

1<sup>st</sup> International Conference

# SAINCE 2026



**Sustainability and Innovation in Civil Engineering:  
Perspectives from East and Central Europe**



## Final Program

Tuesday, June 2, 2026

Organizers:



**Silesian University of Technology**  
Gliwice, Poland



**University of Georgia**  
Tbilisi, Georgia

## Honorary Patronage

His Magnificence  
Rector of the Silesian University of Technology

Prof. **Marek Pawełczyk**, PhD, DSc, Eng.



**Silesian University  
of Technology**

## Scientific Committee

### Chairs:

Prof. **Barbara Klemczak**, PhD, DSc, Eng.

Silesian University of Technology, Poland

Graduated from the Faculty of Civil Engineering, specializing in buildings and engineering structures (1991). Doctorate and post-doctorate degrees in Civil Engineering, Surveying and Transportation from the Silesian University of Technology in 2000 and 2009 respectively, and the title of Professor of Technical Sciences in 2018. She currently works as a professor at the Department of Structural Engineering.

She specializes in concrete structures, particularly in numerical analysis and studies of thermal and moisture effects in concrete and cementitious composites. She is the author or co-author of more than 140 scientific publications. She has supervised 4 doctoral theses, defended with distinction. Reviewer of almost 100 scientific articles published by Elsevier and Springer. Reviewer of professorial and doctoral applications, member of postdoctoral and doctoral thesis committees, including twice an international thesis evaluation committee at Luleå University of Technology (Sweden). She is a member of a 4-member International Advisory Board at the C-MADE Research and Development Centre in Portugal, which focuses on the research and promotion of advanced materials in construction. She is also a member of the Technical Committee of RILEM TC 299 (Thermal energy storage in cementitious composites), a member of the Structural Engineering Committee of the Katowice Branch of the Polish Academy of Sciences, and a member of the Concrete Structures Section of KILiW PAN. She was a team leader of the Silesian University of Technology in the Horizon 2020 research project (NRG-STORAGE, implementation 2020-2024) and is a team member of the Silesian University of Technology in the Horizon Europe project (CSTO2NE). She has completed 3-month internships in Denmark and Portugal. She teaches Concrete Structures, Structural Concrete, and Advanced Structural Design.

Prof. **Tina Gudushauri**

University of Georgia, Georgia

Dean of the School of Arts and Humanities at the University of Georgia. Professor, Ph.D. in Ethnology / Anthropology, scientific internships in Germany (Berlin Free University, Saarbrücken and Münster Universities), participation in local, regional, and international scientific conferences. The fields of scientific interests and research: early systems of religious thought in Caucasus, ethnos and related theories, the problems of identity (ethnic and cultural). The author of more than 38 scientific articles in Georgian, Russian, and English languages.

## Scientific Committee

### Members:

Dr hab. Inż. arch. **Tomasz Bradecki**, prof. PŚ  
Silesian University of Technology, Poland

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Prof. dr hab. inż. **Krzysztof Gromysz**  
Silesian University of Technology, Poland

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Dr. **Kálmán Koris**  
Budapest University of Technology and Economics, Hungary

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Prof. **Oleksandr Kovalchuk**  
Kyiv National University of Construction and Architecture, Ukraine

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Dr hab. inż. **Marcin Kozłowski**, prof. PŚ  
Silesian University of Technology, Poland

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Dr hab. inż. **Barbara Ksit**, prof. PP  
Poznan University of Technology, Poland

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**Nodar Kvanchiani**, MSc  
University of Georgia, Georgia

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Prof. **Nino Laghidze**  
University of Georgia, Georgia

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**Taras Markiv**, PhD  
Lviv Polytechnic National University, Ukraine

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Dr hab. inż. **Artur Nowoświat**, prof. PŚ  
Silesian University of Technology, Poland

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Dr hab. inż. **Bożena Orlik-Koźdoń**, prof. PŚ  
Silesian University of Technology, Poland

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Ing. **Peter Sabol**, PhD  
Technical University of Košice, Slovakia

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Prof. **Rafat Siddique**  
Thapar Institute of Engineering and Technology, India

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Dr hab. inż. arch. **Rafał Blazy**, prof. PK  
Cracow University of Technology, Poland

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Prof. dr hab. inż. arch. **Yuriy Kryvoruchko**  
Lviv Polytechnic National University, Ukraine  
Bialystok University of Technology, Poland

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## Organizing Committee

### Chairs:

Prof. dr hab. inż. **Barbara Klemczak**

Dr hab. inż. **Bożena Orlik-Kozdoń**, prof. PŚ

### Members:

Dr inż. **Julia Blazy**

Dr inż. **Marcin Jasiński**

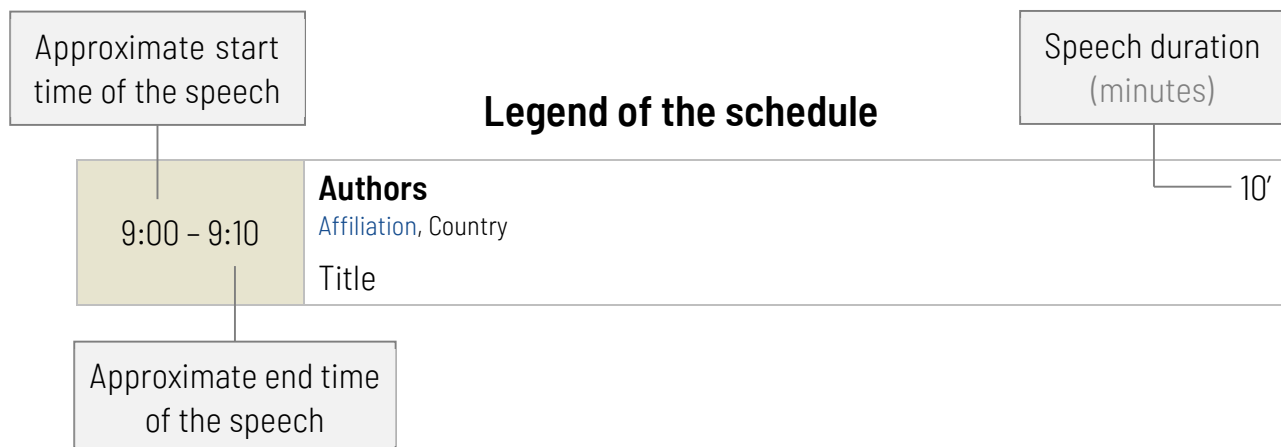
Mgr **Małgorzata Lach**

Mgr inż. **Dawid Piotrowski**

Dr inż. **Mateusz Smolana**

Mgr inż. **Jacek Staszekiewicz**

Dr inż. **Mirosław Wieczorek**



Each speech should not exceed a duration of **10 minutes**.


All times are given by **Central European Summer Time (CEST, UTC+02:00)**.




A discussion period of up to **20 minutes** is scheduled after all presentations at the end of each session.

<b>Opening Session</b>		
09:00 – 09:40 (CEST, UTC+02:00)		40'
09:00 – 09:30	<p><b>Barbara Klemczak, Tina Gudushauri, Margalita Arabidze</b>  <a href="#">Silesian University of Technology, Poland</a>  <a href="#">University of Georgia, Georgia</a>  <a href="#">Ministry of Economy and Sustainable Development of Georgia, Georgia</a></p> <p>Opening and Welcome Session, General Keynotes</p>	30'
09:30 – 09:40	<p><b>Irakli Giorgobiani</b>  <a href="#">Infrastructure Construction Companies' Association, Georgia</a></p> <div style="display: flex; align-items: center; justify-content: center;">  </div>	10'

<b>Session 1</b>		
Architecture, Urban, and Spatial Planning within Sustainable Development		
<b>Chairs:</b>	Margalita Arabidze, Szymon Dawczyński, Nino Laghidze	
09:40 – 11:15 (CEST, UTC+02:00)		95'
09:40 – 09:50	<p><b>Margalita Arabidze</b>  <a href="#">Ministry of Economy and Sustainable Development of Georgia, Georgia</a></p> <p>New Regulations in Energy Efficiency in Buildings in Georgia</p>	10'
09:50 – 10:00	<p><b>Szymon Dawczyński</b>  <a href="#">Silesian University of Technology, Poland</a></p> <p>Innovative Green Roof Systems for Sustainable Urban Buildings in Central and Eastern Europe</p>	10'
10:00 – 10:10	<p><b>Mariami Kantaria</b>  <a href="#">University of Georgia, Georgia</a></p> <p>Sustainable Urban Development – Balancing Growth and Environmental Preservation</p>	10'
10:10 – 10:20	<p><b>Ewa Kwiatkowska, Robert Cichowicz</b>  <a href="#">Lodz University of Technology, Poland</a></p> <p>Sustainable Development and Atmospheric Air Quality</p>	10'
10:20 – 10:30	<p><b>Nino Laghidze</b>  <a href="#">University of Georgia, Georgia</a></p> <p>Formation of an Integrated System of Urban Space in the Mountainous Regions of Eastern Georgia</p>	10'

<h2 style="margin: 0;">Session 1</h2> <p style="margin: 0;">Architecture, Urban, and Spatial Planning within Sustainable Development</p>		
10:30 – 10:40	<p><b>Adam Nawrocki</b> Warsaw University of Life Sciences, Poland</p> <p>Beyond Noise Reduction: Climbing Plants and Barrier Design in Roadside Air Pollution Mitigation</p>	10'
10:40 – 10:50	<p><b>Ana Shonvadze</b> University of Georgia, Georgia</p> <p>Current Trends and Future Perspectives in Infrastructure Engineering: Sustainable Materials and Green Construction in Georgia in the Context of European Practice</p>	10'
10:50 – 10:55	<p><b>Jakub Kieloch</b> Akces BK Sp. z o.o., Poland</p> <div style="text-align: center;">  </div> <p>POLYTECH – Modern Polystyrene Concretes. Polystyrene Waste in the Production of Non-flammable Thermally Insulating Structural Materials</p>	5'
10:55 – 11:15	<b>Discussion</b>	20'


<div style="display: flex; align-items: center; justify-content: center;">  <h2 style="margin: 0;">Break</h2> </div>		
11:15 – 11:30 <small>(CEST, UTC+02:00)</small>		15'

<h2 style="margin: 0;">Session 2a</h2> <p style="margin: 0;">Durability, Safety, and Reliability of Buildings and Engineering Structures</p>		
<b>Chairs:</b>	Marta Kałuża, Taras Shnal, Ana Shonvadze	
11:30 – 13:00 <small>(CEST, UTC+02:00)</small>		90'
<p style="margin: 0;">Session concurrent to Session 2b: <b>Innovative Technologies in the Construction and Operation of Infrastructure</b></p>		
11:30 – 11:40	<p><b>Andrzej Śliwka, Zofia Szweda, Noman Jabbar</b> Silesian University of Technology, Poland</p> <p>Cathodic Protection Method for Reinforced Concrete Structures</p>	10'
11:40 – 11:50	<p><b>Marta Kałuża</b> Silesian University of Technology, Poland</p> <p>Effectiveness of External Shear Strengthening for AAC Block Walls Using Non-Structural Material</p>	10'

<b>Session 2a</b> Durability, Safety, and Reliability of Buildings and Engineering Structures		
11:50 – 12:00	<b>Dawid Karasiewicz, Tomasz Garbowski, Anna Szymczak-Graczyk</b> Poznan University of Technology, Poland Analytical Framework for Defining Admissible Biaxial Tilt Envelopes in Rectangular Sinking Wells	10'
12:00 – 12:10	<b>Arkadiusz Latocha, Bartłomiej Machota, Klaudia Śliwa-Wieczorek, Teresa Stryszewska</b> Cracow University of Technology, Poland Natural and Accelerated Weathering of FPU Bonded Beech Wood	10'
12:10 – 12:20	<b>Taras Shnal, Oleksandr Lepuha</b> Lviv Polytechnic National University, Ukraine OSB-Sheathed Light Wood-Frame Shear Walls: Experimental Methods and Stiffness Assessment Fundamentals	10'
12:20 – 12:30	<b>Roman Samchuk, Roman Khmil</b> Lviv Polytechnic National University, Ukraine Evaluation of Horizontal Crane Actions In Fatigue Analysis of Welded Web-Flange Connections of Steel Runway Beams	10'
12:30 – 12:40	<b>Łukasz Szarek</b> Warsaw University of Technology, Poland The Carbon Footprint of Hydropower	10'
12:40 – 13:00	<b>Discussion</b>	20'

<b>Session 2b</b> Innovative Technologies in the Construction and Operation of Infrastructure		
<b>Chairs:</b>	Rafał Blazy, Krzysztof Gromysz 11:30 – 13:00 (CEST, UTC+02:00)	90'
Session concurrent to Session 2a: <b>Durability, Safety, and Reliability of Buildings and Engineering Structures</b>		
11:30 – 11:40	<b>Julia Brenk, Barbara Ksit</b> Poznan University of Technology, Poland A Model-Based Approach to Clean Energy Generation for Buildings	10'
11:40 – 11:50	<b>Krzysztof Gromysz, Julia Drabczyk</b> Silesian University of Technology, Poland Methods of Removing Tilt of Buildings	10'
11:50 – 12:00	<b>Jacek Karpiesiuk</b> Warsaw University of Life Sciences, Poland Features of Lightweight Radiant Heating and Cooling Without Screeds	10'

<b>Session 2b</b> Innovative Technologies in the Construction and Operation of Infrastructure		
12:00 – 12:10	<b>Katarzyna Misiólek</b> Warsaw University of Technology, Poland Biocementation in Sustainable Construction: Technologies, Challenges, and Opportunities	10'
12:10 – 12:20	<b>Mateusz Rajchel, Maciej Kulpa, Tomasz Siwowski</b> Rzeszow University of Technology, Poland Road Bridges Made of Recycled Wind Turbine Blades – Concept, Design, and Research	10'
12:20 – 12:30	<b>Kacper Więclaw, Klaudia Śliwa-Wieczorek</b> Cracow University of Technology, Poland Pull-off Strength and Failure Mechanisms of FPU Joints in Aged Beech Wood Composites	10'
12:30 – 12:40	<b>Mateusz Żołędź, Arkadiusz Latocha, Klaudia Śliwa-Wieczorek, Arkadiusz Kwiecień, Boris Azinovič, Jaka Pečnik</b> Cracow University of Technology, Poland The Slovenian National Building and Civil Engineering Institute, Slovenia Mechanical Tests of Beech Wood Elements with Flexible Polyurethane Adhesive Bonds	10'
12:40 – 13:00	<b>Discussion</b>	20'

 <b>Break</b>		
13:00 – 13:20 (CEST, UTC+02:00)		20'

<b>Session 3a</b> Materials Engineering, Building Physics, and BIM in Sustainable Construction		
<b>Chairs:</b>	Davit Enukidze, Tomasz Garbowski, Barbara Klemczak 13:20 – 14:40 (CEST, UTC+02:00)	80'
Session concurrent to Session 3b: <b>Reconstruction, Conservation, and Modernization of Historic Buildings</b>		
13:20 – 13:30	<b>Julia Graczyk, Tomasz Gajewski, Tomasz Garbowski</b> Poznan University of Technology, Poland Perlite in Sustainable Construction – How to Avoid Errors in Structural Stiffness Assessment?	10'

<b>Session 3a</b> Materials Engineering, Building Physics, and BIM in Sustainable Construction		
13:30 – 13:40	<b>Nicole Kocierz, Barbara Słomka-Słupik</b> Silesian University of Technology, Poland  Challenges in Developing Sustainable Lightweight Concrete: Current Issues and Future Perspectives	10'
13:40 – 13:50	<b>Vadim Gonchar, Oleksij Sezonenko, Olha Honchar, Danylo-Myroslav Sobol, Taras Markiv</b> Green Carbonate Company Ltd., Ukraine Kyiv National University of Construction and Architecture, Ukraine Lviv Polytechnic National University, Ukraine  Characterization and Potential of Reclaimed Fly Ash for Sustainable Road Concrete Production	10'
13:50 – 14:00	<b>Mikołaj Mosiak</b> Wrocław University of Science and Technology, Poland  Overview of the Selected AI Tools Integrated with BIM in Sustainable Construction Projects	10'
14:00 – 14:10	<b>Mateusz Moskal, Robert Domin, Beata Łażniewska-Piekarczyk, Patrycja Miera</b> Silesian University of Technology, Poland  Carbon Footprint Assessment of Selected Cementitious and Alkali-Activated Composites	10'
14:10 – 14:20	<b>Genādijs Šahmenko, Māris Šinka, Pauls Ārgalis, Diāna Bajāre</b> Riga Technical University, Latvia  Lightweight and Low-Cement Compositions for Concrete 3D Printing	10'
14:20 – 14:30	<b>Marta Kałuża, Wojciech Mazur, João Castro-Gomes, José C. Gonçalves</b> Silesian University of Technology, Poland University of Beira Interior, Portugal Centro de Biotecnologia de Plantas da Beira Interior, Portugal Research Center for Natural Resources, Environment and Society - IPCB, Portugal  The Potential of Carbonation Hardening Process to Reuse Blast Furnace Slag	10'
14:30 – 14:40	<b>Discussion</b>	10'

<b>Session 3b</b>		
Reconstruction, Conservation, and Modernization of Historic Buildings		
<b>Chairs:</b>	Marcin Kozłowski, Nodar Kvanchiani	
	13:20 – 14:40 <small>(CEST, UTC+02:00)</small>	80'
Session concurrent to Session 3a: <b>Materials Engineering, Building Physics, and BIM in Sustainable Construction</b>		
13:20 – 13:30	<b>Bogna Drałus, Bożena Orlik-Koźdoń</b> <small>Silesian University of Technology, Poland</small> Renovation of the Dolanski Chapel	10'
13:30 – 13:40	<b>Adrian Duszka, Klaudia Śliwa-Wieczorek, Bogusław Zając</b> <small>Cracow University of Technology, Poland</small> Strengthening of Flexural Members Using Composite Materials in Historic Structures	10'
13:40 – 13:50	<b>Łukasz Gawron, Marcin Kozłowski</b> <small>Silesian University of Technology, Poland</small> Bird Strike Hazard on Glazed Historic Structures: Risk, Numerical Simulations, and Protective Solutions	10'
13:50 – 14:00	<b>Rafał Blazy, Alicja Hrehorowicz-Nowak</b> <small>Cracow University of Technology, Poland</small> Revitalisation of Post-Industrial Areas as a Tool for Adaptation to Climate Change – Opportunities and Threats	10'
14:00 – 14:10	<b>Nodar Kvanchiani</b> <small>University of Georgia, Georgia</small> Architecture of Incompleteness: Suspended Temporality and Unfinished Soviet Construction Sites in Georgia, South Caucasus	10'
14:10 – 14:20	<b>Janusz Belok, Beata Wilk-Słomka</b> <small>Silesian University of Technology, Poland</small> Adaptation of Construction to Changing Climatic Conditions	10'
14:20 – 14:40	<b>Discussion</b>	10'

<b>Closing Session</b>		
		14:40 – 15:00 <small>(CEST, UTC+02:00)</small>
		20'
14:40 – 15:00	<b>Barbara Klemczak, Tina Gudushauri</b> <small>Silesian University of Technology, Poland</small> <small>University of Georgia, Georgia</small> Closing Session, Summaries	20'



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Gliwice, Poland



**University of Georgia**  
Tbilisi, Georgia

## **Sustainability and Innovation in Civil Engineering:** Perspectives from East and Central Europe

June 2, 2026


Conference Address:





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**Faculty of Civil Engineering**

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