



Politechnika Świętokrzyska  
Kielce University of Technology

# SELECTED ISSUES IN BUILDING STRUCTURES DESIGN

**BSD 2022**  
INTERNATIONAL CONFERENCE

KIELCE-CEDZYNA, 14<sup>th</sup>-15<sup>th</sup> July 2022

THE CONFERENCE PROGRAM

## HONORARY PATRONAGE



Politechnika Świętokrzyska  
Kielce University of Technology

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Economics and Environment  
ISSN 0867-8898

Inżynieria Bezpieczeństwa

Obiektów Antropogenicznych

COMPUTER  
ASSISTED  
METHODS in  
ENGINEERING and  
SCIENCE

J  
OURNAL OF THEORETICAL  
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STRUCTURE AND  
ENVIRONMENT

INŻYNIERIA i  
BUDOWNICTWO  
Rok założenia 1938

OPEN ACCESS JOURNALS  
**Builder** 40 HORNEM  
SCience

PRZEGŁAD  
**budowlany**

BUDOWNICTWO  
i PRAWO

Nowoczesne  
**hale**  
PROJEKT ■ BUDOWA ■ WYPOSAŻENIE

**Builder**

## FINANCING



Ministry of Science  
and Higher Education

Republic of Poland

The program of the Minister of Science and Higher Education under the name: Regional Initiative of Excellence in 2019–2022 project number 025/RID/2018/19 financing amount PLN 12 000 000.

## SCIENTIFIC COMMITTEE

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Technical University of Munich, Germany

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**Urszula RADOŃ**

**Rafał PIOTROWSKI**

**Michał SZCZECINA**

**Beata POTRZESZCZ-SUT**

## KEYNOTE SPEAKERS

**Iason PAPAIOANNOU** Technical University of Munich, Germany

**Katarzyna RZESZUT** Poznan University of Technology, Poland

**Daniel STRAUB** Technical University of Munich, Germany

**14<sup>th</sup> July 2022**

08:00	Registration of stationary participants	
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## **SESSION 1 CONSERVATION AND THERMOMODERNISATION OF BUILDINGS**

**Committee:** dr hab. inż. Joanna Gil-Mastalerzyk, prof. PŚk

dr hab. inż. Ryszard Dachowski, prof. PŚk

08:30 ON-LINE	Terlikowski W., Gregoriou-Szczepaniak M., Sobczyńska E., Wasilewski K. <i>Conservation works in Tanis archaeological site in years 2016-2019</i>	
08:45 ON-LINE	Sasin T., Firląg Sz. <i>Lightweight precast solutions for building renovation</i>	
09:00 ON-LINE	Kaliszuk-Witecka A., Muchorowska M. <i>Thermomodernisation potential of old military buildings on the example of Fort Bema in Warsaw</i>	
09:15 ON-LINE	Gajewski R. <i>Building Energy Simulations: Educational Aspects</i>	
09:30	Piotrowski J., Ciosek A. <i>Analysis of the impact of thermomodernisation works in a single-family residential building</i>	

09:45	Coffee break	
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## **SESSION 2 OPENING SESSION**

10:00	OPENING OF THE BSD2022 CONFERENCE	
10:30	Coffee break	

## **SESSION 3 RELIABILITY OF STRUCTURES**

**Committee:** prof. dr hab. inż. Wojciech Gilewski

prof. dr hab. inż. Wiesław Trąmpczyński

10:45	Straub D. <i>Safe structures under uncertainty: The balance between simplicity and efficiency</i>	
11:15	Papaioannou I. <i>Recent trends in structural reliability analysis</i>	
11:45	Coffee break	

## **SESSION 4 RELIABILITY AND OPTIMISATION**

**Committee:** dr hab. inż. Paulina Obara, prof. PŚk

dr inż. Michał Szczecina

12:00	Kubicka K., Radoń U. <i>System reliability with correlated variables of the plane truss</i>	
12:15	Radoń U., Potrzeszcz-Sut P., Dudzik A. <i>Implicit neural state functions in reliability analysis of plane frame</i>	
12:30	Szafran J., Juszczak-Andraszyk K. <i>Design of steel lattice towers using partial safety calibration procedure</i>	
12:45	Zabojszcza P., Radoń U., Tauzowski P. <i>Robust and deterministic optimization of a steel cantilever</i>	

13:00	<b>Sobczak P., Sokół T.</b> <i>Compliance-based shape and topology optimization using level-set method with radial basis functions</i>	
13:15	<b>Gil-Mastalerczyk J., Kowalczyk M.</b> <i>City farm - design optimisation and efficiency aspects of urbanisation processes</i>	
13:30 ON-LINE	<b>Firlag Sz., Brdak W.</b> <i>Quality of construction products available on the Polish market in 2016-2020</i>	
13:45	Lunch	

## SESSION 5 TENSEGRITY STRUCTURES AND DOMES

Committee: dr hab. inż. Jacek Szafran

dr hab. inż. Tomasz Sokół

14:45	<b>Martyniuk-Sienkiewicz K., Al Sabouni Zawadzka A., Gilewski W.</b> <i>Considerations on possible matching of tensegrity and origami-inspired structures</i>	
15:00	<b>Rutkiewicz A., Małyszko L.</b> <i>Parametric study on the response of a compressed T3 simplex</i>	
15:15	<b>Obara P., Tomasik J.</b> <i>Dynamic behaviour of double-layered tensegrity grids built with Quartex modules</i>	
15:30	<b>Bysiec D., Maleska T.</b> <i>Seismic response of geodesic domes in applied directions</i>	
15:45	<b>Obara P., Solovei M.</b> <i>Parametric dynamic analysis of Geiger domes</i>	

16:00	<b>Trip</b> <i>The red route from the Święta Katarzyna to the Kakonin with a tour of the road-covered objects, including the historical monuments of wooden architecture and the entrance to the Łysica – the highest peak of the Świętokrzyskie Mountains. Sports or trekking shoes are recommended.</i>	
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20:00	Gala Dinner	
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**15<sup>th</sup> July 2022**

08:00	Registration of stationary participants	
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## SESSION 6 CONCRETE AND TIMBER STRUCTURES

Committee: dr hab. inż. Paweł Kossakowski, prof. PŚk

dr inż. Piotr Tauzowski

08:30	<b>Szczecina M., Winnicki A.</b> <i>Topology optimization of "D" regions of reinforced concrete structures</i>	
08:45	<b>Katzer J., Grzybowski P.</b> <i>Properties of reinforcing bars for concrete elements prepared from waste polyethylene terephthalate (PET) bottles</i>	
09:00	<b>Yurkova K., Krykowski T.</b> <i>On the Comparison of Different Computational Concrete Models in the Modelling of Reinforcement Corrosion Phenomena</i>	

<b>09:15</b>	<b>Stępień A., Kwiatkowska M., Munik S., Biskup K.</b> <i>Sustainable construction - new trends in frame structures</i>	
<b>09:30 ON-LINE</b>	<b>Pierzchalski M., Węglarz A.</b> <i>The use of straw bales for building construction. Case study</i>	
<b>09:45</b>	<b>Coffee break</b>	

## SESSION 7 STEEL STRUCTURES

**Committee:** dr hab. inż. Elżbieta Urbańska-Galewska, prof. PG

dr hab. inż. Bartłomiej Błachowski

<b>10:00</b>	<b>Rzeszut K.</b> <i>Cold-formed steel structures strengthened with CFRP composites</i>	
<b>10:30 ON-LINE</b>	<b>Machowiak A.</b> <i>ConSteel Software</i>	
<b>10:45</b>	<b>Saternus K., Saternus P., Szychowski A.</b> <i>Statics and stability of two chord diagonalless beams of a particular kind</i>	
<b>11:00</b>	<b>Piotrowski R., Szychowski A.</b> <i>Critical resistance of a beam grillage in FEM simulations and analytical calculations</i>	
<b>11:15</b>	<b>Szczecina M., Nowak K.</b> <i>Numerical analysis of a steel frame in a fire situation</i>	
<b>11:30</b>	<b>Siedlecka M.</b> <i>Load-bearing capacity of truss girder under lifting</i>	
<b>11:45</b>	<b>Błachowski B., Tauzowski P., Lógó J.</b> <i>Stress-constrained approach for optimal design of structural topology</i>	
<b>12:00</b>	<b>Coffee break</b>	

## SESSION 8 MASONRY STRUCTURES

**Committee:** dr hab. inż. Urszula Radoń, prof. PŚk

dr hab. inż. Andrzej Szychowski, prof. PŚk

<b>12:15 ON-LINE</b>	<b>Tabrizikahou A., Kuczma M., Łasecka-Plura M.</b> <i>Strengthening and retrofitting of masonry constructions by using shape memory alloys</i>	
<b>12:30</b>	<b>Stępień A., Balonis M., Sitarz M.</b> <i>The use of glass cullet in the production of autoclaved materials</i>	
<b>12:45</b>	<b>Dachowski R. , Kwiatkowska M.</b> <i>Analysis of selected glass components and their application in building materials</i>	

<b>13:00</b>	<b>SUMMARY AND CLOSING OF THE BSD2022 CONFERENCE</b>	
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<b>13:15</b>	<b>Lunch</b>	
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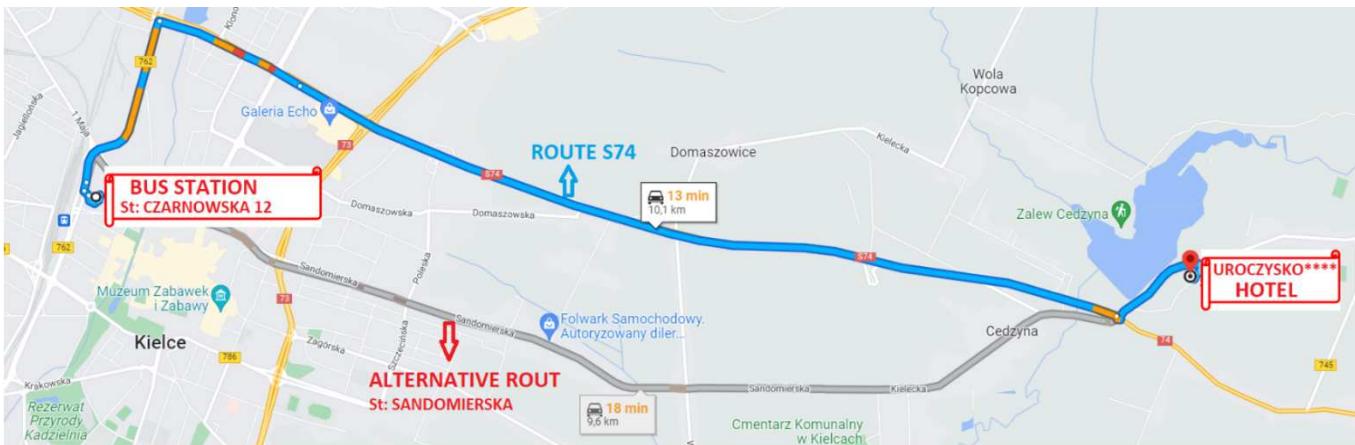
## VENUE OF CONFERENCE

**Uroczysko\*\*\*\* Hotel**

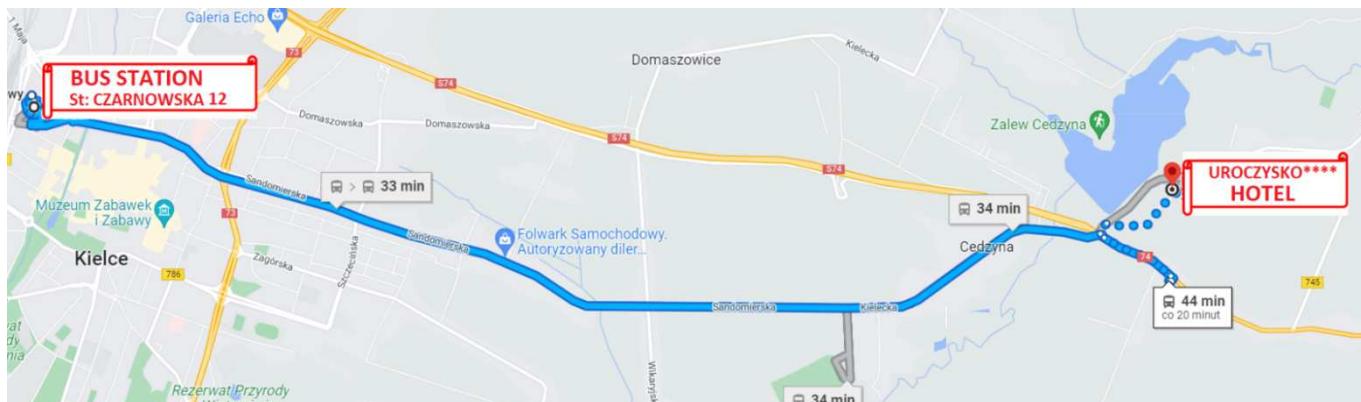
**Cedzyna 44D,  
25-900 Kielce**

<https://www.hotel-uroczysko.com.pl/>

## OWN TRANSPORT



## PUBLIC TRANSPORT



### Bus from Kielce to Cedzyna

- bus number: 10 or 47 ---
- ticket: ZONE II ---
- the start bus stop at Bus Station Czarnowska Street 12 ---
- the final bus stop Cedzyna III - 150 meters from the Uroczysko\*\*\*\* Hotel ---

### Bus stop (Cedzyna III):



## **REGISTRATION FEES**

Access to all plenary sessions, online access via Conference webpage, proceeding materials, registration materials, conference program, the right to present the accepted paper, lunches and the gala dinner is free from fees for registered participants. The number of participants is limited.

**The Organizers do not cover the cost of accommodation and transport.**

## **ADDRESS FOR CORRESPONDENCE**

Organizing Committee of BSD2022  
Department of Mechanics, Metal Structures and Computer Methods  
Faculty of Civil Engineering and Architecture  
Kielce University of Technology  
al. Tysiąclecia Państwa Polskiego 7  
25-314 Kielce, Poland

Phone: +48 41 34 24 804, +48 662 078 273  
e-mail: [bsd2022@tu.kielce.pl](mailto:bsd2022@tu.kielce.pl)  
website: [bsd2022.tu.kielce.pl](http://bsd2022.tu.kielce.pl)

The language of the Conference will be English and Polish.