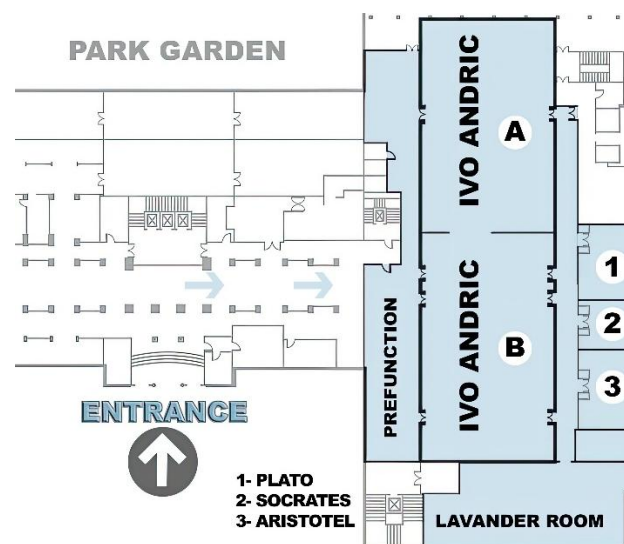


1st Biennial ESIS-CSIC Conference on Structural Integrity

BECCSI 2025, www.beccsi2025.com

Hotel Metropol Palace, Belgrade, Serbia



CONFERENCE PROGRAMME SCHEME

Tuesday, 25.11 Faculty of Mech. Engng	Wednesday 26.11 Metropol Palace Hotel	Thursday 27.11 Metropol Palace Hotel	Friday 28.11 Metropol Palace Hotel	Saturday 29.11 Post Conference Tour along Danube: Vinca, Viminacijum, Lepenski vir
	8-8.45 Registration	8-9 Registration	8-9 Registration	
	<u>8.45 Opening ceremony</u> <u>9-10.30 Plenary 1</u>	<u>9-10.30 Plenary 2</u>	<u>9-10.30 Plenary 3</u>	
	10.30-11.00 Coffee break	10.30-11.00 Coffee break	10.30-11.00 Coffee break	
	11-13.30 Parallel 1	11-13.30 Parallel 3	11-13.30 Parallel 5	
	13.30-14.30 Lunch	13.30-14.30 Lunch	13.30-14.30 Lunch	
17.00-20.00 Registration and Welcome cocktail & panel discussion Youshi Hong, mod. Wanlin Guo, Shan- Tung Tu, A.Sedmak, Hongbiao Dong, Ali Mehmanparasti	14.30-16.30 Parallel 2	14.30-17.00 Parallel 4	14.30-17.00 Parallel 6	
	16.30-17.00 Coffee break	17.00-17.30 Coffee break	17.00-17.30 Closing Ceremony	
	17.00-18.30 Special event <u>J. Rice 85th birthday</u> POSTERS	17.30-18.30 Special session <u>Best young scientist</u> POSTERS		
Faculty of Mech. Engng, room 211 Kraljice Marije 16	19.30-21.00 Cultural programme Metropol Palace	19.30-23.00 Conference dinner – Metropol Palace		

Wednesday, 26th November

Wednesday 26. November, 2025 (09.00-10.30) – Plenary session 1 (Ivo Andrić room)

Chairs: Shan-Tung Tu, Aleksandar Sedmak

- 09.00 – 09.30** 213 **Three-dimensional fatigue fracture mechanics: Bridge the gap from laboratory to engineering Structures**, *Wanlin Guo*
- 09.30 – 10.00** 195 **Fracture mechanics based design of super-low ice adhesion surfaces**, *Jianying He*
- 10.00 – 10.30** 289 **Hydrogen embrittlement mechanisms in metals: New insights**, *Miloš Đukić*
-

Wednesday 26. November, 2025 (11.00-13.30) – Parallel session 1 (Ivo Andrić room)

Minisymposium: Data-Driven and Deep Learning in Action: Smart Monitoring, analysis and Damage Prediction for Materials and structures. **Chair: Chao Gao**

- 11.00 – 11.15** 19 **Preliminary study on the prediction of mechanical behavior of hierarchical Voronoi-like mechanical metamaterials via GNN-based approach**, *Denis Giordana, Chiara Bertolin, Andrea Tridello, Chao Gao (keynote)*
- 11.15 – 11.30** 15 **Comparative analysis of the accuracy of neural network and analytical methods in modelling fatigue fracture of titanium alloy**, *Iryna Didych, Oleh Yasniy, Dmytro Tymoshchuk, Oleksandr Holotenko, Viktor Boichun (online)*
- 11.30 – 11.45** 14 **Prediction of SMA hysteresis behaviour by ensemble stacking machine learning**, *Dmytro Tymoshchuk, Oleh Yasniy, Iryna Didych, Volodymyr Medvid, Andrii Stanko (online)*
- 11.45 – 12.00** 20 **Preliminary study on the inverse design of hierarchical spinodoid mechanical metamaterials**, *Carlo Alberto Greco, Chiara Bertolin, Andrea Tridello, Chao Gao*
- 12.00 – 12.15** 39 **A crystal plasticity-based machine learning model for evaluating subsurface microstructure damage under rolling contact fatigue**, *Jun Wang, Shuxin Li, Jinhua Chen, Xinqi Han, Siyuan Lu*
- 12.15 – 12.30** 43 **Seawater-Influence Changes in Quasi-Static Performance of Composite Sandwich Structures: A Data-Driven Validation**, *Amadi Gabriel Udu, Norman Osa-Uwagboe, Maryam Khaksar Ghalati, Sunny Atomode, Francis Anyebe Oteikwu, Hongbiao Dong*
- 12.30 – 12.45** 103 **Fatigue Design of Additive Manufacturing Components: An Integrated Framework Combining Machine Learning and Topology Optimization**, *A. Centola, C. Boursier Niutta, A. Ciampaglia, F. Berto, D.S. Paolino, A. Tridello*
- 12.45 – 13.00** 285 **Machine learning-based inverse method for determining elastic coefficients of unsymmetric laminates**, *Mirko Dinulović, Marta Trninić, Dejan Kožović, Simon Sedmak*
- 13.00 – 13.15** 60 **Uncertainty quantification for creep behavior of P91 steel using generalized polynomial chaos expansion and artificial neural networks**, *Xiaodong Sun, Xiaoyun Su, Peng Wang, Xiaoxiao Li, Gang Chen*
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Wednesday 26. November, 2025 (11.00-13.30) – Parallel session 1 (Lavander room)

Minisymposium: Analytical and Computational Analysis of Mechanical Components under Static and Dynamic
Chair: Sandra Klinge, Manoj Sahni (online)

- 11.00 – 11.15** 184 **Machine learning based solution of solid mechanics tasks**, *Steffan Hildebrand, Luzie Schmollack, Sandra Klinge (keynote)*
- 11.15 – 11.30** 11 **Transferability of Fracture Toughness for Different Specimens Using a Constraint-Based Approach**, *Wangling Fu, Kai Lu, Dong Wang, Xi Liu, Yinsheng Li*

- 11.30 – 11.45 27 **Multilayered Inhomogeneous Viscoelastic Rod Moving in Vertical Direction: a Delamination Analysis**, Victor Rizov (*online*)
- 11.45 – 12.00 46 **Framework of Engineering Damage Theory and Recent Progresses**, Run-Zi WANG, Xian-Cheng ZHANG, Shan-Tung TU
- 12.00 – 12.15 98 **Local Limit Load for RPV Nozzles with Corner Cracks Under Combined Internal Pressure and Nozzle External Loads**, Ting Jin, Yang Liu, Dasheng Wang, Yuebing Li
- 12.15 – 12.30 101 **Parameter and Topology Optimization for Lightweight and Reliability Enhancement of a Cylinder head**, Peirong Ren, Weiqing Huang, Zhengxing Zuo, Huihua Feng
- 12.30 – 12.45 115 **On the Distinction Between Blunt and Sharp Notched: Revisiting the Concept of Limit Notch Radius through the Averaged SED Method**, Pietro Foti, Filippo Berto
- 12.45 – 13.00 133 **Novel load separation method for accurate σ_{pl} and ε_{pl} estimation and Ernst equation limitations**, A. K. Bind, Y. Huang and R. N. Singh
- 13.00 – 13.15 140 **Simplified SPSI Analysis of Cement Silo Exposed to Liquefaction** Boris Folic, Radomir Folic
- 13.15 – 13.30 111 **Long-Term Structural Capacity Assessment of an Industrial Steel Chimney** Ognjen Peković, Aleksandar Simonović, Toni Ivanov, Marija Baltić, Milica Ivanović
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Wednesday 26. November, 2025 (11.00-13.30) – Parallel session 1 (Aristotel room 3)

Minisymposium: Advanced surface processing technologies for damage tolerance improvement and life extension

Chair: Oleg Plekhov

- 11.00 – 11.15 185 **Theoretical Foundations, Benefits, and Limitations of Laser Shock Peening in Russia** Oleg Plekhov (*keynote*)
- 11.15 – 11.30 3 **Optimized bilateral surface ultrasonic rolling technology assisting directed energy deposition of thin-walled medium-entropy alloy with high mechanical performance** Yufei Chen, Tiwen Lu, Xiyu Chen, Binhan Sun, Ning Yao, Kaishang Li, Jihang Qiu, Xiaoqi Hu, Xian-Cheng Zhang, Shan-Tung Tu
- 11.30 – 11.45 12 **Consecutive Shock Wave and Fatigue Loads: Fundamentals and LSP Optimization Strategy** Oleg Naimark, Sergey Uvarov, Yuri Bayandin, Mikhail Bannikov, Vladimir Oborin, Aleksander Balachnin, Alexandra Yurina
- 11.45 – 12.00 61 **Numerical analysis of residual stresses formed in a thin plate after LSP** Mariia Bartolomei, Igor Kudryashev, Aleksey Vshivkov, Elena Gachegova, Anastasia Iziumova, Oleg Plekhov
- 12.00 – 12.15 63 **On the prediction of fatigue crack growth in aluminum alloy with compressive residual stresses using the weight function method**, Nikolai Kashaev
- 12.15 – 12.30 68 **Visualization of tensile damage evolution of 3D braided carbon fiber composites using mechanochromic luminescent sensing film**, Zhe Zhang, Mengdan Li, Hong Gao, Xu Chen
- 12.30 – 12.45 91 **Influence of Laser Shock Peening on Kinetic of Fatigue crack Propagation** Aleksei Vshivkov, Elena Gachegova, Maria Bartolomei, Anastasia Iziumova, Oleg Plekhov
- 12.45 – 13.00 106 **Effect of the laser shock peening area location on the fatigue properties of specimens with stress concentrators**, Elena Gachegova, Aleksei Vshivkov, Anastasiia Iziumova, Oleg Plekhov
- 13.00 – 13.15 142 **An experimental study of fatigue property enhancement in 310S stainless steel due to surface mechanical rolling treatment**, Linye Zhang, Ting Yu, Yuxuan Song, Xiaogui Wang, Weiya Jin, Zhibin Shen, Zengliang Gao, Yanyao Jiang, Yuebing Li
- 13.15 – 13.30 143 **Enhancing the structural integrity of heat-exchanger tubes against flow-induced vibration using surface texturing**, MingJue Zhou, ShuaiDa Li, Jun Yun, YueBing Li
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Wednesday 26. November, 2025 (14.30-16.30) – Parallel session 2 (Ivo Andrić room)

Minisymposium: Numerical Methods for Solving Elastic Plastic Fracture Mechanics - TC01 and TC08 joint topic

Chair: Nenad Gubeljak

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|---------------|---|
| 14.30 – 14.45 | 222 Fracture Behavior Pipe-Ring Specimens for Fracture Toughness Testing of Thin-Walled Pipelines , Nenad Gubeljak (<i>keynote</i>), Andrej Likeb, Darko Damjanović, Dražan Kozak, Luka Ferlič |
| 14.45 – 15.00 | 223 Analytical and numerical stress analysis on ring specimens for fracture toughness testing
Darko Damjanović, Nenad Gubeljak, Dražan Kozak, Mirco D. Chapetti |
| 15.00 – 15.15 | 205 Experimental and Numerical Investigation of Reheat Cracking Mechanisms in 2.25Cr1Mo0.25V Weldments , Bin Yang, Wenchun Jiang, Feng Xiong, Zhenhao Jia |
| 15.15 – 15.30 | 76 Investigation of Microstructure and Crack Tip Mechanical Fields during SCC Propagation in SA508–309/308L Overlay Welded Joints , Zheng Wang, Bo Chen, Xingyu Feng, He Xue, Shuning Gu |
| 15.30 – 15.45 | 78 Fatigue Crack Evolution of Thin-Walled Pipe Bends Based on Phase-Field Theory
Xiaoxiao Wang, Desheng Kong, Haofeng Chen, Weiling Luan |
| 15.45 – 16.00 | 86 Numerical Modeling and Damage Prediction in HSLA Premium Connections Using a Mini-Structure , Nouri Hedi, Hbeishi Abdulhadi and Cazier Olivier (<i>online</i>) |
| 16.00 – 16.15 | 124 Finite Element Simulation of Flange Sealing Structure under Cyclic Loading ,
Xiaofan Lv, Gang Chen |
| 16.15 – 16.30 | 149 Experimental and numerical analysis of polyurethane components under static and cyclic loading , Grzegorz Lesiuk, Krzysztof Junik, Szymon Duda |

Wednesday 26. November, 2025 (14.30-16.30) – Parallel session 2 (Lavander room)

Minisymposium: Understanding Damage Mechanisms in Additive Manufacturing: Fracture, Fatigue, and Future Trends.

Chair: Filippo Berto

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|---------------|--|
| 14.30 – 14.45 | 224 As-Built CAD Models: A Tool for Fatigue Life Prediction of Additively Manufactured Strut-Based Lattices , S. Murchio (<i>keynote</i>), R. De Biasi, M. Laurenti, N. Bonato, S. Carmignato, M. Benedetti, F. Berto |
| 14.45 – 15.00 | 36 Fatigue Behaviour of FDM-printed Orthopaedic Plates with Varying Infill Densities
Aleksa Milovanović, Simon Sedmak, Jan Poduška, Katarina Čolić, Aleksandar Sedmak |
| 15.00 – 15.15 | 82 Facet formation mechanism and bridging behavior in high-cycle and very-high-cycle fatigue of metallic materials
Xiangnan Pan, Hang Su, Zhiwei Ma, Qing Peng, Youshi Hong |
| 15.15 – 15.30 | 90 Anisotropy in LCF property and reliability of PBF-LB/M 316L stainless steel
Yefeng Chen, Xiaotao Zheng, Xiaowei Wang |
| 15.30 – 15.45 | 96 Fatigue behavior of miniaturized 316L lattice specimens manufactured by L-PBF: influence of build orientation and stress ratio , Raffaele De Biasi, Simone Murchio, Rajesh Kumar Meena, Filippo Berto, Ciro Santus, Matteo Benedetti (<i>online</i>) |
| 15.45 – 16.00 | 99 Fatigue behavior of miniaturized Ti-6Al-4V lattice struts: comparing continuous and pulsed wave L-PBF , Simone Murchio, Pasquale Gallo, Alberto Fabrizi, Matteo Benedetti, Filippo Berto |
| 16.00 – 16.15 | 119 Design and Optimization of Bioinspired Gyroid Lattices Under Pure Torsion
Carolina Schillaci, Simone Murchio, Raffaele De Biasi, Matteo Benedetti, Filippo Berto |
| 16.15 – 16.30 | 130 Fatigue fracture behavior of additively SLM manufactured titanium alloy super structures
Yu'e Ma, Wenbo Sun, Xingyue Sun |

Wednesday 26. November, 2025 (14.30-16.30) – Parallel session 2 (Aristotel room)

Minisymposium: Synchrotron, lab-scale and industrial X-ray tomography for multiscale structural integrity and other innovative NDT. **Chairs: Oleg Naimark (online), Stepan Lomov**

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|---------------|--|
| 14.30 – 14.45 | 45 Quantification of Defects in Fibre Reinforced Composites Based on an XCT Image
<i>Stepan V. Lomov</i> |
| 14.45 – 15.00 | 74 Experimental field analysis of damage-failure transition in composite material with a stress concentrator under cyclic loading (application of DIC and X-ray tomography techniques)
<i>Mikhail Bannikov, Yuriy Bayandin, Aleksandr Nikityuk, Sergey Uvarov, Oleg Naimark (online)</i> |
| 15.00 – 15.15 | 21 Strain Monitoring of Helicopter Landing Gear Using FBGs During Flight Operations
<i>Cristian Vendittozzi, Angela Brindisi, Antonio Concilio, Filippo Berto, Daniele Tittoni</i> |
| 15.15 – 15.30 | 80 Staging of adiabatic shear failure as critical dynamics in microshear ensembles
<i>Mikhail Sokovikov, Sergey Uvarov, Vasiliy Chudinov, Mikhail Bannikov, Oleg Naimark</i> |
| 15.30 – 15.45 | 110 3D Deep-Learning Image Enhancement For Defect Characterization In XCT Of Carbon Fiber Composites Parts , <i>Radmir Karamov, Konstantin Moskalev, Ivan Sergeichev</i> |
| 15.45 – 16.00 | 156 CT technology and image post-processing for fiber composites: defect analysis, deep learning, digital volume correlation, and finite element simulation-A review , <i>Lanxin Jiang, Zhen Liao</i> |
| 16.00 – 16.15 | 167 Novel Insights into Creep-Fatigue Interaction under Uncommon Waveforms
<i>Fan Wu, Yang Liu, Huayue Zhang, Christos Skamniotis, Umer Masood Chaudry, Ashale Antony Xavier Ramesh, Gareth Douglas, Joe Kelleher, Bo Chen</i> |
| 16.15 – 16.30 | 219 Introduction to Neutron Imaging at IMAT: Radiography, Tomography and Strain Mapping , <i>Ruiyao Zhang, Winfried Kockelmann, Ranggi Ramadhan, Sylvia Britto, Manuel Morgano</i> |

17-18.00 Special event Jim Rice's 85th Birthday

Aleksandar Sedmak, University of Belgrade, Serbia,

Direct measurement of J integral

Zhiliang Zhang, NTNU, Norway,

Micromechanical modelling – Complete Gurson Model

Qian Zhengfang, Wuhan Institute of Technology, China,

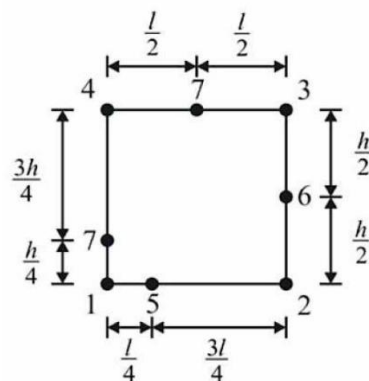
Viscoplasticity and Damage Evolution for Reliability Engineering

Ruzica Nikolic – about Jim, online

$$J = \oint_{\Gamma} \left(W dy - T_i \frac{\partial u_i}{\partial x} ds \right)$$

$$\dot{R}_i = \left[(1 + G) \dot{\varepsilon}_i + D \sqrt{\frac{2}{3}} \dot{\varepsilon}_j \dot{\varepsilon}_j \right] R_0$$

$$\sigma_{ij} = \sigma_0 \left(\frac{EJ}{\alpha \sigma_0^2 I_{nr}} \right)^{\frac{1}{n+1}} \tilde{\sigma}_{ij}(n, \theta)$$





Thursday, 27th November

Thursday 27. November, 2025 (09.00-10.30) – Plenary session 2 (Ivo Andrić room)

Chairs: Jian-Feng Wen, Liviu Marsavina

- 09.00 – 09.30** 64 **From metals to nanomaterials: a comprehensive approach to fracture toughness assessment**
Sabrina Vantadori, Francesco Iacoviello
- 09.30 – 10.00** 150 **Analytical Mechanical Theory and High-Throughput Indentation Instrument**, *Lixun Cai*
- 10.00 – 10.30** 288 **Nuclear Fuel Cladding Degradation: Embrittlement Visualization of Cr-Coated Zircaloy**
Tong Liu
-

Thursday 27. November, 2025 (11.00-13.30) – Parallel session 3 (Ivo Andrić room)

Minisymposium: Data-Driven and Deep Learning in Action: Smart Monitoring, analysis and Damage Prediction for Materials and structures. **Chair: Chao Gao**

- 11.00 – 11.15** 122 **LSTM Prediction of Temperature Evolution In Wire-Arc Additive Manufacturing**
Håvard Fagersand, Kjell Magne Mathisen, David Morin, Jianying He, Zhiliang Zhang
- 11.15 – 11.30** 168 **AI in Metallography**, *Gábor Balogh, Sándor Pálkás, Erasmus Gozibert*
- 11.30 – 11.45** 225 **Mechanical Properties Analysis of S355J0W Weathering Steel Repair-Welded Joints**
Damir Tomerlin, Dražan Kozak, Nenad Gubeljak
- 11.45 – 12.00** 175 **Carbon network formation induced by paper fibers greatly improve carbon-cement super-capacitor performance**, *Xinke Wang, Wenyu Qin, Yu Han, Dongxing Song, Ke Wang, and Shandong Tu*
- 12.00 – 12.15** 176 **Artificial Intelligence Methods for Assessing the Fracture Toughness of Materials in a High-temperature Space Environment**, *Sidnyaev Nikolay Ivanovich, Sineva Elizaveta Evgenievna*
- 12.15 – 12.30** 251 **Mechanical properties of Hf_xTa_{1-x}C solid solution on AB initio level**, *Jelena Zagorac, Tamara Škundrić, Matej Fonović, Milos Djukić, Milan Pejić, V. Maksimović, J. Schön, D. Zagorac*
- 12.30 – 12.45** 252 **Enhancing Structural Integrity of SLA 3D-Printed Lattices via AI-Based Mechanical Response Optimization**, *Marcello Laurenti, Jacopo Tirilló, Fabrizio Sarasini, Filippo Berto*
- 12.45 – 13.00** 182 **Application of AI in agricultural machinery maintenance and diagnostics**
István Domokos, Sándor Pálkás
- 13.00 – 13.15** 236 **A microscopic model for simulating grain boundary diffusion creep in polycrystalline solids**
Kazuki Shibamura, Kota Sagara
- 13.15 – 13.30** 147 **Comparative evaluation of experimental and phase-field modeling approaches in the tensile response of S1100QL steel**, *Aleksandar Bodić, Vladimir Dunić, Đorđe Ivković, Dušan Arsić, Miroslav Živković*
- 13.30 – 13.45** **Evaluation of tensile damage evolution behaviour of additively manufactured aluminium alloy using SR-CT, DVC and Micro-FE**, *Zhen Liao, Bing Yang, Jialin Wang, Lingshen Song, Le Yu, Liyuan Xue, Gengyan Zhu*
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Thursday 27. November, 2025 (11.00-13.30) – Parallel session 3 (Lavander room)

Minisymposium: Corrosion and Hydrogen Embrittlement of Advanced Materials - TC21. **Chair: Milos B. Djukic**

- 11.00 – 11.30** 72 **Environmental Degradation and Mechanisms of Multi-Principal Element Metallic Materials**
Hong Luo (Special Lecture), Zhimin Pan, Qiancheng Zhao
- 11.30 – 11.45** 192 **Hydrogen Embrittlement of WAAM AA2319: Tensile Properties and Fracture Analysis**
Tinashe Mazarire, Alexander Galloway, Athanasios Toupis

- 11.45 – 12.00** 194 **When Hydrogen Meets Grain Boundaries in Nickel**, *Yu Ding, Haiyang Yu, Zhiliang Zhang, Jianying He*
- 12.00 – 12.15** 200 **Numerical Simulation of Hydrogen Embrittlement Coupling in L245 Steel Pipelines**
Weihan Gao, Mu Qin, Weichen Song, Guangxu Cheng, Haijun Hu
- 12.15 – 12.30** 217 **Influence of Heat Treatment on Hydrogen-Induced Cracking Susceptibility of API 5L X60 Pipeline Steel Evaluated in Accordance with NACE TM0284 Standard**
Nasirudeen Ogunlakin, Eissa S. Al-Zahrani, Ihsan Ulhaq Toor
- 12.30 – 12.45** 180 **The Universal Failure Curve for repurposing natural gas pipelines to hydrogen service: assessment of safety margins and comparison with ASME B31.12.,** *Nicolas Larrosa (keynote)*
- 12.45 – 13.00** 258 **Discrete Dislocation Dynamics HELPs Interpret Hydrogen-Plasticity Interactions**
Haiyang Yu
- 13.00 – 13.15** 100 **A Mechanistic Void-Based Framework for Predicting Hydrogen Embrittlement: Does Constraint Still Govern Fracture Toughness under Hydrogen?,** *Karl Druesnes, Jianying He, Zhiliang Zhang*
- 13.15 – 13.30** 137 **Study of Hydrogen-Induced Cracking in X65 Pipeline Steel by Using the H-CGM+ Framework,** *Yunqi Zhang, Karl Etienne Dany Druesnes, Jianying He, Zhiliang Zhang*

Thursday 27. November, 2025 (11.00-13.30) – Parallel session 3 (Aristotel room)

Minisymposium: Analytical and Computational Analysis of Mechanical Components under Static and Dynamic

Chairs: *Zoran Radaković, Manoj Sahni (online)*

- 11.00 – 11.15** 197 **Thermoelastic stress evaluation of functionally graded annular discs under combined thermal and pressure loads using finite difference method,** *Manoj Sahni, Dharmik Chauhan (online)*
- 11.15 – 11.30** 190 **Passive Damping of Prestressed Plates and Shells Using Piezoelectric Elements**
Sergey Lekomtsev, Valerii Matveenko, Alexander Senin
- 11.30 – 11.45** 276 **An investigation on C. elegans Inspired Auxetic Structures**
Diana Pradhan, Soumya Ranjan Sahoo
- 11.45 – 12.00** 196 **Tribological optimization of ultrasonically stir-cast quasi-isotropic composites reinforced with carbide and sulfide using the box-behnken design,** *Dharmik Chauhan, Manoj Sahni (online)*
- 12.00 – 12.15** 220 **Acceleration Data Analysis for Stamping Press Health Monitoring**
Carolina Francisco, Hugo Mesquita Vasconcelos, Susana Dias, Pedro J. S. C. P. Sousa, Paulo J. Tavares, Pedro M. G. J. Moreira, Tiago T. M. Soares, António da S. Guedes
- 12.15 – 12.30** 237 **Stress concentration optimization for functionally graded plates with a pair of circular holes**
H.M.A. Abdalla, F. De Bona, D. Casagrande
- 12.30 – 12.45** 241 **Study On The Degradation Mechanism Of Mechanical Properties Of Carbon-Glass Hybrid Composites Under Hygrothermal Conditions** *Faxiu Zhang, Lanxin Jiang*
- 12.45 – 13.00** 256 **Modeling for Mechanical Properties of Particle-Filled Composite Materials**
Wenqi Liu, Jingyu Sun, Lei Bian, Meng Zhao, Guian Qian
- 13.00 – 13.15** 29 **Temperature Change Generated Longitudinal Fracture of Inhomogeneous Bars with Fixed Supports,** *V. Rizov (online)*
- 13.15 - 13.30** 290 **Shear force in an internal frame connection from a beam under symmetrical linearly distributed load with intensity at the end sections – symmetrical cross section** *Albena Doicheva*

Thursday 27. November, 2025 (14.30-17.00) – Parallel session 4 (Ivo Andrić room)

Minisymposium: Multiscale aspects of structural integrity and Safety of technical system - TC12

Chair: Aleksandar Sedmak

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|---------------|---|
| 14.30 – 14.45 | 18 Research on Acoustic Emission Monitoring Technology for Intergranular Corrosion of 347H Austenitic Stainless Steel in High-Temperature Molten Salt Environment
<i>Luowei Cao, Yilin Yuan, Guodong Jia, Yongna Shen, Jing Guo, Shanshan Shao</i> |
| 14.45 – 15.00 | 28 Study of Tank for Liquid with Taking into Account the Succession of Filling-up and Running off, <i>Victor Rizov</i> |
| 15.00 – 15.15 | 69 Influence of delta ferrite and precipitates on impact energy of nickel free austenitic stainless steels, <i>Sabahudin Muharemović, Jasmin Halilović, Mersida Manjgo, Edis Nasić</i> |
| 15.15 – 15.30 | 112 Experimental And Simulation Study On Fracture Toughness Of Fiber-reinforced Composites, <i>Zheng Liu, Lyuhong Zhang, Xu Chen</i> |
| 15.30 – 15.45 | 7 Predicting fatigue performance of additively manufactured Ti-6Al-4V alloy from material to structural scale using multiscale model simulations, <i>Hongchang Zhou, Weiqian Chi, Wenjing Wang, Ruiguo Yan, Yoshiki Mikami</i> |
| 15.45 – 16.00 | 127 Assessing the Effect of Delamination Damage on the Residual Compressive Strength of Aircraft Composite Laminates, <i>Zi'ang Liu, Xitao Zheng, Yingshi Chen, Tianze Deng</i> |
| 16.00 – 16.15 | 145 The Universal Failure Curve as an alternative approach to FAD and CDF fracture assessment methods, <i>Nicolas Larrosa, Daniel Blanks, Antonio Alvarez Jimenez, Robert Ainsworth</i> |
| 16.15 – 16.30 | 162 Mechanical response prediction of hybrid composite rebars for concrete applications via micromechanical modeling, <i>Pawel Zielonka, Szymon Duda, Michał Smolnicki, Paweł Stabla, Grzegorz Lesiuk</i> |
| 16.30 – 16.45 | 183 Multiscale Homogenization Method for the Electromechanical Coupling of Porous Viscoelastic Nanocomposites, <i>Weidong Yang, Zefu Li, Yonglin Chen, Yan Li</i> |
| 16.45 – 17.00 | 131 Influence of Geometric Factors and Process-Induced Attributes on the Monotonic and Fatigue Behavior of AlSi10Mg TPMS Lattices: Impact of Scale, Unit Cell Size and Wall Thickness, <i>Zhuo Xu, Aritra Sarkar, Ricardo Branco, Sebastian Wronski, Jacek Tarasiuk, Luis Borrego, Nima Razavi</i> |

Thursday 27. November, 2025 (14.30-17.00) – Parallel session 4 (Lavander room)

Minisymposium: TC03 & IGF - Fatigue and Fracture Behaviour in Emerging and Green Materials

Chair: Sabrina Vantadori

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| 14.30 – 14.45 | 71 Mechanical performance of nano-silica modified pervious concrete: experimental tests and LDEM simulations, <i>Daniela Scorza (keynote), Jonathan Duarte Oliveira, Luis Eduardo Kostascki, Ederli Marangon, Sabrina Vantadori</i> |
| 14.45 – 15.00 | 94 Validation of a Numerical Model for the ILSS Prediction in GLARE
<i>Costanzo Bellini, Vittorio Di Cocco, Francesco Iacoviello</i> |
| 15.00 – 15.15 | 4 Enhanced fatigue resistance and fatigue-induced substructures in an additively manufactured CoCrNi medium-entropy alloy treated by ultrasonic surface rolling process, <i>Xiyu Chen et al.</i> |
| 15.15 – 15.30 | 6 Low cycle fatigue behavior of Zr-2.5Nb alloy: Experimental characterization and crystal plasticity finite element simulation, <i>C. Zhang, K. Song, Sh. Liu, T. Zhai, W. Zhu</i> |
| 15.30 – 15.45 | 235 Fatigue life prediction framework for steels based on multiscale modelling of crack growth
<i>Kazuki Shibamura (keynote)</i> |
| 15.45 – 16.00 | 17 Interpretable prediction of sample size-dependent fatigue crack formation lifetime using deep symbolic regression and polycrystalline plasticity models
<i>Tang Gu, Bo Dong, Yun-Fei Jia, Henry Proudhon, Chuan Xu</i> |

16.00 – 16.15	87 A Coupled Damage Constitutive Model For Carbide-Free Bainitic Rail Steel Considering Martensite Transformation <i>Xiang Xu et al.</i>
16.15 – 16.30	95 Influence of load ratio on fatigue crack propagation in additively manufactured TiAlV CT specimens, <i>Vittorio Di Cocco et al.</i>
16.30 – 16.45	102 Biaxial fretting of zirconium alloys in high-temperature pressurized water: Interfacial material transfer and substrate fatigue, <i>Guorui Zhu, Wei Tan</i>
16.45 – 17.00	104 Ultra-low cycle fatigue analysis of a low-damage friction steel connection, <i>Roberto Carlevaris, Mehdi Bashiri, Gregory Antony MacRae, Roberto Tartaglia, Mario D’Aniello, Raffaele Landolfo</i>

Thursday 27. November, 2025 (14.30-17.00) – Parallel session 4 (Aristotel room)

Minisymposium: TC07 - Failure Analysis. Chair: Virginia Infante

14.30 – 14.45	171 Application of predictive maintenance to freight transport wagons, <i>Rita Sousa, Sandra Fernandes, Antonio Andrade, Paulo Alves, Joao Silva, Tiago Domingues, Pedro Moreira, Virginia Infante (keynote)</i>
14.45 – 15.00	16 Research on bulging deformation and cracking patterns of long-term serviced Cr-Mo steel coke drums, <i>Chuang Yu, Zhiyuan Han, Hao Zhou, Guoshan Xie</i>
15.00 – 15.15	30 Identification of crack initiation cause in slewing platform horizontal plate of the excavator SchRs630, <i>Ana Petrović, Nikola Momčilović, Mihajlo Arandelović, Simon Sedmak, Branislav Dorđević</i>
15.15 – 15.30	97 Reliability Analysis of Shell Structures Under Small Failure Probabilities Using Adaptive Multi-fidelity Sampling, <i>Mengke Zhuang, Nicolas O. Larrosa, Julian Booker, Christopher E. Truman</i>
15.30 – 15.45	199 Crashworthiness Evaluation of a Railway Coach: Numerical Study Toward Certification and Failure Mitigation, <i>Christian Silva, Rogério Lopes, Alexandre Löw, Pedro Moreira, João Silva, R. Andrade</i>
15.45 – 16.00	138 Assessment of welded joint integrity of armour steel SA 500 based on fracture mechanics parameters, <i>M. Manjgo, J. Bernetič, G. Lojen, T. Vuherer</i>
16.00 – 16.15	13 Application of Accurate Elastic Wave Arrival Times for Acoustic Emission Source Localization in Geomaterials, <i>Katsuya Nakamura, Mikika Furukawa, Kenichi Oda, Satoshi Shigemura, Yoshikazu Kobayashi</i>
16.15 – 16.30	261 Effect of material formability parameters and cutting method on sheared-edge stretchability in advanced high strength steel sheets, <i>Farhad Najafnia, Ehsan Dorchepour, Ali Fazli, Ramin Hashemi</i>
16.30 – 16.45	10 Investigation of Erosion–Mechanical Load Coupling Behavior of Aeroengine Blade <i>Yu Zhang, Yun-Fei Jia</i>
16.45 – 17.00	120 Investigation of the thermal ageing effects on WWER-1000 materials for up to 60 years of operation, <i>Maksym Zarazovskii, Zakhar Yaskovets, Kostiantyn Lukianenko</i>

17.30 – 18.30 The Best Student Competition. Chairs: A. Sedmak, J. He, L. Zhao (Lavander room)

17.30 - 17.40	139 Influence of Manganese Content on the Plastic Deformation Mechanisms of Polycrystalline β -Ti-Mn Alloys, <i><u>Gordana Marković</u></i>
17.40 – 17.50	215 Flange Micro-Leakage Jet Flow Fluid-Acoustic-Structure Multi-Field Coupling Simulation for acoustic emission detection technology, <i><u>Shilin Xu</u> et al.</i>
17.50 - 18.00	247 Bayesian Deep Learning Framework for Dual Uncertainty Quantification in Corrosion Fatigue Life Prediction, <i><u>Qian Chen</u> et al.</i>
18.00 – 18.10	254 Mechanisms of Reduced Tensile Ductility in LPBF Inconel 718 at 1 650 °C Revealed by Experiment and Crystal Plasticity, <i><u>Nai-Jian Dong</u> et al.</i>
18.10 – 18.20	52 Structural modification of the cargo hold double bottom for a multi-purpose vessel, <i><u>Nemanja Ilić</u> et al.</i>
18.20 – 18.30	125 Effect of Hydrides on Low-cycle Fatigue Crack Initiation in Ti-2Al-2.5Zr Titanium Alloy: Experimental and Crystal Plasticity Methods, <i><u>Mengqi Li</u> et al.</i>

Friday, 28th November

Friday 28. November, 2025 (09.00-10.30) – Plenary session 3 (Ivo Andrić room)

Plenary session 3, **Chairs: Jianying He, Francesco Iacoviello**

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|----------------------|--|
| 09.00 – 09.30 | 198 How hydrogen damages Ni-based alloys at elevated temperatures, <i>Binhan Sun</i> |
| 09.30 – 10.00 | 152 Additive Manufacturing, Current Trends and Future Opportunities, <i>Filippo Berto</i> |
| 10.00 – 10.30 | 206 Simulation of ductile rupture: from micromechanics to structural failure, <i>Jacques Besson</i> |

Friday 28. November, 2025 (11.00-13.30) – Parallel session 5 (Ivo Andrić room)

Minisymposium: Numerical Methods for Solving Elastic Plastic Fracture Mechanics - TC01 and TC08 joint topic including creep. **Chair: Jacques Besson**

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|----------------------|---|
| 11.00 – 11.15 | 207 Effect of specimen thickness and shape on toughness, <i>Jacques Besson, Thomas Pardoen</i> |
| 11.15 – 11.30 | 216 Intergranular Creep Damage in an Austenitic Stainless Steel: A Coupled Phase Field - Crystal Plasticity Study, <i>Lifeng Gan, Esteban P. Busso, Chao Ling, Dongfeng Li, Guocai Chai</i> |
| 11.30 – 11.45 | 239 A unified implicit finite volume method framework for conjugate heat transfer on unstructured meshes, <i>Jia Yan, Lingquan Li, Guohui Hu, Jue Ding, Xiaoquan Yang</i> |
| 11.45 – 12.00 | 243 Numerical and Experimental Study on Flow Loss Reduction Effect of Micro-Textured Surface, <i>Liyue Wang, Yushan Meng, Xiaoquan Yang</i> |
| 12.00 – 12.15 | 262 A probabilistic methodology for fatigue life prediction under different specimen size and critical parameter distribution, <i>Diego Díaz-Salamanca, Miguel Muñoz-Calvente, Kamila Kozáková, Stanislav Seitzl, Alfonso Fernández-Canteli</i> |
| 12.15 – 12.30 | 274 Finite Element Modeling of Mode-I delamination of curved CFRP composite panel using Cohesive Zone Mode, <i>Karunakar Bandha, Arun Kumar Pradhan, Soumya Ranjan Sahoo</i> |
| 12.30 – 12.45 | 263 Multiaxial fatigue life prediction of hot-dip galvanized steel bolted joints under different geometrical configurations and load conditions, <i>Diego Díaz-Salamanca, Antonin Kanaval, Abílio Manuel Pinho de Jesus, Iñigo Llavori and Miguel Muñoz-Calvente</i> |
| 12.45 – 13.00 | 265 Propagation of multiple fatigue cracks in thin-walled structures, <i>Željko Božić, Iva Rački</i> |
| 13.00 – 13.15 | 275 Predicting Creep Rupture In Austenitic Steels With Mechanism-Based Fundamental Models, <i>Jun-Jing He, Rolf Sandström (online)</i> |

Friday 28. November, 2025 (11.00-13.30) – Parallel session 5 (Lavander room)

Minisymposium: Understanding Damage Mechanisms in Additive Manufacturing: Fracture, Fatigue, and Future Trends. **Chair: Simone Murchio**

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|----------------------|---|
| 11.00 – 11.15 | 178 Effect of Raster Orientation and Notch Insertion on Fracture Toughness of PETG <i>Popa Cosmin-Florin, Galațanu Sergiu Valentin, Marșavina Liviu, Pop Octavian</i> |
| 11.15 – 11.30 | 173 Acoustic, magnetic and structural characteristics of cyclic degradation of traditional and additively manufacturing steels, <i>Lyudmila Botvina, Alexey Bolotnikov, Ivan Sinev</i> |
| 11.30 – 11.45 | 191 Stiffness and modulus of resilience of selected abs lattice structures <i>Katarina Monkova, Peter Pavol Monka, Pavel Beňo, Alexandar Sedmak</i> |
| 11.45 – 12.00 | 201 Process-dependent Multiscale Modeling for 3D Printing of Continuous Fiber-reinforced Composites, <i>Junming Zhang, Weidong Yang, Yan Li</i> |
| 12.00 – 12.15 | 210 Influence of End Geometry and Defects on Structural Integrity of A Light-Weight Composite Strut, <i>Evangelos Symeon Apostolopoulos, Xiang Zhang, Saeid Hadidimoud</i> |

- 12.15 – 12.30 242 **Hydrogen-Induced Changes in Mechanical Properties and Fatigue Life of Additively Manufactured Stainless Steels**, Marko Sedlaček, Barbara Šetina Batič, Bojan Zajec, Andraž Legat, Irena Paulin, Frantz Martin Franz, Bojan Podgornik
- 12.30 – 12.45 211 **The Effect of Pre-Strain on the Strength of Selective Laser Melted (SLM) Inconel 718** Sajad Lohrasbi, Soheil Nakhodchi, Saeid Hadidimoud
- 12.45 – 13.00 294 **Optimization of the Debinding and Sintering Process of FFF 3D-Printed AISI 316L Samples** Mario Bragaglia, Alessandra Ceci, Lorenzo Corradi, Girolamo Costanza, Maria Elisa Tata
- 13.00 – 13.15 259 **AI-driven optimization of 3d-printed short carbon fiber-reinforced composite grid structures**, Xin Zhang, Zengzi Li, Ying Xiao, Qiang Lin, Yushan Xiao, Yuanyuan Tian, Bing Wang
- 13.15 – 13.30 280 **The effect of natural aging on the tensile properties of PETG-CF filament** Nenad Milošević, Isaak Trajković, Aleksandar Maslarević, Miloš Milošević, Francesco Mercuri

Friday 28. November, 2025 (11.00-13.30) – Parallel session 5 (Aristotel room)

Minisymposium: Corrosion, Structural Integrity, and Reliability of Oil and Gas and Hydrogen Pipelines - TC21

Chairs: Binhun Sun, Xu Lu, Milos B. Djukic

- 11.00 – 11.15 250 **Atomistic modeling and mechanical properties of iron hydride (FeH₄)**, Dejan Zagorac, Tamara Škundrić, Jelena Zagorac, Milos B. Djukić, Milan Pejić, Burak Bal, J. Christian Schön
- 11.15 – 11.30 47 **Hydrogen-induced fatigue life reduction and microstructural degradation in 20# steel welded joints for hydrogen transmission pipelines**, Juan Shang, Wei Gao, Zhengli Hua, Songrui Guo
- 11.30 – 11.45 55 **Designing gradient microstructures to suppress hydrogen diffusion** Weijie Wu, Xiaowei Wang, Jianming Gong
- 11.45 – 12.00 93 **Accelerated Degradation of 316LN under Stress-assisted Corrosion in Oxygen-Saturated Liquid Sodium** Lingfeng Pan, Peishan Ding, Cheng Gong, Yefeng Chen, Xiaotao Zheng
- 12.00 – 12.15 116 **Influence of Stress Concentration and Environmental Chamber Volume on Hydrogen Embrittlement Susceptibility of L245 Pipeline Steel Girth Weld** Songyan Hu, Guangxu Cheng
- 12.15 – 12.30 117 **A cohesive Zone Model for Predicting Hydrogen-Assisted Fatigue Crack Initiation in Subsea Pipelines with Initial Defects**, Tingsen Zheng, Nian-zhong Chen
- 12.30 – 12.45 148 **A modelling approach to estimate the diffusion and trapping constitutive parameters for 2.25Cr1Mo**, Hazem Adel Abdelshafy, Carlo Maria Belardini, Giuseppe Macoretta, Bernardo Disma Monelli, Adriana Mento, Angelo Donato, Renzo Valentini
- 12.45 – 13.00 34 **Experimental characterization and phase-field implementation of anisotropic hydrogen-assisted fracture in layered metals**, Alvaro Ovalle, Ruben Perdiguero, Andres Diaz Portugal
- 13.00 – 13.15 226 **Critical compression strain of girth-welded pipelines with misalignment** Yanfang Hou, Shengwen Tu, Guangxu Cheng
- 13.15 – 13.30 267 **Identification of Hydrogen Diffusion and Trapping Parameters From Permeation Tests** Carlo Maria Belardini, Giuseppe Macoretta, Bernardo Disma Monelli, Tom Depover, Renzo Valentini

Friday 28. November, 2025 (14.30-17.00) – Parallel session 6 (Ivo Andrić room)

Minisymposium: TC18 - Recent Advances in Structural Integrity Assessment of Welded Joints **Chair: Simon Sedmak**

- 14.30 – 14.45 209 **Combined approach for integrity assessment of welded joints with multiple defects**, Simon Sedmak (**keynote**), Mihajlo Arandžević, Branislav Đorđević, Ana Petrović, Radomir Jovičić
- 14.45 – 15.00 270 **Explosively Welded Steel Bi-Layers Interfacial Integrity and Cavitation Erosion Resistance** Danica Bajić, Ana Alil, Miloš Lazarević, Jelena Marinković, Nada Ilić

- 15.00 – 15.15** 57 **Fabrication of multi-material structures from austenitic to ferritic stainless steels via dual-wire arc additive manufacturing**
Yipu Xu, Run-zi Wang, Yutaka S. Sato, Kiyooki Suzuki, Yue Zhao, Zongli Yi, Aiping Wu
- 15.15 – 15.30** 107 **Lightweight and High-Precision Balanced Defect Detection Technology for Metal Pipe Weld**
Wenfeng Xia, Pan Liu, Jiuyang Yu, Yaonan Dai
- 15.30 – 15.45** 121 **Solid-State Norbornadiene Photo-Thermal Films for Efficient Solar Energy Storage**, Yu Han, Wenbo Tian, Fei Song, Jialin Fu, Dongxing Song, Ke Wang
- 15.45 – 16.00** 174 **Residual stress release mechanism and theory on post weld heat treatment of pressure vessels**, Wenbin Gu, Wenchun Jiang
- 16.00 – 16.15** 283 **The effect of welding process on static and fatigue behavior of high-strength steel welded joints**, Arturo Bacco, Filippo Berto, Raffaele Sepe (online)
- 16.15 – 16.30** 221 **Determination of mechanical properties and residual stress of low activation martensitic steel welded joints by instrumented indentation technique**
Yubiao Zhang, He Xue, Bin Wang, Shuai Wang, Jun Wu, Shun Zhang
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Friday 28. November, 2025 (14.30-17.00) – Parallel session 6 (Lavander room)

Minisymposium: TC03 & IGF - Fatigue and Fracture Behaviour in Emerging and Green Materials

Chair: Daniela Scorza

- 14.30 – 14.45** 9 **Cyclic deformation, hydrogen damage and crack propagation in nickel-based superalloys**
Liguo Zhao (keynote lecture), Xing Zhang, Shengbao Lu, Rudolph Kashinga
- 14.45 – 15.00** 105 **Cyclic Ratcheting and Fatigue Life Assessment of Ultra-High Pressure Vessel Steel 36CrNi3MoVR under Asymmetric Loading**
Guoyao Chen, Xiaotao Zheng, Cheng Gong, Yefeng Chen, Zixuan Wang
- 15.00 – 15.15** 114 **Lifetime of titanium alloys under consecutive dynamic and very-high-cycle fatigue loads**
Vladimir Oborin, Mikhail Bannikov, Mikhail Sokovikov, Oleg Naimark
- 15.15 – 15.30** 123 **Effect of Low-Temperature Gaseous Carburizing on The Fretting Fatigue Behavior of AISI 316L Austenitic Stainless Steel** Zhenxu Zhao, Yawei Peng, Jianming Gon
- 15.30 – 15.45** 245 **Simulation of multi-crack fracture in bone tissues and biomimetic additively manufactured scaffolds**, Mikhail Tashkinov, Aleksandr Shalimov
- 15.45 – 16.00** 228 **3D Damage Evolution in SiCf/SiC Composites at 1800°C: A Quantitative Study of Pores and Strain Fields by In-situ μ CT and DVC**, Bo Zhang, Lanxin Jiang
- 16.00 – 16.15** 278 **The role of dislocation climb and glide during creep**, Rolf Sandström (online)
- 16.15 – 16.30** 231 **Fatigue Damage Mechanism In Hygrothermally Aged CFRP Based On In-situ DIC Observation and SEM Characterization**, Xuewu Zhang, Lanxin Jiang
- 16.30 – 16.45** 165 **Damage-Based Framework for Fatigue Life Prediction of Filament-Wound Composites Under Multiaxial Cyclic Loading**, Szymon Duda, Michał Smolnicki, Paweł Zielonka, Grzegorz Lesi

Friday 28. November, 2025 (14.30-17.00) – Parallel session 6 (Aristotel room)

Minisymposium: TC-5 Fracture and Structural Transformations under High Rate and Impact Loading

Chair: Yuri Petrov

- 14.30 – 14.45** 146 **The theoretical model for combined sample size and strain rate effect on tensile strength of quasi-brittle materials**, Chengzhi Qi (keynote)
- 14.45 – 15.00** 65 **Constitutive response modelling for metallic materials under impact loading across a wide temperature range**, Zhao Shixiang, Antonova Maria Nikolaevna, Petrov Yuri Viktorovich

- 15.00 – 15.15 128 **Damage initiation and evolution of explosive charge when a projectile perforates multilayered targets**, *Xiang Guo, Chao Bi*
- 15.15 – 15.30 246 **Fracture and irreversible deformation in solids: statics vs dynamics** *Yuri Petrov, Nikita Kazarinov*
- 15.30 – 15.45 255 **Discrete approaches to dynamic fracture problems. Inertia of the dynamic fracture process** *Nikita Kazarinov, Yuri Petrov*
- 15.45 – 16.00 136 **An Integrated HRDIC Framework for Slip System Identification and CRSS Determination in HCP Polycrystals**, *Zuoliang Ning, Jingtai Yu, Gang Chen*
- 16.00 – 16.15 8 **Metastable, Nanolaminate, and Multi-Phase Structures Multidimensional Strengthening Cold Drawn Pearlitic Steel and Crack Propagation Resistance Mechanism Research** *Yonggang Zhao, Nan Ji, Peng Wang*
- 16.15 – 16.30 172 **Rapid prediction of high-cycle fatigue properties of high-entropy alloys based on slip irreversibility localization**, *Dongxing Pan, Xiaogang Wang, Chao Jiang*
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Friday 28. November, 2025 (14.30-17.00) – Parallel session 6 (Ivo Andrić A room)

Minisymposium: Multiscale aspects of structural integrity and Safety of technical system - TC12.

Chair: Stavros Kourkoulis

- 14.30 – 14.45 204 **Measurement of interfacial adhesion in a Thermal Barrier Coating system on Ni-based superalloys: effect of test configuration** *Elena Fedorova (keynote), Egor Moskvichev, Andrey Burov, Nadezhda Sukhodoeva*
- 14.45 – 15.00 170 **A Novel Method For Predicting Fatigue Life of GH4169 Superalloy Welded Joints Based on AI And Physics of Failure**, *Mengqi Liu, Xiaogang Wang, Xiangyun Long, Chao Jiang*
- 15.00 – 15.15 203 **A Multi-Physics Analysis for Pressure-Induced Deformation in Fused Filament Fabrication** *Xingrui Tong, Kunkun Fu, Yan Li*
- 15.15 – 15.30 244 **Identifying Critical Damage Using the Acoustic Events of Amplitude Exceeding their Mean Value**, *Dimos Triantis, Ilias Stavrakas, Ermioni Pasiou, Stavros Kourkoulis*
- 15.30 – 15.45 248 **A quantile-based nested adaptive Kriging approach for reliability-based design optimization of hierarchical systems**, *Kewei Ye, Han Wang, Xiaobing Ma, Ling Wang*
- 15.45 – 16.00 260 **Dynamic Response and Integrity Analysis of Offloading Arm Structure Under Different Load Conditions**, *Jinxin Wang, Chen An*
- 16.00 – 16.15 268 **Failure equation considering nanograin formation during ductile fracture** *Xiangnan Pan, Zhiying Chen, Hang Su, Xu Long*
- 16.15 – 16.30 272 **Assessment of carbon-glass hybrid composites for helicopter blades design** *Japhet Noubiap N., Thibaut Lecompte, Jean-Luc Bailleul*
- 16.30 – 16.45 273 **Impact of the warm pre-stress on the reactor pressure vessel safety margin** *Maksym Zarazovskii, Oleksii Ishchenko, Yaroslav Dubyk*
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Poster sessions

1 Conservative variant of two-step-scaling modeling of fracture toughness size effect	<i>Branislav Djordjevic, Sreten Mastilovic, Aleksandar Sedmak</i>
5 Hygrothermal stress analysis of hybrid polymer composite laminates	<i>Billel Boukert, Mohamed Khodjet Kesba, Amina Benkhedda, Elabbes Adda Bedia</i>
22 Examination of fracture resistance of polymer materials using new ring tensile specimens	<i>Isaak Trajković, Miloš Milošević, Bojan Medjo, Darko Veljić, Jelena Šaković-Jovanović</i>
26 Modeling stiffness reduction in Al/Al ₂ O ₃ composites: thermo-mechanical interaction of pores and microcracks	<i>Mohamed Khodjet Kesba, Billel Boukert, Amina Benkhedda, El Abbes Adda Bedia</i>
31 Machine learning methods for prediction of Wöhler curves of steel CK 35	<i>Milica Ivić Nikolić, Branislav Đorđević, Aleksandar Dimić, Sreten Mastilović</i>
32 Risk analysis of inlet pipeline in hydro power plant Perućica based on failure analysis diagram	<i>Milan Miladinov, Simon Sedmak, Snežana Kirin, Nikola Milovanović, Aleksandar Sedmak, Ana Petrović, I Vučetić</i>
33 Corrosion resistance of welded joint zones made of AISI 316L	<i>Lazar Jeremić et al.</i>
35 Analysis of the effect of undercuts in misaligned welded joints	<i>Mihajlo Arandelović, Simon Sedmak, Branislav Đorđević Dorin Radu, Ana Petrović</i>
37 Computational model for the fatigue life estimation of cylindrical roller bearings	<i>Mehmet Bozca, Tatjana Lazović, Pavle Ljubojević</i>
38 Vibration response analysis of offshore rocket launch platforms subjected to wake-induced excitations	<i>Weidong Zhao, Jun Xu, Hongbin Gui</i>
41 Interpretable machine learning for predicting complex properties of ceramic materials: a big data approach	<i>Milica Vasić, Paul O. Awoyera, Zagorka Radojević</i>
44 Comparison of properties of butt-welded joints with and without misalignment made of heat-resistant steel P91	<i>Lazar Jeremić, Branislav Đorđević, Aleksandar Jovanović, Stefan Dikić, Simon Sedmak</i>
48 Concrete based on C & D waste for reducing urban heat islands	<i>Anja Terzić et al.</i>
49 Reutilizing rubber tire waste in building industry with implementation of net zero principles: from waste to advanced materials	<i>Marko Stojanović, Ksenija Janković, Anja Terzić, Željko Flajs, Dragan Bojović</i>
50 Resistance of fire improving of steel elements insulated by fire protection material	<i>Milica Mirković Marjanović, Aleksandar Kijanović, Snežana Ilić, Dragiša Ivanišević</i>
51 Developing of heat flux meter for fire resistance test	<i>Aleksandar Kijanović, Milica Mirković Marjanović, Snežana Ilić, Dragiša Ivanišević</i>
53 Multivariant analysis of laboratory-reconstructed historical mortars	<i>Nevenka Mijatović, Anja Terzić, Ana Kontić, Isidora Šušić, Biljana Ilić, Ivana Nikolić-Delić, Ljiljana Miličić</i>
54 Application of modern test methods and engineering practice on pressure vessels	<i>Aleksandar Jovanovic, Branislav Djordjevic, Simon Sedmak, Lazar Jeremic, Ana Petrovic</i>
56 Quantitative safety assessment of lithium-ion batteries: fuzzy analytic hierarchy process integrating aging, intrinsic safety, and abuse risks	<i>Weiling Luan, Meng Wang, Haofeng Chen</i>
58 Estimation of the operation reliability of compressor suction vessels in oil and gas plants	<i>Marko Jaric, Ivana Vasovic Maksimovic, Michelangelo Mortello, Simon Sedmak, Sanja Petronic</i>
59 The effect of loading on stress distribution in a mandible bone	<i>Miloš Milošević, Ivana Petrović, Aleksandar Sedmak, Cristian Horia, Aleksa Milovanović</i>
62 Resistance to fatigue crack initiation and propagation in hard-faced layers of hot-work tool steels	<i>Dušan Arsić, Vukić Lazić, Djordje Ivković Marko Delić, Aleksandra Arsić, Srdja Perković, Ljubica Radović</i>
66 Progress of small punch test and standardization in China	<i>Kaishu Guan</i>
67 Failure analysis and integrity assessment of a cracked pipeline elbow in an oil transport system	<i>Marko Jaric, Sanja Petronic, Simon Sedmak, Zagorka Brat, Radzeya Zaidi</i>
73 Verification of results of pile integrity test	<i>Nikola Božović, Marija Božović, Mladen Ćosić, S. Ćorluka</i>
75 Remaining life of a spherical tank in presence of cracks	<i>Nikola Kostic, Radzeya Zaidi, Aleksandar Sedmak, Ivica Čamagic, Snežana Joksic, Zijah Burzic, Snežana Kirin</i>
79 Study on the microstructure and mechanical properties of dissimilar metal welded joints of large thickness copper and stainless steel	<i>Qingjun Ma, Chen Wei, Hongchen Liu, Bowen Chen</i>
81 Fracture toughness analysis of a welded joint on high-strength steel	<i>Mersida Manjgo, Vesna Raspudić, Mirza Manjgo</i>
83 Investigation on the Synergistic Optimization Strategy of Porosity and Nickel Content on RedOx Thermal Stresses in Ni-YSZ Anodes	<i>Qin Zhang , Jiaqi Yang, Ke Wang</i>
84 Coupled electrochemical-mechanical degradation mechanisms of solid oxide fuel cells under redox conditions	<i>Jiaqi Yang, Qin Zhang, Ke Wang</i>

89 HFMI efficiency under variable loading	<i>Miloslav Kepka, Miloslav Kepka Jr., Milan Müller</i>
92 Influence of fibre orientation on the reduction of mechanical properties in injection-moulded test specimens	<i>Vesna Raspudic, Amir Coralic, Mersida Manjgo, Tomaz Vuherer</i>
126 Measurements and simulations targeting the settlement phenomenon of snow cover	<i>Kenichi Oda, Mikika Furukawa, Katsuya Nakamura, Yoshikazu Kobayashi</i>
141 Balancing weight and strength of 3D printed PETG and PLA cantilever beams through topology optimization	<i>Miloš Vorkapić, Miloš Vasić, Anja Terzić, Ksenija Janković, Biljana Ilić</i>
155 Failure analysis on 2nd stage rotor impeller of an air compressor	<i>Goran Papić, Aleksandar Sedmak, Nikola Milovanović</i>
157 Development of coatings for the protection of metals structures based on pyrophyllite, zeolite and talc	<i>Marko Pavlović, Marina Dojčinović, Enita Kurtanović, Igor Marković</i>
160 Risk-based structural integrity of a feed gas adsorber with an external surface crack	<i>Aleksandar Milovanovic, Aleksandar Sedmak, Ljiljana Trumbulovic</i>
161 Torque and drag optimization by using mechanical specific energy	<i>Mohamed Sobhi Ibrahim Elsayed, Taher El-Fakharany, Samir Khaled, Igor Martić</i>
166 Microstructure and properties of metastable high-entropy alloys prepared by SLM technology	<i>Pinqiang Dai, Yixi Hou</i>
186 Fracture simulation and structural integrity of 3D-printed toe immobilizers fabricated via additive manufacturing	<i>Božica Bojović, Zorana Golubović, Stanko Mudrinić</i>
187 Research of Voronoi lattice PLA resin structures for patient-specific orthopedic immobilization	<i>Zorana Golubović, Božica Bojović, Jovan Tanasković</i>
188 How polyaniline modifies corrosion pathways and enhances corrosion resistance of mild steel?	<i>Aleksandra Popović, Branimir Grgur</i>
189 Surface engineering of titanium implants via anodization: enhancing electrochemical stability and cellular response for long-term biocompatibility	<i>Aleksandra Popović, Minja M. Lazić, Dijana Mitić, Lazar Rakočević, Dragana Jugović, P. Živković, Branimir Grgur</i>
193 Examination of fracture resistance of polymer materials using new ring tensile specimens	<i>Isaak Trajković, Miloš Milošević, Bojan Medjo, Darko Veljić, Jelena Šaković-Jovanović</i>
208 Risk assessment of hydrogen installations	<i>Aleksandar Milivojevic, Mirjana Stamenic, Vuk Adzic</i>
203 Experimental and simulation study on fracture toughness of fiber-reinforced composites	<i>Zheng Liu, Lyuhong Zhang, Xu Chen</i>
227 Integrity and Life Assessment of a Superduplex Stainless Steel Welded Joint	<i>Srđa Perković, Zijah Burzić, Aleksandar Sedmak, Simon Sedmak</i>
232 Development of a predictive model for peeling fracture behavior of brazed joints based on in-situ testing	<i>Yu Cao, Guo-Yan Zhou, Shan-Tung Tu</i>
233 Fractographic analysis of Hadfield cast steel exposed to impact loading	<i>Aleksandar Vukosavljevic, Aleksandar Sedmak, Stefan Dikić, Ljubica Radovic, Nenad Radovic</i>
249 Influence of layer height on cavitation rate of 3D-printed PLA	<i>Tatjana Lazović, Marina Dojčinović, Daniela Popović, Milan Stojanović</i>
253 Fracture of rocks under extreme conditions	<i>Igor Zh. Bunin, Alexey N. Kochanov</i>
257 Experimental study of head and neck biomechanics under impact conditions with a protective helmet	<i>Katarina Telebak, Isaak Trajković, Miloš Milošević</i>
264 Failure analysis of a roll journal in a paper machine	<i>Dragomir Glišić, Stefan Dikić, Ljubica Radović, Maja Mladenović, Nenad Radović</i>
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284 Crack patterns and strengthening of historical unreinforced masonry structures	<i>Dorin Radu, Marijana Hadzima Nyarko, Karlo Emmanuel Nyarko, Ercan Isik, Eleonora Desnica</i>
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287 The influence of low-cycle loads on the position of the neutral line in obliquely compressed reinforced concrete elements	<i>Sviatoslav Homon et al.</i>
218 Fractography analysis of duplex steel weldments behaviour under impact loading	<i>Srdja Perković, Aleksandar Sedmak, Zijah Burzić, Ljubica Radovic, Nikola Aleksic</i>
119 High-temperature mechanical response of Co-free non-equiatomic CrMnFe-Ni alloy	<i>Gordana Marković et al.</i>
212 Non-destructive testing techniques for assessing material degradation in railway draw hooks	<i>Jovan Tanasković, Jagoš Stojanović, Marija Vukšić Popović</i>



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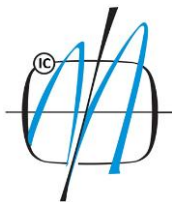
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