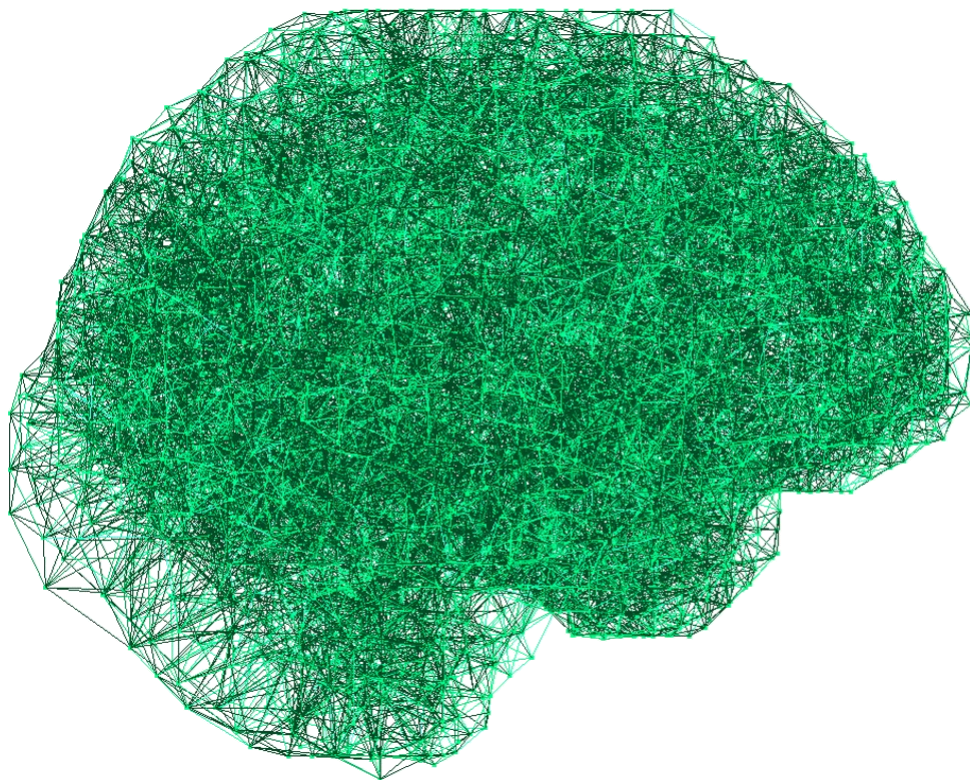


1st HICOMP

19-21 June 2025, Rhodes Island, Greece

1st HELLENIC-ITALIAN CONFERENCE
ON COMPUTATIONAL MECHANICS, BIOMECHANICS
AND MECHANICS OF MATERIALS

PROGRAMME



Conference Secretariat:
Institute of Structural Analysis and Antiseismic Research
National Technical University of Athens, Greece



1st HICOMP

1st Hellenic-Italian Conference on Computational Mechanics, Biomechanics and Mechanics of Materials

**Island of Rhodes, Greece
19-21 June 2025**

Programme



**Institute of Structural Analysis and Antiseismic Research
School of Civil Engineering
National Technical University of Athens**

PROCEEDINGS

1st HICOMP 2025



<https://hicomp2025.org/proceedings>

PROGRAMME OVERVIEW

	Time	Nafsika A	Nafsika B	Nefeli A
DAY 1 - THURSDAY, JUNE 19				
	8:30 - 9:00	REGISTRATION		
	9:00 - 9:20	OPENING		
	9:20 - 10:40	PLENARY LECTURES - I Paris Perdikaris , Julien Yvonnet		
	10:40 - 11:20	Coffee Break		
		TECHNICAL SESSIONS		
	11:20 - 13:20	MS 2 - I BIOMECHANICS	MS 14 - I INNOVATIVE MATERIALS	MS 18 - I ADVANCED DISCRETIZATION METHODS IN COMPUTATIONAL MECHANICS
	13:20 - 14:30	Lunch Break		
		TECHNICAL SESSIONS		
	14:30 - 16:50	MS 2 - II BIOMECHANICS	MS 9 FLUID MECHANICS	MS 8 - I NONLINEAR DYNAMICS
	16:50 - 17:20	Coffee Break		
	17:20 - 19:00	PHD AWARDS - AWARDS CEREMONY		

	Time	Nafsika A	Nafsika B	Nefeli A
DAY 2 - FRIDAY, JUNE 20				
	9:00 - 10:20	PLENARY LECTURES - II Antonio De Simone, Dominik Schillinger		
	10:20 - 11:00	Coffee Break		
		TECHNICAL SESSIONS		
	11:00 - 13:20	MS 11 - I EXTREME MECHANICS OF MATERIALS AND STRUCTURES	MS 17 COMPUTATIONAL APPROACHES FOR THE MODELLING AND ANALYSIS OF MASONRY STRUCTURES	MS 4 ARTIFICIAL INTELLIGENCE, EXPERT AND SMART SYSTEMS
	13:20 - 14:30	Lunch Break		
		TECHNICAL SESSIONS		
	14:30 - 16:30	MS 15 - I MULTISCALE MODELING OF HETEROGENEOUS MICROSTRUCTURED MATERIALS	MS 14 - II INNOVATIVE MATERIALS	MS 3 - I DAMAGE & FRACTURE MECHANICS
	16:30 - 17:00	Coffee Break		
		TECHNICAL SESSIONS		
	17:00 - 18:00	MS 2 - III BIOMECHANICS	MS 10 PLASTICITY, VISCOPLASTICITY AND POROMECHANICS	MS 8 - II NONLINEAR DYNAMICS
	18:00 - 19:00	Italian Groups Joint Meeting		
20:30 - 23:30	Social Dinner			

PROGRAMME OVERVIEW

	Time	Nafsika A	Nafsika B	Nefeli A	
DAY 3 - SATURDAY, JUNE 21					
	9:00 - 10:20	PLENARY LECTURES - III Antonia Larese, Marino Arroyo			
	10:20 - 11:00	Coffee Break			
	11:00 - 13:20	TECHNICAL SESSIONS			
		MS 11 - II EXTREME MECHANICS OF MATERIALS AND STRUCTURES	MS 12 CONTACT MECHANICS AND INTERFACES	MS 18 - II ADVANCED DISCRETIZATION METHODS IN COMPUTATIONAL MECHANICS	
				TS - I COMPUTATIONAL SOLID, MATERIAL AND STRUCTURAL MECHANICS	
	13:20 - 14:30	Lunch Break			
	14:30 - 16:30	TECHNICAL SESSIONS			
		MS 15 - II MULTISCALE MODELING OF HETEROGENEOUS MICROSTRUCTURED MATERIALS	MS 7 MULTIPHYSICS PROBLEMS IN MECHANICS	MS 1 ADDITIVE MANUFACTURING	
	16:30 - 17:00	Coffee Break			
17:00 - 18:40	TECHNICAL SESSIONS				
	MS 2 - IV BIOMECHANICS	TS - II COMPUTATIONAL SOLID, MATERIAL AND STRUCTURAL MECHANICS	MS 3 - II DAMAGE & FRACTURE MECHANICS		

Conference Venue Hotel Facilities



HICOMP 2025 - Programme



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HICOMP 2025 Committees	10
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Greetings from the Chairpersons

Welcome to the **1st Hellenic-Italian Conference on Computational Mechanics, Biomechanics and Mechanics of Materials (1st HICOMP Conference)** organized jointly by the **Greek Association of Computational Mechanics (GRACM)** and by three **Italian AIMETA Groups: AIMETA Group of Biomechanics (GBMA), Italian Group of Computational Mechanics (GIMC) and AIMETA Mechanics of Materials Group (GMA)** under the auspices of the **National Technical University of Athens (NTUA)**.

HICOMP 2025 is a merging of the International Conferences periodically organized by GRACM and the three AIMETA groups: GBMA, GIMC and GMA, in a joint effort to present advanced topics on Computational Mechanics to a broad audience of researchers and engineers. The purpose of this Conference is to bring together the Hellenic and Italian scientific communities on Computational Mechanics, Biomechanics and Mechanics of Materials, to act as a forum for exchanging ideas on topics of mutual interest, and to enhance the links between research groups with complementary activities. We believe both communities will benefit from their exposure to advanced computational methods and software tools, which can highly assist in tackling complex problems and in exploring engineering application areas of high societal relevance.

We want to express our gratitude to the internationally renowned colleagues who accepted the invitation to deliver a Plenary Lecture and to the authors for presenting their contributions and for their efforts to respect the deadlines. Special thanks are extended to the colleagues who have been involved in the organization of the Minisymposia and to the Reviewers who, with their work, contributed to the scientific quality of the conference.

We are confident that the scope of the conferences and the idyllic location of the venue will provide a perfect blend of scientific endeavor and recreation. Thus, we invite you to enjoy the conference and experience an unforgettable stay in Greece.

The Conference Co-chairs



Vissarion Papadopoulos
NTUA, Greece
President of GRACM Administrative Council



Giovanni Garcea
University of Calabria, Italy
President of GIMC

HICOMP 2025 COMMITTEES

Scientific Committee

Paolo Bisegna, University of Rome Tor Vergata, Italy
Andreas G. Boudouvis, National Technical University of Athens, Greece
Stefano de Miranda, University of Bologna, Italy
Massimiliano Fraldi, University of Naples Federico II, Italy
Giovanni Garcea, University of Calabria, Italy
Mihalis Kavousanakis, National Technical University of Athens, Greece
Sonia Marfia, Roma Tre University, Italy
Giovanni Noselli, SISSA International School for Advanced Studies, Italy
Marco Paggi, IMT School for Advanced Studies Lucca, Italy
Vissarion Papadopoulos, National Technical University of Athens, Greece
Vincenzo Parenti Castelli, University of Bologna, Italy
Gianni Pedrizzetti, University of Trieste, Italy
Konstantinos V. Spiliopoulos, National Technical University of Athens, Greece
George Stavroulakis, Technical University of Crete, Greece
George Stefanou, Aristotle University of Thessaloniki, Greece
Efstathios E. Theotokoglou, National Technical University of Athens, Greece

Chairpersons

Vissarion Papadopoulos, *National Technical University of Athens, Greece, President of GRACM Administrative Council*
Giovanni Garcea, *University of Calabria, Italy, President of GIMC*

Conference Guide

Programme Format

The Technical Programme consists of 6 Plenary Lectures, 14 Minisymposia and 1 Thematic Session. In total 130 presentations will take place during the three days of the conference.

Plenary Lecturers



Marino Arroyo

Universitat Politècnica de Catalunya, Spain

25212 WRINKLING AND FOLDING DYNAMICS OF EPITHELIAL SHELLS AT MULTIPLE SCALES
Saturday, 9:40-10:20, Nafsika A



Antonio De Simone

Scienza delle Costruzioni, SISSA, Italy

25273 LOCOMOTION AND SELF-PROPULSION IN BIOLOGICAL AND BIO-INSPIRED SYSTEMS: RECENT RESULTS FROM THE MECHANICS OF ACTIVE MATTER
Friday, 9:00-9:40, Nafsika A



Antonia Larese

Università degli Studi di Padova, Italy

24265 MULTIPHYSICS MODELING OF NATURAL HAZARDS: INNOVATIVE NUMERICAL TECHNIQUES FOR STRUCTURAL IMPACT ASSESSMENT
Saturday, 9:00-9:40, Nafsika A



Paris Perdikaris

University of Pennsylvania, USA

25216 A ROADMAP TOWARDS AI FOUNDATION MODELS IN COMPUTATIONAL MECHANICS
Thursday, 9:20-10:00, Nafsika A



Dominik Schillinger

Technische Universität Darmstadt, Germany

24272 A MULTISCALE-MULTIPHYSICS MODEL OF LIVER REGROWTH
Friday, 9:40-10:20, Nafsika A



Julien Yvonnet

Gustave Eiffel University, France

25214 MACHINE LEARNING-BASED MULTISCALE FRACTURE MODELLING
Thursday, 10:00-10:40, Nafsika A

Minisymposia

MS 1: ADDITIVE MANUFACTURING

MS Organizers: Gianluca Alaimo, Nikolaos Lagaros, Elisabetta Monaldo, Dimitrios Savvas
 MS 1: Saturday, 14:30-16:30, Nefeli A

MS 2: BIOMECHANICS

MS Organizers: Michalis Kavousanakis, Alberto Salvadori, Gerasimos Sotiropoulos, Giuseppe Vairo
 MS 2 - I: Thursday, 11:20-13:20, Nafsika A
 MS 2 - II: Thursday, 14:30-16:50, Nafsika A
 MS 2 - III: Friday, 17:00-18:00, Nafsika A
 MS 2 - IV: Saturday, 17:00-18:40, Nafsika A

MS 3: DAMAGE & FRACTURE MECHANICS

MS Organizers: Daniella Addressi, Eleni Chatzi, Sonia Marfia, Savvas Triantafyllou
 MS 3 - I: Friday, 14:30-16:30, Nefeli A
 MS 3 - II: Saturday, 17:00-18:40, Nefeli A

MS 4: ARTIFICIAL INTELLIGENCE, EXPERT AND SMART SYSTEMS

MS Organizers: George Arampatzis, Federico Pichi, Gianluigi Rozza, George Stavroulakis
 MS 4: Friday, 11:00-13:20, Nefeli A

MS 7: MULTIPHYSICS PROBLEMS IN MECHANICS

MS Organizers: Nikolaos Gerolymos, Simone Morganti, Giuseppe Puglisi, Gerasimos Sotiropoulos
 MS 7: Saturday, 14:30-16:30, Nafsika B

MS 8: NONLINEAR DYNAMICS

MS Organizers: Mauro Corrado, Michalis Fragiadakis, Domenico Magisano, Anastasios Sextos
 MS 8 - I: Thursday, 14:30-16:50, Nefeli A
 MS 8 - II: Friday, 17:00-18:00, Nefeli A

MS 9: FLUID MECHANICS

MS Organizers: Nikolaos Cheimarios, Massimiliano Cremonesi, Antonia Larese, Marco Donato De Tullio, George Papadakis, Luca Patruno
 MS 9: Thursday, 14:30-16:50, Nafsika B

MS 10: PLASTICITY, VISCOPLASTICITY AND POROMECHANICS

MS Organizers: Francesco Liguori, Ambrosios Antonios Savvides, Giulia Scalet, Konstantinos Spiliopoulos
 MS 10: Friday, 17:00-18:00, Nafsika B

MS 11: EXTREME MECHANICS OF MATERIALS AND STRUCTURES

MS Organizers: Francesco Dal Corso, Nikolaos Karathanasopoulos, Giovanni Noselli, Vissarion Papadopoulos, Leopoldo Greco, Francesco Marmo
 MS 11 - I: Friday, 11:00-13:20, Nafsika B
 MS 11 - II: Saturday, 11:00-13:20, Nafsika B

MS 12: CONTACT MECHANICS AND INTERFACES

MS Organizers: Georgios Michaloudis, Michele Serpilli, George Stavroulakis

MS 12: Saturday, 11:00-13:20, Nafsika B

MS 14: INNOVATIVE MATERIALS

MS Organizers: Alberto Corigliano, Nicola Pugno, Aimilios Sideridis, Efstathios Theotokoglou

MS 14 - I: Thursday, 11:20-13:20, Nafsika B

MS 14 - II: Friday, 14:30-16:30, Nafsika B

MS 15: MULTISCALE MODELING OF HETEROGENEOUS MICROSTRUCTURED MATERIALS

MS Organizers: Luca Deseri, Marco Pingaro, Stefanos Pyrialakos, George Stefanou

MS 15 - I: Friday, 14:30-16:30, Nafsika A

MS 15 - II: Saturday, 14:30-16:30, Nafsika A

MS 17: COMPUTATIONAL APPROACHES FOR THE MODELLING AND ANALYSIS OF MASONRY STRUCTURES

MS Organizers: Gregorio Bertani, Anastasios Drougkas, Nicola Nodargi, Savvas Saloustros

MS 17: Friday, 11:00-13:20, Nafsika B

MS 18: ADVANCED DISCRETIZATION METHODS IN COMPUTATIONAL MECHANICS

MS Organizers: Serafeim Bakalakos, Elena Benvenuti, Enzo Marino

MS 18 - I: Thursday, 11:20-13:20, Nefeli A

MS 18 - II: Saturday, 11:00-13:20, Nefeli A

Thematic Session

TS: COMPUTATIONAL SOLID, MATERIAL AND STRUCTURAL MECHANICS

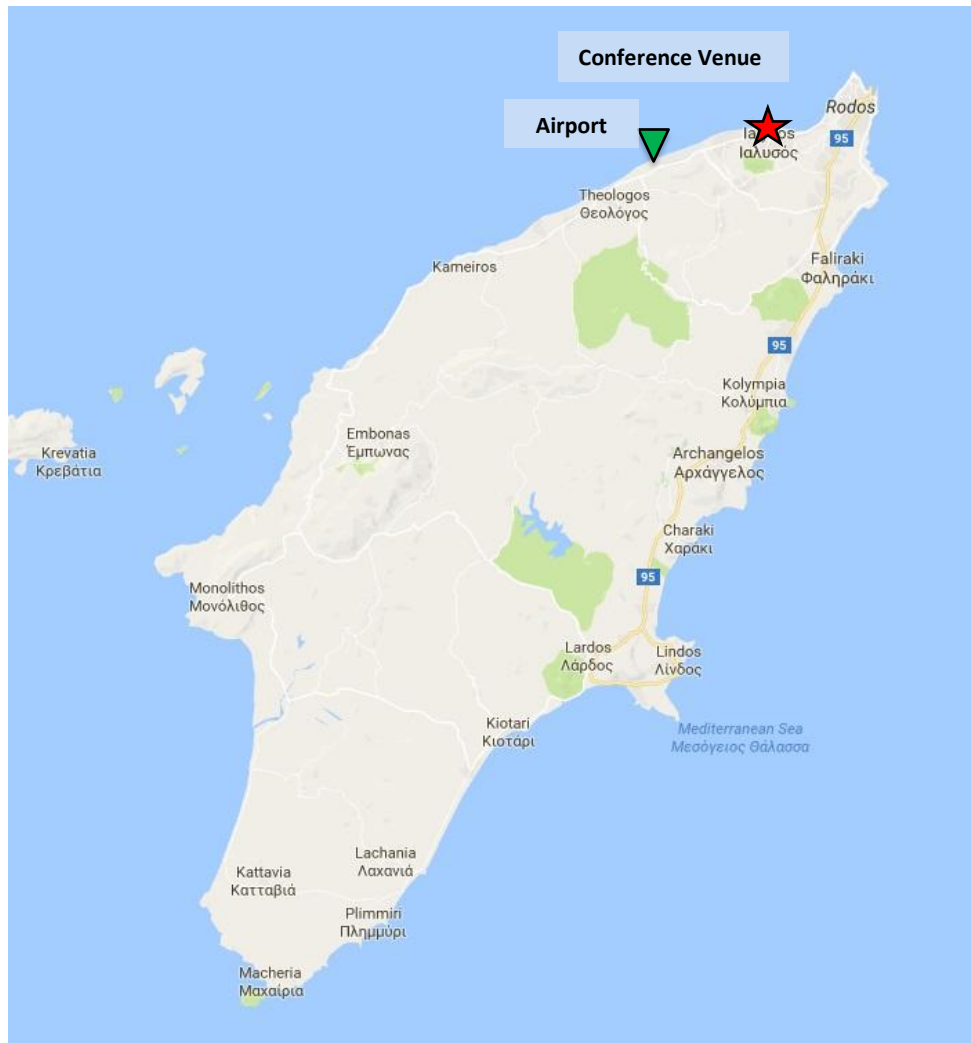
TS - I: Saturday, 11:00-13:20, Nefeli A

TS - II: Saturday, 17:00-18:40, Nafsika B

Conference Venue

The Conference will be held at the Rodos Palace's Convention Center in Rhodes Island. The Rodos Palace International Convention Center is one of the largest conference centers in the Mediterranean region. More than 2.500 conferences and numerous exhibitions have been held on its premises.

The Island of Rhodes



Rhodes is the largest island and the capital of the Dodecanese Island complex in the South-Eastern Aegean Sea. Thanks to its strategic position, the Island has been important since ancient times - it is located at the crossroads of two major sea routes of the Mediterranean between the Aegean Sea and the coast of the Middle East, as well as Cyprus and Egypt.

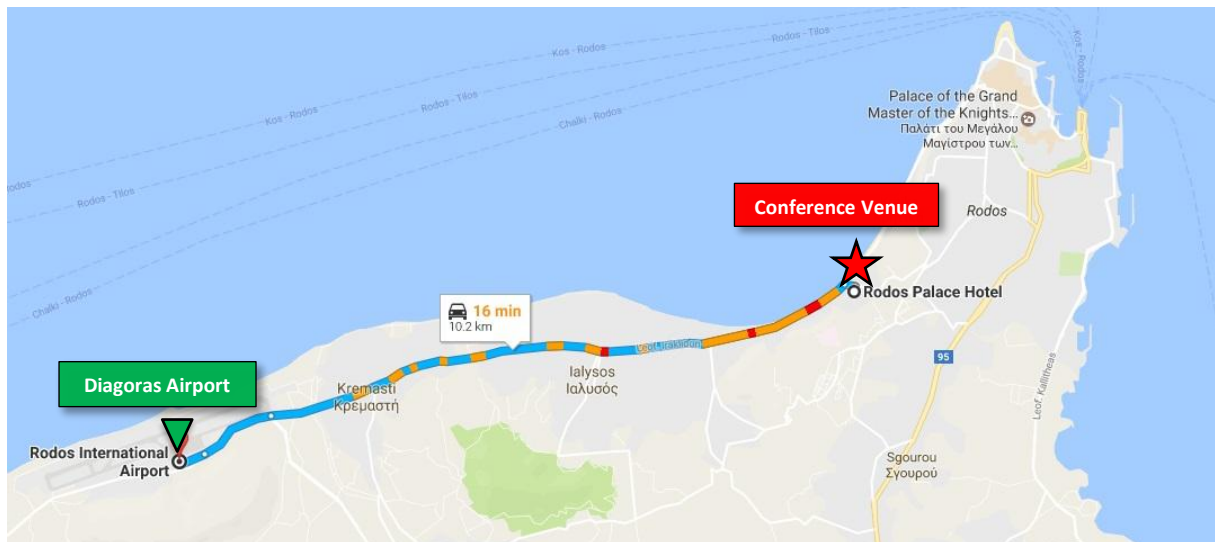
Rhodes, with its bright green hills, rich valleys and uninterrupted line of beaches is a blessed place. One of the landmarks of Rhodes is the Old Town, one of the largest medieval towns in Europe. The Palace of the Grand Master, as well as the Road of the Knights and the Castle of the Knights are certainly the highlights of the Old Town. In 1988 the Medieval City of Rhodes was listed as a UNESCO World Heritage site.

Transportation

Transfer from and to the Airport: “Diagoras” International Airport of Rhodes is located 14 km to the southern – west side of the town of Rhodes, near the village Paradisi. The airport is well connected with other major Greek cities and islands as well as with major European capitals and cities via charter flights, especially during the summer months when the tourism traffic increases.

Rhodes Airport: (+30) 22410 88700, 22410 82302

The route from the airport to the Conference venue by taxi takes approximately 15 minutes, while the average cost of the route is 25 €.



Moving around Rhodes

Taxis, cars, motorbikes and bicycles are available for rent.

By Bike

Galaxy Rent a bike: +30 2241033135

Alfa Rent a bike: +30 2241091416

Opposite to Rodos Palace.

By Bus

Local Bus service is available from the airport or the harbor.

Intercity Busses (KTEL): + 30 22410 27706

By Taxi

Taxi Telephone Center: +30 22410 69800, 22410 69600

Emergency Telephones

Police: 100

Fire brigade: 199

National Line of first response: 166

Rhodes Hospital: + 30 22410 80100 - 80000

Conference Information

Registration and check in

All attendees are required to check in at the Registration Desks.

Identification Badge

Participants are required to always wear badges while in the Conference area.

Secretariat Timetable

Thursday June 19,	8:30 to 19:00
Friday June 20,	9:00 to 19:00
Saturday June 21,	9:00 to 18:30

Papers Presentation - Time and Equipment

The Conference will not provide computers for presentation. All presentations will be made with the presenter's laptop computer using LCD projector. You are kindly requested to test your laptop with the projector in your session room during the break preceding your presentation.

We strongly encourage you to have a backup of your presentation in a USB storage device in the event of your laptop having a technical problem or is incompatible with the LCD projector.

Make sure that you have the necessary cords /converters/adapters so that your laptop will work with Greek power outlets CEE 7/4, also called "Schuko" socket and the LCD projector.

Internet Access

Wireless Internet access will be available in the premises of the Conference venue.

Lunch

The participants may have lunch, buffet style, in Gallery restaurant of Rodos Palace Hotel.

Social Event

Conference Dinner:

Friday **June 20** (20:30 to 23:30), at the Hatzikelis Restaurant in the Old Town of Rhodes.
The buses will leave from Rodos Palace Hotel at 20:00.

Technical Programme

HICOMP OPENING	9:00 - 9:20 Nafsika A
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PLENARY LECTURES

HICOMP PLENARY LECTURES	9:20 - 10:40 Nafsika A
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Chair: *Francesco Marmo, Konstantinos Spiliopoulos*

25216 A ROADMAP TOWARDS AI FOUNDATION MODELS IN COMPUTATIONAL MECHANICS
Paris Perdikaris

25214 MACHINE LEARNING-BASED MULTISCALE FRACTURE MODELLING
Julien Yvonnet, S. Chaouch, Z. Chafia, Q.-C. He, J. Bleyer

10:40 - 11:20 Coffee Break

TECHNICAL SESSIONS

HICOMP MS 2 - I BIOMECHANICS	11:20 - 13:20 Nafsika A
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MS Organizers: *Michalis Kavousanakis, Alberto Salvadori, Gerasimos Sotiropoulos, Giuseppe Vairo*

Chair: *Michalis Kavousanakis, Giuseppe Vairo*

24369 A COMPUTATIONAL STUDY OF MACROPHAGE DYNAMICS AND IMMUNOTHERAPY IMPLICATIONS IN A MULTIPHASE, TUMOR GROWTH MODEL
Ioannis Lampropoulos, Michail Kavousanakis

24319 A MODEL OF CELLULAR MOTILITY AND BLOOD CLOTTING
Alberto Salvadori, Mattia Serpelloni

24512 A ONE-DIMENSIONAL MODEL FOR VISCOELASTIC DYNAMICS IN CELL-MATRIX ADHESION
Jacopo Ciambella, Giulio Lucci, Paola Nardinocchi

24479 COMPUTATIONAL MODELING OF CHEMO-DUROTACTIC CELL MOTION WITHIN ENZYME-DEGRADABLE HYDROGEL
Pierfrancesco Gaziano, Giuseppe Vairo, Michele Marino

24461 COMPETITION BETWEEN DEGRADATION AND INDENTATION IN THE INVASIVE BEHAVIOUR OF AN ACTIVE BIOLOGICAL TISSUE
Gino Antonio Reho, Pau Blanco Dorca, Marino Arroyo Balaguer

24662 DEEP LEARNING FRAMEWORK FOR ACCELERATING PARAMETRIC SIMULATION OF TUMOR GROWTH IN BIPHASIC SOFT TISSUES
Konstantinos Atzarakis, Gerasimos Sotiropoulos, Vissarion Papadopoulos

HICOMP MS 14 - I INNOVATIVE MATERIALS		11:20 - 13:20 Nafsika B
MS Organizers: <i>Alberto Corigliano, Nicola Pugno, Aimilios Sideridis, Efstathios Theotokoglou</i>		
Chair: <i>Alberto Corigliano, Efstathios Theotokoglou</i>		
24440	METASTRUCTURES FOR WAVE PROPAGATION CONTROL <i>Raffaele Ardito, Jacopo Maria De Ponti, Luca Iorio, Alberto Corigliano</i>	
24359	NUMERICAL INVESTIGATION OF BUCKLING CHARACTERISTICS OF SANDWICH MECHANICAL METAMATERIALS STRUCTURES <i>Panagiotis Lymperopoulos, Efstathios Theotokoglou</i>	
24344	ANISOTROPIC LOCALLY RESONANT METAMATERIALS FOR ELASTIC WAVES POLARIZATION <i>David Faraci, Angela Vincenti, Claudia Comi</i>	
24437	EFFECTIVE MATERIAL PROPERTIES OF BEAM LATTICE METAMATERIALS WITH INTERNAL CONTACT <i>Emma La Malfa Ribolla, Chiara Bonvissuto, Giuseppe Giambanco</i>	
24482	ELECTROMECHANICAL CHARACTERIZATION OF ALN THIN FILMS FOR MEMS APPLICATIONS <i>Michele Rosso, Federico Maspero, Annachiara Esposito, Andrea di Matteo, Alberto Corigliano, Raffaele Ardito</i>	
24465	NUMERICAL AND EXPERIMENTAL STUDY OF BISTABLE LATTICE METAMATERIALS FOR ENERGY ABSORPTION <i>Chiara Bonvissuto, Marianna Puccia, Emma La Malfa Ribolla</i>	
HICOMP MS 18 - I ADVANCED DISCRETIZATION METHODS IN COMPUTATIONAL MECHANICS		11:20 - 13:20 Nefeli A
MS Organizers: <i>Serafeim Bakalakos, Elena Benvenuti, Enzo Marino</i>		
Chair: <i>Elena Benvenuti, Enzo Marino</i>		
24514	A LOW-RANK QTT-BASED FINITE ELEMENT METHOD FOR ELASTICITY PROBLEMS <i>Elena Benvenuti, Gianmarco Manzini, Marco Nale, Simone Pizzolato</i>	
24356	HYBRID VIRTUAL ELEMENTS FOR SHEAR DEFORMABLE ELASTIC PLATES <i>Francesco Salvatore Liguori, Antonio Madeo, Sonia Marfia, Giovanni Garcea, Elio Sacco</i>	
24381	THE VE2 METHOD <i>Michele Marino, Christoph Böhm, Blaz Hudobvinik, Peter Wriggers</i>	
24278	ALLEVIATING LOCKING IN ISOGOMETRIC SHELL ANALYSIS USING NATURAL STRAIN APPROACHES AND BÉZIER EXTRACTION <i>Leonardo Leonetti, Domenico Magisano, Giovanni Garcea</i>	
24281	ACCURATE DISPLACEMENT AND STRESS EVALUATION WITH 5- AND 7-DOF LAMINATED PLATE MODELS <i>Domenico Magisano, Leonardo Leonetti, Giovanni Garcea</i>	
24432	A NOVEL ISOGOMETRIC COLLOCATION BEAM FORMULATION FOR GENERAL HYPERELASTIC MATERIALS AT FINITE STRAINS <i>Diego Ignesti, Giulio Ferri, Alessandro Reali, Ferdinando Auricchio, Josef Kiendl, Enzo Marino</i>	

13:20 - 14:30
Lunch Break

TECHNICAL SESSIONS

HICOMP MS 2 - II BIOMECHANICS	14:30 - 16:50 Nafsika A
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MS Organizers: *Michalis Kavousanakis, Alberto Salvadori, Gerasimos Sotiropoulos, Giuseppe Vairo*
Chair: *Gerasimos Sotiropoulos, Alberto Salvadori*

24495 MATHEMATICAL MODELING OF STEM CELL THERAPY IN CARDIAC TISSUE REGENERATION
Alberto Maria Bersani

24525 STOCHASTIC MODELING OF ANTI-PDL1 IMMUNOTHERAPY EFFECT DRIVEN BY EXPERIMENTAL DATA
Gerasimos Sotiropoulos, Vissarion Papadopoulos, Konstantinos Atzarakis

24358 COMPLIANT CARDAN JOINTS FOR LAPAROSCOPIC TOOLS
*Vincenzo Parenti-Castelli, Marco Fava, Michele Conconi, **Nicola Sancisi***

24322 SWIMMING CHANGING LENGTH
Marta Zoppello

24338 CATERPILLAR LOCOMOTION MECHANICS: INSIGHTS FOR BIO-INSPIRED SOFT ROBOTICS
Mario Argenziano, Arsenio Cutolo, Massimiliano Zingales, Massimiliano Fraldi

HICOMP MS 9: FLUID MECHANICS	14:30 - 16:50 Nafsika B
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MS Organizers: *Nikolaos Cheimarios, Massimiliano Cremonesi, Antonia Larese, Marco Donato De Tullio, George Papadakis, Luca Patruno*

Chair: *Nikolaos Cheimarios, Massimiliano Cremonesi*

24413 COMPUTATIONAL APPROACHES FOR CHEMICAL VAPOR DEPOSITION: FROM MULTISCALE MODELING TO DATA-DRIVEN SURROGATE METHODS
***N. Cheimarios**, I.G. Aviziotis, G.P. Gakis, E.D. Koronaki, G. Kokkoris, D. Davazoglou, A.G. Boudouvis, D. Angelidis*

24414 NUMERICAL INVESTIGATION OF KELVIN-HELMHOLTZ INSTABILITY USING VOLUME OF FLUID METHOD
***D. Angelidis**, N. Cheimarios, A.G. Boudouvis*

24430 MULTISCALE COMPUTATIONAL MODELING OF COPPER CVD: BRIDGING REACTOR-SCALE TRANSPORT AND ATOMIC-SCALE GROWTH DYNAMICS
***N. Cheimarios**, A.G. Boudouvis*

24309 SHALLOW WATER EQUATIONS VERSUS ZERO-INERTIA APPROXIMATION WITHIN A GEOMETRICALLY INTRINSIC FRAMEWORK
***Elena Bachini**, Matteo Camporese, Antonia Larese, Mario Putti*

24351 AN EFFICIENT LAGRANGIAN FINITE ELEMENT SOLVER FOR THE SIMULATION OF VISCOELASTIC AND ELASTO-VISCOPLASTIC FREE-SURFACE FLOWS
***Giacomo Rizzieri**, Liberato Ferrara, Massimiliano Cremonesi*

24716 GPU-ENABLED ADJOINT-BASED OPTIMIZATION FOR CAVITATING FLOWS
***F. Libretti**, S. Stalikas, X. Trompoukis, V. Asouti, K.C. Giannakoglou*

DAY 1 - THURSDAY, JUNE 19

HICOMP MS 8 - I: NONLINEAR DYNAMICS

14:30 - 16:50
Nefeli A

MS Organizers: *Mauro Corrado, Michalis Fragiadakis, Domenico Magisano, Anastasios Sextos*

Chair: *Michalis Fragiadakis, Domenico Magisano*

24507 THE PHASE FIELD FRACTURE MODEL IN A DYNAMIC CONTEXT

Mauro Corrado, Arturo Chao Correas

24275 PATH-FOLLOWING STRATEGIES FOR PERIODIC SOLUTIONS IN NONLINEAR DYNAMICS

Domenico Magisano, Andrea Leonetti, Giovanni Formica, Giovanni Garcea

24355 A SEMI-ANALYTICAL FINITE ELEMENT FORMULATION TO MODEL SPATIALLY PERIODIC STRUCTURAL SYSTEMS (PSAFE)

Stefano Mariani, Farhad Zeighami, Alessandro Marzani, Antonio Palermo

24733 NUMERICAL ANALYSIS OF SEISMIC RESPONSE CONTROL IN FRAME STRUCTURES VIA ACTIVE MASS DAMPERS

Riccardo Giacometti, Nicola Grillanda, Vincenzo Mallardo

24394 VIBRATION TRANSMISSIBILITY AND HUMIDITY EFFECT IN COMPACTED WASTE SLUDGE FROM PAPER INDUSTRY

Alice Bertolini, Maria Rosaria Marulli, Fabrizio Scarpa, Maurizio Giordano, Marco Paggi

24649 PERFORMANCE ANALYSIS OF PIEZOELECTRIC CANTILEVER BENDERS IN ACTUATOR AND SENSOR MODE

Hera Yanni, Michalis Fragiadakis

16:50 - 17:20
Coffee Break

PHD AWARDS

HICOMP PHD AWARDS

17:20 - 19:00
Nafsika A

Chair: *Massimiliano Fraldi, Michele Marino, Alberto Salvadori, Michalis Kavousanakis*

GIMC ON THE DATA-DRIVEN REDUCED ORDER MODELLING IN FLUID DYNAMICS

FLUIDS *Antonio Colanera*

GIMC ADVANCED FINITE ELEMENT AND ISOGEOMETRIC MODELING FOR HOMOGENEOUS AND COMPOSITE SOLIDS SHELLS INVOLVING PLASTICITY, LARGE DEFORMATIONS, AND WARPING

Antonella Corrado

GMA MECHANICAL METAMATERIALS DESIGN AND NUMERICAL MODELING VERSUS EXPERIMENTAL CHARACTERIZATION IN STATICS AND DYNAMICS

Pietro Maria Santucci

GBMA MULTISCALE MODELS BASED ON STATISTICAL MECHANICS AND PHYSICALLY-BASED MACHINE LEARNING FOR THE THERMO-HYGRO-MECHANICAL BEHAVIOR OF SPIDER-SILK-LIKE HIERARCHICAL MATERIALS

Vincenzo Fazio

GRACM DEEP LEARNING-ENHANCED MULTI-SCALE SIMULATION APPROACHES FOR COMPLEX MOLECULAR SYSTEMS

Eleftherios Christofi

PLENARY LECTURES

HICOMP PLENARY LECTURES	9:00 - 10:20 Nafsika A
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Chair: *Massimiliano Fraldi, A. Boudouvis*

25273 LOCOMOTION AND SELF-PROPULSION IN BIOLOGICAL AND BIO-INSPIRED SYSTEMS: RECENT RESULTS FROM THE MECHANICS OF ACTIVE MATTER
Antonio De Simone

24272 A MULTISCALE-MULTIPHYSICS MODEL OF LIVER REGROWTH
Dominik Schillinger

10:20 - 11:00 Coffee Break

TECHNICAL SESSIONS

HICOMP MS 11 - I: EXTREME MECHANICS OF MATERIALS AND STRUCTURES	11:00 - 13:20 Nafsika A
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MS Organizers: *Francesco Dal Corso, Nikolaos Karathanasopoulos, Giovanni Noselli, Vissarion Papadopoulos, Leopoldo Greco, Francesco Marmo*

Chair: *Francesco Dal Corso, Nikolaos Karathanasopoulos*

24365 DYNAMIC PERFORMANCE OF ARCHITECTED BEAM STRUCTURES
Irfan Ul Hassan, Agyapal Singh, Andrea Bergamini, Nikolaos Karathanasopoulos

24264 SEQUENTIAL DIRECTIONAL IMPORTANCE SAMPLING FOR RARE EVENT ESTIMATION
Kai Cheng, Iason Papaioannou, Daniel Straub

24302 A LARGE DEFORMATION ISOGEOMETRIC MODEL WITH WARPING FOR THE THERMOMECHANICAL ANALYSIS OF LAMINATED GLASS STRUCTURES
Antonella Corrado, Domenico Magisano, Leonardo Leonetti, Giovanni Garcea

24313 NON-UNIFORM PNEUMATIC ACTUATION OF ELASTOMERIC HONEYCOMBS FOR SWITCHABLE STIFFNESS ANISOTROPY
Ondřej Faltus, Jan Havelka, Pavel Rychnovský, Martin Doškář, Ondřej Rokoš

24298 SNAP-THROUGH PHENOMENA FOR AN INNOVATIVE ENERGY-ABSORBING METAMATERIAL
Nicola Marasciuolo, Domenico De Tommasi, Francesco Trentadue

24400 EFFECT OF SELF-STRESS ON THE TENSILE RESPONSE OF TWO-PLY YARNS: THEORY AND EXPERIMENTS
Claudio Boni, Vincenzo Andrea Muratore

HICOMP MS 17:	11:00 - 13:20
COMPUTATIONAL APPROACHES FOR THE MODELLING AND ANALYSIS OF MASONRY STRUCTURES	Nafsika B

MS Organizers: *Gregorio Bertani, Anastasios Drougkas, Nicola Nodargi, Savvas Saloustros*

Chair: *Gregorio Bertani, Savvas Saloustros*

- 24513** A CONTINUUM DAMAGE MODEL FOR MASONRY BASED ON A MULTI-FAILURE STRENGTH DOMAIN
Gregorio Bertani, Antonio Maria D'Altri, Gabriel Barbat, Luca Patruno, Miguel Cervera, Stefano de Miranda
- 24444** SEISMIC FRAGILITY OF ROCKING RIGID STRUCTURES: A DEEP LEARNING INTERPRETATION
Nicola Nodargi, Paolo Bisegna
- 24459** A MIXED-FINITE ELEMENT METHOD BASED ON HELLINGER-REISSNER PRINCIPLE FOR MASONRY NO-TENSION CURVED MEMBERS
Francesca Nerilli, Daniela Addessi, Elio Sacco
- 24283** ON THE SIMULATION OF MASONRY DYNAMIC BEHAVIOR VIA IMPLICIT TIME INTEGRATION SCHEMES
Antonio Maria D'Altri, Amirhossein Ghezelbash, Georgios Vlachakis, Francesco Messali, Paulo Lourenço, Stefano de Miranda
- 24333** GEOMETRICAL DIGITAL TWINS OF STONE MASONRY WALLS
Savvas Saloustros, Mati Ullah Shah, Katrin Beyer
- 24402** ON SINGULAR TOPOLOGIES IN PLANE TRUSS LAYOUT OPTIMIZATION UNDER MULTIPLE LOADING CONDITIONS
Valentina Bernardinello, Andrea Chiozzi
- 24429** LIMIT ANALYSIS-BASED METHOD FOR STRENGTHENED ARCHES
Davide Pellecchia, Francesco Marmo, Luciano Rosati

HICOMP MS 4:	11:00 - 13:20
ARTIFICIAL INTELLIGENCE, EXPERT AND SMART SYSTEMS	Nefeli A

MS Organizers: *George Arampatzis, Federico Pichi, Gianluigi Rozza, George Stavroulakis*

Chair: *George Stavroulakis, Konstantinos Atzarakis*

- 24559** PHYSICAL PROPERTIES OF MATERIALS FOR ATRAUMATIC INSERTS IN VASCULAR CLAMPS
Janusz Szewczenko, Karolina Goldsztajn, Anna Taratuta, Wojciech Kajzer, Piotr Rychter, Aneta Dynier, Marcin Dynier, Roman Major, Mathias Fleisch, Michael Berer, Christian Pfeifer, Jürgen Lackner, Marcin Basiaga
- 24569** INFLUENCE OF STERILIZATION ON PHYSICOCHEMICAL PROPERTIES OF SiO₂ FILMS DEPOSITED ON NITI ALLOYS
Marcin Basiaga, Barbara Rynkus, Magdalena Antonowicz, Anna Taratuta, Karolina Goldsztajn, Ada Orłowska, Julia Kolasa, Przemysław Kurtyka, Roman Major
- 24648** REDUCED ORDER AND MACHINE LEARNING APPROACHES FOR SURROGATE MODELLING OF FREE-SURFACE FLUID FLOWS
Massimiliano Cremonesi, Max Beckermann, Federico Lanteri
- 24677** MIXED PRECISION NEWTON/GMRES METHOD FOR NONLINEAR SYSTEMS: A CASE STUDY WITH PSEUDO-ARC LENGTH CONTINUATION ON THE 3D BRATU PROBLEM
Nikolaos Cheimarios, Antony Spyropoulos, Christos Antonopoulos

- 24689** QUANTIZED REDUCED-ORDER MODELS IN FLUID DYNAMICS
Antonio Colanera, Luca Magri
- 24327** MULTIFIELD ANALYSIS OF DOUBLY-CURVED LAMINATED STRUCTURES EMPLOYING EQUIVALENT LAYER-WISE THEORIES
Francesco Tornabene, Matteo Viscoti, Rossana Dimitri
- 24520** PINNACOLADA: PHYSICS-INFORMED NEURAL NETWORKS FOR FLEXIBLE DATA MIXOLOGY
Maciej Mikulski, Tadeusz Uhl

13:20 - 14:30
Lunch Break

TECHNICAL SESSIONS

HICOMP MS 15 - I: MULTISCALE MODELING OF HETEROGENEOUS MICROSTRUCTURED MATERIALS	14:30 - 16:30 Nafsika A
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MS Organizers: *Luca Deseri, Marco Pingaro, Stefanos Pyrialakos, George Stefanou*

Chair: *Marco Pingaro, George Stefanou*

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- 24508** RESPONSE VARIABILITY OF COMPOSITE PLATES WITH RANDOM MECHANICAL PROPERTIES BASED ON MICROSTRUCTURE
Panagiotis Gavallas, George Stefanou, Eleftherios Tsivolas
- 24329** NONLOCAL STRAIN GRADIENT ELASTICITY FOR SHEAR NOT DEFORMABLE EULER-BERNOULLI BEAMS IN STATIC BENDING
Aurora Angela Pisano, Paolo Fuschi
- 24496** DATA-DRIVEN APPROACH FOR THE OPTIMIZATION OF TFA HOMOGENIZATION
Gianluca Alaimo, Francesca Rotini, Sonia Marfia, Ferdinando Auricchio, Elio Sacco
- 24325** A DOUBLE SCALE MICROMECHANICAL MODEL FOR THE RESPONSE OF DOUBLE NETWORK HYDROGELS
Gennaro Vitucci, Domenico De Tommasi, Francesco Trentadue
- 24474** COUPLING CONTINUUM TO DISCRETE LATTICE MODELS VIA COMPUTATIONAL HOMOGENIZATION
Daniela Addessi, Cristina Gatta, Alessandra Paoloni, Elio Sacco
- 24340** CHEMO-MECHANICAL ALTERATION OF LIPIDIC MEMBRANES BY GPCRS
Chiara Bernard, Angelo Rosario Carotenuto, Stefania Palumbo, Nicola Maria Pugno, Massimiliano Fraldi, Luca Deseri
- 24666** A MACHINE LEARNING APPROACH FOR A STATISTICAL HOMOGENIZATION METHOD FOR ELASTIC TWO-PHASE MATERIALS
Luzie Schmollack, Sandra Klinge

**HICOMP MS 14 - II
INNOVATIVE MATERIALS**

**14:30 - 16:30
Nafsika B**

MS Organizers: *Alberto Corigliano, Nicola Pugno, Aimilios Sideridis, Efstathios Theotokoglou*

Chair: *Nicola Pugno, Efstathios Theotokoglou*

24497 BIO-INSPIRED INNOVATIVE NANOMATERIALS

Nicola Pugno

24360 COMPUTATIONAL ANALYSIS OF WIND TURBINE BLADES MADE FROM ADVANCED MATERIALS

Efstathios Theotokoglou, Panagiotis Fragkos

24860 CHARACTERIZATION OF THE MECHANICAL AND PIEZORESISTIVE PROPERTIES OF MWCNTS REINFORCED CEMENTITIOUS COMPOSITES: A PRELIMINARY EXPERIMENTAL INVESTIGATION

Annavirginia Lambiase, Gerarda Landi, Giuseppe Lovisi, Claudia Cirillo, Rosa Penna, Luciano Feo

24858 MICROMECHANICAL MODEL OF THE PIEZOELECTRIC RESPONSE IN CNT-REINFORCED CEMENTITIOUS COMPOSITES

Gerarda Landi, Annavirginia Lambiase, Giuseppe Lovisi, Rosa Penna, Luciano Feo

24467 CRACK PROPAGATION IN LATTICE STRUCTURES USING THE AA-FEM

Giuseppe Giambanco, Marianna Puccia, Chiara Bonvissuto, Antonino Spada

24598 A STRAIN ENERGY FUNCTION FOR LARGE ELASTIC DEFORMATIONS OF GRAPHENE-BASED POLYMER NANOCOMPOSITES

Stefano Sirotti, Matteo Pellicari, Angelo Marcello Tarantino

**HICOMP MS 3 - I:
DAMAGE & FRACTURE MECHANICS**

**14:30 - 16:30
Nefeli A**

MS Organizers: *Daniella Addessi, Eleni Chatzi, Sonia Marfia, Savvas Triantafyllou*

Chair: *Daniella Addessi, Savvas Triantafyllou*

24471 FROM HOMOGENIZATION TO EMBEDDED ELEMENTS: A COMPARATIVE STUDY OF DAMAGE MODELLING IN FIBRE-REINFORCED COMPOSITES

George Pissas, Savvas Triantafyllou

24312 MIXED-MODE COHESIVE FRACTURE BY A VARIATIONALLY CONSISTENT VIRTUAL ELEMENT FORMULATION

Umberto Perego, Yujie Chen, Qun Li

24267 NUMERICAL ANALYSES ON KINKING ANGLES AND PROPAGATION PATHS FOR MICROPOLAR SHORT BEND BEAM SPECIMENS

Meral Tuna, Patrizia Trovalusci, Nicholas Fantuzzi, Marco Pingaro

24435 LUMPED DAMAGE MECHANICS FOR BEAMS REGULARIZED BY USING THE PHASE FIELD APPROACH

Giuseppe Giambanco, Giuseppe Fileccia Scimemi, Emma La Malfa Ribolla

24470 FEM-DEM CRACK TRACKING ALGORITHMS FOR QUASI-BRITTLE MATERIALS

Antonino Spada, Marianna Puccia, Elio Sacco, Giuseppe Giambanco

24515 A SCALED BOUNDARY FINITE ELEMENT METHOD FOR PHASE FIELD FRACTURE USING ADAPTIVE REFINEMENT OF QUADTREE AND POLYGONAL ELEMENTS

Ioulia Chrysikou, Savvas Triantafyllou, Chongmin Song, Hongzhe Chen

16:30 - 17:00
Coffee Break

TECHNICAL SESSIONS

HICOMP MS 2 - III BIOMECHANICS

17:00 - 18:00
Nafsika A

MS Organizers: *Michalis Kavousanakis, Alberto Salvadori, Gerasimos Sotiropoulos, Giuseppe Vairo*
Chair: *Michalis Kavousanakis, Giuseppe Vairo*

24708 BONE IMPLANT OPTIMIZATION BASED ON NUMERICAL HOMOGENIZATION
Marcello Vasta, Maria Laura De Bellis, Cristina Falcinelli, Filippo Recrosi, Francesco Luppino

24321 ADVANCED METHODS FOR THE CHEMO-MECHANICAL ANALYSIS OF BIODEGRADABLE BONE IMPLANTS
Lorenzo Zoboli, Pierfrancesco Gaziano, Ludovica Chimenti, Alessio Gizzi, Giuseppe Vairo

24686 DESIGN AND CHARACTERIZATION OF BIOCERAMIC SCAFFOLDS FOR BONE TISSUE ENGINEERING
Luca D'Andrea

HICOMP MS 10: PLASTICITY, VISCOPLASTICITY AND POROMECHANICS

17:00 - 18:00
Nafsika B

MS Organizers: *Francesco Liguori, Ambrosios Antonios Savvides, Giulia Scalet, Konstantinos Spiliopoulos*
Chair: *Francesco Liguori, Ambrosios Antonios Savvides*

24588 ESTIMATION OF RISK OF ROCKFALL BASED ON DETAILED RATING SYSTEM FOR HUMANS IN DANGEROUS SETTINGS OF CULTURAL HERITAGE. TEST CASE ON NISYROS ISLAND, GREECE
Ambrosios-Antonios Savvides, Andreas Antoniou, Efthimios Lekkas

24519 A NUMERICAL APPROACH TO ESTIMATE THE ASYMPTOTIC CYCLIC STRESS IN STRUCTURES SUBJECTED TO CREEP AND PLASTICITY
Konstantinos Spiliopoulos, Vasiliki Tsotoulidi

24589 DESIGN OF PIPELINES AND THE CORRESPONDING RESERVOIR SETTLEMENT TO RESIST EARTHQUAKES AND GEOHAZARDS: TEST CASE IN THE BROADER AREA OF KALOCHORI, THESSALONIKI, GREECE
Ambrosios-Antonios Savvides, Andreas Antoniou, Antonis Markogiannakis

HICOMP MS 8 - II: NONLINEAR DYNAMICS

17:00 - 18:00
Nefeli A

MS Organizers: *Mauro Corrado, Michalis Fragiadakis, Domenico Magisano, Anastasios Sextos*
Chair: *Domenico Magisano*

24415 NONLINEAR FLOW DYNAMICS IN CVD REACTORS: COMPUTATIONAL ANALYSIS OF SYMMETRY BREAKING AND SELF-SUSTAINED PERIODIC FLOWS
N. Cheimarios, G. Kokkoris, A.G. Boudouvis, M. Kavousanakis

24516 NONLINEAR DYNAMICS OF CABLE-NET GLASS FAÇADES UNDER MULTIPLE SUPPORT SEISMIC EXCITATION
Anna Reggio, Francesco Occhinieri, Mauro Corrado

24487 DYNAMIC MODE DECOMPOSITION ANALYSIS OF TWO-PHASE MIXING LAYER FLOW
Salvatore Vecchiè, Alessandro Della Pia

GROUP MEETINGS

18:00 - 19:00
Nafsika A

Italian Groups Joint Meeting

PLENARY LECTURES

HICOMP PLENARY LECTURES	9:00 - 10:20 Nafsika A
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Chair: *Giuseppe Vairo, George Stavroulakis*

24265 MULTIPHYSICS MODELING OF NATURAL HAZARDS: INNOVATIVE NUMERICAL TECHNIQUES FOR STRUCTURAL IMPACT ASSESSMENT
Antonia Larese

25212 WRINKLING AND FOLDING DYNAMICS OF EPITHELIAL SHELLS AT MULTIPLE SCALES
Marino Arroyo

10:20 - 11:00 Coffee Break

TECHNICAL SESSIONS

HICOMP MS 11 - II: EXTREME MECHANICS OF MATERIALS AND STRUCTURES	11:00 - 13:20 Nafsika A
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MS Organizers: *Francesco Dal Corso, Nikolaos Karathanasopoulos, Giovanni Noselli, Vissarion Papadopoulos, Leopoldo Greco, Francesco Marmo*

Chair: *Giovanni Noselli, Vissarion Papadopoulos*

24494 WRINKLING, RESTABILIZATION, AND SECOND WRINKLING OF STRETCHED HYPERELASTIC PARALLELOGRAM-SHAPED MEMBRANES
Francesco Dal Corso, Mohammad Hosein NejabatMeimandi

24475 SWIMMING OF A HYDROGEL RIBBON FROM FLUTTER INSTABILITY
Giovanni Noselli, Ariel Surya Boiardi

25032 MECHANICS OF DEPLOYABLE TENSEGRITY ROOF STRUCTURES FOR NEXT-GENERATION SPORTS STADIUMS
*Rana Nazifi Charandabi, Julia de Castro Motta, Gerardo Carpentieri, Jordi Bonada Bo, **Fernando Fraternali**, Ada Amendola*

24291 WRINKLING OF THIN SHEETS ON A ROTATING CYLINDER
Yuna Ebine, Francesco Dal Corso, Tomohiko Sano

HICOMP MS 12: CONTACT MECHANICS AND INTERFACES	11:00 - 13:20 Nafsika B
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MS Organizers: *Georgios Michaloudis, Michele Serpilli, George Stavroulakis*

Chair: *Michele Serpilli, George Stavroulakis*

24266 SIZE-DEPENDENT IMPERFECT INTERFACE MODELS: ASYMPTOTIC MODELING
Michele Serpilli, Raffaella Rizzoni, Frédéric Lebon, Reinaldo Rodriguez-Ramos

24362 SOLVING NONSMOOTH AND CONTACT PROBLEMS USING PHYSICS INFORMED NEURAL NETWORKS
Georgios Stavroulakis, Aliki Mouratidou, Georgios Drosopoulos

- 24328** CONCENTRATION AND HOMOGENIZATION IN COMPOSITES WITH IMPERFECT CONTACT CONDITIONS: PART II
*Micol Amar, **Daniele Andreucci**, Claudia Timofte*
- 24345** HARD AND SOFT INTERFACE MODELING WITH DAMAGE: THE INFLUENCE OF HYGROTHERMAL AGENTS
Francesco Ascione, Frederic Lebon, Marco Lamberti, Aurelien Mattel Pantel
- 24347** CONCENTRATION AND HOMOGENIZATION IN COMPOSITES WITH IMPERFECT CONTACT CONDITIONS: PART I
Micol Amar
- 24257** ON THE JUSTIFICATION OF KOITER'S MODEL FOR SHELLS: THEORY AND NUMERICAL ANALYSIS
Paolo Piersanti
- 24262** FRICTION IN ROLLING A CYLINDER ON OR UNDER A VISCOELASTIC SUBSTRATE WITH ADHESION
Roohollah Nazari, Antonio Papangelo, Michele Ciavarella

HICOMP MS 18 - II	11:00 - 13:20
ADVANCED DISCRETIZATION METHODS IN COMPUTATIONAL MECHANICS	Nefeli A

MS Organizers: *Serafeim Bakalakos, Elena Benvenuti, Enzo Marino*

Chair: *Elena Benvenuti, Enzo Marino*

- 24462** A COUPLED THERMO-VISCOELASTIC ISOGEOMETRIC MODEL FOR MORPHING SIMULATION OF SHAPE MEMORY POLYMER BEAM SYSTEMS
Farshad Rahmani, Giulio Ferri, Enzo Marino

HICOMP TS - I:
COMPUTATIONAL SOLID, MATERIAL AND STRUCTURAL MECHANICS

- 24680** HIGHER-ORDER THEORIES FOR ARBITRARILY-SHAPED DOUBLY-CURVED SHELLS MADE OF INNOVATIVE MATERIALS
Matteo Viscoti, Rossana Dimitri, Francesco Tornabene
- 24337** SHAPE AND REINFORCEMENT OPTIMISATION OF CONCRETE SHELLS
Alessandro Leonardi, Francesco Ascione, Ali Alraie, Saverio Spadea
- 24396** SIMULATION OF BLOOD FLOW IN PATHOLOGICAL VESSELS: A FINITE VOLUME APPROACH
Konstantina Kyriakoudi, Spyridon Katsoudas, Grigorios Chrimatopoulos, Michail Xenos, Efstratios Tzirtzilakis
- 24683** NONCONFORMING HYDROELASTIC FINITE ELEMENTS FOR MODAL ANALYSIS OF FLOATING SOLAR FARMS
Theodosios Papathanasiou

13:20 - 14:30
Lunch Break

TECHNICAL SESSIONS

HICOMP MS 15 - II: MULTISCALE MODELING OF HETEROGENEOUS MICROSTRUCTURED MATERIALS	14:30 - 16:30 Nafsika A
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MS Organizers: *Luca Deseri, Marco Pingaro, Stefanos Pyrialakos, George Stefanou*

Chair: *Marco Pingaro*

- 24352** EIGENANALYSIS OF ELASTIC NONLOCAL AXISYMMETRIC PLATES
Francesco Scudieri, Francesco Paolo Pinnola, Gioacchino Alotta, Francesco Marotti de Sciarra
- 24739** INVESTIGATING THE ACTIVE ROLE OF RESIDUAL STRESS IN MULTILAMELLAR HIERARCHICAL ARTERIES
Angelo Rosario Carotenuto, Arsenio Cutolo, Stefania Palumbo, Massimiliano Fraldi
- 24447** NOVEL SCALING LAWS FOR FIBER-REINFORCED BILAYERS AT ANY MISMATCH
Andrea Mirandola, Angelo Rosario Carotenuto, Arsenio Cutolo, Stefania Palumbo, Massimiliano Fraldi, Luca Deseri
- 24664** IDENTIFICATION OF MICROPOLAR ELASTIC PARAMETERS IN COMPOSITES THROUGH A GENETIC ALGORITHM
Marco Colatosti, Greta Ongaro, Marco Pingaro, Patrizia Trovalusci

HICOMP MS 7: MULTIPHYSICS PROBLEMS IN MECHANICS	14:30 - 16:30 Nafsika B
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MS Organizers: *Nikolaos Gerolymos, Simone Morganti, Giuseppe Puglisi, Gerasimos Sotiropoulos*

Chair: *Gerasimos Sotiropoulos, Michalis Kavousanakis*

- 25252** SUPERCONTRACTION-INDUCED TORSION IN SPIDER SILKS IS JUST A DUAL POYNTING EFFECT
Giuseppe Puglisi, Giuseppe Saccomandi, Massimiliano Fraldi, Vincenzo Fazio
- 24317** HARD-MAGNETIC SOFT MATERIALS: THEORY AND IMPLEMENTATION
Marco Amato, Martin Horak, Ondrej Faltus, Milan Jirasek
- 24481** MULTIPHYSICS MODELING OF MULTILAYER PVDF-BASED ENERGY HARVESTING DEVICES
Hamdi Ezzin, Silvia Monchetti, Roberto Brighenti
- 24320** POROELASTICITY IN THE PRESENCE OF ACTIVE FLUIDS
Riccardo Cavauto, Massimiliano Fraldi
- 24342** A MULTISCALE APPROACH TO INVESTIGATE THE IMPACT OF THERMAL FLUCTUATIONS ON CRACK PROPAGATION IN FRACTURE AND DECOHESION
Claudia Binetti, Giuseppe Florio, Nicola Maria Pugno, Stefano Giordano, Giuseppe Puglisi
- 24480** A UNIFIED ESHELBIAN-LIKE DETERMINATION OF DEFECT DRIVING FORCES
Salvatore Di Stefano, Claudia Binetti, Giuseppe Puglisi, Stefano Giordano

HICOMP MS 1: ADDITIVE MANUFACTURING	14:30 - 16:30 Nefeli A
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MS Organizers: *Gianluca Alaimo, Nikolaos Lagaros, Elisabetta Monaldo, Dimitrios Savvas*

Chair: *Elisabetta Monaldo, Dimitrios Savvas*

- 24389** DETERMINATION OF MECHANICAL PROPERTIES OF ADDITIVELY MANUFACTURED MATERIALS WITH TOPOLOGICAL UNCERTAINTIES
Dimitrios Savvas, Emanouel Kiokou
- 24750** ASSESSMENT OF 3D PRINTED RC BEAM-COLUMN JOINTS MODELS FOR CENTRIFUGE MODELLING
Medhat Elmorsy, Christian Leinenbach, Michalis Vassiliou
- 24363** EXPERIMENTAL AND NUMERICAL CHARACTERIZATION OF 3D PRINTED THERMOPLASTIC POLYMERS
Daniela Addessi, Cristina Gatta, Alessandra Paoloni, Luca Parente, Rachele Zuppi
- 24464** MODELING FREE-SURFACE VISCOELASTIC FLOWS IN ADDITIVE MANUFACTURING VIA AN ALE-BASED FINITE ELEMENT APPROACH
Francesco Chirianni, Giuseppe Vairo, Michele Marino
- 24473** A SEQUENTIAL TOPOLOGY OPTIMIZATION FRAMEWORK FOR COATED, MANUFACTURABLE STRUCTURES
Dimitrios Savvas, Efsthia Chroni, Vissarion Papadopoulos

16:30 - 17:00 Coffee Break

TECHNICAL SESSIONS

HICOMP MS 2 - IV BIOMECHANICS	17:00 - 18:40 Nafsika A
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MS Organizers: *Michalis Kavousanakis, Alberto Salvadori, Gerasimos Sotiropoulos, Giuseppe Vairo*

Chair: *Gerasimos Sotiropoulos, Giuseppe Vairo*

- 24637** FEM MODELLING AND DIGITAL TWINS OF AORTA ANEURYSMS
Nikolaos Kladovasilakis, Aiki Mouratidou, Konstantinos Kyparissis, Charalambos-Faidon Xydias, Maria-Styliani Daraki, Christos Manopoulos, Anastasios Raptis, Konstantinos Moulakakis, John Kakis, Polyzois Tsantrizos, Georgios Stavroulakis
- 24316** GROWTH AND REMODELLING PHENOMENA IN ARTERIAL WALL THROUGH HOMOGENIZED CONSTRAINED MIXTURE MODELS
Filippo Recrosi, Marcello Vasta, Cristina Falcinelli, Maria Laura De Bellis, Francesco Luppino, Guya Diletta Marconi, Angelo Rosario Carotenuto, Alessio Gizzi
- 24511** HARNESSING THE POWER OF COMPUTATIONAL HEMODYNAMICS FOR CORONARY ARTERY DISEASE PREDICTION
Giuseppe De Nisco, Eline Hartman, Elena Torta, Diego Gallo, Claudio Chiastra, Joost Daemen, Jolanda Wentzel, Umberto Morbiducci
- 24424** ATHEROSCLEROTIC CAROTID VESSELS AND RESIDUAL STRAINS: A FRAMEWORK FOR PATIENT-SPECIFIC STRESS ANALYSES
Alessandro Mastrofini, Michele Marino, Eva Karlöf, Ulf Hedin, T. Christian Gasser

DAY 3 - SATURDAY, JUNE 21

- 24353** PREDICTIVE MODELING OF BLOOD FLOW IN STENOTIC GEOMETRIES USING CFD AND MACHINE LEARNING

Spyridon Katsoudas, Theofanis Aravanis, Michalis Xenos, Efstratios Tzirtzilakis

HICOMP TS - II: COMPUTATIONAL SOLID, MATERIAL AND STRUCTURAL MECHANICS

17:00 - 18:40

Nafsika B

Chair: *Effie Chroni, Ambrosios Antonios Savvides*

- 24416** NUMERICAL EVALUATION OF THE HOMOGENIZED LIMIT DOMAIN OF STRUCTURED METAMATERIALS

Vincenzo Minutolo, Renato Zona

- 24700** NONLINEAR FORCE-BASED 3D BEAM MODEL WITH BOND-SLIP AND TIME-STAGED PRESTRESSING FOR RC AND PC APPLICATIONS

Luca Parente, Daniela Addessi, Chin-Long Lee, Enrico Spacone

- 24723** A COMPUTATIONAL OPTIMIZED CFD SOLVER USING NEWTON'S METHOD, GMRES(M) AND THE FINITE VOLUME METHOD

Grigorios Chrimatopoulos, Michalis Xenos, Efstratios Tzirtzilakis

- 24458** THE UNITY OF NONLOCAL ELASTIC MODELS

Zaixing Huang, Xinfeng Wang, Jian Yu, Xingjing Gu

- 24694** SURFACE-POLYCONVEX MODELS FOR SOFT ELASTIC SOLIDS

Martin Horák, Michal Šmejkal, Martin Kružík

HICOMP MS 3 - II: DAMAGE & FRACTURE MECHANICS

17:00 - 18:40

Nefeli A

MS Organizers: *Daniella Addessi, Eleni Chatzi, Sonia Marfia, Savvas Triantafyllou*

Chair: *Sonia Marfia, Savvas Triantafyllou*

-
- 24477** A MODEL FOR FATIGUE CRACK GROWTH ON COHESIVE INTERFACES

Elisabetta Monaldo, Sonia Marfia, Elio Sacco

- 24500** SHARP CRACKS COMPUTATIONS VIA ENERGY MINIMIZATION

Nunziante Valoroso, Gabriele Cricri

- 24504** INTRUSIVE AND NON-INTRUSIVE STOCHASTIC SBFEM AND ITS APPLICATIONS

Georgios Litainas, Savvas Triantafyllou, Adrian Egger, Eleni Chatzi, Chongmin Song

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