

# Summary Programme

CIVIL COMP – Abstracts

CIVIL COMP OPTI – Optimisation Abstracts

CIVIL COMP OPTI – Soft Computing Abstracts

**Invited Lectures shown in Red**

**Monday 16 September 2019**

15:00-17:00	Registration   Ground floor of Congress Centre
Room	Garda A
Chair	Professor Barry H.V Topping, <i>University of Pecs, Hungary &amp; Heriot-Watt University, Edinburgh, UK</i>
17:00-18:30	Plenary Session   Garda A
	Professor Peter Ivanyi, <i>University of Pécs, Hungary</i> : Welcome to CIVIL-COMP 2019
	Professor Janos Logo, <i>Budapest University of Technology and Economics, Hungary</i> : Welcome to CIVIL-COMP-OPTI 2019
	Opening Plenary Lecture: <b>"Managing complexity in structural analysis"</b> , <i>Dr Stephen Hendry, Arup, UK</i>
18:30-19:30	<b>Welcome Drinks Reception   Pala Vela</b>

**Tuesday 17 September 2019**

07:30-09:00	Registration   Ground floor of Congress Centre				
08:30-09:00	<b>Welcome Coffee   Pala Vela</b>				
Room	Dolomiti A	Dolomiti B	Belvedere	Limoni	Ledro
Session Chair	Professor J.G. Santos da Silva and Professor M. Bradford	Dr M. Bruggi and Professor A. Schumaker	Dr E. Meli, Italy, Dr. P. Antunes and Dr V. Markine	Professor J.W. Tedesco and Professor C. Majorana	Professor L.M. Simoes and Professor A. Martins
09:00-10:30	Session 1: Special Session: CC 22. Structural Analysis of Steel and Steel-Concrete Composite Structures, organized by: Professor J.G. Santos da Silva, Brazil and Professor L.F. Costa Neves, Portugal	Session 2: Optimization including Invited Lectures on Topology Optimization and Contributed papers from Special Sessions OPT 10. Structural Optimization with Manufacturing Constraints - Professor Andrzej Myslinski, Poland and OPT 2. Multi-Constrained Optimal Design of Structures and Microstructured Materials - Professor Matteo Bruggi, Italy	Session 3: Special Session: CC 2. Computational Developments for Railway Applications organized by Professor Joao Pombo, UK, Dr Enrico Meli, Italy, Dr. Pedro Antunes, UK and Dr Valeri Markine, The Netherlands (Part 1)	Session 4 Structural Engineering Computations: Materials and Modelling Includes abstracts from: Special Session: CC 7. Multiscale, Multiphase and Multiphysics Modelling of Geomaterials Professor C. Majorana and Dr V. Salomoni, Italy	Session 5: Bridge Analysis and Design: Includes Abstracts from Special Session: OPT 3. Structural Optimization for Bridge Design - Professor L.M. Simoes and Professor Alberto Martins, Portugal
10:30-11:00	<b>Mid-Morning Refreshment Break   Pala Vela</b>				
Room	Dolomiti A	Dolomiti B	Belvedere	Limoni	Ledro
Session Chair	Professor J.G. Santos da Silva and Professor M. Bradford	Professor A. Myśliński and Professor G-Ho. Yoon	Professor B. Topping and Professor P. Ivanyi	Professor M. Sejnoha and G. Mostyn	Dr H. Zhang and Dr H. Wimmer
10:45-12:30	Session 1: Special Session: CC 22. Structural Analysis of Steel and Steel-Concrete Composite Structures, organized by: Professor J.G.	Session 2: Optimization – Invited Lectures and Contributed Papers from Special Session: OPT 2. Multi-Constrained Optimal Design of Structures	Session 3: Developments in Computer Aided Engineering	Session 4 Tensegrity followed by Geotechnics, Geomechanics and Soil-Structure Interaction	Session 5: Special Sessions: CC 9. Analysis, Modelling and Design of Timber Structures - Dr Hexin Zhang, Scotland, UK

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	Santos da Silva, Brazil and Professor L.F. Costa Neves, Portugal	and Microstructured Materials – organized by Dr Matteo Bruggi, Italy			
<b>12:30-13:30</b>	<b>Lunch   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Dr M.D. Martinez-Rodrigo and G. Bamford	Professor W. Zhang, Professor J. Zhu, Professor T. Gao and Professor L. Meng	Dr M.G. Masciotta and Professor L.M. Simoes	Professor F.J. Montáns and Dr S. Lejeunes	Professor A. bin Adnan and Professor S. Gholizadeh
13:30-15:30	Session 1: Special Session: CC 24. Railway Induced Vibrations on Bridges and Building Structures Dr M.D. Martinez-Rodrigo, Spain	Session 2: Special Session OPT 5. Topology Optimisation for Additive Manufacturing Professor Weihong Zhang, Professor Jihong Zhu, Professor Tong Gao and Professor Liang Meng, China	Session 3: Heath Monitoring of Structures: including Abstracts from Special Sessions: CC 16. Structural Health Monitoring and Model Updating for Heritage Structures - Dr M. Girardi, Italy, Professor P.B. Lourenco, Portugal, Dr M.G. Masciotta, Portugal (part 1) and Dr. D. Pellegrini, Italy, and CC 19. Structural Control and Heath Monitoring of Bridges - and Professor Fernando Ferreira, Portugal	Session 5: Computational Mechanics	Session 5: SC 3. Soft Computing Special Sessions including Abstracts from: Soft Computing for Structural Damage Detection - Dr M. R Vafaei, Iran, SC 4. Artificial Intelligence in Structural Health Monitoring System - Professor Azlan bin Adnan, Malaysia and SC 5. Advances in Structural Optimization and Seismic Safety - Professor Saeed Gholizadeh, Iran
<b>15:30-16.00</b>	<b>Afternoon Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Professor P. Ivanyi and Professor B. Topping	Professor W. Zhang, Professor J. Zhu, Professor T. Gao and Professor L. Meng	Dr R Greco and Dr M.G. Masciotta	Dr A. Tessler, Professor M. Di Sciuva and Professor M. Gherlone	Dr J. Brozovsky and Professor J. Logo
16:00-17:15	Session 1: Computational Technology including Abstracts from: Special Session: CC 15. High Performance Computing for Engineering Simulation and Design Professor P. Ivanyi, Hungary	Session 2: Special Session OPT 5. Topology Optimisation for Additive Manufacturing Professor Weihong Zhang, Professor Jihong Zhu, Professor Tong Gao and Professor Liang Meng, China	Session 3: Includes Abstracts from Special Sessions: CC 16. Structural Health Monitoring and Model Updating for Heritage Structures Dr M. Girardi, Italy, (Part 2) Professor P.B. Lourenco, Portugal, Dr M.G. Masciotta, Portugal and Dr. D. Pellegrini, Italy (part 1) and OPT 4. Computational Methods for Structural Optimization in Seismic Design organized by Professor R. Greco, Italy	Session 4: Special Session: CC 8. Advances in Multilayered Composites Modelling for Aerospace, Marine, and Automotive Applications, Dr Alexander Tessler, USA, Professor Marco Di Sciuva, Italy and Professor Marco Gherlone, Italy	Session 5: Special Session: CC 25. Analysis and Assessment of Industrial Heritage Buildings and Structures - Dr Jiri Brozovsky, Czech Republic

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Session Chair	Professor P. Ivanyi				
17:15-18:15	Author Seminar: "Developments in Journal Publishing" C. Christensen, Elsevier, USA "Getting Published: An Editor's Perspective", B. Topping, Editor: Computers and Structures and Advances in Engineering Software				
<b>Wednesday 18 September 2019</b>					
08:30-09:00	<b>Welcome Coffee   Pala Vela</b>				
Room	Dolomiti A	Dolomiti B	Belvedere	Limoni	Ledro
Session Chair	Dr E. Meli, Italy, Dr. P. Antunes and Dr V. Markine	Profesor A. Chassiakos and Professor L. Lamberti	Dr Ioannis P. Mitseas and Professor A. El-Hami	Dr D. Yang and Professor M. Sejnoha	Professor M-S. Park and Dr R. Blazej
09:00-10:30	Session 1: Special Session: CC 2. Computational Developments for Railway Applications organized by Professor Joao Pombo, UK, Dr Enrico Meli, Italy, Dr. Pedro Antunes, UK and Dr Valeri Markine, The Netherlands (Part 2)	Session 2: Optimization: Metaheuristics, Genetic Algorithms and Algorithm Development	Session 3: CC 29. Novel Stochastic Dynamics Methodologies for Civil Engineering Applications- Dr Ioannis P. Mitseas, Germany, Professor Michael Beer, Germany, Professor Ioannis A. Kougioumtzoglou, USA and Professor Jianbing Chen, Germany and CC 31. Probabilistic Approaches to Structural Mechanics Professor A. El-Hami, France and Professor B. Radi, Morocco	Session 4: Special Session: CC 13. Modelling of Composite Materials and Structures Dr D. Yang, UK	Session 5: Offshore Structures; GIS; and Design Studies
10:30-11:00	<b>Mid-Morning Refreshment Break   Pala Vela</b>				
Room	Dolomiti A	Dolomiti B	Belvedere	Limoni	Ledro
Session Chair	Dr E. Meli, Italy, Dr. P. Antunes and Dr V. Markine	Dr S Freitag and N. Schietzold	Dr A. Sextos and Dr A. Palmeri	Professor G. Milani and Dr. N. Cavalagli, Dr. Danila Aita	Dr Ian McLuckie and Dr M. Kaunda
11:00-12.30	Session 1: Special Session: CC 2. Computational Developments for Railway Applications organized by Professor Joao Pombo, UK, Dr Enrico Meli, Italy, Dr. Pedro	Session 2: Abstracts on AI, KBS, SVM and OPT 7. Optimization of Structures under Polymorphic Uncertainty organized by Dr S. Freitag, Germany, Professor W. Graf, Germany, Professor	Session 3: Seismic Engineering: Earthquake Engineering includes Abstracts from Special Session: CC 23. Performance-Based Earthquake Engineering of	Session 4: Masonry Structures: Special Sessions: CC 30. Experimental, Numerical and Analytical Issues on Structural Safety and Strengthening of Masonry Arch Structures- Dr. Danila	Session 5: Finite Elements, Structural Mechanics and Fracture Mechanics

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	Antunes, UK and Dr Valeri Markine, The Netherlands (Part 3)	G. Meschke, Germany and Professor R.L. Muhanna, USA	Buildings, Bridges and Critical Infrastructure organized by Professor A. Sextos, UK and papers from	Aita, Dr. Nicola Cavalagli, Dr. Paolo Zampieri and Dr. Mariano Zanini, Italy and CC 6. Computational Masonry Modelling - Professor Gabriele Milani, Professor Antonio Formisano and Professor Francesco Clementi Italy (Part 1)	
<b>12:30-13:30</b>	<b>Lunch   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Dr P. Wei and Dr S. Bi	Dr S. Freitag and Professor I. Flood	Dr A. Vassiljev and Dr C. Patino-Gomez	Professor G. Milani and Dr E. Mousavian	Professor A. Csébfalvi and Professor J. Lógó
13:15-15:30	Session 1: Uncertainty including Abstracts from CC 28. Uncertainty Quantification in Simulation and Design of Large Civil Engineering Systems - Dr Pengfei Wei, China, Dr Sifeng Bi, Germany and Professor Michael Beer, Germany and CC 26. Efficient and Reliable Probabilistic and Non-Traditional Approaches for dealing with Uncertainty Dr E. Patelli, UK, Dr M.A. Valdebenito, Chile, Dr M. Broggi, Germany and Professor M. Beer, Germany	Session 2: Special Session: SC2 - Neural Networks for Engineering Applications organized by Dr S. Freitag, Germany	Session 3: Special Sessions: CC 4. Computational Issues for Sustainable Urban Environments - Dr Anatoli Vassiljev, Estonia (Part 1)	Session 4: Special Session: CC 6. Computational Masonry Modelling - Professor Gabriele Milani, Professor Antonio Formisano and Professor Francesco Clementi Italy (Part 2)	Session 5: Special Session: OPT 1. Robust Structural Optimization organized by Professor Anikó Csébfalvi, Hungary
<b>15:30-16:00</b>	<b>Afternoon Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Dr L. Macorini and Dr C. Chisari	Dr A. Palmeri and Professor J. Blachut	Dr A. Vassiljev and Dr E. Asa	Professor C. Chiorean and Dr S. Kostic	Professor I. Flood and Professor J. M. Taylor
15:45-17:30	Session 1: CC 1. Analysis, Modelling and Design of Masonry Structures organized by Professor Bassam A. Izzuddin, Dr Lorenzo Macorini and Dr Corrado Chisari, UK	Session 5: Structural Engineering Design including Abstracts from Special Session: CC 5. Multi-Hazard Performance-Based Design of Structures organized by, UK plus Abstracts on Structural Engineering Buckling	Session 3: Special Sessions: CC 4. Computational Issues for Sustainable Urban Environments - Dr Anatoli Vassiljev, Estonia (Part 2) and Abstract from Transport Engineering	CC 27. Computational Efficient Models for Non-Linear Inelastic Analysis of Building Frameworks - Professor Cosmin Chiorean, Romania	Session 5: Construction Engineering, Building Technology, BIM, CAD

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<b>19:30-22:00</b>	<b>Optional Conference Dinner   Hotel du Lac et du Parc</b>				
<b>Thursday 19th September 2019</b>					
<b>08:30-09:00</b>	<b>Welcome Coffee   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Professor M. Šejnoha and Professor P. Trovalusci		Professor A. El Hami and Dr R. Blazej	Professor E. Rohan and Dr M. Eremin	
09:00-10:30	9.30-10.30; Session 1: Special Session: CC 21. Multiscale and Multiphysics Modelling for Complex Materials (MMCM13) organized by: Professor Patrizia Trovalusci, Dr Nicholas Fantuzzi and Dr Egidio Lofrano, Italy	9:30-10:30: Session 2: Fluid Flow Problems and Biomechanics	Session 5: OPT 6. Advances in Reliability-Based Structural Optimisation Dr Ghias Khamanda and Professor Abdelkhalak El-Hami, France	Special Session: CC 12. Modelling (multi-phase) Porous Media organized by Professor Eduard Rohan, Czech Republic	
<b>10:30-11:00</b>	<b>Mid-Morning Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Professor P. Trovalusci and Professor M. Šejnoha	Professor H. Varum and Professor M. Domaneschl	Dr. C. Pappalardo and Dr X. Wei	Dr J. Naprstek and Professor J.R. Banerjee	
11:00-12.30	Session 1: Special Session: CC 21. Multiscale and Multiphysics Modelling for Complex Materials (MMCM13) organized by: Professor Patrizia Trovalusci, Dr Nicholas Fantuzzi and Dr Egidio Lofrano, Italy	Special Session: CC 11. Seismic Design, Assessment and Retrofitting of Structures organized by Professor Humberto Varum, Portugal	Session 1: Special Sessions: CC 10. Dynamics, Control, and Identification of Structural Systems - Dr. Carmine Pappalardo and Dr Marco C. De Simone, Italy	Special Session: CC 3. Linear and Non-Linear Dynamics - Dr Jiri Naprstek, Czech Republic and Professor J.R. Banerjee, UK	
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>12:30-13:30</b>	<b>Lunch   Pala Vela</b>				
<b>Session Chair</b>	Dr J. Naprstek and Professor J.R. Banerjee	Professor H. Varum and Profesor M. Domaneschi	Professor S. Kmet and Dr G. Pavone	J. Lawen, Dr K. Tadesse and Dr A. Vassiljev	
13:30-15:15	Special Session: CC 3. Linear and Non-Linear Dynamics organized by Dr Jiri Naprstek, Czech Republic and Professor J.R. Banerjee, UK	Session 2: Special Session: CC 11. Seismic Design, Assessment and Retrofitting of Structures organized by Professor Humberto Varum, Portugal	Session 3: Special Session: CC 20. Space, Tension and Tensegrity Structures Professor Stanislav Kmet, Slovakia	Session 4: Special Sessions: CC 4. Computational Issues for Sustainable Urban Environments - Dr A. Vassiljev, Estonia (Part 3)	
<b>15:00-15:30</b>	<b>Afternoon Tea   Pala Vela</b>				
<b>15:30</b>	<b>End of Conference</b>				

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# Full Programme

CIVIL COMP – Abstracts

CIVIL COMP OPTI – Optimisation Abstracts

CIVIL COMP OPTI – Soft Computing Abstracts

Invited Lectures shown in Red

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15:00-17:00	Registration   Ground floor of Congress Centre
<b>Room</b>	Garda A
<b>Chair</b>	Professor Barry H.V Topping, <i>University of Pecs, Hungary &amp; Heriot-Watt University, Edinburgh, UK</i>
17:00-18:30	Plenary Session   Garda A
	Professor Peter Ivanyi, <i>University of Pécs, Hungary</i> : Welcome to CIVIL-COMP 2019
	Professor Janos Logo, <i>Budapest University of Technology and Economics, Hungary</i> : Welcome to CIVIL-COMP-OPTI 2019
	Opening Plenary Lecture: [PLN.01] <b>Managing complexity in structural analysis</b> Stephen Hendry* <i>Arup, UK</i>
18:30-19:30	Welcome Drinks Reception   <b>Pala Vela</b>

Tuesday 17 September 2019

07:30-09:00	Registration   Ground floor of Congress Centre				
08:30-09:00	Welcome Coffee   <b>Pala Vela</b>				
<b>Room</b>	Dolomiti A	Dolomiti B	Belvedere	Limoni	Ledro
<b>Session Chair</b>	Professor J.G. Santos da Silva and Professor M. Bradford	Dr M. Bruggi and Professor A. Schumaker	Dr E. Meli, Dr. P. Antunes and Dr V. Markine	Professor J.W. Tedesco and Professor C. Majorana	Professor L.M. Simoes and Professor A. Martins
09:00-10:30	Session 1: Special Session: CC 22. Structural Analysis of Steel and Steel-Concrete Composite Structures, organized by: Professor J.G. Santos da Silva, Brazil and Professor L.F. Costa Neves, Portugal	Session 2: Optimization including Invited Lectures on Topology Optimization and Contributed papers from Special Sessions OPT 10. Structural Optimization with Manufacturing Constraints - Professor A. Myslinski, Poland and OPT 2. Multi-Constrained Optimal Design of Structures and Microstructured Materials - Dr M. Bruggi, Italy	Session 1: Special Session: CC 2. Computational Developments for Railway Applications organized by Professor Joao Pombo, UK, Dr E. Meli, Italy, Dr. Pedro Antunes, UK and Dr V. Markine, The Netherlands (Part 1)	Session 4 Structural Engineering Computations: Materials and Modelling Includes abstracts from: Special Session: CC 7. Multiscale, Multiphase and Multiphysics Modelling of Geomaterials Professor C. Majorana and Dr V. Salomoni, Italy	Session 5: Bridge Analysis and Design: Includes Abstracts from Special Session: OPT 3. Structural Optimization for Bridge Design - Professor L.M. Simoes and Professor A. Martins, Portugal
09:00-09:15	[O1.01.01] <b>Structural fire behavior of ribbed pre-slabs with trussed girders</b> Ivonaldo Guimarães, Fernando Ferreira* <i>Coimbra university, Portugal</i>	[INV.01] <b>Topology optimization of elasto-plastic structures with frictional contact</b> Andrzej Myśliński* <i>Systems Research Institute, Poland</i>	[INV.03] <b>Optimising performance of DEM model for analysis of ballast behaviour</b> Wenli Jia, Valeri Markine*, Yunlong Guo <i>Delft University of Technology, The Netherlands</i>	[INV.04] <b>Constitutive models for concrete at the mesoscale and interfacial cohesive laws</b> Carmelo Majorana* <sup>1</sup> , Gianluca Mazzucco <sup>1</sup> , Giovanna Xotta <sup>1</sup> , Beatrice Pomaro <sup>1</sup> , Enrico Garbin <sup>2</sup> ,	[O5.01.01] <b>Optimization of cable-stayed bridges: A literature review</b> Alberto Martins, Luís Simões*, João Negrão <i>University of Coimbra, Portugal</i>
09:15-09:30	[O1.01.02]				[O5.01.02]

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	<p><b>Structure integrity evaluation of excavated steel-concrete holes by gas explosion using AUTODYN</b> EUI SOO KIM* Korea National University of Transportation, Republic of Korea</p>			<p>Valentina Salomoni<sup>3</sup> <sup>1</sup>Department of Civil, Environmental and Architectural Engineering, University of Padova, Italy, <sup>2</sup>Inter-Departmental Research Centre for the Study of Cement Materials and Hydraulic Binders, University of Padova, Italy, <sup>3</sup>Department of Management and Engineering, University of Padova, Italy</p>	<p><b>Reliability-based design optimization for shape design of bridge decks to mitigate the vortex-induced vibration (VIV) phenomena. Case of Study: Trans-Tokyo Bay Bridge</b> Zouhour Jaouadi*, Tajammal Abbas, Tom Lahmer, Guido Morgenthal Bauhaus Universität Weimar, Germany</p>
09:30-09:45	<p>[O1.01.03] <b>Modelling of softening behaviour of composite reinforced concrete structures</b> Waleed Thanoon* Tennessee Technological University, USA</p>	<p>[INV.02] <b>Topology optimization for multiphysics system</b> Gil Ho Yoon* Hanyang University, Korea, Democratic People's Republic of</p>	<p>[O3.01.01] <b>Development of a finite element formulation with curved beams elements for application to 3D flexible track models</b> João Neves Costa<sup>1</sup>, Hugo Magalhães<sup>1,2</sup>, Pedro Antunes*<sup>1,2</sup>, João Pombo<sup>1,2,3</sup>, Jorge Ambrósio<sup>1</sup> <sup>1</sup>Universidade de Lisboa, Portugal, <sup>2</sup>University of Huddersfield, UK, <sup>3</sup>ISEL, Portugal</p>	<p>[O4.01.01] <b>The influence of the initial mechanical properties on the behavior of geomaterials under intensive pulsed loads</b> Vladimir Balandin, Anatoly Bragov, Leonid Igumnov, Vasily Kotov*, Andrey Lomunov Research Institute for Mechanics of the National Research Lobachevsky State University of Nizhny Novgorod, Russia</p>	<p>[O5.01.03] <b>Optimisation of extradosed concrete bridges subjected to seismic action</b> Alberto Martins*, Luís Simões, João Negrão University of Coimbra, Portugal</p>
09:45-10:00	<p>[O1.01.04] <b>Using photogrammetry method to evaluate the shear module of the laminated glass beam in torsion tests</b> Kal Uheida*<sup>1</sup>, Hexin Zhang<sup>1</sup>, Yu Deng<sup>2</sup>, Peng Zhang<sup>3</sup> <sup>1</sup>Edinburgh Napier University, UK, <sup>2</sup>Guangxi University of Science and Technology, China, <sup>3</sup>Guangxi Science and Technology Normal University, China</p>		<p>[O3.01.02] <b>Investigation of the forced and free responses in environmental ground vibration reduction by finite element computation</b> Andrew Peplow* Zayed University, UAE</p>	<p>[O4.01.02] <b>Recent developments for solving fluid flow and geomechanics coupling using stable finite volume methods</b> Clovis Maliska*, Herminio Honório Federal University of Santa Catarina, Brazil</p>	<p>[O5.01.04] <b>Optimization of a steel footbridge due to dynamical sensitivity by Finite Element Method and Computer Algebra Systems environment cooperation</b> Paweł Hawryszków*, Sebastian Balcerowiak, Jakub Czajkowski, Marco Teichgraeber Wroclaw University of Science and Technology, Poland</p>
10:00-10:15	<p>[O1.01.05] <b>Effects of shear lag on pedestrian-induced vibrations of steel footbridges with thin-walled box section</b></p>	<p>[O2.01.01] <b>Multilayered fibre-reinforcement composite cylindrical shell optimisation of natural frequencies using</b></p>	<p>[O3.01.03] <b>Method for estimating the time-dependent fatigue strength of a railway structure using big data about the</b></p>	<p>[O4.01.03] <b>Numerical modeling of the coupled flow and mechanics in nonlinear saturated porous media</b></p>	<p>[O5.01.05] <b>Prediction of aerodynamic behavior of bridge decks using artificial neural networks</b> Tajammal Abbas*, Igor</p>

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	Bo Fu <sup>1</sup> , Xinxin Wei (corresponding author)* <sup>2</sup> , Jin Chen <sup>1</sup> <sup>1</sup> Chang'an University, China, <sup>2</sup> Ruhr-Universität Bochum, Germany	<b>evolutionary algorithms, neural networks and automatic mode shapes recognition</b> Bartosz Miller, Leonard Ziemianski* Rzeszow University of Technology, Poland	<b>railway</b> Munemasa Tokunaga*, Kenji NARITA, Masamichi SOGABE Railway Technical Research Institute, Japan	Roza Asadi* K.N. Toosi University of Technology, Iran, Islamic Republic of	Kavrov, Guido Morgenthal, Tom Lahmer Bauhaus University Weimar, Germany
10:15-10:30	[O1.01.06] <b>Numerical model for anchorage of corroded steel bar in concrete</b> Alessandro Cesetti <sup>1</sup> , Francesco Tondolo* <sup>2</sup> , Pierclaudio Savino <sup>2</sup> , Rita Greco <sup>3</sup> <sup>1</sup> Professional Engineer, Italy, <sup>2</sup> Politecnico di Torino, Italy, <sup>3</sup> Politecnico di Bari, Italy	[O2.01.02] <b>Parameterized level-set based topology optimization of high-frequency vibrating structures using energy finite element analysis</b> Honglei Liu <sup>1</sup> , Baotong Li <sup>1</sup> , Lukuan Zhang <sup>1</sup> , Miaoxia Xie <sup>2</sup> , Senmao Ding* <sup>2</sup> <sup>1</sup> Xi'an Jiaotong University, China, <sup>2</sup> Xi'an University of Architecture and Technology, China	[O3.01.04] <b>Study of pantograph-catenary interaction in realistic operation scenarios</b> José Rebelo* <sup>1</sup> , Pedro Antunes <sup>2</sup> , Jorge Ambrósio <sup>1</sup> , João Pombo <sup>2</sup> <sup>1</sup> Instituto Superior Técnico, Portugal, <sup>2</sup> University of Huddersfield, UK	[O4.01.04] <b>Graphite irradiated calibration analysis framework</b> Daniel Wilke <sup>1</sup> , Schalk Kok* <sup>1</sup> , Michael Hindley <sup>2</sup> <sup>1</sup> University of Pretoria, South Africa, <sup>2</sup> USNC Afrca, South Africa	[O5.01.06] <b>COCO-Bridge: Common objects in context dataset and benchmark for structural detail detection of bridges</b> Eric Bianchi*, Matthew Hebdon, A. Lynn Abbott, Pratap Tokekar Virginia Tech, USA
<b>10:30-11:00</b>	<b>Mid-Morning Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
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10:45-11:00	[INV.05] <b>Computational modelling of lateral buckling of web-tapered high-strength steel flexural members</b> Mark Bradford*, Yixin Wang UNSW Sydney, Australia		[O3.02.01] <b>VR platform to improve fire emergency evacuation</b> MARCO DOMANESCHI*, Gian Paolo Cimellaro, Melissa De Iuliis Politecnico di Torino - DISEG, Italy	[O4.02.01] <b>Scaffoldings braced by one-dimensional tensegrities</b> Gyula Nagy Kem* Szent István University, Hungary	[O5.02.01] <b>Numerical calculation of material constants of timber beams reinforced with fibre composites based on bending tests</b> Khaled Saad, András Lengyel* Budapest University of

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					Technology and Economics, Hungary
11:00-11:15		<p><b>[INV.06]</b>  <b>A constrained force density method for the analysis and form finding of anti-funicular structural systems</b>  Matteo Bruggi*  <i>Politecnico di Milano, Italy</i></p>	<p>[O3.02.02]  <b>Combined solid modelling and meshing to create a new standard for CAD and CAE</b>  Ian McLuckie*, Scott Barrett  <i>AIES Ltd, UK</i></p>	<p>[O4.02.02]  <b>An approach for predicting shield construction ground surface settlement of complex stratum using dynamical strata identification</b>  Xianguang Kong, Siyi Gong*, Jiantao Chang, Pei Wang, Qibin Wang, Yuhang Zhang, Zhao Zhang  <i>Xidian University, China</i></p>	<p>[O5.02.02]  <b>Analysis of CLT-beams with special reference to refined zigzag theory - A comparative study</b>  Heinz Wimmer*<sup>1,2</sup>, Karin Nachbagauer<sup>3</sup>, Werner Hochhauser<sup>4</sup>  <sup>1</sup>University of Applied Sciences Upper Austria, Austria, <sup>2</sup>Carinthia University of Applied Sciences, Austria, <sup>3</sup>University of Applied Sciences Upper Austria, Stelzhamerstr. 23, 4600 Wels, Austria, <sup>4</sup>University of Applied Sciences Upper Auszhamerstr, Austria</p>
11:15-11:30	<p>[O1.02.01]  <b>An extended probability density evolution method for reliability analysis of corroded reinforced concrete beam</b>  Hongyuan Guo*<sup>1,2</sup>, Xianglin Gu<sup>1</sup>, You Dong<sup>2</sup>  <sup>1</sup>Tongji University, China, <sup>2</sup>Hong Kong Polytechnic University, Hong Kong</p>		<p>[O3.02.03]  <b>Digital 3D printing of concrete structures using FEM</b>  Michaela Vaitová*, Libor Jendele, Jan Červenka  <i>Červenka Consulting s.r.o., Czech Republic</i></p>	<p>[O4.02.03]  <b>Numerical Model of earth dam's slope stability</b>  Castelli Francesco, Martina Greco*  <i>University of Enna, Italy</i></p>	<p>[O5.02.03]  <b>Large span timber buildings under horizontal forces</b>  Hamid Movaffaghi*<sup>1,2</sup>, Johan Pyykkö<sup>2</sup>, Ibrahim Yitmen<sup>1</sup>, Staffan Svensson<sup>2</sup>  <sup>1</sup>Jönköping University, Sweden, <sup>2</sup>University of Borås, Sweden</p>
11:30-11:45	<p>[O1.02.02]  <b>A new approach for the analysis and design of hybrid Steel-FRP building decks</b>  Ali Sadrara<sup>1</sup>, Hamed Khezzadeh*<sup>2</sup>, Massood Mofid<sup>1</sup>  <sup>1</sup>Sharif University of Technology, Iran, Islamic Republic of, <sup>2</sup>Tarbiat Modares University, Iran, Islamic Republic of</p>	<p>[O2.02.01]  <b>Topology optimization for fluid-thermal-moisture coupling system</b>  Gil Ho Yoon*  <i>Hanyang University, Republic of Korea</i></p>	<p>[O3.02.04]  <b>A metamodel for 3D concrete printing</b>  Patricia Peralta Abadia*<sup>1</sup>, Everett M. Mthunzi<sup>1</sup>, Sebastian Heine<sup>2</sup>, Horst-Michael Ludwig<sup>2</sup>, Kay Smarsly<sup>1</sup>  <sup>1</sup>Bauhaus-University Weimar, Chair of Computing in Civil Engineering, Germany, <sup>2</sup>Bauhaus-University Weimar, F.A. Finger Institute for Building Material Engineering, Germany</p>	<p>[O4.02.04]  <b>BOReLOG: A smart mobile borehole logging application for geotechnical field investigation</b>  Ashish Gharpure, Prashant Navalakha*, Dr. Asita Nilesh Dalvi  <i>GENSTRU Consultants Pvt. Ltd., India</i></p>	<p>[O5.02.04]  <b>Stereo vision techniques for evaluating material properties in timber and timber-based composite structures</b>  Ahmed Mohamed<sup>1</sup>, Huiqin Wu*<sup>2</sup>, Ling Liao<sup>2</sup>, Yanfang Quan<sup>2</sup>  <sup>1</sup>Edinburgh Napier University, UK, <sup>2</sup>Guangxi University of Science and Technology, China</p>

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11:45-12:00	[O1.02.03] <b>Finite element modelling of an internal precast concrete beam to column connection</b> Charles K.S. Moy* <i>Xi'an Jiaotong-Liverpool University, China</i>	[O2.02.02] <b>A numerical approach for the optimal reinforcement of unilateral structures</b> Matteo Bruggi*, Alberto Taliercio <i>Politecnico di Milano, Italy</i>	[O3.02.05] <b>Composition-based planning for context experimental in civil engineering</b> Ingrid-Durley Torres P.* <sup>1,2</sup> , Jaime A. Guzmán-Luna <sup>2</sup> , Francisco J. Moreno <sup>2</sup> <sup>1</sup> Universidad Católica Luis Amigó, Colombia, <sup>2</sup> Universidad Nacional de Colombia, Colombia	[O4.02.05] <b>Industrial slab on ground analysis allowing for climate effects on reactive soils</b> Garry Mostyn* <sup>1,2</sup> , Agustria Salim <sup>1</sup> <sup>1</sup> Pells Sullivan Meynink, Australia, <sup>2</sup> UNSW Sydney, Australia	[O5.02.05] <b>Limitations and minor error in the torsion test setup specified in the EN 408:2012 for timber beams</b> Hexin Zhang* <sup>1</sup> , Niaz Gharavi <sup>1</sup> , Langni Deng <sup>2</sup> , Liuyun Huang <sup>2</sup> <sup>1</sup> Edinburgh Napier University, UK, <sup>2</sup> Guangxi University of Science and Technology, China
12:00-12:15	[O1.02.04] <b>Human comfort assessment of a steel-concrete composite multi-storey building under nondeterministic wind dynamic loadings</b> José Guilherme Santos da Silva*, Leonardo de Souza Bastos <i>State University of Rio de Janeiro, Brazil</i>	[INV.07] <b>Considering of mass production characteristics and requirements in the structural optimization process</b> Axel Schumacher* <i>University of Wuppertal, Germany</i>	[O3.02.06] <b>Waste management with the use of heuristic algorithms and Internet of Things technology</b> Anna Burduk*, Kamil Musiał, Dagmara Górnicka, Joanna Kochańska, Agata Kirjanów-Błazej <i>Wrocław University of Science and Technology, Poland</i>	[O4.02.06] <b>Durability review of earthen wall constructions - a case for unstabilized earth construction</b> Boldizsár Medvey*, Gergely Dobszay <i>Budapest University of Technology and Economics, Hungary</i>	[O5.02.06] <b>Finite element simulation of a glued laminated timber arch</b> Eliska Smidova*, Petr Kabele <i>Czech Technical University in Prague, Czech Republic</i>
12:15-12:30	[O1.02.05] <b>Numerical analysis of the existing embedded ring foundation for onshore wind turbines</b> Sunghoon Song*, Younju Jeong, Minsu Park, Jeongsoo Kim <i>Korea Institute of Civil Engineering and Building Technology, Republic of Korea</i>		[O3.02.07] <b>Eye-tracking study of direction influence of user's attention</b> Veronika Ander*, Petr Cihelka, Jan Tychtr, Tomáš Benda, Hana Vostrá Vydrová, Dana Klimešová <i>Czech University of Life Sciences Prague, Czech Republic</i>	[O4.02.07] <b>Wavelet power spectral density for energy attenuation analysis in a layered residual soil</b> Sri Atmaja P. Rosyidi* <i>Universitas Muhammadiyah Yogyakarta, Indonesia</i>	[O5.02.07] <b>Deformation and destruction of lime-tree and pine under intense dynamic effects</b> Anatoly Bragov, Francesco dell'Isola*, Svetlana Litvinchuk, Andrei Lomunov, Tatiana Iuzhina <i>Research Institute of Mechanics of the National Research Lobachevsky State University of Nizhny Novgorod, Russia</i>
<b>12:30-13:30 Lunch   Pala Vela</b>					
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Dr M.D. Martinez-Rodrigo and G. Bamford	Professor W. Zhang, Professor J. Zhu, Professor T. Gao and Professor L. Meng	Dr M.G. Masciotta and Professor L.M. Simoes	Professor F.J. Montáns and Dr S. Lejeunes	Professor A. bin Adnan and Professor S. Gholizadeh
13:30-15:30	Session 1: Special Session: CC 24. Railway Induced Vibrations on Bridges and Building Structures	Session 2: Special Session OPT 5. Topology Optimisation for Additive Manufacturing Professor W. Zhang, Professor	Session 3: Heath Monitoring of Structures: including Abstracts from Special Sessions: CC 16. Structural Health Monitoring and Model	Session 5: Computational Mechanics	Session 5: SC 3. Soft Computing Special Sessions including Abstracts from: Soft Computing for Structural Damage Detection - Dr M. R

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	Dr M.D. Martinez-Rodrigo, Spain	J. Zhu, Professor T. Gao and Professor L. Meng, China	Updating for Heritage Structures - Dr M. Girardi, Italy, Professor P.B. Lourenco, Portugal, Dr M.G. Masciotta, Portugal (part 1) and Dr. D. Pellegrini, Italy, and CC 19. Structural Control and Health Monitoring of Bridges - and Professor F. Ferreira, Portugal		Vafaei, Iran, SC 4. Artificial Intelligence in Structural Health Monitoring System - Professor Azlan bin Adnan, Malaysia and SC 5. Advances in Structural Optimization and Seismic Safety - Professor S. Gholizadeh, Iran
13:15-13:30				[INV.09]	
13:30-13:45	[O1.03.01] <b>Passive equivalent linear viscoelastic dampers for reducing dynamic response of high speed railway bridges</b> Tahiri Mohamed* <sup>1</sup> , Khamlichi Abdellatif <sup>2</sup> , Bezzazi Mohammed <sup>3</sup> <sup>1</sup> Department of Physics, Mechanical and Civil Engineering laboratory, Faculty of Sciences and Technology, Morocco, <sup>2</sup> National School of Applied Sciences, University Abdelmalek Essaadi, Morocco, <sup>3</sup> University Abdelmalek Essaadi, Morocco	[INV.08] <b>Feature-driven optimization considering additive manufacturing constraints</b> Lu Zhou, Weihong Zhang*, Tong Gao <i>Northwestern Polytechnical University, China</i>	[O3.03.01] <b>FE model updating of the Matilde donjon in Livorno</b> Riccardo Mario Azzara <sup>1</sup> , Maria Girardi <sup>2</sup> , Cristina Padovani <sup>2</sup> , Daniele Pellegrini <sup>2</sup> , Leonardo Robol <sup>2,3</sup> <sup>1</sup> Istituto Nazionale di Geofisica e Vulcanologia (INGV) - Seismological Observatory of Arezzo, Italy, <sup>2</sup> Institute of Information Science and Technologies "A. Faedo", Italy, <sup>3</sup> University of Pisa, Italy	<b>On Space-Time methods based on Isogeometric Analysis for structural analysis</b> Stéphane Lejeunes* <sup>1</sup> , Dominique Eyheramendy <sup>1</sup> , Christelle Saadé <sup>1</sup> , Roy Saad <sup>2</sup> <sup>1</sup> LMA, France, <sup>2</sup> Lebanon University, Lebanon	[O5.03.01] <b>Study on wave propagation velocity using concrete specimen with internal defects</b> Dongkeon Lee*, Sanghun Lee <i>Tohoku Gakuin University, Japan</i>
13:45-14:00	[O1.03.02]		[O3.03.02] <b>Structural health monitoring of heritage masonry structures based on power spectral density transmissibility measurements</b> Qian Sun* <sup>1,2</sup> , Wei-xin Ren <sup>1</sup> ,	[O4.03.01] <b>Structural optimization of curved towers employing Isogeometric tools in a Particle Swarm Optimizer</b> Ioannis Tsipitsis*, Jarkko	[O5.03.02] <b>Seismic structural health monitoring: A convolutional neural network approach for damage level assessment</b> Azlan Adnan* <sup>1</sup> , Muhamad Hafiz Laili <sup>2</sup>

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			Carlo Rainieri <sup>2</sup> , Wang-ji Yan <sup>1,3</sup> , Giovanni Fabbrocino <sup>2,4</sup> <sup>1</sup> Hefei University of Technology, China, <sup>2</sup> University of Molise, Italy, <sup>3</sup> The University of Nottingham, UK, <sup>4</sup> National Research Council of Italy (CNR), Italy	Niiranen Aalto University, Finland	<sup>1</sup> University of Technology Malaysia, Malaysia, <sup>2</sup> MIMOS Berhad, Malaysia
14:00-14:15	[O1.03.03] <b>Railway induced vibrations in two-span continuous bridges: resonance and cancellation phenomena</b> María D. Martínez-Rodrigo <sup>*1</sup> , Andréas Andersson <sup>2</sup> , Costin Pacoste <sup>2</sup> , Raid Karoumi <sup>2</sup> <sup>1</sup> Universitat Jaume I, Castellón, Spain, <sup>2</sup> KTH Royal Institute of Technology, Sweden	[O2.03.01] <b>Industrial application of thermo-elastic topology optimization and additive manufacturing: the design of an aerospace bracket</b> Guanghai Shi <sup>1</sup> , Chengqi Guan <sup>1</sup> , Dongliang Quan <sup>1</sup> , Dongtao Wu <sup>1</sup> , Lei Tang <sup>*2</sup> , Tong Gao <sup>2</sup> <sup>1</sup> Beijing Aerospace Technology Institute, China, <sup>2</sup> Northwestern Polytechnical University, China	[O3.03.03] <b>Sensitivity-based versus optimization-based model updating of heritage structures: lessons learned from the application to a real case study in Ostra, Italy</b> Maria Giovanna Masciotta <sup>*1</sup> , Alberto Barontini <sup>1</sup> , Francesco Clementi <sup>2</sup> , Francesca Turchetti <sup>2</sup> , Stefano Lenci <sup>2</sup> <sup>1</sup> ISISE, University of Minho, Portugal, <sup>2</sup> Polytechnic University of Marche, Italy	[O4.03.02] <b>Form-finding of Bending-Torsion active structures with Isogeometric and traditional analysis solvers</b> Ioannis Tsiptsis <sup>*</sup> Aalto University, Finland	[O5.03.03] <b>Damage-level prediction model for artificial intelligent in structural health monitoring system of cable-stayed bridge under earthquake loading</b> Nabila Huda Aizon, Azlan Adnan <sup>*</sup> University of Technology Malaysia, Malaysia
14:15-14:30	[O1.03.04] <b>Effect of the transverse stiffness at span ends in double track short high-speed railway bridges on the railway induced vibrations</b> Emma Moliner <sup>*1</sup> , Antonio Romero <sup>2</sup> , María Dolores Martínez-Rodrigo <sup>1</sup> , Pedro Galvín <sup>2</sup> <sup>1</sup> Universitat Jaume I, Castellón, Spain, <sup>2</sup> Universidad de Sevilla, Spain	[O2.03.02] <b>Optimization studies of a Wire-and-Arc Additive Manufactured stainless steel diagrid column</b> Vittoria Laghi <sup>*</sup> , Michele Palermo, Giada Gasparini, Tomaso Trombetti University of Bologna, Italy	[O3.03.04] <b>A novelty detection method for large-scale structures under varying environmental conditions</b> Alireza Entezami <sup>*1,2</sup> , Hashem Shariatmadar <sup>2</sup> , Stefano Mariani <sup>1</sup> <sup>1</sup> Politecnico di Milano, Italy, <sup>2</sup> Ferdowsi University of Mashhad, Iran, Islamic Republic of	[O4.03.03] <b>Comparison of numerical models of glass plate exposed to low-velocity impact</b> Tomáš Janda <sup>*</sup> , Jaroslav Schmidt, Petr Hála, Petr Konrád, Alena Zemanová CTU in Prague, Czech Republic	[O5.03.04] <b>Fatigue Life prediction for a Concrete - Steel Composite Bridge: a process based on indirect measurements</b> Andrea Del Grosso <sup>1</sup> , Saimir Osmani <sup>*1</sup> , Paolo Basso <sup>1</sup> , Marcello Cademartori <sup>1</sup> , Valentina Fassi <sup>2</sup> <sup>1</sup> Rina Consulting S.p.A, Italy, <sup>2</sup> University of Genova, Italy
14:30-14:45	[O1.03.05] <b>Mathematical modeling of a metro train-track coupled system</b> Naveen Kumar Kedia, Anil Kumar <sup>*</sup> , Yogendra Singh Indian Institute of Technology Roorkee, India	[O2.03.03] <b>Applications of topology optimization in high-speed vehicle structures</b> Tong GAO <sup>*1</sup> , Lei Tang <sup>1</sup> , Longlong Song <sup>1</sup> , Xueying Qiu <sup>1</sup> , Dihuan Wu <sup>1</sup> , Guanghui SHI <sup>2</sup> , Qianying Zhou <sup>2</sup> , Dongliang Quan <sup>2</sup> <sup>1</sup> Northwestern Polytechnical	[O3.03.05] <b>Design of vibration based structural health monitoring system for an industrial tower</b> Mahesh Murugan Jaya <sup>*1,2</sup> , Rosario Ceravolo <sup>1</sup> , Luca Zanotti Fragonara <sup>3</sup> , Emiliano Matta <sup>1</sup> , Simone Vacchelli <sup>2</sup> <sup>1</sup> Politecnico di Torino, Italy,	[O4.03.04] <b>Multi scale simulation of air purification process</b> Tatiana Kudryashova <sup>*</sup> , Yuri Karamzin, Victoria Podryga, Serge Polyakov Keldysh Institute for Applied Mathematics, Russian Academy of Science, Russia	[O5.03.05] <b>Performance-based optimum seismic design of steel frames using the teaching-learning-based optimization</b> S. O. Degertekin <sup>*1</sup> , H. Tutar <sup>2</sup> , L. Lamberti <sup>3</sup> <sup>1</sup> Dicle University, Turkey, <sup>2</sup> Mus Alparslan University, Turkey, <sup>3</sup> Politecnico di Bari, Italy

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		University, China, <sup>2</sup> Beijing Aerospace Technology Institute, China	<sup>2</sup> Birla Carbon Italy SRL, Italy, <sup>3</sup> Cranfield University, UK		
14:45-15:00	[O1.03.06] <b>Semi-analytic solution for instantaneous amplitude in dynamics of railway bridges: a Hilbert transform approach</b> Alejandro E. Martínez-Castro* <sup>1</sup> , Enrique García-Macías <sup>2</sup> <sup>1</sup> University of Granada, Spain, <sup>2</sup> University of Perugia, Italy	[O2.03.04] <b>Topology optimization considering anisotropic property in additive manufacturing</b> Shaoying Li*, Jihong Zhu, Weihong Zhang Northwestern Polytechnical University, China	[O3.03.06] <b>Improved design of semi-active controlled curved cable-stayed footbridges</b> Fernando Ferreira*, Luís Simões University of Coimbra, Portugal	[O4.03.05] <b>Macro-micro-macro data-driven multiscale pipelines for characterizing polymers</b> Victor Jesús Amores, José María Benítez, Francisco Javier Montáns* Universidad Politécnica de Madrid, Spain	[O5.03.06] <b>Seismic optimization and collapse safety assessment of steel concentrically braced frame structures</b> Saeed Gholizadeh*, Aydin Hassanzadeh, Arman Milany Urmia University, Iran, Islamic Republic of
15:00-15:15	[O1.03.07] <b>Transverse stiffness problem of long span bridges</b> Nikita Semeiko* JSC "Institute Giprostroykost", Russia	[O2.03.05] <b>Feature-driven optimization method for structural design and additive manufacturing</b> Weihong Zhang, Ying Zhou, Zhou Lu* Northwestern Polytechnical University, China	[O3.03.07] <b>Evolutionary computation in a controlled bridge design solution problem with deceptive landscape</b> João Correia* <sup>1,2</sup> , Fernando Ferreira <sup>3</sup> <sup>1</sup> University of Coimbra, Portugal, <sup>2</sup> Universidade Lusófona de Humanidades e Tecnologias, Portugal, <sup>3</sup> Universidade de Coimbra, Portugal	[O4.03.06] <b>Two-level adaptive multiscale homogenization for plastic-damage of concrete</b> Bilal Ahmed, Taehyo Park* Hanyang University, Republic of Korea	[O5.03.07] <b>Effect of record selection and scaling on the seismic safety of structure</b> Ehsan Razzaghi, Saeed Tariverdilo*, Rasoul Shabani Urmia University, Iran, Islamic Republic of
15:15-15:30	[O1.03.08] <b>Vibration reduction of pantograph support system using an impact damper with multi-impactor</b> Taichi SATO* <sup>1</sup> , Takaaki NAGASHIMA <sup>2</sup> <sup>1</sup> Tokyo Denki University, Japan, <sup>2</sup> Mitsubishi Electric Corporation, Japan	[O2.03.06] <b>An adaptive T-spline Finite Cell Method for structural shape optimization</b> Liang Chen, Liang Meng*, Weihong Zhang Northwestern Polytechnical University, China	[O3.03.08] <b>GPR signal interpretation using Artificial Neural Network for inspection concrete bridge</b> Tahar Bachiri* <sup>1</sup> , Abdellatif Khamlichi <sup>2</sup> , Mohammed Bezzazi <sup>1</sup> <sup>1</sup> Faculty of Sciences and Technology, Morocco, <sup>2</sup> University Abdelmalek Essaadi, Morocco	[O4.03.07] <b>Numerical analysis of surface stresses in fretting fatigue</b> Gregor Kosec*, Jure Slak Jožef Stefan Institute, Slovenia	[O5.03.08] <b>Seismic collapse capacity assessment of optimally designed RC frames</b> Saeed Gholizadeh*, Navid Razavi Urmia University, Iran, Islamic Republic of
15:30-15:45				[O4.03.08] <b>Multi point constraints produce symmetric or non-symmetric stiffness matrices: the complete story</b> Schalk Kok*, Daniel Wilke	

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				University of Pretoria, South Africa	
<b>15:30-16.00</b>	<b>Afternoon Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Professor P. Ivanyi and Professor B. Topping	Professor W. Zhang, Professor J. Zhu, Professor T. Gao and Professor L. Meng	Dr R Greco and Dr M.G. Masciotta	Dr A. Tessler, Professor M. Di Sciuva and Professor M. Gherlone	Dr J. Brozovsky and Professor J. Logo
16:00-17:30	Session 1: Computational Technology including Abstracts from: Special Session: CC 15. High Performance Computing for Engineering Simulation and Design Professor P. Ivanyi, Hungary	Session 2: Special Session OPT 5. Topology Optimisation for Additive Manufacturing Professor W. Zhang, Professor J. Zhu, Professor T. Gao and Professor L. Meng, China	Session 3: Includes Abstracts from Special Sessions: CC 16. Structural Health Monitoring and Model Updating for Heritage Structures Dr M. Girardi, Italy, (Part 2) Professor P.B. Lourenco, Portugal, Dr M.G. Masciotta, Portugal and Dr. D. Pellegrini, Italy (part 1) and OPT 4. Computational Methods for Structural Optimization in Seismic Design organized by Professor R. Greco, Italy	Session 4: Special Session: CC 8. Advances in Multilayered Composites Modelling for Aerospace, Marine, and Automotive Applications, Dr A. Tessler, USA, Professor M. Di Sciuva, Italy and Professor M. Gherlone, Italy	Session 5: Special Session: CC 25. Analysis and Assessment of Industrial Heritage Buildings and Structures - Dr J. Brozovsky, Czech Republic
15.45- 16:00	[O1.04.01] <b>Evaluating the embedding impact in a ubiquitous system environment</b> Agustín Francisco Gutiérrez-Tornés <sup>1</sup> , Alma Delia Cuevas-Rasgado <sup>2</sup> , Norma Ivone Peña Galeana <sup>1</sup> , Edgar Benitez-Guerrero <sup>3</sup> , Jose Martinez-Carranza <sup>4</sup> <sup>1</sup> UACyTI-Universidad Autónoma de Guerrero, Mexico, <sup>2</sup> UAEM Centro Universitario, Texcoco, Mexico, <sup>3</sup> Universidad Veracruzana, Mexico, <sup>4</sup> Instituto Nacional de Astrofisica Optica y Electronica, Mexico				
16:00-16:15	[O1.04.02] <b>Asynchronous domain decomposition for stress-strain analysis of helicoidal structures</b>	[O2.04.01] <b>Topology optimization of shell structures in B-spline space</b> Shengqi Feng, Weihong Zhang, Liang Meng*	[O3.04.01] <b>Shape sensing for beam elements in presence of non-linear behaviour</b> Pierclaudio Savino <sup>1</sup> , Marco	[O4.04.01] <b>Evaluation of crack initiation from pores in layered materials using a coupled stress-energy criterion</b>	[O5.04.01] <b>Selected problems of numerical modelling of old steel structures</b> Martin Krejsa, Premysl

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	Guillaume Gbikpi-Benissan* <sup>1</sup> , Marina Rynkovskaya <sup>1</sup> , Frédéric Magoulès <sup>2,3</sup> <sup>1</sup> Peoples' Friendship University of Russia (RUDN University), Russia, <sup>2</sup> CentraleSupélec - Université Paris-Saclay, France, <sup>3</sup> University of Pécs, Hungary	Northwestern Polytechnical University, China	Gherlone <sup>1</sup> , Francesco Tondolo* <sup>1</sup> , Rita Greco <sup>2</sup> <sup>1</sup> Politecnico di Torino, Italy, <sup>2</sup> Politecnico di Bari, Italy	Clara Schuecker*, Mariia Shevchuk, Matthias Drvoderic, Martin Pletz Montanuniversitaet Leoben, Austria	Parenica, Petr Lehner, Jana Seidlerova, Jiri Brozovsky* VSB-Technical University of Ostrava, Czech Republic
16:15-16:30	[O1.04.03] <b>About the trade-off between time and space consumption when combining the hammock-cost model with the EFL (Embedded Flexible Language) parallel programming paradigm</b> Oren Eliezer* <sup>1</sup> , Moshe Goldstein <sup>2</sup> , David Dayan <sup>2</sup> <sup>1</sup> Achva Academic College, Israel, <sup>2</sup> Lev Academic Center - Jerusalem College of Technology Jerusalem, Israel, Israel	[O2.04.02] <b>Optimized design of actively cooling thermal protection structure for additive manufacturing</b> Sun Shiping*, Liu Daohuang Nanchang Hangkong University, China	[O3.04.02] <b>A novel computer vision approach based on guided ultrasonic waves and wavelet transform for damage monitoring of structures</b> Ali Aminian*, Hamid Reza Mirdamadi Isfahan University of Technology, Iran, Islamic Republic of	[O4.04.02] <b>A class of flat shell elements based on RZT<sup>(m)</sup> for the analysis of multilayered composite and sandwich structures</b> Marco Gherlone*, Vincenzo Zarra Politecnico di Torino, Italy	[O5.04.02] <b>Simulation of an RC flat plate substructure subjected to corner column removal scenarios</b> Fuhao Ma* <sup>1</sup> , Hong Guan <sup>1</sup> , Benoit Gilbert <sup>1</sup> , Xinzheng Lu <sup>2</sup> , Yi Li <sup>3</sup> , Yew-Chaye Loo <sup>1</sup> <sup>1</sup> Griffith University, Australia, <sup>2</sup> Tsinghua University, China, <sup>3</sup> Beijing University of Technology, China
16:30-16:45	[O1.04.04] <b>Distributed lively aqua creature real time image processing analytical framework and the prototype system design</b> Rich Lee* <sup>1,2</sup> , Hui Yi Fan <sup>2</sup> <sup>1</sup> Fu Jen Catholic University, Taiwan, <sup>2</sup> Commerce Development Research Center, Taiwan	[O2.04.03] <b>Topology optimization for the design of periodic structures with multiple materials</b> Jie Xu*, Yongfeng Zheng, Liang Gao, Junjian Fu, Mi Xiao, Hao Li Huazhong University of Science and Technology, China	[O3.04.03] <b>Dynamic strain measurements based structural joint damage estimation using 1D Convolution Neural Network</b> Smiti sharma*, Subhamoy Sen Indian Institute of Technology, India	[O4.04.03] <b>Thermoelastic deformations of Refined Zigzag Theory derived from Reissner's variational principle</b> Marco Gherlone <sup>1</sup> , Alexander Tessler* <sup>1,2</sup> , Anastasia Wilson <sup>3</sup> <sup>1</sup> Politecnico di Torino, Italy, <sup>2</sup> NASA Langley Research Center, USA, <sup>3</sup> Augusta University College of Science and Mathematics, USA	[O5.04.03] <b>Comparison of wind fragility for greenhouse with steel frame and CFRP frame</b> Viriavudh Sim*, MinKi Kim, WooYoung Jung Gangneung-Wonju National University, Republic of Korea
16:45-17:00	[O1.04.05] <b>Log-star graph: New design method for improved network cost of star graph</b> Mihyeon Park* Suncheon National University, Korea, Democratic People's Republic of	[O2.04.04] <b>Comparison between elastic properties of bone tissue and load adapted FE lattice structure. Novel perspectives for bioinspired 3d printed bone scaffold design</b> Francesco Naddeo* University of Salerno, Italy	[O3.04.04] <b>Robust optimal design criterion for multiple tuned mass dampers</b> Rita Greco* <sup>1</sup> , Giuseppe Carlo Marano <sup>2</sup> <sup>1</sup> Polytechnic of Bari, Italy, <sup>2</sup> Polytechnic of Turin, Italy	[O4.04.04] <b>Development of a locking-free quadrilateral element for laminated composite and sandwich plates based on refined zigzag theory</b> Matteo Sorrenti*, Marco Di Sciuva, Alexander Tessler Politecnico di Torino, Italy	[O5.04.04] <b>The 'pombalino frontal' design and its structural efficiency</b> António Morais, Carmo Fialho, Lam dos Santos* Lisbon School of Architecture, Portugal

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17:00-17:15	[O1.04.06] <b>Parallel implementations of the element and the nodal based dynamic relaxation method</b> Peter Ivanyi* <i>University of Pécs, Hungary</i>				
Session Chair	Professor Peter Ivanyi				
17:15-18:15	Author Seminar: "Developments in Journal Publishing" Carrie Christensen, Publisher, Elsevier, New York, USA "Getting Published: An Editor's Perspective", Barry Topping, Editor: Computers and Structures and Advances in Engineering Software				
<b>Wednesday 18 September 2019</b>					
08:30-09:00	<b>Welcome Coffee   Pala Vela</b>				
Room	Dolomiti A	Dolomiti B	Belvedere	Limoni	Ledro
Session Chair	Dr E. Meli, Italy, Dr. P. Antunes and Dr V. Markine	Profesor A. Chasiakos and Professor L. Lamberti	Dr I. P. Mitseas and Professor A. El-Hami	Dr D. Yang and Professor M. Sejnoha	Professor M-S. Park and Dr R. Blazej
09:00-10:30	Session 1: Special Session: CC 2. Computational Developments for Railway Applications organized by Professor Joao Pombo, UK, Dr Enrico Meli, Italy, Dr. P. Antunes, UK and Dr V.i Markine, The Netherlands (Part 2)	Session 2: Optimization: Metaheuristics, Genetic Algorithms and Algorithm Development	CC 29. Novel Stochastic Dynamics Methodologies for Civil Engineering Applications- Dr I. P. Mitseas, Germany, Professor M. Beer, Germany, Professor I. A. Kougioumtzoglou, USA and Professor J. Chen, Germany and CC 31. Probabilistic Approaches to Structural Mechanics Professor A. El-Hami, France and Professor B. Radi, Morocco	Session 4: Special Session: CC 13. Modelling of Composite Materials and Structures Dr D. Yang, UK	Session 5: Offshore Structures; GIS; and Design Studies
09:00-09:15	[O1.05.01] <b>Experimental determination of wheel/rail contact forces by stress in two cross sections</b>	[O2.05.01] <b>A multi-objective bi-level algorithm for Hub-&amp;-Spoke network in marine</b>	[O3.05.01] <b>Stochastic optimal design of nonlinear energy-dissipation structures with uncertain</b>	[O4.05.01] <b>Review of time to failure criteria for thermoset polymers in structural</b>	[O5.05.01] <b>Performance analysis of a wave flume with full reflector: An experimental study</b>

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	<p><b>of the rail with variable measurement scale</b> Yuriy Boronenko<sup>1</sup>, Rustam Rahimov*<sup>1</sup>, Alexey Belyankin<sup>2</sup>, Dmitriy Sergeev<sup>2</sup> <sup>1</sup>Emperor Alexander I St. Petersburg State Transport University, Russia, <sup>2</sup>LLC "Tikhvin Testing Center of Railway Technics", Russia</p>	<p><b>transportation</b> Panagiotis Farmakis, Athanasios Chassiakos* University of Patras, Greece</p>	<p><b>damper parameters based on ETDM-MCS</b> Cheng Su*, Jianhua Xian South China University of Technology, China</p>	<p><b>engineering</b> Jan Vorel*<sup>1</sup>, Krešimir Ninčević<sup>2</sup>, Ioannis Boumakis<sup>2</sup>, Roman Wan-Wendner<sup>3</sup> <sup>1</sup>CTU in Prague, Czech Republic, <sup>2</sup>University of Natural Resources and Life Sciences Vienna, Austria, <sup>3</sup>Ghent University, Belgium</p>	<p>saeed Mahjouri*<sup>1</sup>, Rasoul Shabani<sup>1</sup>, Ghader Rezazade<sup>1</sup>, Peyman Badiei<sup>2</sup> <sup>1</sup>Urmia University, Iran, Islamic Republic of, <sup>2</sup>Tehran University, Iran, Islamic Republic of</p>
09:15-09:30	<p>[O1.05.02] <b>Wear and Rolling Contact Fatigue: development of an innovative tool for wheel and rail damage evaluation</b> Elisa Butini*<sup>1</sup>, Lorenzo Marini<sup>1</sup>, Martina Meacci<sup>1</sup>, Enrico Meli<sup>1</sup>, Andrea Rindi<sup>1</sup>, Zhiyong Shi<sup>1</sup>, Xiangji Zhao<sup>2</sup>, Wen-jian Wang<sup>2</sup> <sup>1</sup>University of Florence, Italy, <sup>2</sup>Southwest Jiaotong University, China</p>	<p>[O2.05.02] <b>Optimization of rainwater harvesting network in rural scenario using GA and GIS</b> Nitant Upasani*, Rajiv Gupta Birla Institute of Technology and Science, Pilani, India</p>	<p>[O3.05.02] <b>An approximate stochastic dynamics framework for inelastic response determination of hysteretic MDOF structural systems subject to code-compliant non-stationary stochastic seismic excitation</b> Peihua Ni*, Ioannis P. Mitseas, Michael Beer Leibniz University of Hannover, Germany</p>	<p>[O4.05.02] <b>Material frame indifferent strain gradient elasticity: theoretical formulation and mixed-type finite element implementation</b> Martin Lederer* Vienna University of Technology, Austria</p>	<p>[O5.05.02] <b>Heavy duty transporter operating support system development based on augmented reality to support safety block transit for offshore structures construction</b> Young-Soo Han*, Kyungho Lee, Wonhyuk Lee, Youlin Yang Inha University, Republic of Korea</p>
09:30-09:45	<p>[O1.05.03] <b>Validation of a finite element multibody system model for vehicle-slab track application</b> Zhiyong Shi, Martina Meacci, Enrico Meli*, Andrea Rindi University of Florence, Italy</p>	<p>[O2.05.03] <b>Meta-heuristic, single-objective, continuous optimization algorithm benchmark</b> Francois Schott*<sup>1,2</sup>, Dominique Chamoret<sup>3</sup>, Thomas Baron<sup>2</sup>, Sébastien Salmon<sup>1,4</sup>, Yann Meyer<sup>5,6</sup> <sup>1</sup>Former My-OCCS, France, <sup>2</sup>FEMTO-ST institute, Univ. Bourgogne Franche-Comté, France, <sup>3</sup>ICB, France, <sup>4</sup>AR-Electronique, France, <sup>5</sup>Sorbonne Universités, université de technologie de Compiègne, France, <sup>6</sup>Univ. Bourgogne Franche-Comté, UTBM, France</p>	<p>[O3.05.03] <b>A harmonic wavelets based analysis for the response determination of linear and nonlinear mdof structural systems with singular matrices</b> George Pasparakis*<sup>1</sup>, Vasileios Fragkoulis<sup>1</sup>, Liam Comerford<sup>2</sup>, Ioannis Mitseas<sup>3</sup>, Michael Beer<sup>2,4,5</sup> <sup>1</sup>Leibniz Universität Hannover, Germany, <sup>2</sup>Institute for Risk and Reliability, Leibniz Universität Hannover, Hanover, Germany, <sup>3</sup>Leibniz Universität Hannover, Germany, <sup>4</sup>University of Liverpool, UK, <sup>5</sup>Tongji University, China</p>	<p>[O4.05.03]</p>	<p>[O5.05.03] <b>Numerical analysis of a XL mono-pile substructure for offshore wind turbine</b> Min-Su Park*, Youn-Ju Jeong, Sung-Hoon Song, Jeong-Soo Kim Korea Institute of Civil Engineering and Building Technology, Republic of Korea</p>
09:45-10:00	<p>[O1.05.04] <b>Thermomechanical modelling of the white</b></p>	<p>[O2.05.04] <b>Pile design optimisation using generalised reduced gradient</b></p>	<p>[O3.05.04] <b>An effective random vibration analysis technique for</b></p>	<p>[O4.05.04] <b>Properties of thermoset polymer-based composites</b></p>	<p>[O5.05.04] <b>Numerical investigation on behaviors of large lid-plate</b></p>

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	<p><b>etching layer (wel) formation as a tribological surface transformation (tst) in the railroad</b> Léo Thiercelin<sup>1,2,3</sup>, Loïc Saint-Aimé<sup>3</sup>, Frédéric Lebon<sup>2</sup>, Aurélien Saulot<sup>3</sup> <sup>1</sup>IRT Railenium, France, <sup>2</sup>LMA (Laboratoire de Mécanique et d'Acoustique), France, <sup>3</sup>LAMCOS (Laboratoire de Mécanique des Contacts et des Structures), France</p>	<p>Jamiu A. Dauda<sup>*1</sup>, Fouad A. Mohammad<sup>2</sup>, Suraj A. Rahmon<sup>1</sup> <sup>1</sup>University of Leeds, UK, <sup>2</sup>Nottingham Trent University, UK</p>	<p><b>nonlinear MDOF structural systems response determination via a stochastic averaging approach</b> Ioannis P. Mitseas<sup>*</sup> Leibniz University Hannover, Germany</p>	<p><b>cured in different environmental conditions</b> Vladimír Hrbek, Jan Vorel, Michal Sejnoha<sup>*</sup> Department of Mechanics, Faculty of Civil Engineering, Czech Technical University in Prague, Czech Republic</p>	<p><b>suspended by cables for offshore cofferdam construction method</b> Jeongsoo Kim<sup>*</sup>, Yeon-Ju Jeong, Min-Su Park, Sunghoon Song Korea Institute of Civil Engineering and Building Technology, Republic of Korea</p>
10:00-10:15	<p>[O1.05.05] <b>Synthesis of the heavy freight locomotive speed control system by finite-state machine theory</b> Alexander Zarifyan<sup>*</sup> Rostov state transport university, Russia</p>	<p>[O2.05.05] <b>Using genetic algorithms in diagnostic of mining machines</b> Tomasz Kozłowski<sup>*</sup>, Jacek Wodecki, Ryszard Błażej, Radosław Zimroz, Monika Hardygóra Wrocław University of Science and Technology, Poland</p>	<p>[O3.05.05] <b>Evaluation of long-term prediction calculation models of metal seals - based on experimental results</b> Linan Qiao<sup>*</sup>, Sven Nagelschmidt, Uwe Herbrich, Dietmar Wolff Bundesanstalt für Materialforschung und -prüfung, Germany</p>	<p>[O4.05.05] <b>Modelling the mechanical behaviour of concrete with scrap tyre rubber aggregates</b> Amedeo Gregori<sup>*</sup>, Chiara Castoro, Micaela Mercuri, Michele Angiolilli University of L'Aquila, Italy</p>	<p>[O5.05.05] <b>A computational ontology for maritime navigation using a spatial temporal model</b> Dieudonné Tsatcha<sup>*1</sup>, Eric Saux<sup>2</sup>, Christophe Claramunt<sup>2</sup> <sup>1</sup>Boostasoft, France, <sup>2</sup>Ecole navale, France</p>
10:15-10:30	<p>[O1.05.06] <b>Virtual commissioning of a true scale mechatronic bogie test bench</b> Gustav Grether<sup>*</sup>, Andreas Heckmann, Lisa Kumschier, Christoph Schwarz German Aerospace Center (DLR), Germany</p>	<p>[O2.05.06] <b>Fully orthogonal response surface designs for the use of multivariate Legendre polynomials</b> Janis Auzins, Janis Janushevskis<sup>*</sup> Riga Technical University, Latvia</p>	<p>[O3.05.06] <b>A constitutive model to couple the multi-axial damage evolution into elastoplastic behaviors</b> Abdelkhalak El Hami<sup>*1</sup>, Bouchaib Radi<sup>2</sup> <sup>1</sup>INSA de Rouen, France, <sup>2</sup>LIMII, Morocco</p>	<p>[O4.05.06] <b>Optimum modeling of composite carbon fiber structural systems based on experimental measurements and finite element model updating techniques</b> Dimitrios Giagopoulos<sup>*</sup>, Alexandros Arailopoulos, Ilias Zacharakis, Olga Markogiannaki University of Western Macedonia, Greece</p>	<p>[O5.05.06] <b>Designing adhesive conveyor belt splices based on the fatigue model</b> Ryszard Błażej<sup>*</sup>, Leszek Jurdziak Wrocław University of Science and Technology, Poland</p>
10:30-10:45					<p>[O5.05.07] <b>Evaluation of the quality of conveyor belt splices in the process approach</b> Agata Kirjanów-Błażej<sup>*</sup>, Ryszard Błażej, Leszek Jurdziak, Tomasz Kozłowski, Anna Burduk</p>

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					Wroclaw University of Science and Technology, Poland
<b>10:30-11:00</b>	<b>Mid-Morning Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Dr E. Meli, Italy, Dr. P. Antunes and Dr V. Markine	Dr S Freitag and N. Schietzold	Dr A. Sextos and Dr A. Palmeri	Professor G. Milani and Dr. N. Cavalagli, Dr. D. Aita	Dr I. McLuckie and Dr M. Kaunda
10:45-12:30	Session 1: Special Session: CC 2. Computational Developments for Railway Applications organized by Professor J. Pombo, UK, Dr E. Meli, Italy, Dr. P. Antunes, UK and Dr V. Markine, The Netherlands (Part 3)	Session 2: Abstracts on AI, KBS, SVM and OPT 7. Optimization of Structures under Polymorphic Uncertainty organized by Dr S. Freitag, Germany, Professor W. Graf, Germany, Professor G. Meschke, Germany and Professor R.L. Muhanna, USA	Session 3: Seismic Engineering: Earthquake Engineering includes Abstracts from Special Session: CC 23. Performance-Based Earthquake Engineering of Buildings, Bridges and Critical Infrastructure organized by Professor A. Sextos, UK	Session 4: Masonry Structures: Special Sessions: CC 30. Experimental, Numerical and Analytical Issues on Structural Safety and Strengthening of Masonry Arch Structures- Dr. D. Aita, Dr. N. Cavalagli, Dr. P. Zampieri and Dr. M. Zanini, Italy and CC 6. Computational Masonry Modelling - Professor G. Milani, Professor A. Formisano and Professor F. Clementi Italy (Part 1)	Session 5: Finite Elements, Structural Mechanics and Fracture Mechanics
10:45-11:00				[O4.06.01] <b>Numerical modelling of the cracks based on limit analysis in a gothic cathedral</b> Alessandro Dell'Endice*, Antonino Iannuzzo, Tom Van Mele, Philippe Block <i>ETH Zurich, Switzerland</i>	[O5.06.01] <b>Computer simulation of the effect of strain rates on the dynamic strength of composite shells of revolution</b> Leonid Igumnov*, Francesco dell'Isola, Nikolay Abrosimov, Nadezhda Novoseltseva <i>The Research Institute for Mechanics of the National Research Lobachevsky State University of Nizhny Novgorod, Russia</i>
11:00-11:15	[INV.10] <b>Multibody/finite element co-simulation method for multidisciplinary applications in railway dynamics</b> Pedro Antunes* <sup>1,2</sup> , Jorge Ambrósio <sup>2</sup> , João Pombo <sup>1,2,3</sup> , João Costa <sup>2</sup> , Hugo Magalhaes <sup>1,2</sup> <sup>1</sup> University of Huddersfield, UK,	[O2.06.01] <b>Automated design and modeling of acoustic panels using KBE technique</b> Haolang Ding*, Fengnian Tian <i>Huazhong University of Science and Technology, China</i>	[INV.12] <b>An expert mobile and web App for Rapid Visual Inspection of schools in developing countries located in seismic regions</b> Anastasios Sextos* <i>University of Bristol, UK</i>	[O4.06.02] <b>Static and kinematic approaches for collapse analysis of non-symmetric masonry arches with Coulomb's friction</b> Danila Aita* <sup>1</sup> , Anna Sinopoli <sup>2</sup> <sup>1</sup> University of Pisa, Italy, <sup>2</sup> Sapienza University of Rome, Italy	[O5.06.02] <b>Discrepancies in building beam stiffness and stress and the abstraction of 3D FEA to beam elements</b> Ian McLuckie, Scott Barrett* <i>AIES Ltd, UK</i>

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11:15-11:30	<sup>2</sup> <i>Universidade de Lisboa, Portugal</i> , <sup>3</sup> <i>ISEL, Portugal</i>	[O2.06.02] <b>Advanced modeling of rubberconcrete compressive strength based on experimental works</b> Amedeo Gregori <sup>1</sup> , Chiara Castoro* <sup>1</sup> , Giri Venkateela <sup>2</sup> <sup>1</sup> <i>University of L'Aquila, Italy</i> , <sup>2</sup> <i>New Jersey Department of Transportation Bureau of research, USA</i>		[O4.06.03] <b>The role of laser scanning and UAV photogrammetric survey in the architectural and numerical modelling for dynamic characterization of a severely damaged stone masonry bridge</b> Nicola Cavalagli* <sup>1</sup> , Massimiliano Giofrè <sup>1</sup> , Silvia Grassi <sup>2</sup> , Vittorio Gusella <sup>1</sup> , Carlo Intotaro <sup>3</sup> , Chiara Pepi <sup>1</sup> <sup>1</sup> <i>University of Perugia, Italy</i> , <sup>2</sup> <i>LS-Rilievi s.n.c., Italy</i> , <sup>3</sup> <i>Droinwork srl, Italy</i>	[O5.06.03] <b>Incorporating experimentally measured full field strains into a finite element model using assumed stress elements</b> Daniel Wilke, Schalk Kok* <i>University of Pretoria, South Africa</i>
11:30-11:45	[O1.06.01] <b>Investigation of the floating sleeper phenomena and possible solutions</b> Mojmir Uranjek*, Iztok Peruš, Stanislav Božičnik <i>University of Maribor, Slovenia</i>	[INV.11] <b>Optimization of structures under consideration of polymorphic uncertain parameters</b> Steffen Freitag*, Philipp Edler, Katharina Kremer, Michael Hofmann, Günther Meschke <i>Ruhr University Bochum, Germany</i>	[INV.13] <b>Improving the seismic performance of buildings through dynamic interaction with secondary structures</b> Alessandro Palmeri* <i>Loughborough University, UK</i>	[O4.06.04] <b>Static assessment of concrete arch bridges by fracture mechanics theory</b> Rene Panian*, Mahdi Yazdani <i>Arak University, Iran, Islamic Republic of</i>	[O5.06.04] <b>New effective numerical method for treatment crack problem</b> Viktor A. Rukavishnikov*, Andrey O. Mosolapov <i>Computing Center, Far-Eastern Branch, Russian Academy of Sciences, Russia</i>
11:45-12:00	[O1.06.02] <b>The investigations focused on the effect of arising imperfections in railway tracks</b> Włodzimierz Bednarek* <i>Poznan University of Technology, Poland</i>			[O4.06.05] <b>A numerical tool for assessing the stability of masonry arches and domes via Durand-Claye's method</b> Danila Aita*, Riccardo Barsotti, Stefano Bennati <i>University of Pisa, Italy</i>	[O5.06.05] <b>Simulation of deformation of materials and structures of nuclear power under thermal radiation effects</b> Vasilii Gorokhov*, Sergei Kapustin, Yuri Churilov, Mikhail Grigoriev <i>The Research Institute for Mechanics of the National Research Lobachevsky State University of Nizhny Novgorod, Russia</i>
12:00-12:15	[O1.06.03] <b>Influences of the support stiffness non-uniformity on expected track degradation</b> Tao Lu* <sup>1</sup> , Mehran Sadri <sup>1</sup> , Arjen Zoeteman <sup>2</sup> , Michaël Steenbergen <sup>1</sup> <sup>1</sup> <i>Delft University of</i>	[O2.06.03] <b>Deep interval neural network in computational mechanics</b> David Betancourt*, Rafi Muhanna <i>Georgia Institute of Technology, USA</i>	[O3.06.01] <b>Application of the Incremental Modal Pushover Analysis (IMPA) to bridges</b> Alessandro Vittorio Bergami <sup>1</sup> , Davide Lavorato* <sup>1</sup> , Camillo Nuti <sup>2,3</sup> , Fiorentino Gabriele <sup>1</sup> <sup>1</sup> <i>University Roma Tre, Italy</i> ,	[O4.06.06] <b>Modeling of masonry infilled frames for structural analysis</b> Arton Dautaj*, Qani Kadiri, Ali Muriqi, Cene Krasniqi <i>"Hasan Prishtina", Prishtine, Kosovo, Albania</i>	[O5.06.06] <b>The extension of Castigliano's method by means of Boley-Tolins solutions for the stresses of rectangular beams</b> Juergen Schoeffner* <i>Johannes Kepler University, Linz, Austria</i>

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	Technology, The Netherlands, <sup>2</sup> Prorail, The Netherlands		<sup>2</sup> University Roma Tre Department of Architecture, Italy, <sup>3</sup> University of Fuzhou, China		
12:15-12:30	[O1.06.04] <b>Effect of train speed on aerodynamic forces acting on a train running through a tornado</b> Masahiro Suzuki* <sup>1</sup> , Yu Feng <sup>1</sup> , Nobuyuki Okura <sup>1</sup> , Siniša Krajnović <sup>2</sup> , Guglielmo Minelli <sup>2</sup> <sup>1</sup> Meijo university, Japan, <sup>2</sup> Chalmers university of technology, Sweden	[O2.06.04] <b>Robustness vs. performance – inherent multi-objective structural optimization with polymorphic uncertainty</b> F. Niklas Schietzold* <sup>1</sup> , Ferenc Leichsenring <sup>1</sup> , Marco Götz <sup>2</sup> , Wolfgang Graf <sup>1</sup> , Michael Kaliske <sup>1</sup> <sup>1</sup> Technische Universität Dresden, Germany, <sup>2</sup> Dr. Schiller & Partner GmbH, Germany	[O3.06.02] <b>Single span greenhouse wind fragility development procedure</b> WooYoung Jung* <sup>1</sup> , Min-Ho Kwon <sup>2</sup> , Viriyavudh Sim <sup>1</sup> <sup>1</sup> Gangneung-Wonju National University, Republic of Korea, <sup>2</sup> Gyeongsang National University, Republic of Korea	[O4.06.07] <b>Meta-heuristic optimization algorithms for NURBS-based kinematic limit analysis of masonry structures</b> Nicola Grillanda* <sup>1</sup> , Andrea Chiozzi <sup>2</sup> , Gabriele Milani <sup>1</sup> , Antonio Tralli <sup>2</sup> <sup>1</sup> Technical University of Milan, Italy, <sup>2</sup> University of Ferrara, Italy	[O5.06.07] <b>Identification of damage development in the core of steel cord belts with the DiagBelt system</b> Ryszard Blazej, Leszek Jurdziak*, Agata Kirjanow-Blazej, Robert Burduk Wroclaw University of Science and Technology, Poland
<b>12:30-13:30</b>	<b>Lunch   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Dr P. Wei and Dr S. Bi	Dr S. Freitag and Professor I. Flood	Dr A. Vassiljev and Dr C. Patino-Gomez	Professor G. Milani and Dr E. Mousavian	Professor A. Csébfalvi and Professor J. Lógó
13:15-15:30	Session 1: Uncertainty including Abstracts from CC 28. Uncertainty Quantification in Simulation and Design of Large Civil Engineering Systems - Dr P.i Wei, China, Dr S. Bi, Germany and Professor Michael Beer, Germany and CC 26. Efficient and Reliable Probabilistic and Non-Traditional Approaches for dealing with Uncertainty Dr E. Patelli, UK, Dr M.A. Valdebenito, Chile, Dr M. Broggi, Germany and Professor M. Beer, Germany	Session 2: Special Session: SC2 - Neural Networks for Engineering Applications organized by Dr S. Freitag, Germany	Session 3: Special Sessions: CC 4. Computational Issues for Sustainable Urban Environments - Dr A. Vassiljev, Estonia (Part 1)	Session 4: Special Session: CC 6. Computational Masonry Modelling - Professor G. Milani, Professor A. Fomisano and Professor F. Clementi Italy (Part 2)	Session 5: Special Session: OPT 1. Robust Structural Optimization organized by Professor A. Csébfalvi, Hungary
13:15-13:30	[INV.14]				
13:30-13:45	<b>Imprecise stochastic simulation for mixed uncertain variables</b> Pengfei Wei* <sup>1,2</sup> , Jingwen Song <sup>1,2</sup> , Sifeng Bi <sup>3</sup> , Michael Beer <sup>3</sup>	[O2.07.01] <b>Application of neural networks and Monte Carlo simulation in structural system reliability analysis</b>	[O3.07.01] <b>Analysis of the external force change in the evacuee body according to flow conditions using the numerical analysis</b> Hoje Seong*, Hyungjun Kim,	[INV.15] <b>Out-of-plane homogenized failure surfaces of masonry through a novel voxel approach</b> Simone Tiberti, Gabriele	[O5.07.01] <b>Optimisation of constrained nonlinear programming engineering problems: Evaluation of alternative approaches</b>

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	<i><sup>1</sup>Northwestern Polytechnical University, China, <sup>2</sup>Leibniz University of Hannover, Germany, <sup>3</sup>Leibniz University of Hannover, China</i>	Dung Vu*, Feng Fu <i>University of London, UK</i>	Dong Sop Rhee <i>KICT, Republic of Korea</i>	<i>Milani* Politecnico of Milan, Italy</i>	Jamiu A. Dauda* <sup>1</sup> , Ganiyu O. Ajisegiri <sup>1</sup> , Fouad A. Mohammad <sup>2</sup> <i><sup>1</sup>University of Leeds, UK, <sup>2</sup>Nottingham Trent University, UK</i>
13:45-14:00	[O1.07.01] <b>Probabilistic analysis of the steel bisymmetric hot-rolled I beam with random initial micro-defects</b> Michał Strąkowski*, Marcin Kamiński <i>Łódź University of Technology, Poland</i>	[O2.07.02] <b>Particle swarm based neural network for prediction of torsional strength of RC beams strengthened with fiber reinforced polymer</b> Narayana Harish* <sup>1</sup> , M.M. Yashawanth <sup>1</sup> , D.P. Anup <sup>1</sup> , Prashanth Janardhana <sup>2</sup> <i><sup>1</sup>Ramaiah Institute of Technology, India, <sup>2</sup>National Institute of Technology, India</i>	[O3.07.02] <b>Risk assessment of underground space inundation considering evacuation difficulty based on CFD results</b> Hyung-Jun Kim* <sup>1</sup> , Dong Sop Rhee <sup>1</sup> , Chang Geun Song <sup>2</sup> <i><sup>1</sup>Korea Institute of Civil Engineering and Building Technology, Republic of Korea, <sup>2</sup>Inchon National University, Republic of Korea</i>		[O5.07.02] <b>Topology optimization of elasto-plastic structures under reliability constraints: a first order approach</b> Janos Logo* <sup>1</sup> , Piotr Tazowski <sup>2</sup> , Bartłomiej Blachowski <sup>2</sup> <i><sup>1</sup>Budapest University of Technology and Economics, Hungary, <sup>2</sup>Polish Academy of Sciences, Poland</i>
14:00-14:15	[O1.07.02] <b>A non-homogeneous layered random field model for the laminated soil slope</b> Zhao-hui Chen*, Kai-hua Huang <i>Chongqing University, China</i>	[O2.07.03] <b>Research on the shield tunneling attitude multi-ring correction method based on combination of geometric model and deep learning model</b> xianguang Kong* <sup>1</sup> , zekun Guo <sup>1</sup> , pei Wang <sup>1</sup> , lei Hu <sup>1</sup> , dekun Liu <sup>2</sup> , siyi Gong <sup>1</sup> <i><sup>1</sup>Xidian University, China, <sup>2</sup>xidian university, China</i>	[O3.07.03] <b>Simulation of pollutant mixing using the particle dispersion model in emergent vegetation</b> Inhwan Park, Dong Sop Rhee*, Hoje Seong <i>Korean Institute of Civil Engineering and Building Technology, Republic of Korea</i>	[O4.07.01] <b>Modelling masonry structures using gradient elasticity</b> Leonidas-Alexandros Kouris* <sup>1</sup> , Dionysios Bournas <sup>1</sup> , Emmanouil-Georgios Kouris <sup>2</sup> , Vlasios G. Demosthenes <sup>2</sup> , Elias C. Aifantis <sup>2</sup> <i><sup>1</sup>European Commission, Italy, <sup>2</sup>Aristotle University of Thessaloniki, Greece</i>	[O5.07.03] <b>Jaya algorithm for sizing and layout optimization of truss structures with natural frequency constraints</b> S.O. Degertekin* <sup>1</sup> , G. Yalcin Bayar <sup>1</sup> , L. Lamberti <sup>2</sup> <i><sup>1</sup>Dicle University, Turkey, <sup>2</sup>Politecnico di Bari, Italy</i>
14:15-14:30	[O1.07.03] <b>Efficient imprecise line sampling for estimating failure probability function and parameter sensitivity analysis</b> Jingwen Song* <i>Leibniz University Hannover, Germany, Northwestern Polytechnical University, China</i>	[O2.07.04] <b>Efficient heterogeneous ensemble learning applied to predict concrete compressive strength</b> Leandro dos Santos Coelho* <sup>1,2</sup> , Viviana Cocco Mariani <sup>3,4</sup> , Guilherme Surek <sup>1</sup> , Doddy Prayogo <sup>5</sup> <i><sup>1</sup>Pontifical Catholic University of Parana, PPGEPS-PUCPR, Brazil, <sup>2</sup>Federal University of Parana, PPGEE-UFPR, Brazil, <sup>3</sup>Pontifical Catholic University</i>	[O3.07.04] <b>GIS-supported vulnerability mapping and overexploitation diagnosis for the Mexican Valle de Puebla aquifer</b> Carlos Patino-Gomez*, David E. Guevara-Polo, Polioptro F. Martinez-Austria, Benito Corona-Vasquez <i>Universidad de las Americas Puebla, Mexico</i>	[O4.07.02] <b>Experimental and numerical analyses of reinforced rammed earth masonry arches</b> Federica Loccarini*, Giovanna Ranocchiali, Tommaso Rotunno, Mario Fagone <i>University of Florence, Italy</i>	[O5.07.04] <b>Geometric vulnerability of space trusses</b> Nayar Gutierrez* <i>ITESO A.C., Mexico</i>

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		of Parana, PPGEM-PUCPR, Brazil, <sup>4</sup> Federal University of Parana, UFPR, Brazil, <sup>5</sup> Petra Christian University, Indonesia			
14:30-14:45	[O1.07.04] <b>Parameter sensitivity analysis in random-interval hybrid uncertain model for structures</b> Liang-Bo Ao* <sup>1</sup> , Xia-Yu Xu <sup>2</sup> , Feng Zhang <sup>1</sup> , Rui-Qing Chen <sup>1</sup> , Zhu-Feng Yue <sup>1</sup> <sup>1</sup> Northwestern Polytechnical University, China, <sup>2</sup> Northwestern Polytechnical University, Bulgaria	[O2.07.05] <b>Extensible artificial neural networks with example applications to engineering</b> Ian Flood* University of Florida, USA	[O3.07.05] <b>Urban flood simulation using dis-aggregated rainfall data</b> Vinay Rangari*, Veerendra Gopi, Umamahesh N. V. National Institute of Technology, India	[O4.07.03] <b>Dynamic behavior of the Amatrice Civic clock tower</b> Angela Ferrante <sup>1</sup> , Gabriele Milani* <sup>2</sup> , Francesco Clementi <sup>1</sup> , Marco Valente <sup>2</sup> <sup>1</sup> Università Politecnica delle Marche, Italy, <sup>2</sup> Politecnico di Milano, Italy	[O5.07.05] <b>Large-scale optimization of truss structures with hybrid JA-enhanced metaheuristic algorithms</b> Sadik Ozgur Degertekin <sup>1</sup> , Luciano Lamberti* <sup>2</sup> <sup>1</sup> Dicle University, Turkey, <sup>2</sup> Politecnico di Bari, Italy
14:45-15:00	[O1.07.05] <b>The performance of the Bhattacharyya distance in various model updating techniques</b> Sifeng Bi* <sup>1</sup> , Peifeng Wei <sup>1,2</sup> , Michael Beer <sup>1</sup> , Huan He <sup>3</sup> <sup>1</sup> Leibniz University Hannover, Germany, <sup>2</sup> Northwestern Polytechnical University, China, <sup>3</sup> Nanjing University of Aeronautics and Astronautics, China	[O2.07.06] <b>Artificial neural networks for real-time prediction of soil-structure interaction in mechanized tunneling</b> Ba Trung Cao*, Markus Obel, Steffen Freitag, Günther Meschke, Peter Mark Ruhr University Bochum, Germany	[O3.07.06] <b>Operative module to reduce peak flow in urban drainage system</b> Nils Kändler, Ivar Annus, Katrin Kaur, Anatoli Vassiljev* TALTECH, Estonia	[O4.07.04] <b>Numerical modeling of the mechanical behavior of masonry vaults reinforced with Textile Reinforced Matrix</b> Anna Castellano <sup>1</sup> , Aguinaldo Fraddosio <sup>1</sup> , Daniel V. Oliveira <sup>2</sup> , Mario Daniele Piccioni <sup>1</sup> , Eleonora Ricci* <sup>1</sup> , Elio Sacco <sup>3</sup> <sup>1</sup> Polytechnic University of Bari, Italy, <sup>2</sup> University of Minho, Portugal, <sup>3</sup> University of Napoli Federico II, Italy	[O5.07.06] <b>Chaotic coyote algorithm applied to truss optimization problems</b> Juliano Pierezan <sup>1</sup> , Leandro dos Santos Coelho <sup>1,2</sup> , Viviana Cocco Mariani* <sup>1,3</sup> , Emerson Hochsteiner de Vasconcelos Segundo <sup>4</sup> , Doddy Prayogo <sup>5</sup> <sup>1</sup> Federal University of Parana, Brazil, <sup>2</sup> Pontifical Catholic University of Parana, PPGEMS-PUCPR, Brazil, <sup>3</sup> Pontifical Catholic University of Parana, PPGEM-PUCPR, Brazil, <sup>4</sup> Pontifical Catholic University of Parana, Brazil, <sup>5</sup> Petra Christian University, Indonesia
15:00-15:15	[O1.07.06] <b>Distance-based energy potentials for optimal sampling</b> Miroslav Vořechovský*, Jan Mašek Brno University of Technology, Czech Republic	[O2.07.07] <b>Prediction of periodic masonry wall stiffness with artificial neural networks</b> Pietro Gulinelli* <sup>1,2,3</sup> , Alessandra Aprile <sup>1</sup> , Raffaella Rizzoni <sup>1</sup> , Yves-Henri Grunevald <sup>2,3</sup> , Frédéric Lebon <sup>2</sup> <sup>1</sup> University of Ferrara, Italy, <sup>2</sup> LMA, CNRS, Marseille, France, <sup>3</sup> Composites Expertise & Solutions, France	[O3.07.07] <b>Water scarcity index in Mexican hydrological basins</b> Carlos Patino-Gomez*, Paul Hernandez-Romero, Polioptro F. Martinez-Austria, Benito Corona-Vasquez Universidad de las Americas Puebla, Mexico	[O4.07.05] <b>Numerical study on the stress state of mortar joints in unreinforced brick masonry walls subjected to combined axial and in-plane lateral loading</b> Maithree Kurukulasuriya*, George Iskander, Nigel Shrive University of Calgary, Canada	[O5.07.07] <b>Elastic-plastic topology optimization of trusses in case of uncertain loading with limited residual strain energy capacity</b> Majid Movahedi Rad* Széchenyi István University, Hungary

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15:15-15:30	[O1.07.07] <b>Uncertainties in structural collapse mitigation</b> Shalva Marjanishvili* <i>Hinman Consulting Engineers, Inc, USA</i>		[O3.07.08] <b>Numerical investigation of impact of irregular pipe wall build-up on pressure drop in water distribution system</b> Katrin Kaur*, Anatoli Vassiljev, Ivar Annus, Nils Kändler <i>Tallinn University of Technology, Estonia</i>	[O4.07.06] <b>Settlement-induced collapse assessment using rigid block limit analysis</b> Raffaele Gagliardo*, Lucrezia Cascini, Francesco Portioli, Raffaele Landolfo <i>University of Naples Federico II, Italy</i>	[O5.07.08] <b>Investigation of the possible numerical treatments of a compliance-function-shape-oriented robust truss sizing model with uncertain loading directions</b> Anikó Csébfalvi* <sup>1</sup> , János Lógó <sup>2</sup> <sup>1</sup> <i>University of Pécs, Hungary,</i> <sup>2</sup> <i>Budapest University of Technology and Economics, Hungary</i>
15:30-15:45	[O1.07.08] <b>Numerical integration based on periodic minimax design criterion</b> Miroslav Vořechovský*, Jan Eliáš, Václav Sadílek <i>Brno University of Technology, Czech Republic</i>		[O3.07.09] <b>Reduced order model and fuzzy expert control for the bidirectional energy flows of an integrated rooftop greenhouse</b> Marius Balas* <sup>1</sup> , Jelena Nikolic <sup>2</sup> , Valentina E. Balas <sup>1</sup> , Mihaela Popa <sup>1</sup> , Alejandro Josa <sup>2</sup> , Santiago Gasso <sup>2</sup> , Tsung-Chih Lin <sup>3</sup> <sup>1</sup> <i>Aurel Vlaicu University of Arad, Romania,</i> <sup>2</sup> <i>Polytechnic University of Catalunya, Barcelona, Spain,</i> <sup>3</sup> <i>Feng Chia University, Taichung, Taiwan</i>	[O4.07.07] <b>Computational framework for structurally informed design of assemblages of interlocking blocks</b> Elham Mousavian*, Claudia Casapulla <i>University of Naples Federico II, Italy</i>	
<b>15:30-16:00</b>	<b>Afternoon Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Dr L. Macorini and Dr C. Chisari	Dr A. Palmeri and Professor J. Blachut	Dr A. Vassiljev and Dr E. Asa	Professor C. Chiorean and Dr S. Kostic	Professor I. Flood and Professor J. M. Taylor
15:45-17:30	Session 1: CC 1. Analysis, Modelling and Design of Masonry Structures organized by Professor Bassam A. Izzuddin, Dr L. Macorini and Dr C. Chisari, UK	Session 5: Structural Engineering Design including Abstracts from Special Session: CC 5. Multi-Hazard Performance-Based Design of Structures organized by, UK plus Abstracts on Structural Engineering Buckling	Session 3: Special Sessions: CC 4. Computational Issues for Sustainable Urban Environments - Dr A. Vassiljev, Estonia (Part 2) and Abstract from Transport Engineering	CC 27. Computational Efficient Models for Non-Linear Inelastic Analysis of Building Frameworks - Professor C. Chiorean, Romania	Session 5: Construction Engineering, Building Technology, BIM, CAD
15:45-16:00	[O1.08.01] <b>3D nonlinear modelling of multi-span masonry arch</b>				

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	<b>bridges</b> Alejandro Barrero Bilbao*, Lorenzo Macorini, Bassam A. Izzuddin <i>Imperial College London, UK</i>				
16:00-16:15	[O1.08.02] <b>Nonlinear finite element analysis of mixed reinforced concrete-unreinforced masonry wall structures</b> Weber Marius* <sup>1</sup> , Thoma Karel <sup>2</sup> , Hofmann Jan <sup>3</sup> <sup>1</sup> <i>Institute of Structural Engineering, ETHZ, Switzerland</i> , <sup>2</sup> <i>Institute of Structural Engineering, HSLU, Switzerland</i> , <sup>3</sup> <i>Institute of Construction Materials, University of Stuttgart, Germany</i>	[O2.08.01] <b>Stress reliability function for randomly excited structures with interval uncertainties</b> Filippo Giunta <sup>1</sup> , Giuseppe Muscolino* <sup>1</sup> , Alba Sofi <sup>2</sup> <sup>1</sup> <i>University of Messina, Italy</i> , <sup>2</sup> <i>University "Mediterranea" of Reggio Calabria, Italy</i>	[O3.08.01] <b>A software tool for the efficiency assessment of hydraulic generators operation in Timisoara's drinking water system using Android-powered mobile devices</b> Alin Anton* <sup>1</sup> , Daniel Mos <sup>1</sup> , Sebastian Muntean <sup>2</sup> , Ionel Draghici <sup>3</sup> , Adrian Coccoceanu <sup>3</sup> <sup>1</sup> <i>Politehnica University Timisoara, Romania</i> , <sup>2</sup> <i>Romanian Academy Timisoara Branch, Romania</i> , <sup>3</sup> <i>SC Aquatim SA, Romania</i>	[O4.08.01] <b>Numerical study of steel plane frames considering concentrated plasticity, semi-rigid joints and residual stress effects</b> Ígor Lemes <sup>1</sup> , Ricardo Silveira* <sup>2</sup> , Andréa Silva <sup>2</sup> , Jéssica Silva <sup>2</sup> <sup>1</sup> <i>Federal University of Lavras, Brazil</i> , <sup>2</sup> <i>Federal University of Ouro Preto, Brazil</i>	[O5.08.01] <b>Measuring stress response in construction workers approached by a small unmanned aerial vehicle</b> Hashem Izadi Moud, Ian Flood* <i>University of Florida, USA</i>
16:15-16:30	[O1.08.03] <b>Numerical study on the out-of-plane performances of solid and perforated masonry walls strengthened with composite reinforced mortar</b> Natalino Gattesco*, Ingrid Boem <i>University of Trieste, Italy</i>	[O2.08.02] <b>Heuristic multi-hazard optimization of double-skin façades as distributed vibration absorbers</b> Alessandro Palmeri*, Giorgio Barone, Giovanni Pipitone <i>Loughborough University, UK</i>	[O3.08.02] <b>Multiobjective optimization for robust waterflooding management</b> silvana afonso*, jefferson Wellano, Ramiro Willmersdorf <i>Federal University of Pernambuco, Brazil</i>	[O4.08.02] <b>Practical nonlinear inelastic analysis method of 3D composite steel-concrete frameworks with partial composite action and semi-rigid connections</b> Cosmin-Gruia Chiorean*, Stefan-Marius Buru <i>Technical University of Cluj-Napoca, Romania</i>	[O5.08.02] <b>Engineers' perceptions regarding co-location and its impact on project value in design-build</b> Jess Donnerberg, Jeffrey Kim, J. Mark Taylor*, Wesley Collins, Justin Miller <i>Auburn University, USA</i>
16:30-16:45	[O1.08.04] <b>Identification of seismic damage in masonry structures by two-step SSI and parametric inverse analysis</b> Corrado Chisari* <sup>1</sup> , Francesco Potenza <sup>2</sup> , Vincenzo Gattulli <sup>3</sup> , Lorenzo Macorini <sup>1</sup> , Bassam Izzuddin <sup>1</sup> <sup>1</sup> <i>Imperial College London, UK</i> , <sup>2</sup> <i>University of L'Aquila, Italy</i> ,	[O2.08.03] <b>On buckling of externally pressurized domes - impact of local and global shape imperfections</b> Jan Blachut* <i>University of Liverpool, UK</i>	[O3.08.03] <b>Effect of driver and vehicle characteristics on service delay of U-turning vehicles: A case study in six-lane divided urban roads of India</b> Tathagatha Khan, Smruti Sourava Mohapatra* <i>Indian Institute of Technology (Indian School of Mines) Dhanbad, India</i>	[O4.08.03] <b>Efficient discretization of circular cross-section in fiber beam/column element</b> Svetlana Kostic* <sup>1</sup> , Filip C. Filippou <sup>2</sup> <sup>1</sup> <i>University of Belgrade, Serbia</i> , <sup>2</sup> <i>University of California, USA</i>	[O5.08.03] <b>Assessment of summer thermal stability of attic room using different software</b> Kateřina Stejskalová*, Nikola Vavřínová <i>VSB - Technical University of Ostrava, Czech Republic</i>

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	<sup>3</sup> "Sapienza" University of Rome, Italy				
16:45-17:00	[O1.08.05] <b>TNA and TSM: two alternative models for the structural analysis of the elliptical dome of Pisa Cathedral</b> Francesco Barsi* <sup>1</sup> , Daniele Masi <sup>2</sup> , Riccardo Barsotti <sup>1</sup> , Stefano Bennati <sup>1</sup> , Francesco Marmo <sup>2</sup> , Luciano Rosati <sup>2</sup> <sup>1</sup> University of Pisa, Italy, <sup>2</sup> University of Naples Federico II, Italy	[O2.08.04] <b>FEM-based design of corrugated web girders subjected to lateral-torsional buckling</b> Bence Jäger*, László Dunai Budapest University of Technology and Economics, Hungary	[O3.08.04] <b>Linear Kriging of multi-year AADT data: An application to Washington State</b> Eric Asa*, Edmund Baffoe-Twum, Bright Awuku North Dakota State University, USA	[O4.08.04] <b>Moment-curvature and ultimate strength capacity evaluation of composite cross-sections at elevated temperatures</b> Cosmin-Gruia Chiorean* Technical University of Cluj-Napoca, Romania	[O5.08.04] <b>Software for multicriterial design of structure of external walls of new buildings based on priority of user</b> Jiri Majer*, Nikola Vavrinova, Lenka Pentkova VSB-Technical University of Ostrava, Czech Republic
17:00-17:15	[O1.08.06] <b>A plastic-damage orthotropic 3D model for nonlinear analysis of masonry structures under earthquake loading</b> Corrado Chisari, Lorenzo Macorini*, Bassam Izzuddin Imperial College London, UK	[O2.08.05] <b>A buckling mode classification method for thin-walled members with arbitrary support conditions</b> Sheng Jin* <sup>1</sup> , Shuang Xu <sup>1</sup> , Zhanjie Li <sup>2</sup> <sup>1</sup> Chongqing University, China, <sup>2</sup> SUNY Polytechnic Institute, USA			[O5.08.05] <b>A comparative research: The influence of walls in corners columns, made with reinforced concrete and exposed to a standard fire and a natural fire</b> Bruno Matos*, Fernando Ferreira, João Paulo Rodrigues University of Coimbra, Portugal
17:15-17:30	[O1.08.07] <b>Seismic vulnerability assessment of masonry structures: A computational approach</b> Pavan Kumar, Susanta Banerjee, Sanket Nayak* Indian Institute of Technology (ISM), Dhanbad, India				
<b>19:30-22:00</b>	<b>Optional Conference Dinner</b>	<b>Hotel du Lac et du Parc</b>	<b>Thursday 19th September 2019</b>		
<b>08:30-09:00</b>	<b>Welcome Coffee   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Professor M. Šejnoha and Professor P. Trovalusci		Professor A. El Hami and Dr R. Blazej	Professor E. Rohan and Dr M. Eremin	
<b>09:00-10:30</b>	9.30-10.30; Session 1: Special Session: CC 21. Multiscale and Multiphysics Modelling for Complex Materials	9.30-10.30: Session 2: Fluid Flow Problems and Biomechanics	Session 5: OPT 6. Advances in Reliability-Based Structural Optimisation	Special Session: CC 12. Modelling (multi-phase) Porous Media organized by	

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	(MMCM13) organized by: Professor P. Trovalusci, Dr N. Fantuzzi and Dr E. Lofrano, Italy		Dr G. Khamanda and Professor A. El-Hami, France	Professor E. Rohan, Czech Republic	
09:00-09:15			[O3.09.01] <b>Reliability based design optimization of dental implant using generalized polynomial chaos method</b> Fatma ABID <sup>1,2</sup> , Abdelkhalak EL HAMI <sup>*1</sup> , Tarek MERZOUKI <sup>3</sup> , Hassen TRABELSI <sup>2</sup> , Lassaad WALHA <sup>2</sup> , Mohamed HADDAR <sup>2</sup> <sup>1</sup> INSA Rouen, France, <sup>2</sup> ENIS, Tunisia, <sup>3</sup> University of Versailles Saint Quentin in Yvelines, France	[O4.09.01] <b>Nonlinear numerical simulation of fully coupled two-phase flow in deformable porous media</b> Roza Asadi* K.N. Toosi University of Technology, Iran, Islamic Republic of	
09:15-09:30			[O3.09.02] <b>Reliability analysis of wire bonding in microelectronic devices using advanced metamodelling based reliability methods</b> Hamid HAMDANI <sup>*1</sup> , Bouchaib RADI <sup>2</sup> , Abdelkhalak EL HAMI <sup>1</sup> <sup>1</sup> INSA Rouen Normandie, France, <sup>2</sup> FST Settat, Morocco	[O4.09.02] <b>Numerical simulation of failure of porous sandstone specimens subjected to uniaxial compression</b> Mikhail Eremin* Russian Academy of Sciences, Russia	
09:30-09:45	[O1.09.01] <b>A comprehensive analytical framework for a novel concept of locally-resonant beams</b> Giuseppe Failla* University of Reggio Calabria, Italy	[O2.09.01] <b>About numerical simulation of Rayleigh-Taylor gravity instabilities in gas flows</b> Evgeny Shilnikov <sup>*1,2</sup> , Tatiana . Elizarova <sup>1</sup> <sup>1</sup> Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, Russia, <sup>2</sup> Moscow Automobile and Road Construction Technical University, Russia	[O3.09.03] <b>Reliability based design optimization of transmission loss of a simple expansion chamber muffler</b> Khalil Dammak, Abdelkhalak El Hami* INSA Rouen Normandie, France	[O4.09.03] <b>Two-scale numerical modelling of fluid-saturated porous media undergoing large deformation with self-contact in micropores; homogenization approach</b> Eduard Rohan*, Jan Heczko, Vladimír Lukeš University of West Bohemia, Czech Republic	
09:45-10:00	[O1.09.02] <b>Micromechanical simulations of additively manufactured aluminum alloys</b> Varvara Romanova <sup>*1</sup> , Ruslan	[O2.09.02] <b>Numerical model of hip resurfacing endoprosthesis taking into account biological fluid</b>	[O3.09.04] <b>Inverse optimum safety factor method as an effective tool for reliability-based topology optimization: Application on</b>	[O4.09.04] <b>3-D modeling of fluid flow through heterogeneous and anisotropic porous media using a multipoint flux</b>	

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	Balokhonov <sup>1</sup> , Olga Zinovieva <sup>2</sup> , Alexandr Zinoviev <sup>2</sup> , Eugenia Emelianova <sup>3</sup> <sup>1</sup> Russian Academy of Sciences, Russia, <sup>2</sup> University of Bremen, Germany, <sup>3</sup> National Research Tomsk State University, Russia	Galina Eremina <sup>*1,2</sup> , Alexey Smolin <sup>1,2</sup> <sup>1</sup> Russian Academy of Sciences, Russia, <sup>2</sup> Tomsk State University, Russia	<b>static and dynamic cases</b> Ghias Kharmanda <sup>1</sup> , Abdelkhalak El-Hami <sup>*1</sup> , Imad Antypas <sup>2</sup> <sup>1</sup> INSA Rouen, France, <sup>2</sup> Don State Technical University, Russia	<b>approximation scheme with a diamond stencil (MPFA-D)</b> Ricardo Lira, Sidicley Santos, Túlio Cavalcante, Fernando Contreras, Darlan Carvalho, Paulo Lyra <sup>*</sup> Universidade Federal de Pernambuco, Brazil	
10:00-10:15	[O1.09.03] <b>Deformation and fracture of metal matrix composites and coatings across multiple spatial scales</b> Ruslan Balokhonov <sup>*1</sup> , Varvara Romanova <sup>1</sup> , Alexei Kulkov <sup>1</sup> , Rustam Bakeev <sup>1</sup> , Sergey Kulkov <sup>1</sup> , Evgeniya Emelianova <sup>1</sup> , Maxim Sergeev <sup>2</sup> <sup>1</sup> Institute of Strength Physics and Materials Science SB RAS, Russia, <sup>2</sup> Institute of Strength Physics and Materials Science SB RAS, Russia	[O2.09.03] <b>Data-driven approach to pressure determination in valves and arteries</b> Helena Svihlova <sup>*</sup> Charles University, Czech Republic	[O3.09.05] <b>Multi-objective reliability-based topology optimisation using OMPBIL</b> Suwin Slesongsom <sup>*1</sup> , Sujin Bureerat <sup>2</sup> <sup>1</sup> King Mongkut's Institute of Technology Ladkrabang, Thailand, <sup>2</sup> KhonKaen University, Thailand	[O4.09.05] <b>Wave-induced porous seabed liquefaction in shallow water</b> Cheng-Jung Hsu <sup>*1</sup> , Yang-Yi Chen <sup>1</sup> , Chia-Cheng Tsai <sup>2,3</sup> <sup>1</sup> National Sun Yat-Sen university, Taiwan, <sup>2</sup> National Sun Yat-Sen University, Taiwan, <sup>3</sup> National Kaohsiung University of Science and Technology, Taiwan	
10:15-10:30	[O1.09.04] <b>Computational failure analysis using statistically resembling in-situ characteristics of carbon fiber reinforced polymer composites</b> Hande Yavuz <sup>*</sup> University of Turkish Aeronautical Association, Turkey	[O2.09.04] <b>Development of microscale 3D fused quartz hemi-toroidal shells for high-Q resonators and gyroscopes</b> Mohammad Asadian, Yusheng Wang, Andrei Shkel <sup>*</sup> University of California, USA	[O3.09.06] <b>Coupling reliability-based optimization methods with multi-axial fatigue damage of structures under random vibrations using Matsubara's criterion</b> Ahmed Yaich <sup>1</sup> , Ghias Kharmanda <sup>2</sup> , Abdelkhalak El Hami <sup>*1</sup> <sup>1</sup> INSA Rouen, France, <sup>2</sup> Biomedical Engineering Department, Sweden	[O4.09.06] <b>Multicompartment Biot-Darcy-Brinkman models of flow in deformable double porous media: application to the liver tissue perfusion</b> Eduard Rohan <sup>*</sup> , Jana Turjanicová, Vladimír Lukeš University of West Bohemia, Czech Republic	
10:30-10:45			[O3.09.07] <b>Risk and stability assessment of the conveyor belt transport system</b> Anna Burduk <sup>*</sup> , Agata Kirjanów-Błazej, Leszek Jurdziak, Ryszard Błazej		

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			Wrocław University of Science and Technology, Poland		
<b>10:30-11:00</b>	<b>Mid-Morning Refreshment Break   Pala Vela</b>				
<b>Room</b>	<b>Dolomiti A</b>	<b>Dolomiti B</b>	<b>Belvedere</b>	<b>Limoni</b>	<b>Ledro</b>
<b>Session Chair</b>	Professor P. Trovalusci and Professor M. Šejnoha	Professor H. Varum and Professor M. Domaneschl	Dr. C. Pappalardo and Dr X. Wei	Dr J. Naprstek and Professor J.R. Banerjee	
11:00-12:30	Session 1: Special Session: CC 21. Multiscale and Multiphysics Modelling for Complex Materials (MMCM13) organized by: Professor P. Trovalusci, Dr N. Fantuzzi and Dr E. Lofrano, Italy	Special Session: CC 11. Seismic Design, Assessment and Retrofitting of Structures organized by Professor H. Varum, Portugal	Session 1: Special Sessions: CC 10. Dynamics, Control, and Identification of Structural Systems - Dr. C. Pappalardo and Dr M. C. De Simone, Italy	Special Session: CC 3. Linear and Non-Linear Dynamics - Dr J. Naprstek, Czech Republic and Professor J.R. Banerjee, UK	
11:00-11:15	[INV.16] <b>Evaluation of moisture induced strains in spruce based on homogenization and Bayesian inference</b> Michal Šejnoha* <sup>1</sup> , Tomáš Janda <sup>2</sup> , Jan Sýkora <sup>3</sup> <sup>1</sup> CTU in Prague, Czech Republic, <sup>2</sup> Prague, Czech Republic, <sup>3</sup> CTU in Prague,, Czech Republic	[O2.10.01] <b>Comparative performance of shape memory alloy supplemented base isolation devices for benchmark building</b> Ashish R. Akhare*, Sharad Ghodke, R. S. Jangid Indian Institute of Technology Bombay Mumbai, India		[O4.10.01] <b>Modeling of the quasi-periodic galloping response type under combined harmonic and random excitation</b> Jiri Naprstek*, Cyril Fischer, Stanislav Pospisil Czech Academy of Sciences, Czech Republic	
11:15-11:30		[O2.10.02] <b>Optimal distribution of multiple tuned mass dampers for vibration control of system under earthquake excitation</b> Sharad Ghodke* <sup>1</sup> , Ashish R. Akhare <sup>1</sup> , Vishnu Priya Choudhary <sup>2</sup> , R.S. Jangid <sup>1</sup> <sup>1</sup> Indian Institute of Technology Bombay, India, <sup>2</sup> Govt. Engineering College Ajmer Rajasthan, India	[O3.10.01] <b>Piece-wise exact computation of seismic energy balance equation</b> Ahmet Güllü* <sup>1</sup> , Ercan Yüksel <sup>2</sup> <sup>1</sup> Istanbul Gedik University, Turkey, <sup>2</sup> Istanbul Technical University, Turkey	[O4.10.02] <b>A hybrid method for the axial vibration analysis of two rods with frictional contact</b> Athanasios Tsetas*, Timo Molenkamp, Apostolos Tsouvalas, Andrei Metrikine Delft University of Technology, The Netherlands	
11:30-11:45	[O1.10.01] <b>Computational method for limit analysis of axisymmetric masonry domes with interlocking blocks</b> Claudia Casapulla, Elham Mousavian* University of Napoli Federico II, Italy	[O2.10.03] <b>Seismic responses of r.c. members with corroded rebars</b> Davide Lavorato* <sup>1</sup> , Angelo Pelle <sup>2</sup> , Alessandro Vittorio Bergami <sup>1</sup> , Gabriele Fiorentino <sup>3</sup> , Alessandro Rasulo <sup>4</sup> , Camillo Nuti <sup>1</sup>	[O3.10.02] <b>Effects of simplifying assumptions on vibration serviceability assessment of pedestrian structures</b> Xinxin Wei*, Michael Kasperski Ruhr-Universität Bochum, Germany	[O4.10.03] <b>Finite element approach of axial bending coupling on behavior of functionally graded material (FGM) sandwich beams</b> Kouami KOUTOATI, Foudil Mohri*, El Mostafa DAYA University of Lorraine, France	

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		<sup>1</sup> Roma Tre University, Italy, <sup>2</sup> Univ. of Cassino and Southern Lazio, Italy, <sup>3</sup> Roma Tre University, Italy, <sup>4</sup> Univ. of Cassino and Southern Lazio, Italy			
11:45-12:00	[O1.10.02] <b>Evaluation of morphological and mechanical characteristics of bicontinuous porous media using multipoint statistical descriptors</b> Mikhail Tashkinov* Perm National Research Polytechnic University, Russia	[O2.10.04] <b>Seismic vulnerability of existing schools</b> MARCO DOMANESCHI* <sup>1</sup> , Gian Paolo Cimellaro <sup>1</sup> , Ali Zamani Noori <sup>1</sup> , Farhad Ansari <sup>2</sup> , Valentina Villa <sup>3</sup> <sup>1</sup> Politecnico di Torino - DISEG, Italy, <sup>2</sup> University of Illinois at Chicago, USA, <sup>3</sup> Politecnico di Torino DISEG, Italy	[O3.10.03] <b>A comparative study on the performance of two fundamental time-domain system identification techniques for estimating the structural parameters of vibrating systems</b> Carmine Maria Pappalardo* <sup>1</sup> , Filippo Califano <sup>2</sup> , Domenico Guida <sup>1</sup> <sup>1</sup> University of Salerno, Italy, <sup>2</sup> Spin-Off MEID4 S.r.l., Italy	[O4.10.04] <b>Wave propagation mitigation in periodically supported pipes</b> Mohammad Iqbal* <sup>1,2</sup> , Mahesh Jaya <sup>3</sup> , Oreste Bursi <sup>2</sup> , Anil Kumar <sup>1</sup> , Rosario Ceravolo <sup>3</sup> , Luca Fragonara <sup>4</sup> <sup>1</sup> Indian Institute of Technology Roorkee, India, <sup>2</sup> University of Trento, Italy, <sup>3</sup> Politecnico di Torino, Italy, <sup>4</sup> Cranfield University, UK	
12:00-12:15	[INV.17] <b>Materials with anisotropic microstructure as micropolar continua, statical and dynamical simulations</b> Patrizia Trovalusci* <sup>1</sup> , Nicholas Fantuzzi <sup>2</sup> , Egidio Lofrano <sup>1</sup> <sup>1</sup> Sapienza University of Rome, Italy, <sup>2</sup> Alma Mater Studiorum University of Bologna, Italy	[O2.10.05] <b>A finite element approach for the behaviour of braced thin-walled beams in presence of bending and torsion modes</b> Achref Hamaidia <sup>1</sup> , Foudil Mohri* <sup>2</sup> , Nouredine Damil <sup>3</sup> <sup>1</sup> Jijel University, Algeria, <sup>2</sup> Université de Lorraine, France, <sup>3</sup> Hassan II University of Casablanca, Morocco		[O4.10.05] <b>Insight into the rho-infinity Bathe method for structural dynamics and wave propagations</b> Gunwoo Noh* Kyungpook National University, Republic of Korea	
12:15-12:30		[O2.10.06] <b>Methodological approach for the seismic vulnerability evaluation of a concrete dam</b> Francesco Castelli, Martina Greco* University of Enna, Italy		[O4.10.06] <b>Multipurpose nonlinear dynamic cable model for various numerical analyses</b> Danuta Bryja, Marta Knawa-Hawryszków, Dawid Prokopowicz* Wroclaw University of Science and Technology, Poland	
Room	Dolomiti A	Dolomiti B	Belvedere	Limoni	Ledro
12:30-13:30	<b>Lunch   Pala Vela</b>				
Session Chair	Dr J. Naprstek and Professor J.R. Banerjee	Professor H. Varum and Profesor M. Domaneschi	Professor S. Kmet and Dr G. Pavone	J. Lawen, Dr K. Tadesse and Dr A. Vassiljev	

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13:30-16:00	Special Session: CC 3. Linear and Non-Linear Dynamics organized by Dr J. Naprstek, Czech Republic and Professor J.R. Banerjee, UK	Session 2: Special Session: CC 11. Seismic Design, Assessment and Retrofitting of Structures organized by Professor H. Varum, Portugal	Session 3: Special Session: CC 20. Space, Tension and Tensegrity Structures Professor S. Kmet, Slovakia	Session 4: Special Sessions: CC 4. Computational Issues for Sustainable Urban Environments - Dr A. Vassiljev, Estonia (Part 3)	
13:30-13:45	[O1.11.01] <b>Rigid-body-rule-based method for nonlinear dynamic analysis of spatial framed structures</b> Zhao-hui Chen*, Yu-chen Tao, Yong-bin Yang <i>Chongqing University, China</i>	[O2.11.01] <b>Reduction of the vulnerability of structures under seismic loadings</b> Donato Cancellara, Fabio De Angelis* <i>University of Naples Federico II, Italy</i>	[O3.11.01] <b>Applicability of optimized tensegrity structures as compressive structural elements</b> James K. Roth*, Timothy J. McCarthy <i>University of Wollongong, Australia</i>	[O4.11.01] <b>Tidal dynamics adaptive biocide dosing: Increased biocide dosing during increased effluent dilution</b> Johannes Lawen* <sup>1</sup> , Georg Fieg <sup>1</sup> <i>TUHH, Germany</i>	
13:45-14:00	[O1.11.02] <b>A new algorithm for calculating natural vibrations of non-prismatic multi-segment beams</b> Ryszard Hołubowski* <i>Wroclaw University of Science and Technology, Poland</i>	[O2.11.02] <b>Application of smart cover in retrofitting concrete beams</b> Samad Noorani, Hamed Khezzadeh* <i>Tarbiat Modares University, Iran, Islamic Republic of</i>	[O3.11.02] <b>Configuration design of diagrids via module-based optimization by an enhanced meta-heuristic algorithm</b> Mohsen Shahrouzi*, Ahmad Azizi <i>Kharazmi University, Iran, Islamic Republic of</i>	[O4.11.02] <b>Optimal allocation of water and land to crops using stochastic non-linear programming</b> Kassahun Tadesse* <sup>1</sup> , Megersa Dinka <sup>1</sup> <i>University of Johannesburg, South Africa</i>	
14:00-14:15	[O1.11.03] <b>An analytical solution to study nonlinear pull-in instability in MEMS</b> saeed Mahjouri, Rasoul Shabani*, Saeed Tariverdilo, Ghader Rezazadeh <i>Urmia University, Iran, Islamic Republic of</i>	[O2.11.03] <b>Base isolation systems for structures subject to extreme seismic events</b> Donato Cancellara, Fabio De Angelis* <i>University of Naples Federico II, Italy</i>	[O3.11.03] <b>Theoretical and experimental behavioural analysis of an adaptive tensegrity module with four active members</b> Stanislav Kmet*, Viktor Urban, Michal Tomko, Robert Soltys <i>Technical University of Kosice, Slovakia</i>	[O4.11.03] <b>Application of dynamic programming to optimize the reservoir operation for irrigation</b> Kassahun Tadesse* <sup>1</sup> , Megersa Dinka <sup>1</sup> <i>University of Johannesburg, South Africa</i>	
14:15-14:30	[O1.11.04] <b>Free vibration of microbeams using the dynamic stiffness method</b> Ranjan Banerjee* <i>City, University of London, UK</i>	[O2.11.04] <b>Hybrid approach for 3D base isolation of low damped structures</b> Marco Domaneschi* <sup>1</sup> , Luca Martinelli <sup>2</sup> , Gian Paolo Cimellaro <sup>1</sup> <i><sup>1</sup>Politecnico di Torino - DISEG,</i>	[O3.11.04] <b>Parametric analysis of V-Expander tensegrity chains with strut-to-strut joints</b> Aguinaldo Fraddosio, Gaetano Pavone*, Mario Daniele Piccioni <i>Polytechnic University of Bari, Italy</i>	[O4.11.04] <b>Model for PAH plume mediation of antibiotic resistance genes</b> Johannes Lawen* <sup>1</sup> , Georg Fieg <sup>1</sup> <i>TUHH, Germany</i>	

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		<i>Italy, <sup>2</sup>Politecnico di Milano - DICA, Italy</i>			
14:30-14:45	[O1.11.05] <b>Fast, accurate and stable numerical solutions of nonlinear oscillatory systems</b> Modify Kaunda* <i>Cape Peninsula University of Technology, South Africa</i>	[O2.11.05] <b>Comparative analysis of different base isolation systems for irregular structures</b> Fabio De Angelis*, Donato Cancellara <i>University of Naples Federico II, Italy</i>	[O3.11.05] <b>Conceptual study of free-form GFRC panel production using 3D plastering technique</b> Seunghyun Son, Ki-Ho Kim, Sunkuk Kim* <i>Kyung Hee University, Republic of Korea</i>	[O4.11.05] <b>New model for Cu plumes and ARG mediation: does metal pollution stimulate the spread of antibiotic resistances?</b> Johannes Lawen* <sup>1</sup> , Georg Fieg <sup>1</sup> <i>TUHH, Germany</i>	
14:45-15:00	[O1.11.06] <b>Estimation of critical flutter load of a double I-shaped shaft subjected to a follower force with an axial force (out-of-plane vibration)</b> Ichiro Takahashi* <i>Kanagawa Institute of Technology, Japan</i>	[O2.11.06] <b>Dynamic analysis of 3D thin-walled braced beams: Numerical and experimental approaches</b> Wassim Jrad <sup>1</sup> , Foudil Mohri* <sup>1</sup> , Guillaume Robin <sup>1</sup> , El Mostafa Daya <sup>1</sup> , Jihad Al-Hajjar <sup>2</sup> <i><sup>1</sup>Université de Lorraine, France, <sup>2</sup>Université Libanaise, Lebanon</i>	[O3.11.06] <b>Numerical calculation of equivalent static wind loads for long-span roof structures</b> Shuguo Liang*, Lei Wang, Haiyang Wu <i>Wuhan University, China</i>		
15:00-15:30	<b>Afternoon Tea   Pala Vela</b>				
15:30	<b>End of Conference</b>				

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