Symposium Agenda

Session Overview

Date: Monday, 05/Sept/2022

8:00am - 5:30pm

REG: Symposium registration

9:00am - 9:20am

OPEN: Opening Session
Location: **Auditorium Akademik Bella B101**
Chair: **Peter Matiasovsky**, Slovak Academy of Sciences, Slovak Republic

9:20am - 10:00am

Keynote lecture 1: Prof. Jan Carmeliet (ETH Zurich)
Location: **Auditorium Akademik Bella B101**
Chair: **Peter Matiasovsky**, Slovak Academy of Sciences, Slovak Republic
Changing urban climate and impact on building physics.

10:00am - 10:20am

CB-01: Coffee break

10:20am - 12:00pm

S-1-01: Heat and mass transfer 1
Location: **Symposium room BAT 1**
Chair: **Dariusz Gawin**, Lodz University of Technology, Poland

10:20am - 10:40am
Thermal properties of heat resistant composites based on calcium aluminate cement: The effect of plasticizers
Dana Koňáková, Kateřina Šádková, Eva Vejmelková, Vojtěch Pommer, Robert Černý

10:40am - 11:00am
Thermal conductivity of red clays as a function of temperature: a novel approach for elimination of systematic measurement uncertainties
Vojtěch Pommer, Eva Vejmelková, Jiří Maděra, Václav Kočí

11:00am - 11:20am
Heat flux measurement in residential buildings: A method for enhancement of thermopile sensitivity
Jan Kočí, Jiří Maděra

11:20am - 11:40am
Effect of moisture migration on the thermal conductivity measurement of wet materials during an HFM test
Machhour EL ASSAAD, Thibaut COLINART, Thibaut LECOMPTE

11:40am - 12:00pm
Thermo-hydro-mechanical analysis of backfill and buffer in nuclear waste repositories
Jaroslav Kruis, Tomáš Krejčí, Tomáš Koudelka

S-1-02: Hygrothermal performance 1
Location: **Symposium room BAT 2**
Chair: **Vasco Peixoto de Freitas .**, Porto University - Faculdade de Engenharia, Portugal

10:20am - 10:40am
Retrofitting Traditional Walls: A Comparative Study on Thermal Renders and More Common Insulation Materials.
Magda Posani, Rosario Veiga, Vasco Freitas

10:40am - 11:00am
Rain resistance of open-joint façade claddings – Experiences from laboratory measurements
Stig Geving, Tore Kvande, Berit Time

11:00am - 11:20am
Hygrothermal Assessment of Solid Masonry Walls Internally Insulated with Bio-based Insulation Materials
Nickolaj Feldt Jensen, Eva B. Møller, Kurt Kielsgaard Hansen, Carsten Rode

11:20am - 11:40am
BIM based hygrothermal evaluation of slab-on-grade constructions
Balázs Fürtön, Zsuzsa Szalay, Balázs Nagy

11:40am - 12:00pm
Hygrothermal Performance of AAC Exterior Wall After Additional Insulation with Prefabricated Elements in Estonia
Peep Pihelo, Targo Kalamees

12:00pm - 1:00pm

L1: Lunch

1:00pm - 3:00pm

S-1-11: Building energy performance 1
Location: **Symposium room BAT 1**
Chair: **Karim Ghazi Wakili**, IABP Institute for Applied Building Physics, Switzerland

1:00pm - 1:20pm
Increased solar shares from multifunctional building parts
Tillman Gauer, Matthias Pahn

1:20pm - 1:40pm
Predicting solar gains based on on-board monitored data: exploring dynamic methods on a full-size building case
Xiang Zhang, Arash Erfani, Dirk Saelens, Staf Roels

1:40pm - 2:00pm
Projected versus actual energy performance improvement due to thermal retrofit of buildings: A case study
Cristian Casian, Christiane Berger, Ardeshir Mahdavi, Ulrich Pont, Matthias Schuss

2:00pm - 2:20pm
Towards large scale Heat Loss Coefficient assessment starting from limited on-board measured data

S-1-12: Hygrothermal performance 2
Location: **Symposium room BAT 2**
Chair: **Stig Geving**, SINTEF, Norway

1:00pm - 1:20pm
The development of a laboratory centrifuge for the measurement of the moisture storage properties of porous building materials
Daan Deckers, Hans Janssen

1:20pm - 1:40pm
Choice of indoor standard in hygrothermal simulations of external walls
Akram Abdul Hamid, Jesper Arfvidsson, Lars-Erik Harderup

1:40pm - 2:00pm
Temperature and moisture conditions in wood windows under natural weathering
Nora Schjøth Bunkholt, Lise Svenning, Petra Rüther, Lars Gullbrekken

2:00pm - 2:20pm

Katia Ritosa, Staf Roels, Dirk Saelens

2:20pm - 2:40pm
Evaluation of green roof structure in the Central Europe climate during winter
Peter Juras

2:40pm - 3:00pm
Outdoor performance assessment of a super-insulated opaque façade panel integrating PV, PCM, and thermal mass activation
Stefano Fantucci, Elisa Fenoglio, Giorgia Autretto, Fabio Favoino, Valentina Serra, Marco Perino

Risk of Mould Growth in Future Climate in Different European Locations for Two Bio-based Insulation Systems for Interior Retrofitting
Nickolaj Feldt Jensen, Eva B. Møller, Kurt Kielsgaard Hansen, Carsten Rode

2:20pm - 2:40pm
Non-isothermal cup test for liquid and vapour conductivity curve calibration
Paul Klõšeiko, Karl Margus, Targo Kalamees

2:40pm - 3:00pm
Impact of climate conditions on clustering approaches for hygrothermal material properties in solid masonry constructions
Bruno Vanderschelden, Nathan Van Den Bossche

3:00pm - 3:20pm — **CB-02: Coffee break**

3:20pm - 5:20pm

S-1-21: Building energy performance 2
Location: Symposium room BAT 1
Chair: **Dominique Derome**, Université de Sherbrooke, Canada

3:20pm - 3:40pm
Airtightness Development in Large Timber Buildings: Case Study of a Zero-Emission Building in Norway
Lise Svenning, Roberta Moschetti, Tore Kvande, Lars Gullbrekken, Berit Time

3:40pm - 4:00pm
Hygrothermal assessment of a façade (ETICS) using dynamic monitoring and numerical simulation in a real case study
Ayman Bishara

4:00pm - 4:20pm
Comparison and evaluation of the parameters of selected window constructions after the reconstruction of the facade of the laboratory pavilion
Marek Bartko, Pavol Durica

4:20pm - 4:40pm
Experimental study on the thermal conductivity of Croatian traditional earthen architecture
Ivan Kraus, Mihaela Domazetović, Ana Perić

4:40pm - 5:00pm
Deep refurbishment as a pathway towards decarbonization of the Polish residential building sector
Marcin Zygmunt, Dariusz Gawin

5:00pm - 5:20pm
Reliability of conversion factors in the design values of thermal conductivity parameters. Effect on a mineral-fibrous material
Richard Slávik, Lukáš Zelem, Miroslav Čekon

S-1-22: Hygrothermal performance 3
Location: Symposium room BAT 2
Chair: **Staf Roels**, KU Leuven, Belgium

3:20pm - 3:40pm
Vapor permebility of natural based materials on the example of wood wool
Piotr Kosiński, Robert Wójcik, Mariusz Kostowicki, Mateusz Rzepski

3:40pm - 4:00pm
Fungal Growth On Concrete Surfaces Of Floors And Walls
Nickolaj Feldt Jensen, Birgitte Andersen, Martin Morelli

4:00pm - 4:20pm
A comprehensive framework to select climate data for hygrothermal simulations: application on solid masonry walls in Brussels
Isabeau Vandemeulebroucke, Steven Caluwaerts, Nathan Van Den Bossche

4:20pm - 4:40pm
Mould Reliability Analysis Combined with Mould Health Risks for Decision Support
Mohsen Bayat Pour, Jonas Niklewski, Eva Frühwald Hansson, Sebastian Thöns

4:40pm - 5:00pm
Air leakage locations and crack formation in a cross-laminated timber building related to wetting during the construction phase
Kristo Kalbe, Villu Kukk, Targo Kalamees

5:00pm - 5:20pm
Differences in the Risk of Mould Growth in residences in Four Cities in Southeast China
Zun ZHU, Huarong XIE, Yonghui LI, Shuichi HOKOI

5:30pm - 9:00pm — **WR: Welcome reception**
Room B321

7:00pm - 9:00pm — **SCD: Scientific Committee Dinner**
St. Hubert restaurant (Dulovo nám. 1, Bratislava)

Date: Tuesday, 06/Sept/2022

9:00am - 9:40am

Keynote lecture 2: Prof. Ardeshir Mahdavi (TU Wien)
Location: **Auditorium Akademik Bella B101**
Chair: **Peter Matiasovsky**, Slovak Academy of Sciences, Slovak Republic
The Human Dimension of Building Science

9:40am - 10:00am

CB-03: Coffee break

10:00am - 12:00pm

S-2-01: Heat and mass transfer 2
Location: **Symposium room BAT 1**
Chair: **Jan Carmeliet**, ETH Zürich, Switzerland

10:00am - 10:20am
Semi-quantitative assessment system of expected moisture levels in compact roofs
Roberta Moschetti, Alessandro Nocente, Stig Geving, Lars Gullbrekken, Berit Time

10:20am - 10:40am
New method to identify critical locations for moisture damage problems due to wind driven rain in a changing climate.
Aytac Kubilay, Dominique Derome, Jan Carmeliet

10:40am - 11:00am
Do we understand the drying of porous materials?
Jianlin Zhao, Linlin Fei, Feifei Qin, Aytaç Kubilay, Jan Carmeliet, Dominique Derome

11:00am - 11:20am
Why 1D-simulations can underestimate the risk on moisture damage in timber frame constructions
Staf Roels, Astrid Tijskens

11:20am - 11:40am
Vapor diffusion calculations through graphite enhanced polystyrene
Ákos Lakatos

11:40am - 12:00pm
Role of Small and Large Pores in Modeling of Moisture Diffusivity of Ceramic Bricks
Igor Medveď, Robert Černý

S-2-02: Environmental impact and life cycle assessment 1
Location: **Symposium room BAT 2**
Chair: **Carsten Rode**, Technical University of Denmark, Denmark

10:00am - 10:20am
Comparing the environmental impact of circular and non-circular façade renovation systems through scenario analysis
Katrien Devos, Seppe Heyde, Lisa Van Gulck, Nathan Van Den Bossche, Marijke Steeman

10:20am - 10:40am
Biodegradation of bone glue as an environment-friendly organic adhesive suitable for building materials
Klára Kobetičová, Miloš Jerman, Robert Černý

10:40am - 11:00am
Risk spots in Buildings - the why, what and how to
Fredrik Slapø, Nora Schjøth Bunkholt, Klodian Gradeci

11:00am - 11:20am
Influence of Methodological Choices on the Environmental Trade-off between Renovation and Reconstruction
Yanaika Decorte, Marijke Steeman, Nathan Van Den Bossche

11:20am - 11:40am
Service life assessment of buildings – a new beginning
Carsten Rode, Ernst Jan de Place Hansen

11:40am - 12:00pm
Evaluation of Bio and Natural-based Thermal Insulation Materials in Visegrad Countries
Balázs NAGY, Karel STRUHALA, Lukáš BOSÁK, Piotr KOSIŃSKI

12:00pm - 1:00pm

L2: Lunch

1:00pm - 1:30pm

WT: Transfer to Bratislava Passenger Port (Ososbný prístav Bratislava - GPS: N48°8'24" E17°6'46")
Walking transfer (see. route from Symposium venue - Radlinského 11 to Bratislava Passenger Port - Fajnorovo nábrežie 2, duration 20 minutes, 1.6 km distance) Tram transfer (line 1 from STU to Nám. Ľ.Štúra - Ľ.Štúr square, duration 10 minutes then 5 minutes by walk of 0.5km distance)

1:30pm - 5:30pm

ST: CESBP22 social tour
Return Boat trip Bratislava - Devin - Bratislava, drinking refreshment available at boat Currant wine tasting in Devín

7:00pm - 11:00pm

SD: Symposium dinner
Rivers Club (location: Tyršovo nábrežie 12) Arrival of participants for the symposium dinner between 19.00h. -19.30h. Start of the event is at 19.30h. Small cultural performance of the University's ensemble "Technik" starts at 21.00h.

Date: Wednesday, 07/Sept/2022

9:00am - 10:40am

S-3-01: Indoor climate and thermal comfort 1
Location: Symposium room BAT 1
Chair: **Ulrich Pont**, TU Wien, Austria

9:00am - 9:20am
Assessment of the single and integrated models for indoor air quality, moisture performance and thermal comfort
Seyedmohammadreza Heibati, Wahid Maref, Hamed H. Saber

9:20am - 9:40am
Strategies and combinations of measures for renovations of heritage buildings – a review
Akram Abdul Hamid, Hans Bagge, Dennis Johansson, Petra Eriksson, Victor Fransson, Jan Kristoffersson

9:40am - 10:00am
Adopting real measurements to a simulation model for indoor temperature increase at reduced cooling power to lower power peaks
Dennis Johansson, Victor Fransson, Björn Eldvall

10:00am - 10:20am
Impact of added thermal insulation on cold attics in apartment buildings in temperate climate – a review
Akram Abdul Hamid, Hans Bagge, Dennis Johansson, Jan Kristoffersson

10:20am - 10:40am
Summer Thermal Comfort in Architectural Early Design Workflows
Isil Kalpkirmaz Rizaoglu, Karsten Voss

S-3-02: Building and room acoustics / Daylight and illumination engineering
Location: Symposium room BAT 2
Chair: **Ardeshir Mahdavi**, TU Wien, Austria

9:00am - 9:20am
Acoustic considerations in office conversion projects: a case study
Viviane Ferraz Madeira, Helene Teufl, Ardeshir Mahdavi

9:20am - 9:40am
The potential of single layer walls based on autoclaved aerated concrete from the point of view of building physics in housing construction
Daniel Urbán, Monika Kurucová, Marek Otčenáš, Alena Struhárová

9:40am - 10:00am
Determination of Acoustic Performance of Tire-Fluff and Sandwich Gypsum - Tire-Fluff Boards by Means of Acoustic Chambers
Lukáš Fiala, Petr Konrád, Petr Hotěk, Robert Černý

10:00am - 10:20am
Daylighting in shaded rooms with loggia
Stanislav Darula, Michal Czafik, Anna Rajnohova

10:20am - 10:40am
Transparent low-emission glass samples - determination and evaluation of spectral light transmittance
Silvia Bizoňová, Stanislav Darula, Roman Dubnička

10:40am - 11:00am

CB-04: Coffee break

11:00am - 12:20pm

S-3-11: Environmental impact and life cycle assessment 2
Location: Symposium room BAT 1
Chair: **Eva B. Møller**, DTU, Denmark

11:00am - 11:20am
Integration of Building Physics Expertise In The Building Delivery Process: A Case Study
Soledad Di Croche, Ulrich Pont, Ardeshir Mahdavi

11:20am - 11:40am
LABORATORIUM MEASUREMENTS OF MYCELIUM BASED STRAW INSULATION COMPOSITE
Maryna Babenko, Igor Medved`, Alena Struhárová

11:40am - 12:00pm
Building-related Energy Consulting Practice: An Austrian Perspective
Valentina Schöbinger, Ulrich Pont, Ardeshir Mahdavi

12:00pm - 12:20pm
Impact of Climate Change on Heritage: Evaluation of ALARO-0 and REMO Regional Climate Models over Northeastern Iran by Damage Risk Analysis of a Timurid Heritage Using Hygrothermal Modelling
Hamed Hedayatnia, Bruno Vanderschelden, Marijke Steeman, Nathan Van Den Bossche

S-3-12: Hygrothermal performance 4
Location: Symposium room BAT 2
Chair: **Balázs Nagy**, Budapest University of Technology and Economics, Hungary

11:00am - 11:20am
Hygrothermal measurements in internally insulated solid masonry wall before and after hydrophobization.
Panagiota Pagoni, Eva Brigitte Møller, Tessa Kvist Hansen

11:20am - 11:40am
Deriving practical guidelines using poisson-based decision trees: what is the impact of climate change on hygrothermal risks in masonry heritage buildings in Brussels?
Kaat Janssens, Isabeau Vandemeulebroucke, Bruno Vanderschelden, Nathan Van Den Bossche

11:40am - 12:00pm
Measurement of osmosis efficiency of an illite-based ceramics in NaCl solutions
Marek Mánik, Igor Medveď

12:00pm - 12:20pm
Hygrothermal behaviour of experimental timber wall
Richard Slávik, Viktor Pluháček, Peter Matiašovský

12:20pm - 1:20pm

L3: Lunch

1:20pm - 2:40pm

S-3-21: Indoor climate and thermal comfort 2
Location: Symposium room BAT 1
Chair: **Jaroslav Kruis**, Czech Technical University in Prague, Faculty of Civil Engineering, Czech Republic

1:20pm - 1:40pm
Assessment for Hygrothermal properties and Thermal Comfort of raw earth dwelling in Southern China

S-3-22: Heat and mass transfer 3
Location: Symposium room BAT 2
Chair: **Ákos Lakatos**, University of Debrecen Faculty of Engineering, Hungary

1:20pm - 1:40pm
Visitor Pattern Design of Maijishan Grottoes Based on Risk Assessment of Deteriorations Related to Hygrothermal Environment

Huarong XIE, Jiasheng PAN, Yu PEI, Yonghui LI, Shuichi HOKOI

1:40pm - 2:00pm

The impact of the indoor environment on productivity – case study

Natalia Marta Krawczyk

2:00pm - 2:20pm

Assessment of thermal comfort and indoor air quality in the intelligent building – case study

Luiza Anna Dębska, Natalia Krawczyk

2:20pm - 2:40pm

Correlation Analysis between Hygrothermal Environment and Mural Diseases Distribution in a Chinese Emperor Tomb

Changchang Xia, Diandian Liu, Zhenyi Kong, Huarong Xie, Shuichi Hokoi, Yonghui Li

Yu Pei, Ruobin Wu, Huarong Xie, Yan Ma, Yongqiang Yue, Yonghui Li, Hokoi Shuichi

1:40pm - 2:00pm

Influence of Hygrothermal Properties of Bricks on the Heat and Moisture Transport During Freeze-thaw

Yanan LI, Huarong XIE, Yonghui LI, Shuichi HOKOI

2:00pm - 2:20pm

Influence of reduced air pressure on the sorption isotherm and vapor permeability of porous building materials

Mengli Zhou, Zijian Zhu, Xiaolong Li, Chi Feng

2:20pm - 2:40pm

Research on algae growth difference on the surface of stone carvings based on investigation and simulation

Long Shen, Huarong XIE, Xiaohan CHEN, Shuichi HOKOI, Yonghui LI

2:40pm - 3:00pm

CLOSE: Closing Session

Location: **Symposium room BAT 1**

Chair: **Peter Matiasovsky**, Slovak Academy of Sciences, Slovak Republic