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# 3<sup>rd</sup> Conference of the Hellenic Society of Biomechanics

## Detailed Program



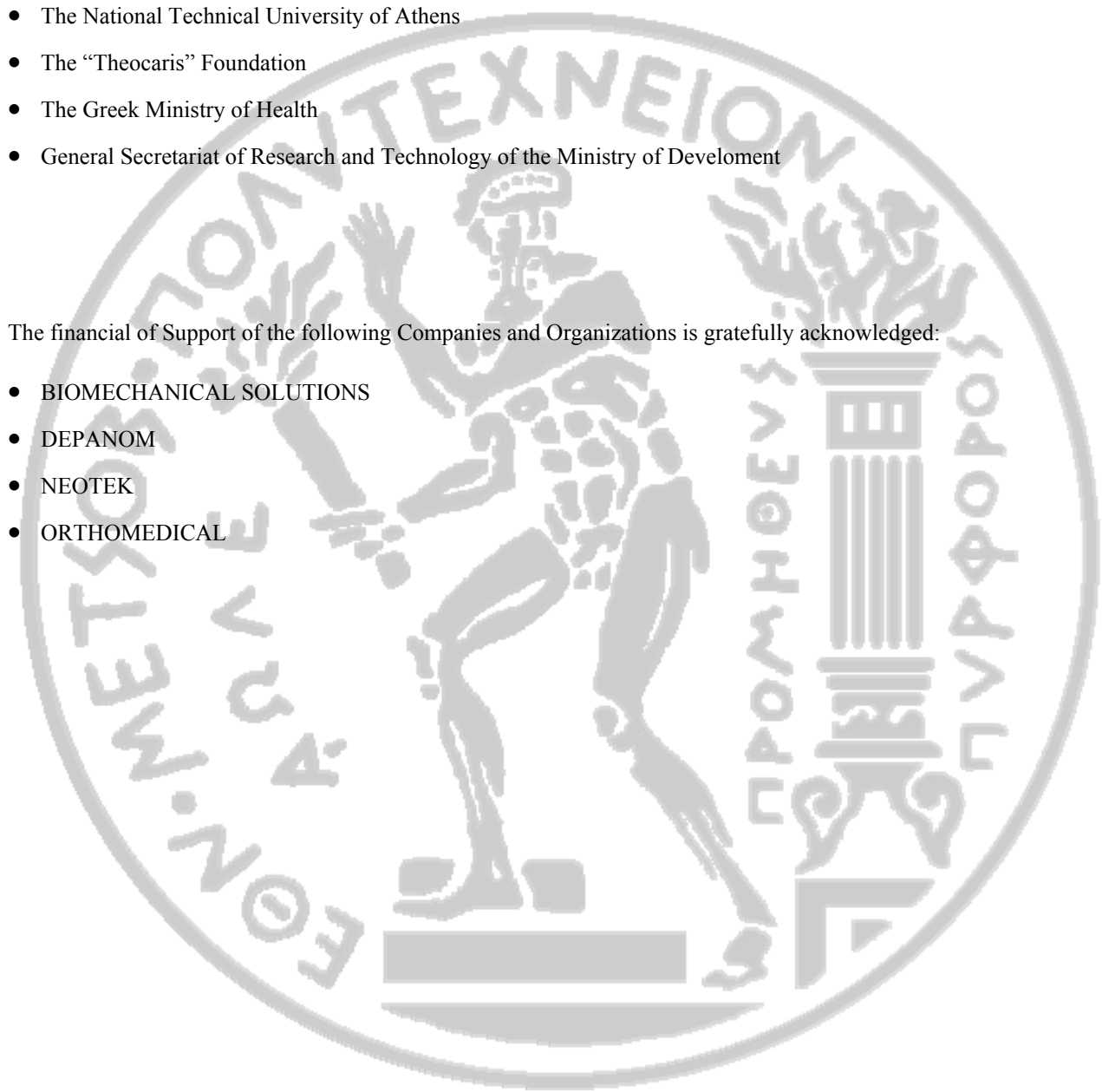
Athens, 26, 27 & 28 September 2008  
Zografou Campus of the National Technical  
University of Athens

**The 3<sup>rd</sup> Conference of the Hellenic Society of Biomechanics was under the aegis of:**

- The National Technical University of Athens
- The “Theocaris” Foundation
- The Greek Ministry of Health
- General Secretariat of Research and Technology of the Ministry of Development

The financial of Support of the following Companies and Organizations is gratefully acknowledged:

- BIOMECHANICAL SOLUTIONS
- DEPANOM
- NEOTEK
- ORTHOMEDICAL



Friday 26 September 2008**Conference Hall of the National Technical University of Athens**

- 11.00 – 14.00: **Registration**
- 11.30 – 14.00: **SEMINAR ON BIOMECHANICS**  
**Chair: Kourkoulis S. K., Rousanoglou E.**  
 11.30 – 12.00 Baltzopoulos Vassilis, The Manchester Metropolitan University  
 12.00 – 12.30 Sapkas Georgios, National & Kapodistrian University of Athens  
 12.30 - 13.00 Break  
 13.00 – 13.30 Magnissalis Evangelos, Bioengineering RTD, Athens  
 13.30 – 14.00 Makropoulou Mirsini, National Technical University of Athens
- 14.00: **Opening Ceremony**  
**Chair: Kourkoulis S. K., Baltzopoulos V.**  
 The Vice – Rector of the National Technical University of Athens  
 The Dean of the School of Applied Mathematical and Physical Sciences of NTUA  
 The Director of the Department of Mechanics of the National Technical University of Athens  
 The Secretary of the “Theocaris” Foundation  
 The President of the Organizing Committee
- Invited Lectures’ Sessions**
- Session I1**  
**Chair: Dafalias Y. F. , Missirlis Y. F.**
- 14.30-15.10: Colin Atkinson, Professor of Applied Mathematics, FRS, Department of Mathematics, Imperial College of Science, Technology and Medicine, London, UK  
*Applications of continuum mechanics to biomechanics*
- 15.10-15.50 Dr. Stephen Ferguson Ph.D, Division Head – Biomechanics, Medical Faculty, MEM Research Center, Institute for Surgical Technology and Biomechanics, University of Bern, Swiss  
*Spine Research: From Biomechanics to Mechanobiology*
- 15.50-16.30 Dr. Darren J. Stefanyshyn, Associate Professor, Faculty of Kinesiology Adjunct Assistant Professor, Department of Mechanical and Manufacturing Engineering, University of Calgary, Canada  
*Sports equipment and athletic performance*
- 16.30-17.00 Coffee Break**
- Session I2**  
**Chair: Atkinson C., Ferguson S.**
- 17.00-17.40 Ioannis Dafalias, Professor, National Technical University of Athens, School of Applied Mathematical & Physical Sciences, Continuum Mechanics & Constitutive Models  
*Cell Motility from the Perspective of Continuum Mechanics*
- 17.40-18.20 Yannis F. Missirlis, Professor and Director, Laboratory of Biomechanics and Biomedical Engineering Mechanical Engineering & Aeronautics Dept., University of Patras  
*Biomechanical aspects at the bio-nonbio interfaces*
- 18.20-19.00 Ioannis Botsis, Professor, EPF Lausanne, Swiss, Solid and Structural Mechanics Micromechanics of Fatigue & Fracture, Experimental Mechanics of Composite Materials, Biomechanics & Biomaterials  
*On the mechanical response of the periodontal ligament*
- 19.00 **CONCERT**
- 19.30 **WELCOME DINNER**

**Saturday 27 September 2008****ROOM A****Session A1: Sports Biomechanics****Chair: Boudolos K., Co-chair: Konstantinou L.**

<b>Time</b>	<b>Presentation Title</b>
09:30-10:00	<i>Lower Limb Dominance and Muscle Power Symmetry</i> E. Rousanoglou, E. Plessa, K. Boudolos
10:00-10:20	<i>3D Kinematic Analysis, Ground Reaction Force Analysis and EMG Muscle Activation Analysis During The Execution of The Cretan Traditional Sousta Dance Step</i> A. Aligizakis, P. Katonis, N. Darras, D. Pasparakis, M. Tziomaki
10:20-10:40	<i>Properties of Muscle and Tendon Interaction During Different Level of Isometric Contractions of Medial Gastrocnemius in Children.</i> A. Mpalidou, Th. Kannas, V. Kouvelioti, E. Kellis
10:40-11:00	<i>The Gait Force Impulses Exerted in Diabetic Foot in Comparison to Healthy One</i> V. D. Sanakidis, R. G. Kalogiannis, I. Gissis, E. Manolopoulos, C. Papadopoulos
11:00-11:20	<i>The Gait Pressure Loading Rates Exerted in Diabetic Foot in Comparison to Healthy One</i> V. D. Sanakidis, R. G. Kalogiannis, I. Gissis, E. Manolopoulos, C. Papadopoulos
11:20-12:00	<b>COFFEE BREAK &amp; POSTER SESSION</b>

**Session A2: Sports Biomechanics****Chair: Darras N., Co-chair: Tsitsilonis S. I.**

<b>Time</b>	<b>Presentation Title</b>
12:00-12:30	<i>Eccentric Exercise Affects Arms More Than Legs in Position Sense and Reaction Angle</i> V. Paschalis, M. G. Nikolaidis, G. Giakas, A. Z. Jamurtas, G. K. Sakellariou, A. A. Theodorou, Y. Koutedakis
12:30-12:50	<i>Step Width Symmetry During Rhythmic Medial-Lateral Gait</i> A. Tampaki, E. Rousanoglou
12:50-13:10	<i>The COP Trajectory Differences in Diabetic and Healthy Subjects</i> V. D. Sanakidis, R. G. Kalogiannis, I. Gissis, E. Manolopoulos, C. Papadopoulos
13:10-13:30	<i>Muscle Thickness and Fascicle Length of Vastus Lateralis During Ramp Isometric Contractions in Pre-Pubertal Children</i> E. Tziagalou, F. Arabatzi, E. Kellis, I. G. Amiridis
13:30-14:30	<b>LUNCH</b>

**Saturday 27 September 2008****ROOM A****Session A3: Ergonomics****Chair: Baltzopoulos V., Co-chair: Satraki M. I.**

<b>Time</b>	<b>Presentation Title</b>
14:30-15:00	<i>Task Accomplishment vs. Healthy Beating: A Systemic Unbalance</i> N. Marmaras, D. Nathanael
15:00-15:20	<i>Coupled Positions of the Wrist Under Maximal Load</i> A. K. Kanellopoulos, M. K. Gíslason
15:20-15:40	<i>Estimation of Fatigue and Musculoskeletal Disorders of Upper Limbs in Primary Production</i> K. Stavropoulos, G. Vlachos, G. Athanasiou
15:40-16:00	<i>Limits of Stability in Elderly Women Practicing Visually Guided Weight Shifting in Different Directions</i> V. Gougilidis, V. Hatzitaki, T. Nikodelis, I. G. Amiridis
16:00-16:20	<i>Effect of Gender on Dynamic Characteristics of Postural Stability in Childhood</i> M. Karampouka, A. Grezios, R. Kalogiannis, V. I. Kalapotharakos, G. Komsis, I. Gissis, G. Noussios, C. Papadopoulos

16:20-16:50 **COFFEE BREAK****Session A4: Technical Aspects****Chair: Marmaras N., Co-chair: Rousanoglou E.**

<b>Time</b>	<b>Presentation Title</b>
16:50-17:20	<i>Osteoarthritis and Mechanical Joint-Exposure in the Early Medieval Population From Straubing (Germany)</i> L. Konstantinou
17:20-17:40	<i>Respiratory Dysfunction in Chronic Neck Patients. A Pilot Study</i> E. Vourazanis, J. A. Oldham, N. Strimpakos, Z. Dimitriadis, L. Komianou, E. Kapreli
17:40-18:00	<i>Mechanical Characteristics of Concrete Mixtures With Rubber From Worn Automobile Tires Proposed for Usage as School-Yard Surfaces</i> A. Batsios, V. Panoutsakopoulos, S. Mavridou, I. Papayianni, I. Kollias
18:00-18:20	<i>Quantitative Ultrasound Assessments of the Calcaneus in Pre-Pubertal, Pubertal and Post-Pubertal Boys and Girls</i> M. Makrakis, E. Kellis, M. Emamouilidou, F. Arabatzi, C. I. Papadopoulos

**18:30-19:00 GENERAL ASSEMBLY OF THE HELLENIC SOCIETY OF BIOMECHANICS**

**Saturday 27 September 2008****ROOM B****Session B1: Musculoskeletal System****Chair: Provatidis C., Co-chair: Spyrou L. A.**

<b>Time</b>	<b>Presentation Title</b>
09:30-10:00	<i>The Effect of Androgenic Anabolic Steroids and Exercise on the Biomechanical Behavior of Achilles Tendon: Experimental Study</i> S. I. Tsitsilonis, D. N. Perrea, A. Zoubos, P. Chatzistergos, A. Mitousoudis, A. Pantopoulou, S. K. Kourkoulis
10:00-10:20	<i>Examination of the Critical Points of the Achilles Tendon During Strain</i> E. Gkogkosi, V. Baltzopoulos, P. Georgiopoulos, S. I. Tsitsilonis, D. Perea, K. Fasseas, S. K. Kourkoulis
10:20-10:40	<i>Electromechanical Delay of the Knee Flexor Muscles After Harvesting the Hamstrings for ACL Reconstruction</i> S. Ristanis, E. Tsepis, D. Giotis, K. Patras, N. Stergiou, A. D. Georgoulis
10:40-11:00	<i>Abdominal Compressions Do Not Improve Survival in a Swine Model of Cardiopulmonary Resuscitation</i> T. Xanthos, K. A. Ekmektzoglou, T. Demestiha, P. Skandalakis
11:00-11:20	<i>3D Analysis of ACL Reconstruction Kinematic Adaptations</i> C. Karavolias, N. Darras, M. Tziomaki, P. Koulouvaris, D. Pasparakis, P. Nikolaou, P. Soukakos

11:20-12:00 **COFFEE BREAK & POSTER SESSION****Session B2: Musculoskeletal System****Chair: Kourkoulis S. K., Co-chair: Ekmektzoglou K. A.**

<b>Time</b>	<b>Presentation Title</b>
12:00-12:30	<i>Constitutive Modeling and Computational Analysis of Muscle Tissue</i> L.A. Spyrou, N. Aravas
12:30-12:50	<i>Equine Pericardial Tissue Patch for the Restoration of Stomach Deficiencies. Biocompatibility and Mechanical Strength</i> K. Spiliopoulos, P. Tomos, A. Mitousoudis, P. Chatzistergos, A. Pantopoulou, K. Kontzoglou, M. Safioleas
12:50-13:10	<i>Biomechanical Modelling of Soft Tissues Using the Continuous and the Discontinuous Galerkin Method</i> M. I. Satraki, J. P. Whiteley
13:10-13:30	<i>Evaluation of the Biomechanical Role of ISL in the Spinal Unit</i> S. K. Kourkoulis, E. Gkogkosi

13:30-14:30 **LUNCH**

**Saturday 27 September 2008****ROOM B****Session B3: Cell Mechanics, Cell Motility and modelling****Chair: Dafalias Y. F., Co-chair: Botsis J.**

<b>Time</b>	<b>Presentation Title</b>
14:30-15:00	<i>Modeling Signaling Pathways in Cartilage Degeneration</i> L. G. Alexopoulos, T. Eftaxiopolou, C. Provatidis
15:00-15:20	<i>Stress Field in Actin Gel Growing on Spherical Substrates</i> Y. F. Dafalias, D. E. Panayotounakos, Z. Pitouras
15:20-15:40	<i>On the Reorientation of Plane Tensegrity Cytoskeletons Under Biaxial Substrate Stretching</i> A. Pirentis, K. Lazopoulos
15:40-16:00	<i>A Finite Strain Model for the Trabecular Bone Under Compression</i> V. Kefalas, D. A. Eftaxiopoulos

16:00-16:30 **COFFEE BREAK****Session B4: Musculoskeletal System****Chair: Lazopoulos K., Co-chair: Panoutsakopoulos B.**

<b>Time</b>	<b>Presentation Title</b>
16:30-17:00	<i>Morphology and Nanomechanical Properties of HMWPE Total Hip Joint Arthroplasty Prostheses Using Atomic Force Microscopy and Nanoindentation</i> N. Georgoulis, G. P. A. Michanetzis, Y. F. Missirlis
17:00-17:20	<i>The Menisci in the Tibio-Femoral Joint: A Finite Element Study Using a Kinematic Approach</i> S. D. Masouros, U. N. Hansen, A. A. Amis, A. M. J. Bull
17:20-17:40	<i>Preoperative Planning of a Total Hip Arthroplasty Using Modern CAD/CAE Tools</i> E. G. Theodorou, C. G. Provatidis
17:40-18:00	<i>Redistribution of Mechanical Knee Joint Loading While Performing Ramp and Stair Case Locomotion in the Elderly</i> K. Karamanidis, A. Arampatzis

**18:30-19:00 GENERAL ASSEMBLY OF THE HELLENIC SOCIETY OF BIOMECHANICS**

**Sunday 28 September 2008****ROOM A****Session A1: Sports Biomechanics****Chair: Eftaxiopoulos D., Co-chair: Mavrilas D.**

<b>Time</b>	<b>Presentation Title</b>
10:00-10:30	<i>Bio-Mechanics of Functional Back Pain in Rowing Athletes</i> N. C. Keramaris, G. Kelalis, O. Papaefthimiou, A. Kostakos, A. Papalois, S. G. Pnevmatikos
10:30-10:50	<i>Isokinetic Strength and Flexibility Asymmetry in the Lower Limbs of Professional Soccer Players</i> K. Fousekis, E. Tsepis, K. Skountzos, G. Vagenas
10:50-11:10	<i>Evaluation of Force and Vertical Jump Performance in Young Swimmers With Different Force-Time Curve Characteristics (IREAF, IRF, IRFD)</i> G. Karapostolou, I. Gkissis, E. Manolopoulos, G. Komsis, C. Papadopoulos
11:10-11:30	<i>Effect of Exercise Intensity on EMG Amplitude During Treadmill Running</i> K. Patras, G. Ziogas, S. Ristanis, E. Tsepis, N. Stergiou, A. Georgoulis

11:30-12:00 **COFFEE BREAK****Session A2: Sports Biomechanics****Chair: Mavrilas D., Co-chair: Magnissalis E.**

<b>Time</b>	<b>Presentation Title</b>
12:00-12:30	<i>Bio-Mechanic Study of the Influence of Fatigue on Ground Forces in Soccer Players</i> N. C. Keramaris, G. Kelalis, O. Papaefthimiou, A. Kostakos, A. Papalois, S. G. Pnevmatikos
12:30-12:50	<i>Comparative Analysis of Speed Performance Between Elite and Lower Level Sprinters</i> M. Gouvali, A. Tsiouri, I. Zapartidis, K. Boudolos
12:50-13:10	<i>Kinematic Comparison of Underwater Finswimming Technique in Male and Female With Different Sport Specialization</i> M. Koulianiou, S. Vosniadou, N. Geladas, K. Boudolos
13:10-13:30	<i>Symmetry of Elbow Extensor Muscular Strength in Male Volleyball Players</i> M. E. Nikolaidou, E. Rousanoglou, K. Boudolos

13:30-14:30 **LUNCH**

**Sunday 28 September 2008****ROOM A****Session A3: Sports Biomechanics****Chair: Korossis S., Co-chair: Keramaris N. C.**

<b>Time</b>	<b>Presentation Title</b>
14:30-15:00	<i>Effects of Different Eccentric-Isokinetic Training Loads in Mechanical and Neuromuscular Characteristics in Jumps With Slow (DJ) and Fast (CMJ) SSC</i> G. Karapostolou, E. Manolopoulos, I. Gkissis, G. Komsis, C. Papadopoulos
15:00-15:20	<i>Pre-Landing Characteristics of Lower Limbs During Drop Jumps From 20cm in Prepubescents and Adults</i> S. Lazaridis, A. Milonas, G. Giakas, C. Kotzamanidis
15:20-15:40	<i>Effect of Age on Indirect Symptoms of Muscle Damage After Stretch-Shortening Exercise</i> S. Lazaridis, A. Milonas, G. Giakas, E. Bassa, D. Patikas, T. Tsatalas, C. Kotzamanidis
15:40-16:00	<i>Effect of a Post Activation Potentiation (PAP) on Vertical Jump (VJ) Performance in Boys, Adolescents and Adults</i> G. Tziliou, Z. Paschaleri-Papitsa, K. Giavroudis, F. Arabatzi, A. Zafeiridis, E. Kellis

16:00-16:30 **COFFEE BREAK****Session A4: Cell Mechanics and Cell Motility****Chair: Mavrilas D., Co-chair: Rousanoglou E.**

<b>Time</b>	<b>Presentation Title</b>
16:30-17:00	<i>Functional Recellularisation of Decellularised Patellar Tendon Fascicles for Mitral Chordae Tendineae Reconstruction</i> S. Korossis
17:00-17:20	<i>Biomechanical Properties &amp; Biocompatibility of an Acellular Porcine Meniscal Scaffold</i> S. Korossis, T. Stapleton
17:20-17:40	<i>Decellularization of Bovine Pericardial Tissue for Tissue Engineering Applications</i> E. Pagoulatou, D. Mavrilas
17:40-18:00	<i>Dissolution of Calcific Deposits Isolated From Native and Bioprosthetic Heart Valves Removed From Patients</i> S. Rokidi, D. Mavrilas, P. G. Koutsoukos

**18:00-18.15****PRIZE AWARD****18:15-18:30****CLOSING OF THE CONFERENCE**

**Sunday 28 September 2008****ROOM B****Session B1: Cardiovascular System****Chair: Paxinos O., Co-chair: Rousanoglou E.**

<b>Time</b>	<b>Presentation Title</b>
09:30-10:00	<i>Experimental Study of the Flow Regime in a Realistic Model of Abdominal Aortic Aneurysm</i> Ch. Stamatopoulos, D. S. Mathioulakis
10:00-10:20	<i>Biomechanical Adaptation of the Carotid Artery to Flow Overload in a Porcine Anastomosis Model</i> E. P. Kritharis, J. D. Kakisis, N. Stergiopoulos, S. Tsangaris, D. P. Sokolis
10:20-10:40	<i>Fracture Initiation within the Atheromatous Plaque</i> C. Atkinson, D. A. Eftaxiopoulos
10:40-11:00	<i>Computational Simulation of Oxygen Diffusion in the Aortic Valve Leaflet</i> S. Korossis, L. Wang
11:00-11:20	<i>Fluid Structure Interaction Computations in Arterial Geometries</i> V. Vavourakis, Y. Papaharilaou, J. A. Ekaterinaris

11:20-12:00 **COFFEE BREAK****Session B2: Musculoskeletal System****Chair: Mathioulakis, D. S., Co-chair: Lelovas P.**

<b>Time</b>	<b>Presentation Title</b>
12:00-12:30	<i>Biomechanics of Movement of Idealised Human Teeth: Flexibilities and Centres of Resistance</i> C. G. Provatidis
12:30-12:50	<i>An Inverse Engineering Procedure for the Estimation of the Locus of the Centres of Resistance of a Human Tooth</i> P. I. Kouli, D. T. Venetsanos, B. Ch. Georgiopoulos, C. G. Provatidis
12:50-13:10	<i>Biomechanical Testing of Osteoporotic Rat Long Bones</i> A. Mitousoudis, P. Lelovas, C. K. Yiannakopoulos, G. P. Lyritis, I. A. Dontas, S. K. Kourkoulis
13:10-13:30	<i>Stress Analysis of The Proximal Femur With Cancer Metastasis</i> A. Stoicheios, D. A. Eftaxiopoulos, C. Giannakopoulos

13:30-14:30 **LUNCH**

**Sunday 28 September 2008****ROOM B****Session B3: Clinical Biomechanics****Chair: Magnissalis E., Co-chair: Kefalas V.**

<b>Time</b>	<b>Presentation Title</b>
14:30-15:00	<i>Biomechanical Evaluation of Posterior Thoracic Instrumentation Systems in Osteopenic and Normal Spines</i> O. Paxinos, M. Zindrick, L. Voronov, M. Santori, A. Patwardhan
15:00-15:20	<i>A Laboratory Model for the Study of the Effect of +Gz Forces on the Cervical Spine of Fighter Pilots</i> O. Paxinos, M. Zindricjk, L. Voronov, R. Havey, G. Garandang, A. Patwardhan
15:20-15:40	<i>Bio-Mechanical Analysis of the Cervical Spine Stability Following Laminectomy: An Experimental Study in Cadavers</i> S. G. Pnevmatikos, N. C. Keramaris
15:40-16:00	<i>Finite Element Analysis of an Osteoporotic L1 Vertebra in Two Consecutive Examinations</i> C. G. Vossou, C. G. Provatidis, L. K. Botsis

16:00-16:30 **COFFEE BREAK****Session B4: Clinical Biomechanics****Chair: Pnevmatikos, S. G., Co-chair: Kourkoulis S. K.**

<b>Time</b>	<b>Presentation Title</b>
16:30-17:00	<i>Design of an Experimental Protocol for the Assessment of Unstable Pertrochanteric Fractures Fixation Techniques</i> E. A. Magnissalis, P. F. Bernard
17:00-17:20	<i>Investigation on the Distal Screw of a Trochanteric Fi-Nail Intramedullary Implant in a Healed Femur</i> E. N. Kaselouris, D. T. Venetsanos, C. G. Provatidis, J. Lazaretos, V. S. Nikolaou, F. N. Xypnitos, N. E. Efstathopoulos
17:20-17:40	<i>Sacral Fixation: Two Bicortical or Four Unicortical Screws? A Biomechanical Study</i> O. Paxinos, M. Zindricjk, L. Voronov, R. Havey, M. Lorenz, M. Santori, A. Patwardhan
17:40-18:00	<i>Experimental and Numerical Investigation of the Factors Influencing the Pullout Force of Pedicle Screws</i> P. Chatzistergos, Ch. Papoutselis, S. K. Kourkoulis

**18:00-18.15****PRIZE AWARD****18:15-18:30****CLOSING OF THE CONFERENCE**

### CAMPUS MAP

