alecu A.*
- 12:20-12:40** "Some issues on Mechanical Antigravity Mechanisms Using Two Contra-Rotating Masses:  
*Provatidis C.*

Friday 10 July 11:20-12:40 **Room : EDESSA****SPACE FLIGHT MECHANICS***Chairmen: Rugescu R. Tsahalis D..*

- 11:20-11:40** "Wave Propagation in a Pulse Detonation Engine with Application in Airborn Propulsion"  
*Cirligeanu R., Rugescu R.*
- 11:40-12:00** "Stability Constraints Reduction during the Ascent Flight of the Orbital Launcher"  
*Ionescu F., Gurau-Tudoran M. Constantinescu C.E., Rugescu R.*
- 12:00-12:20** "Aerodynamic of a Small Orbital Launcher Regarding Flight Stability and Control"  
*Rugescu R., Bogoi A., Dumitrache C., Lorincz I.*
- 12:20-12:40** "Hybrid Rocket Engine Novel Technology for the Orbital Launcher NERVA"  
*Predoi S., Coman C., Bogoi A., Rugescu R.*

Friday 10 July 11:20-12:20 **Room : KOZANI****SURFACE AND UNDERGROUND WATER FLOWS: ENGINEERING APPLICATIONS***Chairmen: Belbas S.A., Stergiopoulos V.*

- 11:20-11:40** "Models with Memory and Hysteresis in Groundwater Modelling and Remediation"  
*Belbas S.A.*
- 11:40-12:00** "Looking for the "Carrying Capacity" of the Greek Urban Rivers"  
*Stergiopoulos V., Stergiopoulou A., Stergiopoulos G.*
- 12:00-12:20** "Modelling the Evolution and Fate of an Oil Slick with A3-D Simulation Model"  
*Zafirakou-Koulouris A., Koutitas C., Sofianos S., Mantziafou A., Tzali M., Dermisis V., Dermisi S.*