

# ICSCES 2021

12 - 13 July Ancona, ITALY

The International Conference of Steel and Composite for Engineering Structures.

Università Politecnica delle Marche Ancona, Italy

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<u>Conference Chairs</u>	<u>Head of organization committee</u>
<ul style="list-style-type: none"><li>• Prof. Roberto Capozucca</li><li>• Ph.D. Samir Khatir</li></ul>	<ul style="list-style-type: none"><li>• Ph.D. Erica Magaganini</li><li>• Ph.D. Samir Khatir</li><li>• Ph.D. Cuong Le Thanh</li><li>• Ph.D. Brahim Benaissa</li></ul>

<u>Scientific Committee</u>	
<ul style="list-style-type: none"><li>• Prof. R. Venkata Rao (India)</li><li>• Prof. Valeria Corinaldesi (Italy)</li><li>• Prof. Nguyen Xuan Hung (Vietnam)</li><li>• Prof. Francesco Iacoviello (Italy)</li><li>• Prof. Maurizio Brocchini (Italy)</li><li>• Dr. Muhamad Norhisham (Malaysia)</li><li>• Prof. Magd Abdel Wahab (Belgium)</li><li>• Prof. Faouzi Hosni (Tunisia)</li><li>• Prof. Gilbert-Rainer Gillich (Romania)</li><li>• Prof. Yusuf Sahin (Turkey)</li><li>• Prof. Stefano Lenci (Italy)</li><li>• Prof. Enes Sukic (Serbia)</li><li>• Prof. Idir Belaidi (Algeria)</li><li>• Dr. Brahim Benaissa (Japan)</li><li>• Prof. Abdeloued Tounsi (Algeria)</li><li>• Prof. Roger Serra (France)</li><li>• Dr. Bendin Kouider (Germany)</li><li>• Dr. Emad Ghandourah (Saudi Arabia)</li></ul>	<ul style="list-style-type: none"><li>• Prof. Bui Tien Thanh (Vietnam)</li><li>• Prof. Seyedali Mirjalili (Australia)</li><li>• Dr. Erica Magagnini (Italy)</li><li>• Dr. Samir Tiachacht (Algeria)</li><li>• Prof. Mohamed Kchaou (Tunisia)</li><li>• Dr. Abdelrachid Hamrani (Canada)</li><li>• Prof. Samir Alaoui (France)</li><li>• Dr. Le Thanh Cuong (Vietnam)</li><li>• Dr. Sameera Naib (Netherlands)</li><li>• Prof. Taazount Mustapha (France)</li><li>• Prof. R-Ali Jafari-Talookolaei (Iran)</li><li>• Dr. Marta Słowik (Poland)</li><li>• Dr. Lassaad Ben Fekih (Belgium)</li><li>• Dr. Bilal Mokrani (Netherlands)</li><li>• Prof. Mahmoudi Saïd (Belgium)</li><li>• Prof. John C Brigham (USA)</li><li>• Prof. Mohamed Kamel Riahi (UAE)</li></ul>

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## [Keynote speaker](#)



[Prof. Francisco Chinesta](#)  
[ENSAM Institute of Technology \(France\)](#)  
[Computational physics](#)

Francisco Chinesta is currently full Professor of computational physics at ENSAM Institute of Technology (Paris, France), Honorary Fellow of the “Institut Universitaire de France” – IUF- and Fellow of the Spanish Royal Academy of Engineering. He is the president of the ESI Group scientific committee and director of its scientific department. He was (2008-2012) AIRBUS Group chair professor and since 2013 he is ESI Group chair professor on advanced modeling and simulation of materials, structures, processes and systems. He received many scientific awards (among them the IACM -International Association of Computational Mechanics- Zienkiewicz award (New York, 2018), the ESAFORM award, ...) in four different fields: bio-engineering, material forming processes, rheology and computational mechanics (with major contributions in Model Order Reduction and Engineered Artificial Intelligence, both integrated in the so-called Hybrid paradigm of Simulation Based Engineering).

He is author of more than 320 papers in peer-reviewed international journals and more than 900 contributions in conferences. He was president of the French association of computational mechanics (CSMA) and is director of the CNRS research group (GdR) on model order reduction techniques in engineering sciences, editor and associate editor of many journals. He received many distinctions, among them the Academic Palms, the French Order of Merit, ... in 2018 the Doctorate Honoris Causa at the University of Zaragoza (Spain) and in 2019 the Silver medal from the French CNRS.



[Prof. Seyedali Mirjalili](#)  
[Torrens University \(Australia\)](#)  
[Centre for Artificial Intelligence Research and Optimization](#)

Associate Professor Seyedali (Ali) Mirjalili is the director of the Centre for Artificial Intelligence Research and Optimization at Torrens University Australia. He is internationally recognized for his advances in Swarm Intelligence and Optimization, including the first set of algorithms from a synthetic intelligence standpoint – a radical departure from how natural systems are typically understood – and a systematic design framework to reliably benchmark, evaluate, and propose computationally cheap robust optimization algorithms. Ali has published over 200 publications with over 20,000 citations and an H-index of 45. As the most cited researcher in Robust Optimization, he is in the list of 1% highly-cited researchers and named as one of the most influential researchers in the world by Web of Science.

Ali is a senior member of IEEE and an associate editor of several journals including Neurocomputing, Applied Soft Computing, Advances in Engineering Software, Applied Intelligence, and IEEE Access. His research interests include Robust Optimization, Engineering Optimization, Multi-objective Optimization, Swarm Intelligence, Evolutionary Algorithms, and Artificial Neural Networks. He is working on the application of multi-objective and robust meta-heuristic optimization techniques as well.

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## 12<sup>th</sup> July

09:00-09:15	Conference open By Prof Roberto Capozucca Welcome greeting from the academic authorities Conference Introduction By PhD Samir Khatir
09:15-10:00	<b>Keynote speaker Prof. Francisco Chinesta</b>

### First session

*Mini Symposium: Composite Materials for strengthening interventions of masonry structures: experiments, modelling and analysis*  
*Chair session: PhD Erica Magagnini*

Composite-2032	10:00-10:15	FRP strengthening systems applied on curved masonry pillars: a review of experimental tests and numerical approaches. Tommaso Rotunno, Mario Fagone, Elisa Bertolesi, Ernesto Grande, Gabriele Milani.
	10:15-10:20	Discussion
SY-0075	10:20-10:35	ConFiRMa: calibration of a numerical model for Fibre-Reinforced Mortar analysis with OOFEM code. Ingrid Boem, Bořek Patzák and Alena Kohoutková
	10:35-10:40	Discussion
Composite-2029	10:40-10:55	Micromechanical model accounting for creep and damage of masonry. Aida Chaker, Amna Rekik, Andre Langlet, and Ridha Hambli
	10:55-11:00	Discussion
Composite-2026	11:00-11:15	Unveiling the complexity of twin church bells dynamics using ambient vibration tests. Angela Ferrante, Ersilia Giordano, Gianluca Standoli, Francesca Bianconi, Francesco Clementi and Stefano Lenci.
	11:15-11:20	Discussion
Composite-2017	11:20-11:35	Experimental and numerical investigation of masonry arch structures reinforced with CFRP. G. Bilotti, D. Bruno and R.S. Olivito
	11:35-11:40	Discussion
11:40-12:00		<b>Break</b>

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## *Second session*

### *Mini Symposium: Composite Materials for strengthening interventions of masonry structures: experiments, modelling and analysis*

*Chair session: PhD Ingrid Boem*

<i>Composite-2011</i>	12:00-12:15	Application of digital image correlation to compression tests on tuff masonry panels strengthened by textile reinforced mortar (TRM). Gianluca Maracchini, Gianluca Chiappini, Jacopo Donnini, Enrico Quagliarini, Valeria Corinaldesi, Stefano Lenci
	12:15-12:20	Discussion
<i>Composite-2031</i>	12:20-12:35	Numerical analysis of the bond behaviour of FRP and FRCM systems applied on curved structures. Ernesto Grande, Gabriele Milani, and Roberto Capozucca
	12:35-12:40	Discussion
<i>Composite-2027</i>	12:40-12:55	Dynamic identification and numerical model updating of a masonry tower. Ersilia Giordano, Angela Ferrante, Georgios Panagiotis Salachoris, Mattia Schiavoni, Francesco Clementi and Stefano Lenci.
	12:55-13:00	Discussion
<i>Composite-2015</i>	13:00-13:15	Bond of composite CFRP/GFRP strips in the strengthening of brickwork walls. Roberto Capozucca, Erica Magagnini and Giuseppe Pace
	13:15-13:20	Discussion
<i>Composite-2030</i>	13:20-13:35	Modelling single-lap shear tests on masonry elements strengthened by FRCM Francesca Ferretti and Claudio Mazzotti
	13:35-13:40	Discussion
<i>13:40-14:30</i>		<b>Break</b>

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## *Third session*

### *Mini Symposium: Composite Materials for strengthening interventions of masonry structures: experiments, modelling and analysis*

*Chair session: prof. Francesco Clementi*

<i>Composite-2010</i>	14:30-14:45	Finite element modelling of FRP-reinforced masonry triplets subjected to shear tests Alessandra Cameli, Nicola Cefis and Roberto Fedele
	14:45-14:50	Discussion
<i>Composite-2014</i>	14:50-15:05	Experimental, analytical, and numerical investigation on bond behaviour of basalt TRM systems Fazzi Eloisa, Misseri Giulia, Rovero Luisa and Gianfranco Stipo
	15:05-15:10	Discussion
<i>Composite-2035</i>	15:10-15:25	Influence of the reinforcement of cement mortars with FRC in load-bearing and non-bearing masonry in buildings under seismic action. Antonio La Tegola and Walter Mera
	15:25-15:30	Discussion
<i>Composite-2028</i>	15:30-15:45	Strengthening methods of masonry historic buildings with composite materials. Case study Timisoara Iasmina Onescu and Chieffo Nicola
	15:45-15:50	Discussion
<i>Composite-2037</i>	15:50-16:05	Modelling of masonry structures: the case study of Della Rovere fortress in Senigallia (AN) Erica Magagnini and Elisa Bettucci
	16:05-16:10	Discussion
<i>Composite-2039</i>	16:10-16:25	Closed-form approach for the analysis of FRP-to-brittle support debonding mechanisms E. Bertolesi, G. Milani, E. Grande and R. Capozucca
	16:25-16:30	Discussion
<i>Composite-2040</i>	16:30-16:45	Different choices of steel and/or Composite Reinforcements for different types of masonry vaults A. Viskovic
	16:45-16:50	Discussion
		End

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## 13<sup>th</sup> July

9:15-9:30 Introduction Ph.D. Samir Khatir

9:30-10:20 **Keynote speaker Prof. Seyedali Mirjalili**

### Fourth session

*Concrete, Steel and Composite Materials for engineering structures: theoretical and analytical methods, numerical simulations and experimental techniques.*

*Chair session: PhD Samir Khatir*

<i>Composite-2013</i>	10:20-10:35	Effect of nylon fabric reinforcement on the mechanical performance of adhesive joints made between glass and GFRP. P. Munafò, F. Marchione, G. Chiappini, and M. Marchini.
	10:35-10:40	Discussion
<i>Steel-2012</i>	10:40-10:55	Evaluating structural safety of trusses using Machine Learning. Tran-Hieu Nguyen, and Anh-Tuan Vu
	10:55-11:00	Discussion
<i>Composite-2018</i>	11:00-11:15	RC beams damaged by cracking and strengthened with NSM CFRP/GFRP rods. R. Capozucca, E. Magagnini, M.V. Vecchietti, and Samir Khatir.
	11:15-11:20	Discussion
<i>Steel-2011</i>	11:20-11:35	Weight optimization of steel lattice transmission towers based on Differential Evolution and machine learning classification technique. Nguyen and Dinh-Hoa Nguyen
	11:35-11:40	Discussion
<i>11:40-12:00</i>		<b>Break</b>

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## *Fifth session*

***Concrete, Steel and Composite Materials for engineering structures: theoretical and analytical methods, numerical simulations and experimental techniques.***

*Chair session: Dr. Seguni Meriem*

<i>Steel-2010</i>	12:00-12:15	Influence of 3d-printing parameters on the mechanical properties of 17-4PH stainless steel produced through Selective Laser Melting. Francesca Romana Andreacola, Ilaria Capasso, Letizia Pilotti, and Giuseppe Brando.
	12:15-12:20	Discussion
<i>Composite-2021</i>	12:20-12:35	Modelling of Low-velocity Impacts on Composite Beams in Large Displacements. Mattia Utzeri, Marco Sasso, Gianluca Chiappini, and Stefano Lenci
	12:35-12:40	Discussion
<i>Composite-2038</i>	12:40-12:55	The role of aggregate granulation on crack formation in concrete structures Marta Slowik
	12:55-13:00	Discussion
<i>Composite-2020</i>	13:00-13:15	The influences of the number of concrete dowels to shear resistance based on push out tests. Anh-Tuan Vu, Ngoc-Duc Han, Trung-Kien Nguyen and Dinh-Hoa Nguyen
	13:15-13:20	Discussion
<i>Steel-2018</i>	13:20-13:35	Combination of Intermittent Search Strategy and an Improve Particle Swarm Optimization algorithm (IPSO) for model updating. Thanh Cuong-Le, Thanh Sang-To, Hoang Le-Minh, and Samir Khatir.
	13:45-13:55	Discussion
<i>13:20-14:30</i>		<b>Break</b>

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## *Sixth session*

### *Concrete, Steel and Composite Materials for engineering structures: theoretical and analytical methods, numerical simulations and experimental techniques.*

*Chair session: prof. Marta Slowik*

<i>Composite-2016</i>	14:30-14:45	Forced Vibration Analysis of Laminated Composite Plates under the Action of a Moving Vehicle HA Mobaraki, RA Jafari-Talookolaei, PS Valvo, R Haghani Dogaheh
	14:45-14:50	Discussion
<i>Composite-2036</i>	14:50-15:05	Structural Health Monitoring for RC beam based on RBF Neural Network using Experimental Modal Analysis A Khatir, R Capozucca, E Magagnini, and S Khatir
	15:05-15:10	Discussion
<i>Steel-2015</i>	15:10-15:25	Damage Detection in Structural Health Monitoring using Convolution Neural Network and Recurrent Neural Network Dung Bui-Ngoc, Truc Kien-Le, Tuyen Vu-Quang, Hieu Nguyen-Tran, Lan Nguyen-Ngoc, Hoa Tran-Ngoc and Thanh Bui-Tien
	15:25-15:30	Discussion
<i>Steel-2017</i>	15:30-15:45	Crack prediction of beams by using ANN based on frequency analysis Seguini Meriem, Nedjar Djamel, Khatir Samir, Magd Abdel Wahab, Boutchicha Djilali
	15:45-15:50	Discussion
<i>Steel-2019</i>	15:50-16:05	Damage of polycarbonate under irradiation combined with heat Sonya Redjala, Said Azem and Nourredine Ait Hocine
	16:05-16:10	Discussion
<i>Steel-1024</i>	16:10-16:25	A neural network based sensitivity analysis of the GTN damage parameters at different temperature for dynamic fracture propagation in X70 pipeline steel A. Ouladbrahim, I Belaidi, S. Khatir, E. Magagnini, R. Capozucca, and M Abdel Wahab
	16:25-16:30	
<i>Steel-2015</i>	16:30-16:25	Damage Detection in Structural Health Monitoring using Convolution Neural Network and Recurrent Neural Network Dung Bui-Ngoc, Truc Kien-Le, Tuyen Vu-Quang, Hieu Nguyen-Tran, Lan Nguyen-Ngoc, Hoa Tran-Ngoc, and Thanh Bui-Tien
	16:25-16:35	Discussion
		Conference closing address – Prof Roberto Capozucca/PhD Samir Khatir