



IRAS23

Programme

Second International Symposium on Risk Analysis and Safety of Complex Structures and Components (IRAS 2023)

2-4 April 2023
Belgrade, Serbia



Venue:

Faculty of Mechanical Engineering, Kraljice Marije
16, Belgrade, Serbia

Google map: [link](#)

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2nd International Symposium on Risk Analysis and Safety of Complex Structures and Components (IRAS 2023), April 2-4, 2023, Belgrade, Serbia

Day 2: Monday 3rd April 2

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Time			Day 1: Sunday 2 nd April		Room
Start	-	End	Welcome cocktail		210/211
17:00	-	20:00			
Time			Day 2: Monday 3 rd April	Room	Chairperson
Start	-	End	Keynote lectures	211	A. Sedmak J. Correia A. Grbović
09:00	-	10:30			
10:30	-	11:30	Promotion of sponsors	211	B. Đorđević S. Sedmak M. Arandelović
11:30	-	12:00	Coffee break	210	
12:00	-	14:00	Parallel session 1-211	211	D. Kozak
			Parallel session 1-514	514	A. Miliwojević
14:00	-	15:00	Lunch	Restaurant (5 th floor)	
15:00	-	17:30	Parallel session 2-211	211	A. de Jesus
			Parallel session 2-514	514	A. Petrović
19:00	-	22:00	Conference dinner	Restaurant (5 th floor)	
Time			Day 3: Tuesday 4 th April	Room	Chairperson
Start	-	End	Keynote lectures	211	N. Gubeljak
09:00	-	10:30			
10:30	-	11:30	Promotion of sponsors	211	B. Đorđević S. Sedmak M. Arandelović
11:30	-	12:00	Coffee break	210	
12:00	-	14:00	Parallel session 3-211	211	S. Mastilović
			Parallel session 3-514	514	Lj. Milović
14:00	-	15:00	Lunch	Restaurant (5 th floor)	
15:00	-	16:50	Session 4-211	211	S. Kirin
17:00			Closing	211	

Day 2: Monday 3rd April

Time			Day 2: Monday 3 rd April	Room	Chairperson
Start	-	End	Keynote lectures	211	A. Sedmak J. Correia A. Grbović
09:00	-	10:30			
10:30	-	11:30	Promotion of sponsors	211	B. Đorđević S. Sedmak M. Arandjelović
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			Parallel session 2-514	514	A. Petrović
19:00	-	22:00	Conference dinner	Restaurant (5 th floor)	

April 3rd: Keynote lectures (09:00 – 10:30) – Room 211

Room: 211 Time			Day 2: Monday 3 rd April Chairperson: A. Sedmak, J. Correia, A. Grbović Keynote lectures
Start	-	End	
09:00	-	09:30	The Size and Notch Effect on Additive Manufactured Polymers (Liviu Marsavina, <i>University Politehnica Timisoara, Romania</i>)
09:30	-	10:00	Exploring the Local Fatigue Approaches to Improve the Structural Integrity of Metallic Structures and Mechanical Components (Abilio M.P. de Jesus, <i>Faculty of Engineering of the University of Porto, Portugal</i>)
10:00	-	10:30	Bioinspired strategy to break trade-off between strength and toughness (Chao Gao, <i>Norwegian University of Science and Technology of Trondheim, Norway</i>)

April 3rd: Promotion of sponsors (10:30 – 11:30) – Room 211

Room: 211 Time			Day 2: Monday 3 rd April Chairperson: B. Đorđević, S. Sedmak, M. Arandjelović Promotion of sponsors
Start	-	End	
10:30	-	10:55	Mont-R (<i>in Serbian</i>)
10:55	-	11:10	Sanacija i ispitivanje metala (<i>in Serbian</i>)
11:10	-	11:30	Zavod za Zavarivanje (<i>in Serbian</i>)
11:30	-	12:00	Coffee break

April 3rd: Parallel session 1 (12:00 – 14:00) – Room 211

Room: 211 Time			Day 2: Monday 3 rd April Chairperson: D. Kozak Parallel session 1	
Start	-	End		
12:00	-	12:20	#7	Towards new Fundamentals for Structural Integrity of Large-Scale Pressure Systems (T. Fekete)

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12:20	-	12:32	#9	A Review of Artificial Intelligence (AI) Methods for Non-Destructive Testing and Evaluation of Materials and Structures (Fateme Dinmohammadi, Mahmood Shafiee) online
12:32	-	12:44	#14	Cavitation resistance of welded joints of AlMg4.5Mn alloy (M. Dojčinović, R. Prokić Cvetković, A. Sedmak, O. Popović, I. Cvetković)
12:44	-	12:56	#30	Modeling Of 6061-T651 Aluminum Alloy Stress–Strain Diagram by Methods of Machine Learning (Oleh Yasniy , Oleh Pastukh , Vasyi Yatsyshyn, Ihor Chykhira, Iryna Didych) online
12:56	-	13:08	#31	Methods of Jump-Like Creep Modeling of AMG6 Aluminum Alloy (Oleh Yasniy, Iaroslav Pasternak, Iryna Didych, Sergiy Fedak, Dmytro Tymoshchuk) online
13:08	-	13:20	#69	New life for historical steel bridges in Transilvania region (Dorin Radu, Radu Băncilă, Simon Sedmak, Mihajlo Arandelović) online
13:20	-	13:32	#79	FATIGUE LIFETIME ANALYSIS OF POLYURETHANE COMPONENTS (G. Lesiuk, K. Junik, K. Jamrozak, Sz. Duda, Wybraniec A., J.A.F.O. Correia, A.M.P. De Jesus)
13:32	-	13:44	#58	Experiments for the Quantification of the Initial Stress State in UIC Parabolic Leaf Springs (V.M.G. Gomes, M.J. Marques, M. Figueiredo, J.A.F.O Correia, A. C. Batista, R. Calçada, A.M.P de Jesus) online
14:00 - 15:00			Lunch (Restaurant of Faculty of Mechanical Engineering, 5th floor)	

April 3rd: Parallel session 1 (12:00 – 14:00) – Room 514

Room: 514 Time			Day 2: Monday 3 rd April Chairperson: A. Milivojević <i>Parallel session 1</i>	
Start	-	End		
12:00	-	12:12	#45	System for monitoring deformation processes in high-rise metal structure (I.Shardakov, A.Shestakov, G. Gusev, R.Tsvetkov, V.Yepin, I. Glot) online
12:12	-	12:24	#60	Frequency effect in fatigue behaviour of a structural steel and a spring steel (R. Dantas, M. Gouveia, V.M.G. Gomes, F.G.A. Silva, F.Fiorentin, de Jesus, J.A.F.O. Correia, G. Lesiuk) online
12:24	-	12:36	#53	Solutions and Procedures for Repairing a Damaged Vertical Cylindrical Tank – Depositor (E. Doncheva, V. Gochev, A. Krstevska) online
12:36	-	12:48	#15	Crack development from gear stress concentrators of the main reducer of the PS90A engine in transition HCF-VHCF regime (Andrey Shanyavskiy, Aleksey Soldatenkov, Iliya Nikitin, Aleksandr Nikitin) online
12:48	-	13:00	#37	Influence of temperature on crack initiation and crack growth resistance of welded joint constituents for steel SA-387 Gr. 91 welds subjected to cyclic loads (Ivica Čamagić, Milivoje Jovanović, Simon Sedmak, Predrag Živković, Mladen Radojković)
13:12	-	13:24	#59	Numerical-Experimental Determination of Stress and Strains State in Connecting Lugs (Đorđe Đurđević, Andrijana Đurđević)
13:24	-	13:36	#77	REVIEW OF FAILURE ANALYSIS OF COUPLING SYSTEMS ON FREIGHT TRAINS Marija Vukšić Popović, Jovan Tanasković, Nebojša Mededović
13:36	-	13:48	#29	From Component Failure to Hydraulic Engineering Complex Systems Safety (Aleksandar Šotić, Marko Ivetić)
14:00 - 15:00			Lunch (Restaurant of Faculty of Mechanical Engineering, 5th floor)	

April 3rd: Parallel session 2 (15:00 – 17:30) – Room 211

Room: 211 Time			Day 2: Monday 3 rd April Chairperson: A. de Jesus <i>Parallel session 2</i>	
Start	-	End		
15:00	-	15:12	#10	For an effective Disruptions Management in Rail Transport: Case study tramway of Constantine, Algeria. (Belhour Samira, Chaib Rachid, Kahoul Hafida and Verzea Ion) online
15:12	-	15:24	#16	Crack Growth Causes in Supporting Structures of Hydraulic Units (Evgeniia Georgievskaia) online
15:24	-	15:36	#40	Information system development for increased production process sustainability planning (Peter Pavol MONKA, Katarina MONKOVA, Shufeng SUN, Vidosav MAJSTOROVIC, Lucia KNAPČIKOVÁ, Romana HRICOVÁ)
15:36	-	15:48	#54	Properties of aluminum-steel plates explosively welded using Amonex explosive (Miloš Lazarević, Bogdan Živković, Danica Bajić, Ana Alil, Bogdan Nedić)
15:48	-	16:00	#63	Methodology for Pressure Equipment Risk Assessment Based on Fracture Mechanics and Influence of Human and Organizational Factors (Tamara Golubović, Vesna Spasojević Brkić, Aleksandar Sedmak, Snežana Kirin)

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16:00	-	16:12	#18	Characterization of Sa500 Material - Determination Of Resistant Curves Material (Mirza Manjgo, Tomaž Vuherer, Gorazd Lojen)
16:12	-	16:24	#1	Finite Element Modeling and Response Sensitivity Analysis of Steel Column Base Connections with Shape Memory Alloy Bolts (Seyed Matin Goshtaei , Saber Moradi, Khandaker M. Anwar Hossain) <i>online</i>
16:24	-	16:36	#83	Probabilistic fatigue life modelling based on CMB and SWT criteria of a wind turbine wedge connection (J. Correia, D. Liao, L. Cheng, M. Veljkovic, S.-P. Zhu, J. Winkes, K. Creusen, G. Lesiuk, A. de Jesus)
16:36	-	16:48	#57	Finite Element and Fracture Mechanics Analysis of a Cracked Oil-Storage Tank (Aleksandar M. Milovanovic, Aleksandar Sedmak, Nikola Milovanovic, Branislav Djordjevic)
16:48	-	17:00	#36	The effect of crack tip vs. notch on Charpy toughness value of duplex steel S32750 (Srđa Perković, Zijah Burzić, Zoran Radaković, Aleksandar Sedmak, Simon Sedmak)
17:00	-	17:12	#13	The Structural Limit of Tubulars in Wellbores subjected to Tension-Collapse Loads (Udaya B Sathuvalli, P V Suryanarayana) <i>online</i>
17:12	-	17:24	#41	Pitting and uniform corrosion effects on ultimate strength of a bulk carrier (N. Momčilović, N. Ilić, M. Kalajdžić, Š. Ivošević, A. Petrović)

April 3rd: Parallel session 2 (15:00 – 17:30) – Room 514

Room: 514 Time			Day 2: Monday 3 rd April Chairperson: A. Petrović <i>Parallel session 2</i>	
Start	-	End		
15:00	-	15:12	#8	The loading and slenderness ratio effect on the failure probability of underground mine pillars: case study (Cheikhaoui Youcef, Nettour Djamel, Bensehamdi Salim, Chaib Rachid) <i>online</i>
15:12	-	15:24	#38	Innovative Method of Determining Deflections of Wooden Beams on The Basis of "Moment-Curvature" Diagram (Petro Gomon, Svyatoslav Homon, Andrii Pavluk, Sviatoslav Homon, Oleksandr Chapyuk, Yuliia Melnyk) <i>online</i>
15:24	-	15:36	#39	Study of Change of Strength and Deformation Properties of Wood Under The Action of Active Acid Environment (Sviatoslav Homon, Petro Gomon, Svyatoslav Gomon, Oleg Vereshko, Inna Boyarska, Olga Uzhegova) <i>online</i>
15:36	-	15:48	#33	Surface microcracks initiation and growth under thermal fatigue (Oleh Yasniy, Iaroslav Pasternak, Y. Lapusta, Tomaž Vuherer) <i>online</i>
15:48	-	16:00	#81	Modification of VCCT method with implementation of GTN model for the determination of J integral (Bernadett Spisák, Zoltán Bézi, Réka Erdei, Szabolcs Szávai) <i>online</i>
16:00	-	16:12	#62	Selection of safety level for Marine Structures (Ove T Gudmestad) <i>online</i>
16:12	-	16:24	#5	Be careful! Our planet is in danger (NETTOUR Djamel, CHAIB Rachid) <i>online</i>
16:24	-	16:36	#25	Flood resilience (Maria Hlinkova, Martina Zelenakova, Milan Gocic)
16:36	-	16:48	#67	Safety Factor of The Bolted Flange Joints (P. Ljubojević, I. Simonović, T. Lazović)
16:48	-	17:00	#73	The concept of risk, fire and explosion from the perspective of forensic engineering (Snežana Stojičić, Radovan Radovanović, Milesa Srećković, Nataša Petrović, Milan Blagojević, Nikola Radovanović)
17:00	-	17:12	#74	INTEGRATED TECHNICAL SECURITY SYSTEMS IN CRITICAL INFRASTRUCTURE FACILITIES (Kristijan Đujić, Radovan Radovanović, Martin Matijašević, Neda Nikolić)

19:00	-	22:00	Conference dinner	Restaurant (5th floor)
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Day 3: Tuesday 4th April

Time			Day 3: Tuesday 4 th April	Room	Chairperson
Start	-	End	Keynote lectures	211	N. Gubeljak
09:00	-	10:30			
10:30	-	11:30	Promotion of sponsors	211	B. Đorđević S. Sedmak M. Arandelović
11:30	-	12:00	Coffee break	210	
12:00	-	14:00	Parallel session 3-211	211	S. Mastilović
			Parallel session 3-514	514	Lj. Milović
14:00	-	15:00	Lunch	Restaurant (5 th floor)	
15:00	-	16:50	Session 4-211	211	S. Kirin
17:00			Closing	211	

April 4th: Keynote lectures (09:00 – 10:30) – Room 211

Room: 211 Time			Day 3: Tuesday 4 th April Chairperson: N. Gubeljak Keynote lectures
Start	-	End	
09:00	-	09:25	Structural Health Monitoring by Embedded System for Remote Strain Gauge Measurement (Dražan Kozak, <i>University of Slavonski Brod, Mechanical Engineering Faculty, Croatia</i>)
09:25	-	09:50	Fatigue lifetime of a howitzer cannon (Nenad Gubeljak, <i>University of Maribor, Faculty of Mechanical Engineering, Slovenia</i>)
09:50	-	10:10	The use of hydrogen as an additive to improve the characteristics of low-calorific value gaseous fuels (Aleksandar Milivojević, <i>University of Belgrade, Faculty of Mechanical Engineering</i>)
10:10	-	10:30	Size-Effect in Fracture Mechanics Testing by Using the Weibull Jc Cumulative Distribution Function (Sreten Mastilovic, <i>University of Belgrade, Institute for Multidisciplinary Research</i>)

April 4th: Promotion of sponsors (10:30 – 11:30) – Room 211

Room: 211 Time			Day 3: Tuesday 4 th April Chairperson: B. Đorđević, S. Sedmak, M. Arandelović Promotion of sponsors
Start	-	End	
10:30	-	10:55	TankMont (<i>in Serbian</i>)
10:55	-	11:10	Weld-Ing (<i>in Serbian</i>)
11:10	-	11:30	Bay Zoltán Nonprofit Ltd. For Applied Research (<i>in English</i>)
11:30	-	12:00	Coffee break

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April 4th: Parallel session 3 (12:00 – 14:00) – Room 211

Room: 211 Time			Day 3: Tuesday 4 th April Chairperson: S. Mastilović <i>Parallel session 3</i>	
Start	-	End		
12:00	-	12:12	#22	Effect of floater geometry on the dynamic parameters of a spar-type floating offshore wind turbine (Nurman Firdaus, Baharuddin Ali, Ristiyanto Adiputra, Navik Puryantini, Aditya Rio Prabowo) online
12:12	-	12:24	#23	Characterization of the applied materials on floating offshore wind turbine members: A review on the current state (Muhammad Rizky Arga Wijaya, Ristiyanto Adiputra, Aditya Rio Prabowo, Teguh Putranto, Dharu Feby Smaradhana) online
12:24	-	12:36	#20	Nonlinear analysis of an idealized I-beam member: An investigation of mesh size on the structural behaviors using finite element approach (Cakram Yudhifa Ganda Satriawan, Ridwan Ridwan, Aditya Rio Prabowo, Widyanita Harwijayanti, Fajar Budi Laksono, Joung Hyung Cho) online
12:36	-	12:48	#2	Progressive collapse analysis of inland waterway cargo vessel (N. Ilić, N. Momčilović)
12:48	-	13:00	#44	Experimental strain measurements on ring tensile specimens made of S235JRH steel pipe (M. Travica, N. Mitrovic, A. Petrovic, M. Milosevic)
13:00	-	13:12	#12	Advanced experimental validity of phase field fracture modeling using Digital Images correlation technique (Brick Chaouche Amine, Masmoudi Youcef-Amine, Mokhtari Ahsan, Tala-Ighil Nacer and Badhi Ridha) online
13:12	-	13:24	#6	Assessment of the Remaining Life Construction in Exploitation (Mersida Manjgo, Tomaž Vuherer, Darko Bajić, Zijah Burzić)
13:24	-	13:36	#26	Influence of ventilation system effectiveness on the safety of hydrogen storage and transportation applications (Miroslav Gojić, Nikola Tanasić, Ivan Arandjelović)
13:36	-	13:48	#82	Supporting structural life cycle analysis and non-destructive testing (NDT) with numerical methods (Réka Erdei, Zoltán Bézi, Csaba Takács, Szabolcs Szávai) online
14:00 - 15:00			Lunch (Restaurant of Faculty of Mechanical Engineering, 5th floor)	

April 4th: Parallel session 3 (12:00 – 14:00) – Room 514

Room: 514 Time			Day 3: Tuesday 4 th April Chairperson: Lj. Milović <i>Parallel session 3</i>	
Start	-	End		
12:00	-	12:12	#21	A review on the hull structural steels for ships carrying liquefied gas: Materials performance subjected to low temperatures (Haris Nubli, Suryanto Suryanto, Aprianur Fajri, Jung Min Sohn, Aditya Rio Prabowo) online
12:12	-	12:24	#24	Idealized critical marine structures under dynamic loading and fire state: A benchmark study using explicit-dynamic FE approach (Arifin Nurcholiz, Aditya Rio Prabowo, Indri Yaningsih, Teguh Muttaqie, Haris Nubli, Iwan Istanto) online
12:24	-	12:36	#19	Experimental studies on crashworthiness analysis of a sandwich composite panel under axial impact: A comprehensive review (Ilham Bagus Wiranto, Sherly Octavia Saraswati, Aditya Rio Prabowo, Iqbal Reza Al Fikri, Chairunnisa, Teguh Muttaqie, Muhammad Ilham Adhynugraha, Fadli Cahya Megawanto, Arif Hidayat, Fajar Ari Wandono, Abian Nurrohmad, Abid Paripurna, Aryandi Marta) online
12:36	-	12:48	#43	For a Better Governance of Harmful Events in Companies: A Case Study (BOUZERARA Ramdane, CHAIB Rachid, VERZEA Ion) online
12:48	-	13:00	#64	Transportation Pipelines Corrosion: The Roles Played by Pressure, Metallurgy, and Geography (Mohammed Badr Alzeer, Kassem Ghorayeb, Samir Mustapha) online
13:00	-	13:12	#49	Research on regularities of deformation behavior of building structures in the areas of technogenic impact caused by mining (I. Shardakov, A. Shestakov, G. Gusev, R. Tsvetkov, V. Yepin, I. Glot) online
13:12	-	13:24	#50	Dynamic response of a reinforced concrete structure to an impulse localized impact (I. Shardakov, A. Shestakov, G. Gusev, R. Tsvetkov, V. Yepin, I. Glot) online
13:24	-	13:36	#75	Fracture modeling of a weld damaged by hydrogen embrittlement (Štěpán Major)

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13:36	-	13:48	#70	On some applications of Sarhan–Zaindin modified Weibull distribution (Ivan Arandelović, Dragoljub Bekrić, Nikola Tanasić, Radenko Rajić)
14:00 - 15:00			Lunch (Restaurant of Faculty of Mechanical Engineering, 5 th floor)	

April 4th: Session 4 (15:00 – 16:50) – Room 211

Room: 211 Time			Day 3: Tuesday 4 th April Chairperson: S. Kirin Session 4	
Start	-	End		
15:00	-	15:12	#4	Influence of seawater immersion on fatigue strength of GFRP composites with through-holes (H. Vidinha, R. Branco, A.M. Amaro, M.A. Neto, P. Reis, J.D. Costa) <i>online</i>
15:12	-	15:24	#66	Mechanical properties of ABS resin material (Lj. Petrov, B. Bojović, Z. Golubović, A. Sedmak, I. Trajković, Ž. Mišković, M. Milošević)
15:24	-	15:36	#3	TEMPERATURE INFLUENCE ON COMPOSITE MATERIAL BEHAVIOUR (Milovan Paunić, Igor Balać)
15:36	-	15:48	#80	Experimental investigation of the fatigue crack growth behaviour in SLM additively manufactured 17-4 PH stainless steel specimens (America Califano, Flavia Bollino, Filippo Berto, Sepe Raffaele) <i>online</i>
15:48	-	16:00	#68	The Risk assessment of 3D printing FDM technology (J. Antić, Ž. Mišković, R. Mitrović, Z. Stamenić, J. Antelj)
16:00	-	16:12	#51	Mechanical characteristics of compressive specimens obtained by SLS technology (I. Jevtić, G. Mladenović, M. Milošević, A. Milovanović)
16:12	-	16:24	#72	Composite plates with Nomex honeycomb core modeling for Dynamic integrity at the mesoscale level (Mirko Dinulović, Aleksandar Grbović, Vuk Adžić and Hamad Alarafati)
16:24	-	16:36	#76	Residual life estimation of damaged structures exposed to high pressures and temperatures (Nikola Raičević, Aleksandar Grbović, Gordana Kastratović, Nenad Vidanović, Aleksandar Sedmak)
16:36	-	16:48	#48	Size effect assessment of K_{Ic} experimental data using the Two-Step-Scaling Method (Sreten Mastilovic, Branislav Djordjevic, Aleksandar Sedmak, Snezana Kirin)
17:00			Closing	

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