



The 14th International Conference

Modern Building Materials, Structures and Techniques

October 5-6, 2023, Vilnius
Lithuania

Institutional Partners



Dedicated to the 700th anniversary of VILNIUS



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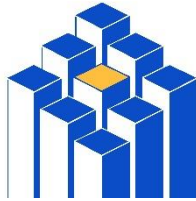


Conference Programme

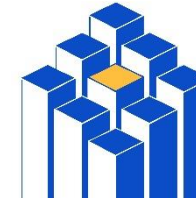
The Conference is organised by the Faculty of Civil Engineering of VILNIUS TECH. The Conference will be held at the hotel Best Western Vilnius, Address: Konstitucijos pr. 14, Vilnius, 09308 Lithuania.

Remigijus Šalna and Šarūnas Skuodis
Chairs of the MBMST 2023

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**14th International Conference “Modern Building
Materials, Structures and Techniques”**
Vilnius, Lithuania October 5-6, 2023



PROGRAMME

Date	Time	Hall 1	Hall 2	Hall 3	Hall 4
Thursday, October 5th, 2023	08:00-09:00	Registration in the lobby with welcome coffee			
	09:00-09:30	Welcome word	-	-	-
	09:30-10:00	Opening lecture	-	-	-
	10:00-10:30	Keynote lecture	-	-	-
	10:30-11:00	Coffee break/Poster session			
	11:00-11:30	Keynote lecture	-	-	-
	11:30-12:00	Keynote lecture	-	-	-
	12:00-13:00	Lunch			
	13:00-13:30	Keynote lecture	-	-	-
	13:30-14:00	Keynote lecture	-	-	-
	14:00-14:30	Coffee break/Poster session			
	14:30-17:00	STR session 1	MTR session 1	OR session 1	GEO session 1
	17:00-19:00	Free time			
	19:00-22:00	Gala Dinner			
Friday, October 6th, 2023	08:30-09:00	Registration in the lobby with welcome coffee			
	09:00-11:00	STR session 2	MTR session 2	STR session 3	MTR session 3
	11:00-12:00	Coffee break/Poster session			
	12:00-13:00	Lunch			
	13:00-15:00	Free time/ Visit to the Palace of the Grand Dukes of Lithuania			

STR – structures; **MTR** – materials; **OR** – operational research; **GEO** – geotechnics

Note: in the presentation time it is included 5 minutes for questions and answers

Thursday, October 5th, 2023 Chairmans: J. A. O. Barros and R. Šalna

08:00 – 09:00 Registration in the lobby with welcome coffee

09:00 – 09:30 Welcome word

09:30 – 10:00 Opening lecture **Remains of Gediminas Castle Hill (Vilnius, Lithuania): 3D numerical model behaviour**

Š. Skuodis, M. Daugevičius, J. Medzvieckas, A. Šneideris, A. Jokūbaitis, J. Rastenis, J. Valivonis (Vilnius Gediminas Technical University, Lithuania)

10:00 – 10:30 Keynote lecture **Recent developments on the analysis and design of Fibre Reinforced Concrete structures**

J. A. O. Barros (Minho University, Portugal)

10:30 – 11:00 Coffee break/Poster session

11:00 – 11:30 Keynote lecture **Emerging global trends in Nanotechnology for achieving the Net-Zero Goals**

A. Tiwari (Institute of Advanced Materials, Sweden)

11:30 – 12:00 Keynote lecture **On the structural relevance of residual welding stresses**

H. Pasternak (Brandenburg University of Technology at Cottbus, Germany)

12:00 – 13:00 Lunch

13:00 – 13:30 Keynote lecture **Novel approaches in constitutive modelling and serviceability analysis of reinforced concrete structures**

G. Kaklauskas (Vilnius Gediminas Technical University, Lithuania)

13:30 – 14:00 Keynote lecture **Microstructuring of component surfaces with fine particles by cold spraying**

S. Antonyuk (University of Kaiserslautern-Landau, Germany)

14:00 – 14:30 Coffee break/Poster session

Thursday, October 5th, 2023 (STRUCTURES session 1) Chairmans: K. Holschemacher and G. Kaklauskas

14:30 – 14:50 L. A. Nelson; L. Weekes; G. Milani **Sensitivities Of Interfacial Bond-Sip Properties In Predicting The Behaviour Of FRP-Strengthened Concrete**

14:50 – 15:10 F. C. Manhanga; Y. Khmurovska; Ž. Rudžionis **Determination of crack healing efficiency of concrete containing crystalline admixture in experimental procedures using image analysis**

15:10 – 15:30 Z. Hlaváč; J. Blažek; G. Sirotenko **Changes in Concrete Subjected to Neutron Irradiation**

15:30 – 15:50 J. Masėnas; J. Valivonis **Layer Interface Behaviour in Layered Concrete Structural Elements**

15:50 – 16:10 K. Holschemacher; U. Quapp **Verification of the Concrete Slab in Timber-Concrete Composite Structures**

16:10 – 16:30 A. Wolfthaler; P. Harsányi; M. Schneider **Development And Performance Of High Strength Lightweight Concrete With Perlites**

16:30 – 16:50 R. Balevičius; D. Merkevičiūtė **Discrete Cracks Approach for Deformational Analysis of Reinforced Concrete Beams**

Thursday, October 5th, 2023 (MATERIALS session 1) Chairmans: A. Korjakins and V. Gribniak

14:30 – 14:50 K. Imamoto; T. Endo; E. Ridengaoqier; C. Kiyohara **Development of Thermal Storage Building Exterior Using Phase Change Materials**

14:50 – 15:10 V. Obradović; Ž. Radovanović; P. Sejkot; K. V. Machalická; M. Vokáč **Effects of Water Immersion on Mechanical Properties of Kevlar Composites Reinforced with ZnO Nanoparticles**

15:10 – 15:30 A. Kudžma; V. Antonovič; J. Škamat; R. Stonys; J. Malaiškienė; V. Gribniak **Effect of Low Oxidation Graphene Oxide on Physical and Mechanical properties of MCC Type Refractory Castable**

15:30 – 15:50 M. Goutière; A. Laborel-Préneron; C. Magniont; S. Ballas; L. Tricoulet **Fully biobased panels for building thermal insulation**

15:50 – 16:10 S. Markin; V. Mechtcherine **The Effect of Layer Cross-Section on Plastic Shrinkage Cracking of 3D-Printed Concrete Elements**

16:10 – 16:30 I. Wichmann; D. Stephan **Influence of the Type of Binder on the Properties of Artificial Aggregates from Construction Waste**

16:30 – 16:50 O. Aleksieieva; M. Bozoglu; P. Tretiakov; A. Toporov; S. Antonyuk **Modification of the surface of refractory materials by cold gas-dynamic spraying**

Thursday, October 5th, 2023 (OPERATIONAL RESEARCH session 1) Chairmans: A. Al-Refaie and N. Lepkova

14:30 – 14:50 E. Markauskas; J. Šaparauskas **Selection of Technology for the Reconstruction of Masonry Walls of Heritage Buildings**

14:50 – 15:10 A. H. Chidiebere; O. O. Patrick **Evaluation of the Use of Unmanned Aerial System (Drone) on Risk/Accidents Involved in Construction Project Monitoring, Enugu State, Nigeria**

15:10 – 15:30 A. Vilkonis; J. Antuchevičienė; V. Kutut **Pricing and Construction Contract Type Selection Model**

15:30 – 15:50 A. Al-Refaie; N. Lepkova **Effects of Overall Satisfaction with PV Systems and Subsidy Policy on Energy Security for Rooftop Buildings Using System Dynamics**

15:50 – 16:10 I. Poderytė; A. Šešplaukis **Evaluation of Financial Efficiency of Real Estate Investment Projects: The Significance of Sustainability Indicators in the Long-Term Perspective**

16:10 – 16:30 D. Migilinskas; V. Zigmund; J. Antuchevičienė **Evaluation of Suspended Veneer Façade Criteria at the Construction Stage**

16:30 – 16:50 G. Ginda; C. Vigneshkumar **Usefulness of Crisp AHP/ANP Rating Scales to Risk Assessment Differentiation**

Thursday, October 5th, 2023 (GEOTECHNICS session 1) Chairmans: I. Vaníček and Š. Skuodis

14:30 – 14:50 V. Poberezhnyi; H. Hangen; B. Lenze **Environmental Benefits of Geosynthetics in Construction Projects**

14:50 – 15:10 N. Dirgėlienė; V. Kordušas **Stabilization of Soil Using Polyurethane Resin Injection Technology**

15:10 – 15:30 I. Lekstutytė; G. Moliakovaitė; G. Žaržojus; S. Gadeikis; Š. Skuodis **Intermediate Till Soil Properties and Distinctive Features**

15:30 – 15:50 I. Vaníček; D. Jirásko; M. Vaníček **Energy Efficient Civil Engineering Structures – EECES**

15:50 – 16:10 M. Seip; M. Hassan; R. Katzenbach; S. Leppla; A. Norkus **Construction of a High-Rise Building near Sensitive Infrastructures and the Resulting Soil-Structure Interaction**

16:10 – 16:30 M. Zakarka; Š. Skuodis **Analysis of Soil-Geogrid Interaction and Alternative Soil Layer Approach for Improved Road Embankment Stability**

16:30 – 16:50 D. Sližytė; K. Urbonas; R. Mackevičius **Prediction of Ultimate Bearing Capacities of Test Piles According to Different Methods**

Friday, October 6th, 2023 (STRUCTURES session 2) Chairmans: H. Pasternak and A. Daniūnas

08:30 – 09:00 Registration in the lobby with welcome coffee

09:00 – 09:20 I. Misiūnaitė; A. Rimkus; V. Gribniak **Improving the Mechanical Resistance of a Slender RHS Steel Profile with Polymeric Insert**

09:20 – 09:40 D. Jindra; Z. Kala; J. Kala **Ultimate Load Capacity of Multi-Story Steel Frame Structures with Geometrical Imperfections: A Comparative Study of Two Methods**

09:40 – 10:00 Z. Kala **Steel Plane Frames: Entropy and Potential Energy of Elastic Buckling Modes**

10:00 – 10:20 R. Kubát; P. Bílý **Modelling of Steel-Concrete-Steel Structure Using FEM Plane Elements**

10:20 – 10:40 I. Lukačević; M. Bartolac; I. Čurković; A. Rajić; V. Žuvelek **Laboratory Tests of Lightweight Composite Floor System LWT-FLOOR**

10:40 – 11:00 M. Stulpinas; A. Daniūnas **Selection of an Optimum Axially Compressed Closed Cross-Section Thin-Walled Built-up Column**

11:00 – 12:00 Coffee break/Poster session

Friday, October 6th, 2023 (STRUCTURES session 3) Chairmans: M. Schneider and A. Rimkus

08:30 – 09:00 Registration in the lobby with welcome coffee

09:00 – 09:20 J. Smet; W. Ronsse; A. Karpauskas; A. Rimkus **Mitigating Concrete Shrinkage Cracking: Enhancing Performance with Macro Fibres and Modern Additives**

09:20 – 09:40 D. Valiukas; G. Kaklauskas; A. Sokolov **Analysis of Reinforcement Strain Profiles Using Digital Twin Concept**

09:40 – 10:00 V. Masėnas; J. Valivonis **Numerical Analysis of Prestressing Strand Placement Impact on Dapped-End Beam Bearing Capacity**

10:00 – 10:20 Y. L. Mack-Vergara; M. Quattrone; V. M. John **The Water Footprint of Low Emission Advanced Performance Concrete**

10:20 – 10:40 M. Zavalis; J. Valivonis **Flexural Strength Evaluation Of Reinforced One-way Concrete Slab With Plastic Voided Inserts**

10:40 – 12:00 Coffee break/Poster session

Friday, October 6th, 2023 (MATERIALS session 2) Chairmans: R. Kusiorowski and G. Skripkiūnas

08:30 – 09:00 Registration in the lobby with welcome coffee

09:00 – 09:20 G. Cheirchanteri **Nanotechnology: The Challenge in Innovative Architectural Design Using Nanomaterials**

09:20 – 09:40 E. Pocius; D. Nagrockienė; I. Pundiene; I. Girniene **Effect of glass processing waste content on concrete properties**

09:40 – 10:00 J. Melichar; L. Mészárosová; V. Černý; R. Drochytka **Influence of Superabsorbent Polymers on Early Stages Hydration of Cement-based Pastes Containing Fly Ash**

10:00 – 10:20 Y. Trambitski; O. Kizinievič; V. Kizinievič **Impact of modified biopolymer on properties of clay composites**

10:20 – 10:40 S. H. Chu; P. L. Ng; G. X. Guan; A. K. H. Kwan **Exploiting Synergistic Effect of Metakaolin and Silica Fume in Production of High Strength Mortar**

10:40 – 11:00 O. G. Aydoğan; N. Özyurt **The role of the type of mix water and ion concentration on the fresh state properties of mortar**

11:00 – 12:00 Coffee break/Poster session

Friday, October 6th, 2023 (MATERIALS session 3) Chairmans: S. Nosewicz and S. Borodinas

08:30 – 09:00 Registration in the lobby with welcome coffee

09:00 – 09:20 S. Nosewicz; G. Jurczak; W. Chromiński; J. Rojek; K. Kaszyca; M. Chmielewski **Quantitative study of the effect of spark plasma sintering parameters on the grains structure - experimental electron backscatter diffraction analysis with finite element modeling**

09:20 – 09:40 T. Mościcki; M. Maździarz; R. Psiuk; D. Jarząbek **Effect of transition metal doping on mechanical properties of tungsten diboride on the base of first-principles calculations and experimental investigations on**

09:40 – 10:00 P. Hołobut; J. Rojek; S. Nosewicz **Deformable Discrete Element Method modeling of cubic materials of high anisotropy**

10:00 – 10:20 V. Mikutaitė **Benefits of Chemical Prestressing over Mechanical Prestressing of FRP Rods**

10:20 – 10:40 R. E; K. Imamoto **Experimental Study on Evaluation Accuracy of Pervious Concrete Dynamic Elastic Modulus Using Mobile Devices**

10:40 – 11:00 M. Novotný; J. Sobotka; R. Kolář; T. Švecová **Sterilization of Biotic Agents by Microwave Technology in Construction Materials**

11:00 – 12:00 Coffee break/Poster session

Thursday, October 5th and Friday, October 6th, 2023 (POSTER session)

L. Farrugia; J. M. Abela **Additive Manufacturing Methodology for Structurally Optimized Space Frame Connections**

L. Tupėnaitė; L. Kanapeckienė; J. Naimavičienė **Development of Timber Construction in European Countries: Drivers, Barriers, and Education**

R. Kusiorowski; A. Gerle; J. Witek **Cement-Asbestos Waste As a Source of Secondary Raw Material For the Production of Mineral Binders**

P. Tihomirovs; A. Korjakins **Boric Acid As a Pore-Forming Additive in Glass-Clay Compositions**

J. Malaiškienė; R. Boris; V. Antonovič; V. Gribniak; R. Stonys **The Metakaolin Waste Effect on the Physical and Mechanical Properties of High-Performance Concrete**

C. Zhu; I. Pundienė; J. Pranckevičienė; M. Kligys **Properties of Biomass Fly Ash-Phosphogypsum Based Pastes**

R. Kanopienė; S. Gadeikis **Geology for Planning and Construction of Deep Geological Repository of Radioactive Waste (Lithuanian Case)**

P. V. Kovrova; V. Volkova; L. Pakrastins **Modal Analysis of a Multi-storey Frame Building with Consideration of the Soil Base**

D. Kalibatas; D. Kalibatienė **Decision Support Systems in Construction: A Bibliometric Analysis**

E. Grigorjeva; V. Popov; T. Grigorjeva **Comparative review on integration levels between design and analysis systems**

G. Ginda; J. Ciemcioch; C. Vigneshkumar **Multidimensional and Imperfect Information Dependency-Aware Occupational Risk Assessment**

V. Černý; L. Mészárosová; J. Melichar; R. Drochytka **The Influence of Secondary Raw Materials on Properties of Aerated Autoclaved Concrete**

G. Skripkiūnas; G. Girskas; L. Rishko **Lightweight Portland Cement Mixtures with Perlite for 3D printing of Concrete Structures**

D. Sikarskas; V. Antonovič; J. Malaiškienė; R. Boris; R. Stonys **Influence of industrial waste pozzolanic additives on the structure and properties of expanded glass granules cement-based composite**

P. L. Ng; G. Kaklauskas; J. Y. K. Lam **Serviceability Assessment of FRP-Reinforced Concrete Beams Using Parametrized Tensile Stress Block**