

9th GRACM

International Congress on
Computational Mechanics

4-6 June 2018, Chania

www.9gracm.tuc.gr/

Venue : Cultural Center of Chania



Chairmen : Manolis Papadrakakis, National Technical University of Athens
Georgios E. Stavroulakis, Technical University of Crete

CONGRESS PROGRAMME



Greek Association of
Computational Mechanics
<http://gracm.ntua.gr>



Technical
University
of Crete

COMMITTEES

Congress Chairmen

Prof. M. Papadrakakis, National Technical University of Athens

Prof. G. E. Stavroulakis, Technical University of Crete

Organizing Committee – HSTAM Administrative Council

Prof. M. Papadrakakis, National Technical University of Athens, President

Prof. G. E. Stavroulakis, Technical University of Crete, Vice President

Assist. Prof. V. Papadopoulos, National Technical University of Athens, Secretary

Assoc. Prof. G. Tsiatas, University of Patras, Treasurer

Prof. E. E. Theotokoglou, National Technical University of Athens

Prof. J. T. Katsikadelis, National Technical University of Athens

Prof. A. G. Boudouvis, National Technical University of Athens

Assist. Prof. G. Stefanou, Aristotle University of Thessaloniki

Prof. N. Pelekasis, University of Thessaly

Congress Secretariat

Maria Bakatsaki, M. Sc., Technical University of Crete

Supporting Team

Dr. A. Muradova, Preparation of printed material

Dr. G. Tairidis, Secretarial assistance and preparation of printed material

Nefeli Manoudaki, Cover-page layout

Dr. Evangelos Liarakos, Secretarial assistance

Dionysios Chatzidakis, Olympia Kalagri, Pantelis Krinakis, Konstantinos Marakakis, Maria Masoura,

Dimitra Vathi, student assistants

Congress Contact Information

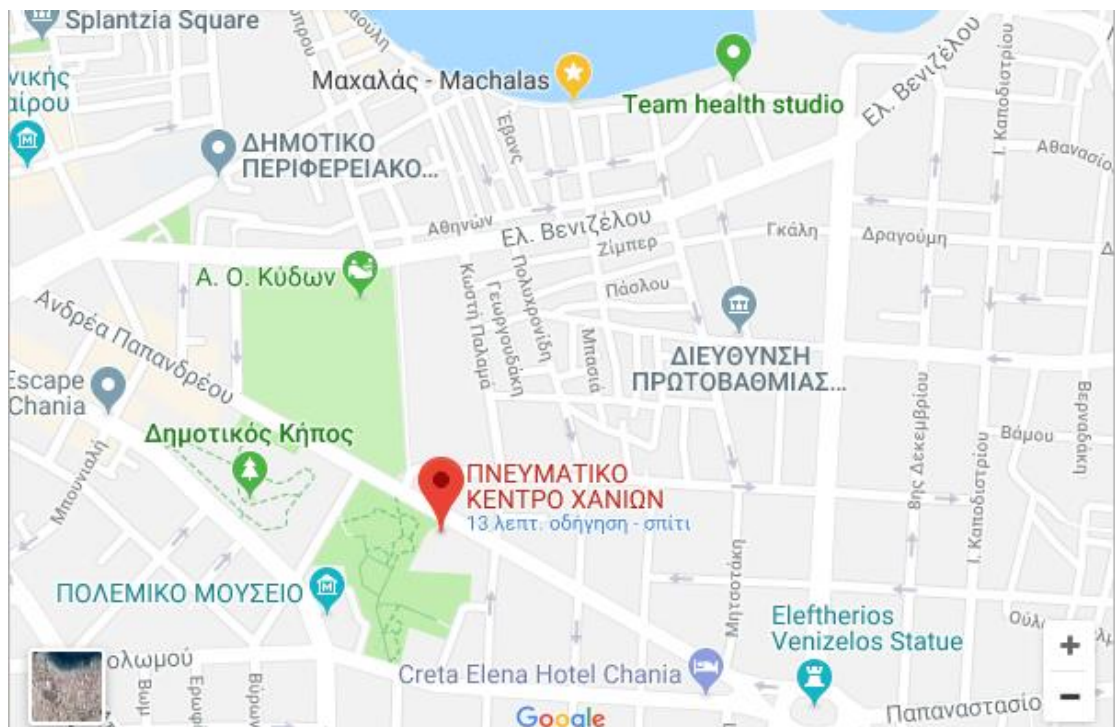
Website: <http://9gracm.tuc.gr>

E-mail: 9gracm@isc.tuc.gr

Institute of Computational Mechanics & Optimization (CoMecO) <http://www.comeco.tuc.gr>

School of Production Engineering & Management of Technical University of Crete

MAP OF CULTURAL CENTER OF CHANIA



VENUE

Cultural Center of Chania

70 Andrea Papandreou Street, CHANIA 731 34

<https://goo.gl/maps/CV62kgcbzW72>



The Cultural Center of Chania extends in 4 different levels. The great amphitheater with capacity of 500 seats lies in the ground floor, the meeting room with capacity of 50 seats lies in the first floor, 2 more rooms of 150 people lies in the 2nd floor and another 2 rooms of 50 people or exhibition place in the 3rd floor.

Registration:

Monday 4-5 June, 8:00 at Entrance A

Wednesday 6.06.2018 at Entrance B

Coffee Station (serving coffee all day):

Cafeteria at ground floor beside the Amphitheater "Polychronis Polychronidis".

Lunches:

Cafeteria at 2nd floor beside Room B.

Congress Dinner:

The Congress Dinner will be held at Restaurant "Machalas " (Spartis 2, Chania) <https://goo.gl/maps/Arv8qXAtmsT2>

All participants are invited to taste cretan "mezedes" and plates beside the seaside of Koum-Kapi.

CONGRESS PROGRAMME

MONDAY 4.06.2018	8:00 - 10:30
Amphitheater "Polychronis Polychronidis"	

8:00	Registration (Entrance A of Building for Amphitheater "Polychronis Polychronidis")
9:00	Welcome address by Prof. M. Papadrakakis (Chairman of GRACM) Welcome address by Prof. E. Diamantopoulos (Rector of Technical University of Crete) Welcome address by Prof. E. Sapountzakis, Vice Rector of National Technical University of Athens Young Investigators Awards
9:30	Plenary Lecture , Chair: G. E. Stavroulakis <i>Dynamic action effect analysis for structural integrity management of very large floating bridges</i> Torgeir Moan
10:30	Coffee Break

MONDAY 4.06.2018	Parallel Sessions 1-1	11:00 - 14:00
	Session A1-1 (Room A) Chair: D. Beskos, G. Tsiatas	Session B1-1 (Room B) Chair: N. Pelekasis, G. Georgiou
11:00	<i>A performance-based seismic design method for RC/MRFS using modal strength reduction factors (19)</i> Edmond Muho, George Papagiannopoulos and Dimitri Beskos	<i>Numerical and asymptotic solutions of axisymmetric Poiseuille flows of yield stress fluids with pressure-dependent rheological parameters (7)</i> Kostas Housiadas, Iasonas Ioannou, Pandelitsa Panaseti and Georgios Georgiou
11:20	<i>Dynamic response of an infinite beam resting on a Winkler foundation to a load moving on its surface with variable speed (20)</i> Edmond Muho and Niki Beskou	<i>Rarefied pulsatile pressure-driven fully-developed gas flow in long circular tubes (45)</i> Alexandros Tsimpoukis and Dimitris Valougeorgis
11:40	<i>Numerical investigation of a highly effective hysteretic nonlinear energy sink in shock mitigation (42)</i> George Tsiatas and Aristotelis Charalampakis	<i>Hydrodynamic effects on phase separation morphologies in evaporating thin films of polymer solutions (64)</i> Stergios Yiantsios
12:00	<i>Accumulated damage in nonlinear cyclic static and dynamic analysis of reinforced concrete structures through 3D detailed modeling (57)</i> Christos Mourlas, George Markou and	<i>How to make a splash: high speed drop impact at arbitrary angles of incidence (72)</i> Radu Cimpeanu , Matthew Moore and Demetrios Papageorgiou

	Manolis Papadrakakis	
12:20	<i>Nonlinear local buckling analysis of beams employing a higher order beam theory (9)</i> Amalia Argyridi and Evangelos Sapountzakis	<i>Static arrangement and dynamic response of a capillary porous system in the presence of adhesive and Lorentz forces (79)</i> Nikos Pelekasis , Lefteris Benos and Maria Vlachomitrou
12:40	<i>Kdamper concept in seismic isolation of multi storey building structures (65)</i> Konstantinos Kapasakalis , Evangelos Sapountzakis and Ioannis Antoniadis	<i>Generating lift by blowing on a blade airfoil (109)</i> Nikolaos Theodoropoulos and Demos Georgiou
14:00	Lunch	

MONDAY 4.06.2018		Parallel Sessions 1-2	15:00 - 17:00
	Session A1-2 (Room A) Chair: D. Georgiou, I. Nikolos	MS1-Computational Analysis of Advanced Materials (Room B) Chair: E. E. Theotokoglou	
15:00	<i>Aerodynamic shape optimization of diffuser augmented wind turbine blades using asynchronous parallel differential evolution (15)</i> Stavros Leloudas , Giorgos Strofylas and Ioannis Nikolos	<i>Preliminary analysis method for FRP laminate impact damage size prediction (14)</i> Adam Deskiewicz, Ioannis Giannopoulos and Efstathios Theotokoglou	
15:20	<i>Rarefied gas flow analysis over a re-entry space capsule geometry (24)</i> Angelos Klothakis , Stavros Leloudas, Georgios Lygidakis and Ioannis Nikolos	<i>Computational modeling for the stochastic yarn variability of braided composites due to manufacturing processes (5)</i> Georgios Balokas , Benedikt Kriegesmann, Steffen Czichon and Raimund Rolfes	
15:40	<i>Numerical flow simulation over the M151 combat aircraft model using GALATEA solver (26)</i> Dimitrios Inglezakis , Georgios Lygidakis and Ioannis Nikolos	<i>Computational framework for modeling and fatigue damage identification of composite carbon fiber structural systems (25)</i> Alexandros Arailopoulos , Dimitrios Giagopoulos and Olga Markogiannaki	
16:00	<i>A computational study of the flowfield inside a reduced airfoils cascade (108)</i> Nikolaos Theodoropoulos and Demos Georgiou	<i>Dynamic analysis of a ceramic/metal functionally graded thermoelastic layer under ramp-type thermal loading (60)</i> Antonios M. Nikolarakis and Efstathios E. Theotokoglou	
16:20	<i>Multi-objective optimization of a flapping foil system for thrust augmentation in ship propulsion (52)</i> Dimitrios Koubogiannis , Ioannis Bonis, Andreas Priovolos and Kostas Belibassakis	<i>Multiscale material and topology optimization of a carbon-nanotube reinforced composite structure (90)</i> Vissarion Papadopoulos and Maria Tavlaki	
16:40	<i>Optimal design of large span structures using the MBN displacement control system (50)</i> Themistoklis Nikolaidis, Georgios Stavroulakis and Charalampos Baniotopoulos	<i>Design and structural analysis of wind turbine blades for structural health monitoring consideration (78)</i> Meletios Rentoumis , Panagiotis Koutsianitis, I. Athanailidis, G. Tairidis, G. Tselikos, N. Bilalis and G.E. Stavroulakis	
17:00	Coffee Break		

MONDAY 4.06.2018		Parallel Sessions 1-3	17:30 - 19:10
	Session A1-3 (Room A) Chair: P. Papanastasiou, V. Papadopoulos	MS2-Computational Techniques and Tools in Natural Disaster Risk Management (Room B) Chair: Milan Gocić, NatRisk Erasmus+ project	
17:30	<i>A study on solution algorithms for crack growth problems using XFEM (80)</i> Serafeim Bakalakos , Manolis Georgioudakis and Manolis Papadrakakis	<i>Early warning and hazard analysis system in Republic of Serbia (43)</i> Milan Protic and Zoran Bonic	
17:50	<i>The influence of fracture-surface normal and shear stress loading on crack-tip singular plastic fields (104)</i> Panos Papanastasiou	<i>Smoothing techniques on precipitation time series (61)</i> Mladen Milanovic, Milan Gocic, Slavisa Trajkovic and Maja Stanojevic Gocic	
18:10	<i>Camber control of structures using shape memory alloys (101)</i> Michalis Fragiadakis , E. Palkanoglou, N. Simiriotis, G. Jodin, J.F. Rouchon and M. Braza	<i>GIS application in floods risk assessment in Leposavic (73)</i> Predrag Stanojevic, Jelena Djokic, Bojana Zivkovic and Jelena Rajovic	
18:30	<i>Investigation of the position of the piezoelectric patches on a shunted piezoelectric beam (93)</i> Georgios Tairidis , Panagiotis Koutsianitis, Georgia Foutsitzi, Georgios Stavroulakis, Jean-Francois Deü and Roger Ohayon	<i>Lead particles dispersion modeling in extreme weather conditions from tailing waste in Zvečan (85)</i> Jelena Djokic , Nebojša Arsić and Srdjan Jovic	
18:50	<i>Material optimisation use in steel lattice wind turbine towers (107)</i> Nafsika Stavridou , Efthymios Koltsakis and Charalampos Baniotopoulos	<i>GIS extension tool for visualization of flood risk evaluations (100)</i> Dejan Rančić , Miloš Bogdanović, Olivera Pronić-Rančić and Uwe Siart	
20:00	Conference Dinner (Restaurant «Machalas»)		

TUESDAY 5.06.2018	8:00 - 10:30
Amphitheater "Polychronis Polychronidis"	

8:00	Registration (Entrance A of Building for Amphitheater "Polychronis Polychronidis")
9:00	Plenary Lecture , Chair: A. Boudouvis <i>Predictive modeling towards precision medicine in cancer therapy: Challenges and promise</i> Triantafyllos Stylianopoulos
10:00	Plenary Lecture , Chair: A. Boudouvis <i>Advanced modeling and applications of isogeometric shells</i> Alessandro Reali
11:00	Coffee Break

TUESDAY 5.06.2018	Parallel Sessions 2-1	11:30 - 14:00
	Session A2-1 (Room A) Chair: I. Katsikadelis, T-T. Lu	MS3-Optimization in Structural Mechanics via Metaheuristic Algorithms (Room B) Chair: Gebrail Bekdaş, Aylin Ece Kayabekir
11:30	<i>Numerical solution of variable order fractional differential equations. applications to mechanics (75)</i> John Katsikadelis	<i>The analyses of spatial cable structures employing new generation metaheuristic methods (31)</i> Aylin Ece Kayabekir, Sinan Melih Nigdeli, Gebrail Bekdaş and Yusuf Cengiz Toklu
11:50	<i>A new boundary element solution to plates on elastic foundation via Helmholtz's potentials (76)</i> Maria Nerantzaki and John Katsikadelis	<i>Metaheuristic methods in structural engineering benchmark problems: the weight optimization of cantilever beams (32)</i> Gebrail Bekdaş, Aylin Ece Kayabekir , Sinan Melih Nigdeli and Rasim Temur
12:10	<i>A parallel algorithm for the embedded reinforcement mesh generation of large-scale reinforced concrete models (91)</i> George Markou	<i>The performance of metaheuristic algorithms on weight optimization of truss structures by using different grouping options (33)</i> Sinan Melih Nigdeli and Gebrail Bekdaş
12:30	<i>Revision of beam modeling with large rotations (88)</i> Anthoula Panteli and Konstantinos Spiliopoulos	<i>Optimum cost design of welded beams by jaya algorithm and flower pollination algorithm (36)</i> Serdar Ulusoy , Gebrail Bekdaş and Sinan Melih Nigdeli
12:50	<i>Adomian decomposition method for first order partial differential equations with piecewise data (23)</i> Chi-Kin Chau and Tzon-Tzer Lu	<i>Symbiotic organisms search based optimal design of steel rigid frames (96)</i> Osman Tunca , Ibrahim Aydogdu and Serdar Carbas
13:10		<i>Optimal discrete design of steel truss systems using symbiotic organisms search (97)</i> Osman Tunca , Ibrahim Aydogdu, Ferhat Erdal and Serdar Carbas
13:30		<i>Optimum design of reinforced concrete footings under axial loading using discrete and continuous design variables (99)</i> Sinan Melih Nigdeli and Gebrail Bekdaş
13:50	Lunch	

TUESDAY 5.06.2018		Parallel Sessions 2-2	15:00 - 17:00
	Session A2-2 (Room A) Chair: V. Mokryakov, M. Fragiadakis	MS4-Passive, Active and Semi-Active Control of Seismic Structures (Room B) Chair: Sinan Melih Nigdeli, Seda Öncü Davas	
15:00	<i>Application of the finite superelement method for the doubly periodic functionally graded solid calculation (27)</i> Viacheslav Mokryakov	<i>The robustness of optimum tuned mass dampers design using transfer function amplitude and JAYA algorithm (29)</i> Sinan Melih Nigdeli and Gebrail Bekdaş	
15:20	<i>Investigation of support conditions between stacked reinforced concrete beams using experimental modal analysis and finite element methods (8)</i> Marios Filippoupolitis and Carl Hopkins	<i>The mass ratio factor on optimum design of stroke limited tuned mass dampers (30)</i> Gebrail Bekdaş and Sinan Melih Nigdeli	
15:40	<i>Effects of thermal deformation on the buckling resistance of steel framed members exposed to fire (40)</i> Themistoklis Nikolaidis , Evangelia Georgantzia and Charalampos Baniotopoulos	<i>Optimization of proportional-integral-derivative type controllers for active seismic control of single degree of freedom structures (35)</i> Serdar Ulusoy , Sinan Melih Nigdeli and Gebrail Bekdaş	
16:00	<i>A fiber approach to the large deflection analysis of beams by BEM (51)</i> George Tsiatas, Antonis Siokas and Evangelos Sapountzakis:	<i>Sensitivity of the probabilistic response of semi-active isolated buildings to the probability distribution types of random synthetic earthquake parameters (62)</i> Seda Öncü-Davas and Cenk Alhan	
16:20	<i>Finite element analysis of aggregated elongated vaulted structures (95)</i> Maria Stavroulaki, Antonis Anousakis and Aikaterini Mesaritaki	<i>Influence of shape parameter/coefficient of variation of random synthetic earthquake parameters on the probabilistic response of semi-active isolated buildings (63)</i> Seda Öncü-Davas and Cenk Alhan	
16:40		<i>Metaheuristic and frequency domain based optimization of tuned mass dampers and verification of the results on time history analyses (98)</i> Sinan Melih Nigdeli, Gebrail Bekdaş and Yusuf Cengiz Toklu	
17:00	Coffee Break		

TUESDAY 5.06.2018		Session 2-3	17:30 - 19:30
18:00	Session A2-3 (Room A) Chair: G. Stefanou, N. Aravas		
17:30	<i>Non linear homogenization theories with applications to trip steels (22)</i> Ioanna Papadioti , Ilias Bellas, Maria - Ioanna Tzini, Peter Christodoulou and Nikolaos Aravas		
17:50	<i>Preliminary computational approach of plasma dynamic evolution produced by low current table-top pinch plasma devices (48)</i> Alekos Skoulakis, George Koundourakis, Evaggelos Kaselouris, Ioannis Ftilis, Eugene Clark, Nektarios Vlahakis, Makis Bakarezos, Nektarios Papadogiannis, Vasilis Dimitriou and Michael Tatarakis		
18:10	<i>Simulations of laser assisted machining and conventional cutting of AISI H-13 steel (49)</i> Evaggelos Kaselouris, Theodoros Papadoulis, Alekos Skoulakis, Andreas Baroutsos, Ioannis Ftilis, Yannis Orphanos, Makis Bakarezos, Nektarios Papadogiannis, Michael Tatarakis and Vasilis Dimitriou		
18:30	<i>Mesoscale random fields for the apparent material properties of random microstructures (71)</i> George Stefanou , Dimitrios Savvas and Manolis Papadrakakis		
18:50	<i>Multiscale modeling of the mechanical behavior of graphene at finite strains (89)</i> Vissarion Papadopoulos and Gerasimos Sotiropoulos		
19:10	<i>Estimation of insertion loss of sound barriers via finite element method (18)</i> Nikolaos M. Papadakis and Georgios E. Stavroulakis		

WEDNESDAY 6.06.2018		8:00 - 9:00
8:00	Registration (Entrance B of Building for Rooms A + B)	
WEDNESDAY 6.06.2018		9:00 - 11:00
Session A3-1 (Room A) Chair: G. Markou, Y. Tsompanakis		Session B3-1 (Room B) Chair: A. Muradova, A. Yiotis
9:00	<i>The structural integrity of unburied offshore pipelines across active tectonic faults (6)</i> Aikaterini Triantafyllaki , Panos Papanastasiou and Dimitrios Loukidis	<i>The MAEM for the viscoelastic analysis of cylindrical shell panels (44)</i> Aristophanes Yiotis and John Katsikadelis
9:20	<i>Numerical study of offshore natural gas pipelines subjected to submarine landslides (12)</i> Dionysios Chatzidakis , Yiannis Tsompanakis and Prodromos N. Psarropoulos	<i>A spectral collocation method for vibration suppression of smart elastic plates (67)</i> Aliki Muradova , Georgios Stavroulakis and Georgios Tairidis
9:40	<i>Effects of the soil-structure-interaction phenomenon on RC structures with pile foundations (82)</i> George Markou , Mohammad Alhamaydeh and Dina Saadi	<i>Free and forced vibration analysis of gradient elastic beam structures by means of finite element method (66)</i> Ioannis Pegios and George Hatzigeorgiou
10:00	<i>Numerical simulation of atherosclerotic plaque growth in right coronary arteries (16)</i> Igor Saveljic , N. Filipovic, V. Isailovic, Z. Milosevic, D. Nikolic, M. Nikolic, B. Cirkovic-Andjelkovic, T. Exarchos, D. Fotiadis, G. Pelosi and O. Parodi	<i>Solving engineering optimization problems with an efficient hybrid nature-inspired algorithm (21)</i> Alexandros D. Tsipianitis and Yiannis Tsompanakis
10:20	<i>Effect of electrical conductivity and magnetization on the biomagnetic fluid flow over a stretching sheet (56)</i> Ghulam Murtaza, Efstratios Tzirtzilakis and Mohamad Ferdows	<i>Influence of time derivatives in the boundary conditions of viscoelasticity problems (94)</i> Nick Babouskos and John Katsikadelis
10:40		<i>Solving the nonlinear boundary layer flow equations with pressure gradient and radiation (55)</i> Eugenia Petropoulou , Anastasios Siokis, Michail Xenos and S Mahabaleswar
11:00	Coffee Break	

WEDNESDAY 6.06.2018		Parallel Sessions 3-2	11:30 - 14:00
	Session A3-2 (Room A) Chair: S. Natsiavas, G. Stavroulakis	Session B3-2 (Room B) Chair: N. Papadogiannis, C. Providakis	
11:30	<i>A boundary layer approach for the solution of the general single contact frictional problem in multibody dynamics (38)</i> Sotirios Natsiavas and Elias Paraskevopoulos	<i>Vibrational features of the traditional percussion instrument bendir using laser holographic interferometry and finite element analysis (47)</i> Makis Bakarezos, Vasilis Dimitriou , Y. Orphanos, I. Sidiras, E. Kaselouris, M. Tatarakis and N. Papadogiannis	
11:50	<i>Application of an augmented lagrangian methodology to dynamics of multibody systems with equality constraints (39)</i> Elias Paraskevopoulos , Nikolaos Potosakis and Sotirios Natsiavas	<i>A novel model for the static response of coated microbubbles: estimation of elastic properties & simulations (81)</i> Alkmini Lytra and Nikos Pelekasis	
12:10	<i>Seismic response assessment of rigid and flexible rocking frames using simple finite element models (54)</i> Spyridon Diamantopoulos , Kyriakos Koutoulas and Michalis Fragiadakis	<i>A reduced-order model for efficient CFD analysis of Chemical Vapor Deposition Processes (41)</i> Pavlos Gkinis , Alkiviadis Skouteris, Eleni Koronaki and Andreas Boudouvis	
12:30	<i>A spectral stochastic finite element formulation for nonlinear analysis of stochastic structures (86)</i> Ioannis Kalogeris, Vissarion Papadopoulos and Dimitris Giovanis	<i>Effect of surfactants on interfacial stability of multilayer shear flows (68)</i> Anna Kalogirou and Mark Blyth	
12:50	<i>Numerical investigation of the progressive collapse of steel structures due to plan irregularities (3)</i> Amir Homaioon Ebrahimi , Pedro Martinez-Vazquez and Charalampos Baniotopoulos	<i>Numerical evaluation of a teflon based piezoelectric sensor effectivity for the monitoring of early age concrete strengthening (84)</i> Evangelos Liarakos and Costas Providakis	
13:00	<i>Dynamic response of masonry buildings considering the time-dependent soil saturation conditions (37)</i> Alexandros Liratzakis and Yiannis Tsompanakis	<i>Topology optimization of lattice structures (83)</i> Eleni Kokkinaki and Nikolaos Bilalis	
13:30	Closing Ceremony (Room A)		
14:00	Lunch		

NOTES

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Previous Congresses organized by the GRACM

- 1st GRACM, 1992, Athens
- 2nd GRACM, 1996, Chania
- 3rd GRACM, 1999, Volos
- 4th GRACM, 2002, Patras
- 5th GRACM, 2005, Limassol
- 6th GRACM, 2008, Thessaloniki
- 7th GRACM, 2011, Athens
- 8th GRACM, 2015, Volos



Greek Association of
Computational Mechanics
<http://gracm.ntua.gr>



Technical
University
of Crete

