

CONGRESS PROGRAM

Sunday, July 12th 2015
Papastratos Complex - Tholos

18:00-20:00 Reception - Registration Desk Open

Monday, July 13th 2015
Papastratos Complex - Tholos

8:00-9:00 Registration Desk Open

Monday, July 13th
Papastratos Complex, Room 1

8:45-10:00

8:45 Congress Opening: *Nikos A. Pelekasis and Georgios E. Stavroulakis*

Welcome addresses: Prof. *Zisis Mamouris*,
Vice Rector of Research, University of Thessaly

Manolis Papadrakakis,
President of GRACM

9:00 Plenary Lecture #1

Chair: C. Papadimitriou

P. Koumoutsakos

Τα πάντα ρει: Simulations and Uncertainties

Monday, July 13th

10:00 - 11:40

Parallel Session D1-A1, Room 1

Mechanics of Materials I

Chair: N. Aravas, A. Giannakopoulos

10:00 ON THE THERMOELASTIC RESPONSE OF A GRADIENT ELASTIC HALF-SPACE SUBJECTED TO THERMAL SHOCK ON THE BOUNDARY

Th. Papathanasiou, P. Gourgiotis, F. Dalcorso and Th. Zisis

10:20 FINITE ELEMENT MODELING OF THE COMPOSITE REINFORCED BY GRAINS

A. Shimanovsky, V. Yakubovich and Y. Pleskachevskii

10:40 MULTISCALE HOMOGENIZATION OF MULTILAYERED STRUCTURES

D. Tsalis, K. Bonnay, G. Chatzigeorgiou and N. Charalambakis

11:00 A MICRO-SCALE STRUCTURAL RESPONSE COMPARISON BETWEEN GFRP AND CFRP WIND TURBINE BLADES

E. Theotokoglou and G. Balokas

11:20 A FINITE ELEMENT METHOD FOR THE SIMULATION OF CRYSTAL DEFECTS

K. Baxevanakis and A. Giannakopoulos

Monday, July 13th

10:00 - 11:40

Parallel Session D1-A2, Room 2

Theoretical Fluid Mechanics

Chair: D. Papageorgiou, V. Bontozoglou

10:00 STICK-SLIP MOTION AND HYSTERESIS BEHAVIOUR OF DROPLETS WITH DYNAMIC VOLUME VARIATION

M. Pradas, N. Savva, J. Benziger, I. Kevrekidis and S. Kalliadasis

10:20 THE ASYMPTOTIC DESCRIPTION OF THE MOVING CONTACT LINE AS A TEXTBOOK SINGULAR PERTURBATION PROBLEM: CRACKING AN OLD NUT

D. Sibley, A. Nold and S. Kalliadasis

10:40 RADIATION AND PRESSURE GRADIENT EFFECTS ON THE INCOMPRESSIBLE LAMINAR BOUNDARY LAYER FLOW

A. Siokis and M. Xenos

11:00 PROPAGATION OF ACOUSTIC-GRAVITY WAVES IN INHOMOGENEOUS OCEAN ENVIRONMENT GENERATED BY SEA BOTTOM DEFORMATION

A. Karperaki, K. Belibassakis and Th. Papathanasiou

11:20 DOWNSTREAM DISTURBANCE DECAY IN STEADY AND PULSATILE CHANNEL FLOWS: IMPLICATIONS FOR THE DEVELOPMENT OF A SIMPLIFIED DOMAIN DECOMPOSITION MODEL

S. Yiantsios

Monday, July 13th

10: 00 - 11: 40

Parallel Session D1-A3, Room 3

Finite/Boundary Elements I

Chair: G. Tsamasphyros, M. Papadrakakis

10:00 CONTINUAL AND FINITE ELEMENT MODELLING OF ELECTRICALLY ACTIVE MATERIALS WITH MICROSTRUCTURE AND SURFACE EFFECTS

A. Nasedkin

10:20 MECHANICAL MODELING OF HELICAL ASSEMBLIES IN TWO DIMENSIONS, COMPUTATIONAL MERITS AND APLICATIONS

N. Karathanasopoulos

10:40 HIGH ORDER FINITE ELEMENTS FOR FOURTH ORDER PROBLEMS USING C^1 BASIS FUNCTIONS

Ch. Xenophontos

11:00 A MODIFIED DECOUPLED SCALED BOUNDARY-FINITE ELEMENT METHOD FOR MODELING 2D IN-PLANE-MOTION TRANSIENT ELASTODYNAMIC PROBLEMS IN SEMI-INFINITE MEDIA

D.-P. Kontoni and M. I. Khodakarami

11:20 AN A POSTERIORI ERROR ANALYSIS FOR INTERIOR PENALTY DISCONTINUOUS GALERKIN FINITE ELEMENT METHOD OF A TWO-DIMENSIONAL PROBLEM OF STRAIN GRADIENT ELASTICITY

K. Eptaimeros and G. Tsamasphyros

11:40 Coffee Break

Monday, July 13th

12:00 - 13:40

Parallel Session D1-B1, Room 1

Mechanics of Materials II

Chair: E. Theotokoglou, V. Dimitriou

12:00 DISCRETE MODELING OF CEMENTITIOUS MATERIALS: FAILURE SURFACES IN PLANE STRESS/STRAIN

V. Balopoulos, N. Archontas and S. Pantazopoulou

12:20 FINITE ELEMENT STUDY OF THE INITIAL STAGES OF EXPLOSION OF SINGLE WIRE Z-PINCH VALIDATED BY EXPERIMENTS

E. Kaselouris, A. Skoulakis, V. Dimitriou, I. Fitis, I. Nikolos, E. Bakarezos, N. Papadogiannis and M. Tatarakis

12:40 FORMATION OF ADIABATIC SHEAR BANDS IN ORTHOGONAL MACHINING OF Ti6Al4V ALLOY

O. Friderikos, A. Korlos, C. David, D. Sargis and G. Mansour

13:00 LIMIT LOAD AND DEFORMATION ANALYSIS OF STEEL FRAMES WITH NONLINEAR CONSTITUTIVE BEHAVIOR AND MULTI-COMPONENT INTERACTION

M.-M. Manola and V. Koumousis

13:20 TRANSIENT STRESSES OF A FUNCTIONALLY GRADED PROFILE WITH TEMPERATURE-DEPENDENT MATERIALS UNDER THERMAL SHOCK

A. Nikolarakis and E. Theotokoglou

Monday, July 13th

12:00 - 13:40

Parallel Session D1-B2, Room 2

Mini-symposium 1-I (Drops)

Organizers: D. Papageorgiou, V. Bontozoglou and N. Pelekasis

Chair: M. Blyth, A. Oron

12:00 CLOUD ON THE HORIZON: HIGH SPEED DROPLET IMPACT, SPREADING AND THIN FILM DYNAMICS

R. Cimpanu, D. Papageorgiou, M. Kravtsova and A. Ruban

12:20 EQUILIBRIUM FLUID STRUCTURES IN PROTOTYPICAL NANOSYSTEMS

P. Yatsyshin, N. Savva and S. Kalliadasis

12:40 EFFICIENT MODELING OF DROPLET SPREADING ON ROUGH SURFACES

N. Chamakos, G. Karapetsas, M. Kavousanakis and A. Papathanasiou

13:00 COMPUTATION OF WETTING STATES ON PATTERNED SURFACES WITH A MODIFIED PHASE-FIELD METHOD

G. Pashos, G. Kokkoris and A. Boudouvis

13:20 FLOW ARRANGEMENT AND HEAT TRANSFER CAPABILITIES OF A PLASMA FACING COMPONENT IN THE FORM OF A CPS

L. Benos and N. Pelekasis

Monday, July 13th

12:00 - 13:40

Parallel Session D1-B3, Room 3

Finite/Boundary Element Methods II

Chair: S. Karamanos, V. Koumousis

10:00 SIMULATION OF LONG-RANGE ULTRASONIC GUIDED WAVE PROPAGATION IN PIPES WITH DEFECTS USING FINITE ELEMENT METHOD

A. Nasedkina, A. Alexiev and J. Malachowski

10:20 A WEAK FORMULATION FOR MECHANICAL SYSTEMS WITH SCLERONOMIC MOTION CONSTRAINTS

N. Potosakis, E. Paraskevopoulos and S. Natsiavas

10:40 SIMULATION OF PLANE STRAIN FIBER COMPOSITE PLATES IN BENDING THROUGH A BEM/ACA/HM FORMULATION

Th. Gortsas, St. Tsinopoulos and D. Polyzos

11:00 A HYSTERETIC FORMULATION FOR ISOGOMETRIC ANALYSIS AND SHAPE OPTIMIZATION OF PLANE STRESS STRUCTURES

A. Moysidis and V. Koumousis

11:20 STATIC ANALYSIS OF THICK LAYERED ANISOTROPIC PLATES WITH BEM

N. Babouskos and J. Katsikadelis

13:40

Lunch Break

Monday, July 13th

15: 00 - 16: 40

Parallel Session D1-C1, Room 1

Structural Mechanics I

Chair: E. Sapountzakis, O. Panagouli

- 15:00** **COMPUTER MODELING OF THE DEVICE FOR FASTENING PIPES ON RAILWAY FLATCARS**
A. Shimanovsky, I. Varazhun and A. Zavarotny
- 15:20** **ANALYSIS OF FRAMED STRUCTURES INCLUDING GENERALIZED WARPING EFFECTS**
E. Sapountzakis, I. Dikaros, A. Argyridi and St. Panos
- 15:40** **DYNAMIC FRICTION COEFFICIENT OF METALLIC FRACTURE INTERFACES WITH FRACTAL GEOMETRY**
O. Panagouli and K. Mastrodimou
- 16:00** **INFLUENCE OF STONES' SIZE ON THE COLLAPSE OF MASONRY BRIDGES**
B. Conde, G. Drosopoulos, B. Riveiro, M. Stavroulakis and G. Stavroulakis
- 16:20** **SIMULATION OF BOLT PRESTRESSING IN STEEL SHEAR CONNECTIONS**
St. Nasikas, D.-F. Kallias-Ntroumpis, A. Koukouselis and E. Mistakidis

Monday, July 13th

15: 00 - 16: 40

Parallel Session D1-C2, Room 2

Mini-symposium 1-II (Films)

Organizers: D. Papageorgiou, V. Bontozoglou and N. Pelekasis

Chair: S. Kalliadas, A. Papathanasiou

- 15:00** **MASS VARIATION OF A THIN LIQUID FILM DRIVEN BY AN ACOUSTIC WAVE**
W. Batson, Y. Agnon and A. Oron
- 16:20** **MOLECULAR DYNAMICS SIMULATION STUDY OF SINGLE DNA MONONUCLEOTIDES TRANSPORT THROUGH NANOSLITS**
K. Xia, B. Novak, D. Nikitopoulos and D. Moldovan
- 16:00** **BILAYER AND TRILAYER FLOW DOWN AN INCLINED PLANE IN THE PRESENCE OF SURFACTANT**
M. Blyth and J. Thompson
- 15:20** **CONTROLLING CHAOS IN THIN FILMS**
S. Gomes
- 15:40** **THE EFFECT OF SOLUBLE SURFACTANTS ON THE LINEAR STABILITY OF LIQUID FILM FLOW**
G. Karapetsas and V. Bontozoglou

Monday, July 13th

15: 00 - 16: 40

Parallel Session D1-C3, Room 3

Computational Fluid Dynamics

Chair: K. Giannakoglou, Y. Kallinderis

15:00 SIMULATING UNSTEADY INCOMPRESSIBLE FLOWS USING GALATEA-I, A PARALLEL MULTIGRID FINITE-VOLUME SOLVER

S. Sarakinos, G. Lygidakis and I. Nikolos

15:20 NUMERICAL SIMULATION OF OBLIQUE OSCILLATORY FLOW OVER BED RIPPLES USING THE IMMERSSED BOUNDARY METHOD

I. Chalmoukis and A. Dimas

15:40 ADAPTIVE LOCAL HIGH-ORDER HYBRID GRIDS FOR FIELD COMPUTATIONS

Y. Kallinderis, A. Karkoulas and P. Antonellis

16:00 SHAPE OPTIMIZATION USING THE CONTINUOUS ADJOINT METHOD AND VOLUMETRIC NURBS ON A MANY GPU SYSTEM

K. Tsiakas, X. Trompoukis, V. Asouti, M. Gh. Nejad and K. Giannakoglou

16:20 LOWERING THE COST OF THE UNSTEADY ADJOINT METHOD FOR THE OPTIMAL FLOW CONTROL USING PULSATING JETS

I. Kavvadias, Ch. Vezyris, E. Papoutsis-Kiachagias and K. Giannakoglou

16:40

Break

Monday, July 13th

16:50 - 18:30

Parallel Session D1-D1, Room 1

Structural Mechanics II

Chair: K. Kaklis, S. Kourkoulis

16:50 EXPERIMENTAL INVESTIGATION OF THE SIZE EFFECT ON THE MECHANICAL PROPERTIES ON TWO NATURAL BUILDING STONES

K. Kaklis, S. Maurigiannakis, Z. Agioutantis, F. Stathogianni and E. Steiakakis

17:10 THREE-DIMENSIONAL REINFORCED CONCRETE STRUCTURES SUBJECTED TO MAINSHOCK-AFTERSHOCK EARTHQUAKE SEQUENCES

M. Hatzivassiliou and G. Hatzigeorgiou

17:30 JOINING MARBLE STRUCTURAL ELEMENTS PART I: AN EXPERIMENTALLY VALIDATED NUMERICAL MODEL

S. Kourkoulis, E. Pasiou and Ch. Markides

17:50 DAMAGE ESTIMATION OF CEMENT MORTAR BEAMS UNDER THREE POINT BENDING LOADING USING ACOUSTIC EMISSIONS

I. Stavrakas, D. Triantis and I. Dakanali

18:10 THE CIRCULAR DISC WITH A RECTANGULAR HOLE

Ch. Markides and S. Kourkoulis

Monday, July 13th

16:50 - 18:30

Parallel Session D1-D2, Room 2

Mini-symposium 1-III (Capsules)

Organizers: D. Papageorgiou, V. Bontozoglou and N. Pelekasis

Chair: N. Pelekasis, A. Giannakopoulos

16:50 MASS SPECTROMETRY BASED APPROACHES FOR THE STUDY OF DRUG DELIVERY AND BIODISTRIBUTION: APPLICATIONS IN DRUG DISCOVERY AND DEVELOPMENT PROGRAMS

Th. Karampelas and C. Tamvakopoulos

17:10 IS THERE A FUTURE FOR ULTRASOUND CONTRAST IMAGING?

V. Sboros

17:30 NUMERICAL STUDY OF THE INTERACTION BETWEEN AN ENCAPSULATED MICROBUBBLE AND A RIGID WALL IN A VISCOUS FLOW

M. Vlachomitrou and N. Pelekasis

17:50 ACOUSTIC INTERACTION BETWEEN A COATED MICROBUBBLE AND A RIGID BOUNDARY

K. Efthymiou and N. Pelekasis

18:10 STATIC RESPONSE OF COATED MICROBUBBLES: MODELLING SIMULATIONS AND PARAMETER ESTIMATION

A. Lytra, N. Pelekasis, V. Zafiropoulou, Th. Zisis, A. Giannakopoulos, V. Sboros, E. Glynos and V. Koutsos

Monday, July 13th

16:50 - 18:30

Parallel Session D1-D3, Room 3

Computational Analysis of Structures

Chair: G. Stavroulakis, A. Papadopoulos

16:50 OPTIMISATION OF HIGH STRENGTH STEEL PRESTRESSED TRUSSES

M. Gkantou, M. Theofanous and C. Baniotopoulos

17:10 NUMERICAL ANALYSIS OF THE DISC-JAW INTERFACE DURING THE STANDARDIZED IMPLEMENTATION OF THE BRAZILIAN-DISC TEST

S. Kourkoulis, Ch. Markides and P. Chatzistergos

17:30 NUMERICAL MODELLING OF WELDED CONNECTIONS OF WIND TURBINE TOWERS UNDER FATIGUE LOADING

N. Stavridou, E. Efthymiou and Ch. Baniotopoulos

17:50 STATIC AND STABILITY ANALYSIS OF GRADIENT ELASTIC BEAMS BY FINITE ELEMENTS

I. Pegios, S. Papargyri-Beskou and D. E. Beskos

18:10 NUMERICAL EVALUATION OF ROTATIONAL CAPACITY OF STEEL BEAMS AT ELEVATED TEMPERATURES

S. Akritidis, D. Pantousa and E. Mistakidis

18:30

Coffee Break

Monday, July 13th

18:30 - 19:30

Session D1-E0, Papastratos Complex - Tholos

Poster Session

- 1. CLOUD ON THE HORIZON: HIGH SPEED DROPLET IMPACT, SPREADING AND THIN FILM DYNAMICS**
R. Cimpeanu, D. Papageorgiou, M. Kravtsova and A. Ruban
- 2. NONLOCAL FREQUENCY ANALYSIS OF A NANOBEAM UNDER AXIAL MAGNETIC FIELD USING FINITE ELEMENT METHOD**
M. Cajić, M. Lazarevic and D. Karličić
- 3. NONLINEAR CYCLIC BEHAVIOR OF CIRCULAR CONCRETE-FILLED STEEL TUBES**
D. Serras, K. Skalomenos, G. Hatzigeorgiou and D. E. Beskos
- 4. JOINING MARBLE STRUCTURAL ELEMENTS PART II: A STEP TOWARDS OPTIMIZING THE SHAPE OF CONNECTORS**
E. Pasiou and S. Kourkoulis
- 5. LINEAR AND GEOMETRICALLY NONLINEAR ANALYSIS OF IN-PLANE THIN SHALLOW ARCHES**
G. Tsiatas and N. Babouskos
- 6. THE EFFECT OF SELECTED CASES OF LOADING ON THE VALUE OF FORCES IN THE MUSCLES LIFTING THE MANDIBLE**
P. Stróżyk and A. Szust
- 7. SEISMIC TESTING & DYNAMIC CHARACTER ANALYSIS OF HIGH-RISE BUILDING STRUCTURE IN CRETE BASED ON FEM**
M. Koliou, E. Variantza, E. Kaselouris, I. Papadopoulos and V. Dimitriou
- 8. CAD/FEM SIMULATION OF THE GOVERNING MECHANICS OF DRY TURNING**
Th. Papadoulis, E. Variantza, E. Kaselouris and V. Dimitriou
- 9. NUMERICAL MODELING OF PIEZOELECTRIC TORSIONAL VIBRATION TRANSDUCERS WITH TWISTED ELEMENTS**
A. Nasedkin, S. Muzyka and E. Yuchutina
- 10. SOME FINITE ELEMENT APPROACHES FOR MODELING OF ANISOTROPIC THERMOELASTIC MIXTURE AND PERIODIC COMPOSITES WITH INTERNAL MICROSTRUCTURE**
A. Nasedkin, A. Nasedkina, A. Rajagopal and V. Remizov
- 11. IN-SITU STRESS ESTIMATION IN OFFSHORE EASTERN MEDITERRANEAN WITH FINITE ELEMENT ANALYSIS**
A. Kyriacou, P. Papanastasiou and E. Sarris
- 12. THE MECHANICAL PROPERTIES OF POZZOLANIC LIME MORTARS USED AS FILLER MATERIAL IN THE RESTORATION OF ANCIENT MONUMENTS**
Z. Agioutantis, S. Agalaniotou, S. Maurigiannakis and K. Kaklis

Tuesday, July 14th 2015
Papastratos Complex - Tholos

8:00-9:00 **Registration Desk Open**

Tuesday, July 14th **9:00-10:00**
Papastratos Complex Room 1

9:00 Plenary Lecture #2

Chair: G. Stavroulakis

G. A. Holzapfel

Trends in computational biomechanics: recent developments and future challenges

Tuesday, July 14th **10:00 - 11:40**
Parallel Session D2-A1, Room 1

Mini-symposium 2-I (Uncertainty Quantification)

Organizers: C. Papadimitriou, E. Chatzi

Chair: E. Chatzi, G. Stefanou

10:00 **UNCERTAINTY QUANTIFICATION IN EVOLUTIONARY POWER SPECTRUM ESTIMATION
SUBJECT TO MISSING DATA**

L. Comerford, I. Kougioumtzoglou and M. Beer

10:20 **MODELLING CELLS USING APPROXIMATE BAYESIAN COMPUTATION**

G. Tauriello, E. A. Economides, P. Angelikopoulos, L. Kulakova, S. Wu, J. Sukys, P. Hadjidoukas and P. Koumoutsakos

10:40 **IDENTIFICATION AND FINITE ELEMENT MODEL UPDATING OF A LIGHT-WEIGHT
GEOMETRICALLY COMPLEX STRUCTURE**

D. Giagopoulos and A. Arailopoulos

11:00 **UNCERTAINTY IN LOAD MEASUREMENTS OF WIND TURBINES**

D. Lekou and F. Mouzakis

11:20 **EFFECT OF SUPPORT CONDITIONS ON ESTIMATING HANGER TENSION IN ARCH BRIDGES
USING MODAL FREQUENCY MEASUREMENTS**

K. Giakoumi, C. Papadimitriou, C. Argyris, L. Spyrou and P. Panetsos

Tuesday, July 14th **10:00 - 11:40**
Parallel Session D2-A2, Room 2

Mini-symposium 3-I (Non-Newtonian Flows – Viscoplastic Flows)

Organizers: J. Tsamopoulos, G. Georgiou

Chair: E. Mitsoulis, P. Saramito

10:00 **A NEW LOG-CONFORMATION FORMULATION FOR VISCOELASTIC FLUIDS**

P. Saramito

- 10:20** **LINEAR STABILITY OF VISCOELASTIC JETS AND STOKES LAYERS**
P. Ray, D. Papageorgiou and T. Zaki
- 10:40** **VISCOPLASTIC MODELLING OF GRANULAR COLUMN COLLAPSE WITH PRESSURE
DEPENDENT RHEOLOGY**
I. Ionescu, A. Mangeney, F. Bouchut and O. Roche
- 11:00** **CESSATION OF VISCOPLASTIC POISEUILLE FLOW IN A RECTANGULAR DUCT WITH WALL
SLIP**
Y. Damianou, G. Kaoullas and G. Georgiou
- 11:20** **VISCOPLASTIC FLOW IN A PERIODICALLY DRIVEN ANNULAR CAVITY**
A. Syrakos, Y. Dimakopoulos, G. Georgiou and J. Tsamopoulos

Tuesday, July 14th

10:00 - 11:40

Parallel Session D2-A3, Room 3

Plasticity

Chair: N. Aravas, Th. Zisis

- 10:00** **ASSESSMENT OF THE UNDER-GROUND WATER LEVEL EFFECTS ON THE NONLINEAR
BEHAVIOR OF SINGLE PILE SUBJECTED TO STATIC VERTICAL LOADS IN THE PRESENCE OF
SOIL-PILE INTERACTION**
H. Khakpour Moghaddam, M. I. Khodakarami and D.-P. N. Kontoni
- 10:20** **STRESS AND STRAIN FLUCTUATIONS IN PLASTIC DEFORMATION OF CRYSTALS WITH
DISORDERED MICROSTRUCTURE**
O. Kapetanou, M. Stricker, D. Weygand and M. Zaiser
- 10:40** **A HYSTERETIC MODEL FOR STEEL UNIAXIAL CYCLIC BEHAVIOR USED IN FRAME ANALYSIS**
I. Gkimousis and V. Koumousis
- 11:00** **CYCLIC PLASTICITY MODELING FOR THE FINITE ELEMENTS ANALYSIS OF STEEL PIPELINE
INTEGRITY**
G. Chatzopoulou and S. Karamanos
- 11:20** **NON-LINEAR HOMOGENIZATION METHODS FOR THE CONSTITUTIVE MODELING OF
MULTIPHASE STEELS**
I. Papadioti, K. Danas and N. Aravas

11:40

Coffee Break

Tuesday, July 14th

12:00 - 13:40

Parallel Session D2-B1, Room 1

Mini-symposium 2-II (Uncertainty Quantification)

Organizers: C. Papadimitriou, E. Chatzi

Chair: I. Kougoumtzoglou, G. Kallos

- 12:00** **FRAGILITY ANALYSIS OF HYSTERETIC MDOF STRUCTURAL SYSTEMS SUBJECT TO
EVOLUTIONARY STOCHASTIC EXCITATIONS**
I. P. Mitseas, I. A. Kougoumtzoglou and M. Beer

- 12:20 A NEW DAMAGE-HEALING SMOOTH HYSTERETIC FORMULATION FOR THE MODELING OF SELF-HEALING MATERIALS**
S. Triantafyllou and M. Chatzis
- 12:40 QUANTIFYING EXTREME WIND AND UNCERTAINTIES FOR ENERGY APPLICATIONS**
P. Patlakas, G. Galanis and G. Kallos
- 13:00 THE ROLE OF MICROSTRUCTURE UNCERTAINTY IN STOCHASTIC FINITE ELEMENT ANALYSIS**
G. Stefanou, D. Savvas and M. Papadrakakis
- 13:20 TESTING THE COMPLEX NETWORKS FROM MULTIVARIATE TIME SERIES: APPLICATION TO TURBULENT FLOW**
A. Charakopoulos, Th. Karakasidis, P. Papanikolaou and A. Liakopoulos

Tuesday, July 14th

12:00 - 13:40

Parallel Session D2-B2, Room 2

Mini-symposium 3-II (Non-Newtonian Flows-Molecular Dynamics)

Organizers: J. Tsamopoulos, G. Georgiou

Chair: J. Tsamopoulos, Th. Karakasidis

- 12:00 DYNAMICS OF GRAPHENE BASED POLYMER NANOCOMPOSITES THROUGH DETAILED ATOMISTIC SIMULATIONS**
P. Bacova, A. Rissanou and V. Harmandaris
- 12:20 PRIMITIVE PATH DYNAMICS, CONSTRAINT RELEASE AND CONTOUR LENGTH FLUCTUATIONS IN A MODEL POLYETHYLENE MELT: A FIRST PRINCIPLES, ATOMISTIC SIMULATION STUDY**
S. Anogiannakis, D. Theodorou and C. Tzoumanekas
- 12:40 STRUCTURAL, CONFORMATIONAL, DYNAMIC AND TOPOLOGICAL PROPERTIES OF RING POLY(ETHYLE OXIDE) MELTS FROM MOLECULAR DYNAMICS SIMULATIONS AND COMPARISON WITH EXPERIMENTAL DATA**
D. Tsalikis, Th. Koukoulas, V. Mavrantzas and D. Vlassopoulos
- 13:00 PREDICTION OF THE EFFECTIVE DIFFUSIVITY OF WATER INSIDE CNT-BASED PMMA MEMBRANES**
P. Mermigkis, D. Tsalikis and V. Mavrantzas
- 13:20 ATOMISTIC SIMULATION OF PYRENE FUNCTIONALIZED α,ω -PMMA AS DISPERSING AGENT OF GRAPHENE FOR THE FABRICATION OF POLYMER NANOCOMPOSITES**
E. Skountzos, V. Mavrantzas and C. Tsitsilianis

Tuesday, July 14th

12:00 - 13:40

Parallel Session D2-B3, Room 3

Flow Structure interaction I

Chair: A. Vakakis, A. Dimas

- 12:00 VORTICAL DYNAMICS FOR BOUNDED SHEAR FLOWS PAST A ROTARY OSCILLATING CIRCULAR CYLINDER**
K.-W. Chang and J.-H. Chen

- 12:20 PARTIAL WAKE STABILIZATION IN VORTEX INDUCED VIBRATIONS OF A SPRUNG CYLINDER WITH AN INTERNAL NONLINEAR ATTACHMENT**
R. Kumar Tumkur, A. Masud, A. J. Pearlstein, O. Gendelman, L. Bergman and A. Vakakis
- 12:40 COUPLED HYDRODYNAMIC AND STRUCTURAL BEHAVIOR OF SPAR BUOY FLOATING WIND TURBINES USING FAST**
E. Karageorgopoulos and A. Dimas
- 13:00 MECHANICS OF THE FLOW OVER A FLEXIBLE FENCE**
A. Tsipropoulos and E. Konstantinidis
- 13:20 RESPONSE OF OFFSHORE STRUCTURES UNDER THE EFFECT OF REAL SEA STATES INCLUDING STRUCTURAL AND SOIL NONLINEARITIES**
K. Chatziioannou, V. Katsardi, A. Koukouselis and E. Mistakidis

13:40 Lunch Break

Tuesday, July 14th

14:40 - 16:20

Parallel Session D2-C1, Room 1

Mini-symposium 2-III (Uncertainty Quantification)

Organizers: C. Papadimitriou, E. Chatzi

Chair: E. Chatzi, C. Papadimitriou

- 14:40 STOCHASTIC REPRESENTATION OF BRIDGE STRUCTURAL DYNAMICS**
N. Petrou, M. Spiridonakos and E. Chatzi
- 15:00 CONFIGURATIONAL ENTROPY MAPS FOR STEADY-STATE TWO-PHASE FLOWS IN PORE NETWORKS IMPLEMENTING THE DEPROF MODEL ALGORITHM**
M. S. Valavanides and T. Daras
- 15:20 IMPLEMENTATION OF ELASTIC ENERGY RESPONSE SPECTRA SUSTAINABILITY MEASURES FOR THE PREDICTION OF DAMAGE POTENTIAL OF GROUND STRONG MOTION RECORDS**
P. Koliopoulos, E. Kirtas, G. Panagopoulos and E. Mouratidis
- 15:40 LOCAL ADAPTATION TECHNIQUES FOR NUMERICAL ATMOSPHERIC AND WAVE PREDICTION MODELS BASED ON KALMAN FILTERS AND BAYESIAN MODELS**
G. Galanis, E. Papageorgiou, A. Liakatas and G. Kallos
- 16:00 BAYESIAN IDENTIFICATION OF NONLINEAR MODELS OF SEISMICALLY ISOLATED STRUCTURES**
C. Argyris, P. Tsopelas and C. Papadimitriou

Tuesday, July 14th

14:40 - 16:20

Parallel Session D2-C2, Room 2

Mini-symposium 3-III (Non-Newtonian Flows – Viscoelastic Flows and Slip Effects)

Organizers: J. Tsamopoulos, G. Georgiou

Chair: S. Naris, D. Tsalickis

- 14:40 VISCOELASTIC SIMULATIONS WITH INTEGRAL MODELS AT EXTREMELY HIGH SHEAR RATES**
E. Mitsoulis
- 15:00 THE IMPACT OF SLIP ON NANOCHANNEL FRICTION FACTOR**
F. Sofos, Th. Karakasidis and A. Liakopoulos

- 15:20 EQUATION OF STATE BASED SLIP SPRING MODEL FOR ENTANGLED POLYMER DYNAMICS**
G. Megariotis, G. Vogiatzis and D. Theodorou
- 15:40 SIMULATION OF VACUUM PUMPING SYSTEMS VIA MESOSCALE MODELING**
S. Naris, Ch. Tantos, D. Bakalis, A. Stamatias and D. Valougeorgis
- 16:00 ON THE VELOCITY DISCONTINUITY AT A CRITICAL BUBBLE VOLUME WHEN IT RISES IN A VISCOELASTIC FLUID**
D. Fraggedakis, J. Tsamopoulos and Y. Dimakopoulos

Tuesday, July 14th

14:40 - 16:20

Parallel Session D2-C3, Room 3

Flow Structure Interaction II

Chair: K. Belibassakis, S. Karamanos

- 14:40 WIND TURBINE BLADES PARAMETRIC DESIGN USING GRASSHOPPER®**
K. Charalampous, G. Strofylas, G. Mazanakis and I. Nikolos
- 15:00 ENCLOSING ELLIPSOID ESTIMATIONS OF VARIABLE ELASTIC STRESS DOMAINS IN THE SHAKEDOWN ANALYSIS OF OFFSHORE JACKET PLATFORMS**
O. Ioannou, L. Mavridis, K. Nikolaou and Ch. Bisbos
- 15:20 MARINE PROPULSION IN WAVES BY FLAPPING-FOIL SYSTEMS**
K. Belibassakis
- 15:40 A PROBABILISTIC APPROACH FOR FATIGUE DAMAGE ANALYSIS OF AN OFFSHORE WIND TURBINE**
D. Bilonis and D. Vamvatsikos
- 16:00 NUMERICAL SIMULATION OF FLUID - STRUCTURE INTERACTION BETWEEN SEA WAVES AND A SPAR-BUOY WIND TURBINE PLATFORM**
G. Makrygiannis and A. Dimas

Conference Event

Tuesday, July 14th

16:30 - 17:00

Papastratos Complex Main Entrance

Bus Departure for the Train Station at Kato Lechonia and Milies

Tuesday, July 14th

17:15 - 21:00

Visit to Milies with the train.

Tuesday, July 14th

21:00

Conference Dinner at Koropi

Wednesday, July 15th 2015

Wednesday, July 15th
Papastratos Complex Room 1

9:00-10:00

9:00 Plenary Lecture #3
Chair: D. Papageorgiou

S. Kalliadasis

Complex dynamics in multiscale systems

Wednesday, July 15th
Parallel Session D3-A1, Room 1

10:00 - 12:00

Dynamics of Structures

Chair: N. Macris, S. Natsiavas

10:00 THE EFFECT OF THE ROTATIONAL INERTIA ON THE POST-UPLIFT DYNAMIC STABILITY OF FREE-STANDING ROCKING COLUMNS AND ARTICULATED FRAMES

N. Makris

10:20 CONTROLLED LAGRANGIANS AND ROBUST STABILIZATION OF A UNDERACTUATED MICROBEAM WITH ROTATING JOINT

M. Tavallaeinejad, M. Khalghollah and M. Eghtesad

10:40 FINITE ELEMENT INELASTIC ANALYSIS OF 3-D FLEXIBLE PAVEMENTS UNDER MOVING LOADS

N. Beskou, G. Hatzigeorgiou and D. Theodorakopoulos

11:00 EQUATIONS OF MOTION FOR MECHANICAL SYSTEMS SUBJECTED TO EQUALITY MOTION CONSTRAINTS

S. Natsiavas and E. Paraskevopoulos

11:20 SEISMIC RESPONSE AND DESIGN OF ARCHED STRUCTURES

G. Tsiatas and M. Fragiadakis

11:40 NEW DIRECT TIME INTEGRATION METHOD FOR THE SEMI-DISCRETE PARABOLIC EQUATIONS

J. Katsikadelis

Wednesday, July 15th
Parallel Session D3-A2, Room 2

10:00 - 11:40

Biomechanics

Chair: A. Giannakopoulos, V. Bontozoglou

10:00 BIOMECHANICAL MODELLING AND SIMULATION OF SOFT TISSUES USING FRACTIONAL MEMRISTIVE ELEMENTS

M. Lazarevic, M. Cajić and N. Djurović

- 10:20 AN ANALYSIS OF THE DURABILITY OF MANDIBLE ANGLE OSTEOTOMY FOR VARIOUS CASES OF OSTEOSYNTHESIS**
A. Szust and P. Stróżyk
- 10:40 MAGNETOHYDRODYNAMIC EFFECTS ON BLOOD FLOW IN AN ANEURYSMAL GEOMETRY**
M. Xenos, A. Raptis and M. Matsagkas
- 11:00 FINITE ELEMENT SIMULATION OF CAROTID ENDARTERECTOMY**
L. Spyrou, A. Giannakopoulos, A. Athanasoulas and A. Giannoukas
- 11:20 MODELING AIRFLOW AND PARTICLE TRANSPORT IN THE LUNGS**
S. Georgakakou, Ch. Dritselis, V. Bontozoglou, Z. Daniil and K. Gourgoulanis

Wednesday, July 15th

10:00 - 11:40

Parallel Session D3-A3, Room 3

Compressible Flows

Chair: D. Valougeorgis, J. Ekaterinaris

- 10:00 THREE DIMENSIONAL H/P ADAPTIVE DISCONTINUOUS GALERKIN METHOD FOR HIGH SPEED COMPRESSIBLE FLOWS**
K. Panourgias and J. Ekaterinaris
- 10:20 AN IMPLICIT 3D FINITE-VOLUME SCHEME FOR FREE-SURFACE FLOWS WITH SHOCKWAVES**
A. Klonidis and J. Soulis
- 10:40 MODELING OF RAREFIED HYPERSONIC FLOWS USING THE MASSIVELY PARALLEL DSMC KERNEL "SPARTA"**
A. Klothakis and I. Nikolos
- 11:00 THE DISCONTINUOUS GALERKIN METHOD FOR PARTIALLY IONIZED GAS COMPRESSIBLE FLOWS UNDER THE INFLUENCE OF ELECTROMAGNETIC FIELDS**
K. Panourgias and J. Ekaterinaris
- 11:20 THERMALLY DRIVEN GAS FLOWS IN CAVITIES FAR FROM LOCAL EQUILIBRIUM**
G. Tatsios, D. Valougeorgis and S. Stefanov

12:00 Coffee Break

Wednesday, July 15th

12:20 - 14:20

Parallel Session D3-B1, Room 1

Applied Numerical Solids

Chair: A. Korlos, G. Tsiatas

- 12:20 REINFORCED CONCRETE STRUCTURES STRENGTHENED BY CABLE ELEMENTS UNDER MULTIPLE EARTHQUAKES: A COMPUTATIONAL APPROACH**
A. Liolios and C. Chaliouris
- 12:40 A FEM STUDY ON THE INFLUENCE OF THE GEOMETRIC CHARACTERISTICS OF METALLIC FILMS IRRADIATED BY NANOSECOND LASER PULSES**
E. Kaselouris, E. Skarvelakis, I. Nikolos, G. Stavroulakis, Y. Orphanos, E. Bakarezos, N. Papadogiannis, M. Tatarakis and V. Dimitriou
- 13:00 REUSE OF STONE MASONRY BUILDINGS AND THE SEISMIC BEHAVIOR OF THE COMPOSITE STRUCTURES**
E. Tavlopouloy, I. Tziveleka and M. Stavroulaki
- 13:20 NUMERICAL MODELING OF THE FRICTION STIR WELDING PROCESS**
G. Papazafeiropoulos and A.-M. Tsainis

- 13:40 COMPARISON OF MONOPILE VS TRIPOD FOUNDATION OF FIXED OFFSHORE WIND TURBINES VIA ADVANCED NUMERICAL ANALYSIS**
G. Margariti, A. Papadopoulos, C. Gantes and C. Gkologiannis
- 14:00 NUMERICAL SIMULATION OF FLANGE-BOLT INTERACTION IN WIND TURBINE TOWER CONNECTIONS**
A. Ntaifoti, K. Koulatsou and C. Gantes

Wednesday, July 15th
Parallel Session D3-B2, Room 2

12:20 - 14:00

Flow Stability-Transition

Chair: D. Papavassiliou, S. Yantsios

- 12:20 TURBULENT FLOW USED TO SEPARATE PARTICLES OF DIFFERENT SCHMIDT NUMBERS**
D. Papavassiliou and Q. Nguyen
- 12:40 FLOW FIELD INVESTIGATION AND VORTEX BREAK-DOWN IDENTIFICATION ON A DELTA WING USING URANS WITH SECOND MOMENT CLOSURE TURBULENCE MODELLING**
D. Komnos, Z. Vlahostergios and K. Yakinthos
- 13:00 OPTIMAL CONTROL OF VORTEX SHEDDING USING DETAILED MODELS**
I. Bonis, H. Sarimveis and D. Koubogiannis
- 13:20 VORTEX SHEDDING ENHANCEMENT FOR ENERGY HARVESTING APPLICATIONS IN MINIATURE DEVICES**
D. Koubogiannis and I. Bonis
- 13:40 TRACING AXISYMMETRIC AND NON AXISYMMETRIC STATES IN CHEMICAL VAPOR DEPOSITION REACTORS**
P. Giannatselis, N. Cheimarios, E. Koronaki and A. Boudouvis

Wednesday, July 15th
Parallel Session D3-B3, Room 3

12:20 - 14:20

Applied CFD I

Chair: P. Papanastasiou, J. Soulis

- 12:20 INFLUENCE OF OBSTACLES ON THE DEVELOPMENT OF GAS EXPLOSION IN ROOM**
I. Polandov, V. Babankov and S. Dobrikov
- 12:40 CO₂ INJECTION FOR GEOLOGICAL STORAGE**
E. Sarris, E. Gravanis and P. Papanastasiou
- 13:00 COMPUTATIONAL FLOW ANALYSIS AND DEVELOPMENT OF A SURROGATE MODEL FOR THE PREDICTION OF THE FLUID FLOW AND THE 3D FLOW EFFECTS AROUND A PROPELLER**
Ch. Salpingidou, D. Misirlis and K. Yakinthos
- 13:20 A MULTI-CHANNEL MATHEMATICAL MODEL FOR PARTIALLY FAILED DIESEL PARTICULATE FILTERS**
O. Haralampous and D. Mastellos
- 13:40 ON THE INTEGRATION OF EQUATIONS OF MOTION: FEM AND MOLECULAR DYNAMICS PROBLEMS**
E. Kakouris and V. Koumouis
- 14:00 A MODELING STUDY FOR THE PIN-ASSISTED PULTRUSION OF POROUS SUBSTRATES**
N. Polychronopoulos and Th. Papathanasiou

14:20 Lunch Break

Wednesday, July 15th

15:40 - 17:40

Parallel Session D3-C1, Room 1

Computational Mechanics & Dynamics of Structures

Chair: E. Mistakidis, V. Koumousis

15:40 FINE TUNING OF FUZZY CONTROLLERS FOR VIBRATION SUPPRESSION OF SMART PLATES USING PARTICLE SWARM OPTIMIZATION

G. Tairidis, G. Foutsitzi, P. Koutsianitis and G. Stavroulakis,

16:00 INFLUENCE OF THE BOUNDARIES IN IMAGING FOR DAMAGE LOCALIZATION IN 1D DOMAINS

Ch. Tsogka, Y. Petromichelakis and Ch. Panagiotopoulos

16:20 SEMI SUPERVISED IDENTIFICATION OF NUMERICALLY SIMULATED PILE DEFECTS USING GRAPH LABEL PROPAGATION

E. Protopapadakis, M. Schauer, A. Doulamis, G. Stavroulakis, J. Bohrsen and S. Langer

16:40 CAPACITY CURVE OF FERROCEMENT CYLINDER UNDER AXIAL LOADING

A. Koukouselis and E. Mistakidis

17:00 FRACTURE OF LIGHTWEIGHT STRUCTURES BASED ON A COMBINATION OF ENERGY RELEASE RATE BALANCE AND A COHESIVE LAW

E. Theotokoqlou and I. Turlomousis

17:20 THE MAEM FOR THE DYNAMIC ANALYSIS OF CYLINDRICAL SHELL PANELS

A. Yiotis and J. Katsikadelis

Wednesday, July 15th

15:40 - 17:50

Parallel Session D3-C2, Room 2

Conferment of the Award of the Best 2014 PhD Thesis

Chair: G. Stavroulakis, M. Papadrakakis

15:40 STRUCTURAL OPTIMIZATION DESIGN OF WIND TURBINE TOWER USING GAME THEORY

A. Kampitsis, G. Panagiotakopoulos, V. Koumousis and E. Sapountzakis

16:00 BAYESIAN UPDATING WITH SUBSET SIMULATION AND NEURAL NETWORKS

D. Giovanis, I. Papaioannou, V. Papadopoulos and D. Straub

16:20 A STOCHASTIC FRAMEWORK FOR THE SEQUENTIALLY LINEAR ANALYSIS OF STRUCTURES WITH SOFTENING MATERIALS

M. Georgioudakis, G. Stefanou and M. Papadrakakis

16:40 A DISPLACEMENT BASED FORMULATION FOR CRACK PROBLEMS IN COUPLE STRESS ELASTICITY

K. Baxevanakis, H. Georgiadis and P. Gourgiotis

17:00 EFFICIENT ASSEMBLY OF GAUSS QUADRATURE-BASED MATRICES

A. Karatarakis and M. Papadrakakis

17:20 EFG VS FEM: ACCURACY AND COST EFFICIENCY

P. Metsis, A. Karatarakis and M. Papadrakakis

17:40 Conferment of the GRACM Award of the Best 2014 PhD Thesis to Dr. M. Georgioudakis

Wednesday, July 15th

15:40 - 17:20

Parallel Session D3-C3, Room 3

Applied CFD II

Chair: Th. Papathanasiou, K. Yakinthos

15:40 PECULIARITIES OF THE LIQUID CARGO DYNAMICS MODELING FOR THE CASE OF ROAD TANK TRANSIENT MOVEMENT MODES

M. Kuzniatsova, A. Shimanovsky and A. Sapietová

16:00 STEAMING HEAT COILS FOR HEATING UP MARINE HEAVY FUEL OIL

G. Gavriil, G. Prodromidis, F. Coutelieris

16:20 THREE DIMENSIONAL WATER FLOW IN NOZZLES

J. Soulis and M. Loukas

16:40 NUMERICAL SIMULATION OF LNG EVAPORATION INSIDE SEMI-TRAILER TRUCKS USED FOR THE TRANSPORTATION OF LNG TO SMALL SCALE TERMINALS AND REFUELLING STATIONS: PARAMETERS AND IMPLICATIONS

K. Rossios, K. Sardi and G. Martinopoulos

17:00 A CFD-AIDED DESIGN PROCEDURE, PERFORMANCE ESTIMATION AND OPTIMIZATION STUDY OF A MALE UAV

P. Panaqiotou, Ch. Salpingidou, P. Kaparos and K. Yakinthos

17:50 Coffee Break

Wednesday, July 15th

18:00 - 18:30

Session D3-D0, Papastratos Complex - Tholos

Poster Session

18:30 Congress Closing



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