

GIMC-GMA-GBMA 2023

Reggio Calabria 12-14 Luglio

Programma esteso

Versione 7 documento: del 12/07/2023

Martedì, 11 Luglio 2023

18:30 - 20:30 Cocktail di Benvenuto Lido Amuri a mare
Reggio Calabria

Mercoledì, 12 Luglio 2023

9:00 - 9:30	REGISTRAZIONE	Ingresso Architettura
9:30 - 10:30	APERTURA DEI LAVORI E SALUTI ISTITUZIONALI	Aula Magna Architettura Ludovico Quaroni
10:30 - 11:10	RELAZIONE GENERALE Relatore: Davide BIGONI Chair: Paolo Fuschi	Aula Magna Architettura Ludovico Quaroni
11:10 - 11:30	PAUSA CAFFÈ	Terrazza primo piano
11:30 - 13:10	SESSIONE 1A Chair: Sonia Marfia	Aula A1 piano terra
11.30	FE and IGA techniques for the analysis of the axial-symmetric masonry domes	Francesca Roscini, Francesca Nerilli
11.50	An efficient isogeometric formulation for geometrically exact viscoelastic beams	Giulio Ferri, Diego Ignesti, Enzo Marino
12.10	Mixed isogeometric collocation methods with application to cardiac electromechanics	Simone Morganti, Michele Torre, Alessandro Reali
12.30	Crack patterns in masonry panels coupled with the soil	Vincenzo Mallardo, Antonino Iannuzzo
12.50	A new invariant conforming finite element formulation based on the Kirchhoff-Love beam model	Leopoldo Greco, Domenico Castello, Massimo Cuomo

11:30 - 13:10	<p style="text-align: center;">SESSIONE 1B</p> <p style="text-align: center;">Chair: Roberto Brighenti</p>	Aula A3 piano terra
11.30	Static response bounds of steel frames with uncertain semi-rigid connections	Federica Genovese , Alba Sofi
11.50	Study of a bi-mass chain with a band gap, and an engineering implementation based on tensegrity prisms	Luca Placidi , Fabio di Girolamo, Roberto Fedele
12.10	Instabilities at different scales in an innovative metamaterial	Nicola Marasciuolo , Francesco Trentadue, Domenico De Tommasi
12.30	Advances in frequency up-conversion of vibration energy harvesters	Michele Rosso , Raffaele Ardito, Alberto Corigliano
12.50	A multi-physic predictive model for corrosion in concrete	Lorenzo Mingazzi , Francesco Freddi
13:10 - 14:30	PAUSA PRANZO	Atelier terzo piano
14:30 - 15:10	<p style="text-align: center;">RELAZIONE GENERALE</p> <p style="text-align: center;">Relatore: Paolo BISEGNA</p> <p style="text-align: center;">Chair: Anna Pandolfi</p>	Aula Magna Architettura Ludovico Quaroni
15:10 - 16:50	<p style="text-align: center;">SESSIONE 2A</p> <p style="text-align: center;">Chair: Lorenzo Bardella</p>	Aula A1 piano terra
15.10	Self-contractile biopolymer gels: a continuum mechanics perspective	Paola Nardinocchi
15.30	Digital twin models for high-fidelity contact mechanics simulations	Marco Paggi , Jacopo Bonari
15.50	A coupled approach to predict cone-cracks in spherical indentation tests with smooth or rough indenters	Maria Rosaria Marulli , Jacopo Bonari, Josè Reinoso, Marco Paggi
16.10	Energetically orthogonal fracture mode partitioning of the J-integral for cohesive interfaces	Paolo Sebastiano Valvo
16.30	Spontaneous nonreciprocal oscillations in polyelectrolyte gel filaments	Giovanni Noselli , Giancarlo Cicconofri, Valentina Damioli
15:10 - 16:50	SESSIONE 2B	Aula A3 piano terra

Chair: Lorenza Petrini

15.10	A coupled Lattice-Boltzmann and Langevin-dynamics method for simulating transport of nanoscale vesicles in microchannels	Simona Signorile , Dario De Marinis, Alberto Mantegazza, Marco Donato de Tullio
15.30	Analysis of the distribution and orientation of oxygenated and non-oxygenated blood in a Double Outlet Right Ventricle	Dario Collia , Gianni Pedrizzetti
15.50	Modeling and experimental analysis of the relationship between mechanical response and microstructure in arterial tissues	Michela Astore , Emanuele Gasparotti, Emanuele Vignali, Simona Celi, Michele Marino
16.10	A predictive model of epi-off UVA-riboflavin crosslinking treatment on porcine corneas	Alessandra Bonfanti , Anna Pandolfi
16.30	Silicone oil tamponade flow dynamics following everyday movements	Pier Giuseppe Ledda , Federico Angius, Maria Grazia Badas, Tommaso Rossi, Giorgio Querzoli
16:50 - 17:10	PAUSA CAFFÈ	Terrazza primo piano
17:10 - 19:10	SESSIONE 3A Chair: Giovanni Garcea	Aula A1 piano terra
17.10	Advanced computational modeling of the failure behaviour of FRCM composites	Rossana Dimitri, Martina Rinaldi , Marco Trullo, Francesco Tornabene, Caterina Fai
17.30	Formulation of inelastic laws in hemivariational and thermodynamic frameworks	Luca Placidi , Francesco D'Annibale
17.50	Multifield hierarchical metadevices with filtering functionalities	Francesca Fantoni , Emanuela Bosco, Andrea Bacigalupo
18.10	Linear mechanics of rectangular box-girder bridges	Francesca Pancella , Daniele Zulli, Angelo Luongo
18.30	Multi-objective optimisation of variable angle tow composite bridge structures using a multimodal Koiter algorithm	Francesco Salvatore Liguori , Giovanni Zucco, Antonio Madeo
18.50	Onde armoniche piane in miscele sature di terreni	Vincenzo Giacobbe

17:10 - 19:10	SESSIONE 3B Chair: Paola Nardinocchi	Aula A3 piano terra
17.10	Shape morphing in constrained swelling of hydrogels	Roberto Brighenti , Mattia Pancrazio Cosma
17.30	A phase-field model for fibrous materials exhibiting an emerging anisotropy with plastic memory effects	Andrea Rodella , Antonino Favata, Stefano Vidoli
17.50	Electrochemo-poromechanics of ionic polymer metal composites: Theory and Numerics	Lorenzo Bardella , Andrea Panteghini
18.10	Rate-Independent Elastoplastic Ferroelectric Solids	Mawafag. F. Alhasadi, Qiao Sun, Alfio Grillo, Salvatore Federico
18.30	Electro-thermo-chemo-mechanical model and numerical investigations of solid state lithium-ion batteries: theoretical framework	Mattia Serpelloni , Alberto Salvadori, Luigi Cabras
18.50	Solid state lithium battery, thermo–electro–chemo–mechanical numerical modeling	Luigi Cabras , Mattia Serpelloni, Alberto Salvadori

19:10 - 20:00	RIUNIONE GRUPPI GIMC GMA GBMA	Aula A1 piano terra Aula A2 piano terra Aula A3 piano terra
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Giovedì, 13 Luglio 2023

9:00 - 9:40	RELAZIONE GENERALE Relatore: Umberto PEREGO Chair: Stefano Lenci	Aula Magna Architettura Ludovico Quaroni
9:40 - 11:20	SESSIONE 4A Chair: Ferdinando Auricchio	Aula A1 piano terra
9.40	Modelling of extrusion-based bioprinting via Floating Isogeometric Analysis (FLIGA)	Elisabetta Monaldo , Helge Christopher Hille, Laura De Lorenzis
10.00	3D printed PEEK crystallinity prediction: a finite element based numerical workflow	Francesca Rotini , Gianluca Alaimo, Stefania Marconi
10.20	A Particle Finite Element Method for the Simulation of 3D Concrete Printing	Giacomo Rizzieri, Liberato Ferrara, Massimiliano Cremonesi

10.40	Optimizing structure of 3D printed flexible Insoles through homogenization and finite element analysis	Daniele Bianchi , Lorenzo Zoboli, Cristina Falcinelli, Alessio Gizzi
11.00	Mechanical modelling of polymers for tissue bioprinting applications	Lorenzo Zoboli
9:40 - 11:20	SESSIONE 4B Chair: Marco Paggi	Aula A3 piano terra
9.40	Electrically-tunable active metamaterials for damped elastic wave propagation control	Giacomo Elefante, Maria Laura De Bellis , Andrea Bacigalupo
10.00	A metamaterial made of a lattice shell of two orthogonal logarithmic spiral families of fibers	Ivan Giorgio , Alessandro Ciallella, Francesco D'Annibale
10.20	Corotational force-based beam finite element with rigid joint offsets for the analysis of geometrically nonlinear lattice systems	Daniela Addessi, Paolo Di Re , Cristina Gatta, Luca Parente, Elio Sacco
10.40	Discrete homogenization in large deformations for plane beams lattices	Massimo Cuomo, Carmelo Pannitteri , Claude Boutin
11.00	Micromechanical analysis of soft lattice metamaterials accounting for randomly distributed imperfections	Daniela Addessi, Paolo Di Re, Cristina Gatta, Luca Parente , Elio Sacco
11:20 - 11:40	PAUSA CAFFÈ	Terrazza primo piano
11:40 - 13:20	SESSIONE 5A Chair: Daniela Addessi	Aula A1 piano terra
11.40	An optimal-transport finite-particle method for mass diffusion	Anna Pandolfi , Laurent Staineir, Michael Ortiz
12.00	Variational and Topological Methods for Nonlocal Problems	Giovanni Molica Bisci
12.20	Virtual element method for the analysis of cohesive crack propagation	Sonia Marfia , Elisabetta Monaldo
12.40	A continuum approach inspired by a block-based model for the analysis of masonry structures	Gregorio Bertani , Luca Patruno, Antonio Maria D'Altri, Giovanni Castellazzi, Stefano de Miranda
13.00	Enhanced Virtual Element formulation for large displacement analysis	Daniela Addessi, Elena Benvenuti, Cristina Gatta, Marco Nale , Elio Sacco

11:40 - 13:20	<p style="text-align: center;">SESSIONE 5B</p> <p style="text-align: center;">Chair: Marco Donato De Tullio</p>	Aula A3 piano terra
11.40	A new advanced fully mechanical tool for manual mini-invasive surgery	Vincenzo Parenti-Castelli , Lorenzo Dellabartola, Giulia Avallone, Marco Fava, Michele Conconi, Nicola Sancisi
12.00	Durotaxis of tensegrity cell units incorporating asymmetry	Elena Benvenuti , Gino Antonio Reho, Stefania Palumbo, Massimiliano Fraldi
12.20	Actin based motility unveiled: how chemical energy is converted into motion	Alberto Salvadori , Claudia Bonanno, Mattia Serpelloni, Matteo Arricca, Robert McMeeking
12.40	A computational model of cell motility in biodegradable hydrogel scaffolds for tissue engineering applications	Pierfrancesco Gaziano , Michele Marino
13.00	An in-silico approach for process design in extrusion-based bioprinting	Francesco Chirianni , Giuseppe Vairo, Michele Marino
13:20 - 14:40	PAUSA PRANZO	Atelier terzo piano
14:40 - 16:40	<p style="text-align: center;">SESSIONE 6A</p> <p style="text-align: center;">Chair: Stefano De Miranda</p>	Aula A1 piano terra
14.40	Extension of the novel Line Element-less Method for plates shaped with re-entrant angles	Antonina Pirrotta , Carsten Proppe
15.00	A generalized fiber model for the elastoplastic analysis of steel beams including normal stress-shear stresses interaction	Giovanni Garcea , Leonardo Leonetti, Domenico Magisano
15.20	Higher order theories for the structural analysis of anisotropic shells of arbitrary shape with general boundary conditions	Francesco Tornabene, Matteo Viscoti , Rossana Dimitri
15.40	A self-equilibrated assumed stress solid-shell finite element for large deformations problems	Francesco Salvatore Liguori, Giovanni Zucco, Antonio Madeo
16.00	Shear deformable plate with substructuring approach in the SGBEM: displacement method	Terravecchia Silvio Salvatore , Zito Marianna
16.20	Large deformation Kirchhoff-Love shell model hierarchically enhanced with zigzag effects and its spline-based discretization	Domenico Magisano , Antonella Corrado, Leonardo Leonetti, Josef Kiendl, Giovanni Garcea

14:40 - 16:40	SESSIONE 6B Chair: Michele Marino	Aula A3 piano terra
14.40	Validating the EUCLID Approach for Unsupervised Discovery of Hyperelastic Constitutive Laws Using Experimental Data	Maurizio Ricci , Pietro Carrara, Moritz Flaschel, Siddhant Kumar, Sonia Marfia, Laura De Lorenzis
15.00	Numerical simulation of crack propagation using interphases and a FEM-VEM environment.	Giuseppe Giambanco, Marianna Puccia, Elio Sacco, Antonino Spada
15.20	Fatigue life prediction of Ni-Ti peripheral stents using a fracture mechanics approach: a proof of concept	Lorenza Petrini , Alma Brambilla, Francesca Berti, Luca Patriarca
15.40	Experiments and fracture mechanics-based modeling on the puncturing of soft bulk solids and membranes	Matteo Montanari, Andrea Spagnoli
16.00	Geometric control by active mechanics of epithelial gap closure dynamics	Giulia Pozzi , Pasquale Ciarletta
16.20	A preliminary assessment of a new surgical procedure for the treatment of primary bladder neck obstruction through a numerical biomechanical model	Michele Serpilli, Stefano Lenci , Gianluca Zitti, Marco Dellabella, Daniele Castellani, Micaela Morettini, Laura Burattini
16:40 - 17:00	PAUSA CAFFÈ	Terrazza primo piano
17:00 - 19:00	SESSIONE 7A Chair: Elena Benvenuti	Aula A1 piano terra
17.00	Isogeometric analysis: advances and applications with a special focus on dynamic problems	Alessandro Reali
17.20	An improved isogeometric collocation method for the explicit dynamics of geometrically exact beams	Giulio Ferri , Enzo Marino
17.40	An event-driven approach for the nonlinear time-history analysis of multi-block masonry structures under seismic excitation	Nicola A. Nodargi , Paolo Bisegna
18.00	A detailed study of high-order phase-field modeling for brittle fracture	Luigi Greco , Alessia Patton, Alessandro Marengo, Matteo Negri, Umberto Perego, Alessandro Reali
18.20	Integrating Neural Networks into the Parallel Rheological Framework for Improved Constitutive Modeling of Elastomers	Federico Califano , Jacopo Ciambella

18.40	Nonperiodic masonry pattern generation and numerical analysis of cultural heritage structures	Antonio Maria D'Altri , Mauricio Pereira, Stefano de Miranda, Branko Glisic
17:00 - 19:00	SESSIONE 7B Chair: Giuseppe Tomassetti	Aula A3 piano terra
17.00	A sustainable Portland pozzolana cement with recycled volcanic ash	Loredana Contrafatto , Salvatore Gazzo, Daniele Calderoni
17.20	Mechanical behaviour and strain concentration in lattice material evaluated by means of discrete homogenization	Salvatore Gazzo , Loredana Contrafatto, Massimo Cuomo
17.40	A linear theory for granular materials with rotating grains	Pasquale Giovine
18.00	An affine viscoelastic fully anisotropic model for composite materials with distributed fibres	Jacopo Ciambella, Giulio Lucci , Paola Nardinocchi
18.20	Mechanical-electrical failure correlation in metal nanowire electrodes	Davide Grazioli , Lucia Nicola, Angelo Simone
18.40	Distal and non-symmetrical crack nucleation in reduced order peridynamic plate theory	Riccardo Cavuoto , Arsenio Cutolo, Luca Deseri, Massimiliano Fraldi
20:45	CENA SOCIALE	Villa Le Ginestre Villa San Giovanni

Venerdì, 14 Luglio 2023

9:00 - 9:40	RELAZIONE GENERALE Relatore: Elio SACCO Chair: Luciano Rosati	Aula Magna Architettura Ludovico Quaroni
9:40 - 11:00	SESSIONE VINCITORI PREMI Tesi PhD Chair: Patrizia Trovalusci	Aula Magna Architettura Ludovico Quaroni
9.40	Multiscale modeling of vascular adaptation	Anna Corti
10.00	Model order reduction of nonlinear vibratory systems through direct parametrisation of invariant manifolds	Andrea Opreni
10.20	Coupling mechanics with species diffusion in engineering modelling	Alessandro Leronna , Norman Fleck, Lorenzo Bardella
10.40	Variational Methods to Fracture- Phase field Approach	Pavan Kumar Asur , Heinz E Pettermann, Jose Reinoso,

Marco Paggi

11:00 - 11:20 PAUSA CAFFÈ Terrazza primo piano

11:20 - 13:20 SESSIONE 8A Aula A1 piano terra

Chair: Leonardo Leonetti

- 11.20 Non-smooth dynamics of tapping mode AFM Pierpaolo Belardinelli, **Stefano Lenci**
- 11.40 Parameter identification strategies for new classes of phenomenological hysteretic models **Salvatore Sessa**, Nicolò Vaiana, Davide Pellicchia
- 12.00 Improved pseudo-force method for time domain analysis of fractional oscillators under stochastic excitation **Giuseppe Muscolino**, Alba Sofi
- 12.20 Dynamic identification of slender structures by means of stochastic subspace identification method Massimo Cuomo, **Simone Scalisi**
- 12.40 Energy Approach both for Fatigue Limit and Life Expectation of Rod Lift Systems **Matteo Tommaso Di Tullio**
- 13.00 A validated biaxial test specimen design for simplifying results interpretation **Gennaro Vitucci**

11:20 - 13:20 SESSIONE 8B Aula A3 piano terra

Chair: Massimiliano Fraldi

- 11.20 A fluid structure interaction problem of the vibration frequencies of the eye bulb **Giuseppe Tomassetti**, Nicoletta Tambroni, Rodolfo Repetto
- 11.40 Active dynamics of self-contracting polymer gels subject to different chemo-mechanical environments **Filippo Recrosi**
- 12.00 Swimming of active filaments emerging from mechanical instabilities **Ariel S. Boiardi**, Giovanni Noselli
- 12.20 Phase field modeling and FEM simulation of bone fracture occurring in human vertebra after screws fixation procedure **Pietro Lenarda**, Deison Preve, Daniel Bianchi, Alessio Gizzi
- 12.40 Investigating the influence of chemo-mechanical coupling in the remodelling of lipid membranes **Chiara Bernard**, Angelo Rosario Carotenuto, Mario Argenziano, Massimiliano Zingales, Massimiliano Fraldi, Luca Deseri
- 13.00 Graded damage VS phase-field for modeling quasi-brittle fracture **Nunziante Valoroso**

13:20 - 14:40	PAUSA PRANZO	Atelier terzo piano
14:40 - 16:20	SESSIONE 9A Chair: Maria Laura De Bellis	Aula A1 piano terra
14.40	A simple method to compute a closed-form spectral decomposition of a symmetric second order tensor	Andrea Panteghini
15.00	Form Finding of Membrane Shells with Isogeometric Analysis	Claudia Chianese , Francesco Marmo, Luciano Rosati
15.20	Material point method and isogeometric analysis	Leonardo Leonetti
15.40	Multiscale strategy for identification of elastic and fracture properties of polymer-based nanocomposites	Greta Ongaro , Marco Pingaro, Patrizia Trovalusci, Roberta Bertani
16.00	Modeling of polycrystalline composites coupling virtual elements and nonlinear interface finite elements	Cristina Gatta , Marco Pingaro, Daniela Addessi, Patrizia Trovalusci
14:40 - 16:40	SESSIONE 9B Chair: Loredana Contrafatto	Aula A3 piano terra
14.40	Artificial Neural Networks for evaluation of cracks in masonry arches	Eugenio Ruocco , Vincenzo Musone, Antonino Iannuzzo
15.00	Analysis of fracture propagation by the Hybrid Equilibrium Element formulation	Francesco Parrinello
15.20	Crack propagation procedure for designing hollowed structures	Simone Palladino , Luca Esposito, Renato Zona, Vincenzo Minutolo, Elio Sacco
15.40	Pre-stressed wire breakage detection using Back Propagation Neural Networks with experimental and numerical datasets	Sasan Farhadi , Mauro Corrado, Giulio Ventura
16.00	Limit Analysis through Residual dislocation based Finite Elements and nonlinear compatibility domain secant approximation with penalty factor	Renato Zona , Luca Esposito, Simone Palladino, Vincenzo Minutolo
16:20 - 17:00	CHIUSURA LAVORI	Aula A1 piano terra