

## SUNDAY 26th of May 2019

Venue – Romania National Library, Bulevardul Unirii 22, Bucharest 030833, GPS 44.4256° N, 26.1102° E

|       |  |       |
|-------|--|-------|
| 14:00 |  | 14:00 |
| 16:30 | <b>CLIMA 2019 REGISTRATION OPENING</b>   | 16:30 |
| 17:00 | <b>CLIMA 2019 - OPENING CEREMONY (PLENARY SESSION 1, Aula Hall)</b>                | 17:00 |
| 17:15 | Romanian Officials   | 17:15 |
| 17:20 | Romanian Academy General Secretary   | 17:20 |
| 17:25 | CLIMA 2019 Organisers  | 17:25 |
| 17:30 | KeyNote Lecturer Prof.Assoc.Dr.Arch. Cătălina TURCU - University College of London | 17:30 |
| 17:40 | DAIKIN Europe-Diamond Sponsor  | 17:40 |
| 18:00 | Ilie Stefan's CONCERT (Aula Hall)  | 18:00 |
| 19:00 | <b>EXHIBITION OPENING &amp; WELCOME RECEPTION</b>                                  | 19:00 |
| 20:00 | Atrium and Scriptorium Halls   | 20:00 |

## MONDAY, 27 May 2019

Venue – Romania National Library, Bulevardul Unirii 22, Bucharest 030833, GPS 44.4256° N, 26.1102° E

|       |  |       |
|-------|--|-------|
| 8:30  |  | 8:30  |
| 8:50  | KeyNote Lecturer Prof.Dr. Shin-ichi TANABE (Waseda University JAPAN) | 8:50  |
| 9:30  | Prof.Dr.Eng. Jarek KURNITSKY - REHVA representative                  | 9:30  |
| 9:50  | EUROVENT CERTITA-EMERALD SPONSOR                                     | 9:50  |
| 10:00 | <b>COFFEE BREAK</b>  | 10:00 |

| ORDINARY SESSION 1 | Session 1 A   | Session 1 B   | Session 1 C   | Session 1 D  | Session 1 E   | Session 1 F   | Session 1 G   | Session 1 H  | Session 1 I  | Session 1 J   | ORDINARY SESSION 1 |
|--------------------|---|---|---|--|---|---|---|--|--|---|--------------------|
|                    | Criteria for thermal environment and ventilation  | HVAC in residential buildings   | Low energy heating and cooling systems  | Predicted and real energy performance of buildings   | High Energy Performance and Sustainable Buildings   | Life-cycle services, commissioning, operation and maintenance of HVAC systems   | Simulation models and predictive tools for the buildings HVAC   | HVAC efficient strategies  | Big data and machine learning applications in buildings  | Energy performance requirements, compliance assessment and cost optimality  |                    |
|                    | Chairs: TBC   | Chairs: TBC   | Chairs: TBC   | Chairs: TBC  | Chairs: TBC   | Chairs: TBC   | Chairs: TBC   | Chairs: TBC  | Chairs: TBC  | Chairs: TBC   |                    |
|                    | Room:   | Room:   | Room:   | Room:  | Room:   | Room:   | Room:   | Room:  | Room:  | Room:   |                    |
| 10:30              | Samira Rahnama, Peter Vilhelm Nielsen, Alireza Afshari, Niels Christian Bergsøe, Hicham Johra and Rasmus Lund Jensen<br>Evaluating the cooling capacity of diffuse ceiling ventilation system – Full-scale experimental study | Andreas Heinz and Christian Gaber<br>Combinations of heat pump and photovoltaics for renovated buildings  | Hitomi Igarashi, Takashi Akimoto, Daisuke Hatori, Shun Kato, Hikari Sakakibara and Madoka Kimura<br>The Effects of an Air Conditioning System using the Coanda Effect on an Indoor Office Environment   | Igor Mojic, Michel Haller, Meta Lehmann and Stefan Van Velsen<br>ImmoGap - Analysis of the performance gap of apartment buildings  | Kyosuke Hiyaama and Liwei Wen<br>Practical natural ventilation performance metric based on thermal autonomy for sustainable building design   | Cristina Tanasa, Cristina Becchio, Stefano Paolo Corgnati, Valeriu Stoian and Daniel Dan<br>Calibration of a building energy model using operation conditions derived from monitoring   | Issa Jaffal and Christian Inard<br>A study of the nonlinearity of a building thermal behavior based on metamodelling  | Xin Zhang, Junjie Liu, Xilei Dai and Jingjing Pei<br>Experimental Analysis of Residential Ventilation and Dehumidification Strategies in Chongqing   | Anders Overgaard, Carsten Skovmose Kallese, Jan Dimon Bendtsen and Brian Kongsgaard Nielsen<br>Mixing Loop Control using Reinforcement Learning  | Raimo Simons, Endrik Arumägi, Kalle Kuusk and Jarek Kurnitski<br>Redefining cost-optimal nZEB levels for new residential buildings  | 10:30              |
| 10:45              | Kaiser Ahmed, Kalle Kuusk, Henrik Heininen, Endrik Arumägi, Targo Kalamees, Tero Hasu, Nicola Lolli and Jarek Kurnitski<br>Indoor Climate and Energy Performance in Nearly Zero Energy Day Care Centers and School Buildings  | Jean Pierre Campana, Matthias Schuss, Ardeshir Mahdavi and Gian Luca Morini<br>Effects of the room temperature sensor position and radiator sizing on indoor thermal comfort and energy performances                              | Dragos-Ioan Bogatu, Eleftherios Bourdakis, Ongun Berk Kazanci and Bjørne Olesen<br>Experimental comparison of radiant ceiling panels and ceiling panels containing phase change material (PCM)  | Arash Rasooli and Laure Itard<br>Quicker Measurement of Walls' Thermal Resistance Following an Extension to ISO 9869 Average Method  | Diletta Di Lorenzo, Valeria Lupo, Giorgia Peri, Gianfranco Rizzo and Gianluca Scaccianoce<br>A simple methodology for comparing cost-benefit of traditional, green and cool roofs   | Ryosuke Inomata, Takashi Akimoto, Daisuke Hatori, Shigeaki Tananishi, Shunsuke Nakamura, Yosuke Mochizuki, Nana Araki and Daiki Yamashina<br>Study on environment conscious technologies in a super tall building: Evaluation of PV performance considering aerological climate | Delia D'Agostino and Danny Parker<br>How will climate alter efficiency objectives? Simulated impact of using recent versus historic european weather data for the cost-optimal design of nearly zero energy buildings (NZEBS) | Alper Mete Genc, Ziya Haktan Karadeniz, Orhan Ekren and Macit Toksoy<br>A novel spherical packed bed application on decentralized heat recovery ventilation units  | Jose Joaquin Aguilera, Jern Toftum and Ongun Berk Kazanci<br>Predicting personal thermal preferences based on data-driven methods  | Kaiser Ahmed, Gyuyoung Yoon, Makiko Ukai and Jarek Kurnitski<br>How to Compare Energy Performance Requirements of Japanese and European Office Buildings  | 10:45              |
| 11:00              | Xiaojie Zhou, Sumei Liu, Xuan Liu, Weizhen Zhang, Jian Li, Jiankai Dong, Dayi Lai and Qingyan Chen<br>Evaluation of Four Models for Predicting Thermal Sensation in Chinese Residential Kitchen                               | Max Rohn, Paul Mathis and Dirk Mueller<br>Experimental investigation of different nozzle designs inside active chilled beams  | Hikari Sakakibara, Takashi Akimoto, Hitomi Igarashi, Shunsuke Nakamura and Madoka Kimura<br>The Examination of Air Blowing Method and Thermal Comfort of Variable Air Conditioning System using Coanda Effect   | Dmytro Ivanko, Natasa Nord, Åse Lekang Sørensen, Thale Sofie Wester Plesser, Harald Taxt Walnum and Igor Sartori<br>Identifying typical hourly DHW energy use profiles in a hotel in Norway by using statistical methods                 | Jinkyun Cho, Yongdae Jeong and Beungyong Park<br>Investigation on the energy and air distribution efficiency with improved data centre cooling to support high-density servers  | Sebastian Theißen, Jannick Höper, Michael Lambertz and Reinhard Wimmer<br>Importance of building services in ecological building assessments  | Xingwang Zhao and Qingyan Chen<br>Optimal design of an indoor environment using an adjacent RNG k-ε turbulence model  | Ko Murakami, Kenta Sakai, Daisuke Nakamura, Haruno Ishikawa, Sayana Tsushima and Shin-Ichi Tanabe<br>A Field Survey on Indoor Air Pollution in School Classrooms with Different Ventilation Methods  | Ke Wen, Ryoza Ooka, Toshiyuki Hino, Mingzhe Liu, Doyun Lee, Wonjun Choi, Shintaro Ikeda and Palasz<br>Experimental performance analysis of a multiple-source and multiple-use heat pump system utilizing renewable energy: a predictive ANN model of sky-source heat pump winter performance | Touraj Ashrafian, A. Zerrin Yilmaz and Nazanin Moazzen<br>A Long-term Strategy for Energy and Cost Performance Improvement of Existing Residential Buildings: Step-by-step Renovation in Turkey               | 11:00              |
| 11:15              | Matjaž Prek, Gorazd Kresel and Žiga Lampret<br>Incorporating cooling and ventilation effects into a single IEQ indicator  | Hansol Lim, Hye-Jin Cho, Seong-Yong Cheon, Soo-Jin Lee and Jae-Weon Jeong<br>A numerical model and validation of phase change material integrated thermoelectric radiant cooling panel  | Mingzhe Liu, Ryoza Ooka, Toshiyuki Hino, Ke Wen, Wonjun Choi, Doyun Lee, Shintaro Ikeda and Djafar Palasz<br>Experimental performance analysis of a multiple source and multiple use heat pump (MMHP) system utilizing renewable energy: winter field experiment and heating operation performance evaluation | Hye-Sun Jin, Han-Young Lim, You-Jeong Kim, Soo-Jin Lee, Sung-Im Kim, Jae-Han Lim and Seung-Young Song<br>Analysis of Annual Energy Use Intensities(EUIs) by End-Use in Apartment Units According to Stratification Variables (2017-2018) | Francesca Becherini, Vilma Ducman, Giovanni Ferrarini, Sergio Tamburini, Constantinos Tsoutis, Antonio Garrido-Marijuan, Giulia Mezzasalama, Leonardo Rossi, Loredana Fodor, Emil Lezak and Adriana Bernardi<br>Innovative pre-fabricated components including different waste construction materials reducing building energy and minimising environmental impacts (InnoWEE) | Boggarth Setty and James Woods<br>A Cradle-to-Grave Carbon Index (CI) for Design, Construction and Operations of Site-Specific Buildings  | Dick van Dijk and Jaap Hogeling<br>The new EN ISO 52000 family of standards to assess the energy performance of buildings put in practice   | Rok Kozelj, Ziga Ahcin, Eva Zavri and Uros Stritih<br>Improved thermal energy storage for heating and cooling of buildings   | Gilles Notton, Cyril Voyant, Alexis Fouilly, Jean Laurent Duchaud and Marie Laure Nivet<br>Forecasting of Three Components of Solar Irradiation for Building Applications  | Yantong Li and Gongsheng Huang<br>Development of an integrated low-carbon heating system for outdoor swimming pools for winter application  | 11:15              |
| 11:30              | Olli Seppänen, Jorma Säteri and Mervi Ahola. Finnish Guidelines of Ventilation Rates for non-residential buildings  | Yong-Kwon Kang, Beom-Jun Kim, Soo-Yeol Yoon and Jae-Weon Jeong<br>Experimental evaluation of phase change material radiant cooling panel integrated thermoelectric modules  | Toshio Yamanaka, Mari Kuronaga, Tatsunori Maeda and Haruto Kitakaze<br>Cooling performance of Ceiling Radiant Textile Air Conditioning System with Ceiling Cassette Unit of Packaged Air Conditioner  | Enrico Dainese, Shalika Walker, Wim Maassen and Wim Zellmer<br>Towards zero energy hospital buildings: a polyclinic building as case study   | Byon Yoo-Suk, Hansol Lim, Yong-Kwon Kang, Soo-Yeol Yoon and Jae-Weon Jeong<br>Passive generation from a novel thermoelectric energy harvesting system model integrated with phase change material   | Cormac Ryan<br>Certified commissioning: "COPILOT" solutions for commissioning engineers from pre-design to post-delivery  | Tian Yan, Xinhua Xu and Jijia Gao<br>Modelling study on pipe-encapsulated PCM wall system for building insulation and active heat removal   | Mohammad Reza Adili<br>Numerical Investigation of School Stratified Ventilation Systems - A Ventilation Effectiveness Study  | Alessio Cavattera, Andreas Böttcher and Steven Lambeck<br>The "HumFlow" Project - Developing a minimal invasive measurement system for estimating energy and humidity transfer processes through building walls  | Ambrose Dodoo<br>Techno-economic and environmental performances of heating systems for single-family code-compliant and passive houses  | 11:30              |
| 11:45              | Hiroki Takahashi, Mariya Petrova Bivolova, Athanasia Keli, Jürgen Nickel and Arsen Krikor Melikov.<br>Non-uniformity in outdoor CO2 concentration in city of Copenhagen   | Daniel Carbonell, Jeremias Schmidl, Daniel Philipp and Michel Haller.<br>Solar-ice systems for multi-family buildings: hydraulics and weather data analysis   | Seong-Yong Cheon, Soo-yeol Yoon, Su Liu and Jae-Weon Jeong<br>Energy saving potential of dedicated outdoor-air system assisted by vacuum based membrane dehumidifier  | Brendan Banfield<br>Evaluation of in-depth energy modelling for the design and operation of a net-positive energy Solar Decathlon house  | Tobias Skov Pedersen and Helle Földberg Rasmussen.<br>Workflow For Coupled Daylight And Energy Simulations  | Peter Op T Veld and Ana Tisov.<br>H2020 BIMplement Project - Can BIM be used for smart upskilling professions involved in the construction process?   | Feng-Yi Lin, Ruy-Lung Hwang and Tzu-Ping Lin.<br>Establish high-resolution hourly weather data for simulating building energy consumption in different regions  | Jana Bartosova and Dušan Petráš.<br>Energy and economical evaluation of residential buildings in Slovakia  | Marius Ostermeier and Jochen Müller.<br>Automated investigation, evaluation and optimisation of simple heating circuits in building automation   | Hilde Breesch, Barbara Wauman and Marcal Peeters.<br>Determination of the most influential and cost-optimal building characteristics on the energy performance of commercial and industrial buildings         | 11:45              |
| 12:00              | Masanari Ukai and Tatsuo Nobe<br>Human-Oriented Design of an Indoor Thermal Environment   | Alo Mikola, Juhan Rehand and Jarek Kurnitski<br>Air change efficiency of room ventilation units   | Hye-Won Dong, Hye-Jin Cho and Jae-Weon Jeong<br>Effect of Desiccant Solution Temperature on Regeneration Performance of a Cross-Flow Regenerator  | Aymeric Novel, Francis Allard and Patrice Joubert.<br>Metamodeling of building energy consumption focused on climate, operation, space use and users related factors   | Yigit Yilmaz and Burcu Çiğdem Yılmaz.<br>An Approach to Improve Energy and Cost Performance of a Social Housing Archetype in Cold Climate Region  | Germán Molina, Michael Donn, Micael-Lee Johnstone and Casimir MacGregor.<br>Can Green Labels become the new normal?   | Sebastian Wolf, Maria Justo Alonso, Davide Cali, John Krogstie, Hans Martin Mathiesen and Henrik Madsen.<br>CO2-based grey-box model to estimate airflow rate and room occupancy  | Yaw-Shyan Tsay and Chih-Hung Yang.<br>The influence on Daylight and Energy Consumption of Expanded Metal Mesh Applied on Building Façades  | Sarah Noyé, Unai Saralegui, Raphael Rey, Miguel Angel Anton and Ander Romero.<br>Energy demand prediction for the implementation of an energy tariff emulator to trigger demand response in buildings  | Zhenyu Yu, Wei Xu, Deyu Sun, Fei Lu, Changping Liu and Jing Zhang<br>Progress in energy efficiency standards of residential buildings in China's severe cold and cold zones                                   | 12:00              |
| 12:15              | Weixin Zhao, Risto Kosonen, Simo Kilpeläinen and Sami Lestinen<br>A review of total volume environment and individually controlled micro-environment  | Jorma Säteri, Olli Seppänen and Mervi Ahola<br>Finnish design ventilation rates for residential buildings   | Hiroshi Muramatsu and Tatsuo Nobe.<br>Evaluation of the Thermal Behavior of the Skeleton in a Green Building with the Aid of TABS   | Răzvan Calotă, Mădălina Nichita, Anica Ilie, Alina Girip and Robert Titi<br>Comparative analysis for renovation of an air heating and cooling system from a Romanian administrative building   | Aleksi Mäki, Juha Jokisalo and Risto Kosonen<br>Demand response of space heating using model predictive control in an educational office building   | Timothy Wentz and Blake Wentz<br>Eliminating the Design-Operation Energy Gap: A Case Study on Developing a University Level Course  | Vasco Zeferina, Christina Birch, Rodger Edwards and Ruth Wood<br>Sensitivity analysis of peak and annual space cooling load at simplified office dynamic building model   | Stijn Verbeke and Amaryllis Audenaert<br>Interlinking the effect of thermal mass and temperature control strategies in dwellings   | Andrea Costa, Marco Pietrobon and Thomas Messervey<br>Hit2GAP Project: Highly Innovative Building control Tools Reducing the energy performance gap  | Elena-Camelia Tamas<br>Thermal Zones Modelling for an Energy Efficient Commercial Building – Case Study   | 12:15              |
| 12:30              | Yoshihito Kurazumi, Emi Kondo, Kenta Fukagawa, Yoshiaki Yamato, Kunihito Tobita and Tadahiro Tsuchikawa<br>Thermal environment mitigation effects in suburban area  | Tatiana Armiijos Moya, Dadi Zhang and Philomena Blyuysen<br>Perceived Air Quality of different sources of smell evaluated by primary school children  | Ziyi Su and Xiaofeng Li<br>Energy Consumption of the VAC System for Subway Stations: A Model Based on Theoretical Analysis and Its Engineering Application  | Tae-won Kim, Jinchul Park and Sung Ho Choi<br>Mock-up Test of Time-lag in Floor Heating System with PCM  | Kuo-Tsang Huang, Yu-Teng Wang and Ruy-Lung Hwang<br>Identifying suitable general circulation model for future building cooling energy analysis  | Edoardo Cazzaniga, Luigi Colombo and Stefano De Antonellis<br>Preliminary experimental and numerical analysis of a silica gel packed bed humidification system  | Seok-Hyun Kim, Soo Cho and Young-Hum Cho<br>A Study on the Simulation Result of Horizontal Shading Installation for Passive Cooling of Building South KOREA   | Lucio Bonaccorsi, Luigi Calabrese, Stefano De Antonellis, Angelo Freni, Cesare Joppola and Mario Motta<br>Composite silicone-SAPO-34 foams: experimental characterization for open cycle applications  | Yuchen Shi and Xiaofeng Li<br>A convenient method to assess air infiltration rate using particle mass balance principle  | Tiberiu Catalina, Daniel Bortis, Catalin Lungu<br>Glazed balconies impact on energy consumption of multi-story buildings  | 12:30              |
| 12:35              | Akane Odagiri, U Yanagi, Michyoko Endo and Hisato Oda<br>A study on the actual conditions associated with the presence of Acinetobacter sp. in a hospital waiting room  | Motoya Hayashi, Hoon Kim, Yoshinori Honma and Junichiro Matsunaga<br>A Feasibility of a Passive Ventilation System with a Thermal Damper - Simulations and measurement results of an experimental house in a mild region of Japan | Galina Prica, Gratiela Tarlea and Lohengrin Onţu<br>Geothermal System Study Case near Bucharest   | Gianny Flamaropol and Elena Camelia Tamas<br>Comparative study on the theoretical electrical power consumption versus monitoring for an outdoor ice rink   | Hyuntae Kim<br>A study on the Contamination of Microbial in a Geothermal Exchanger Pipe by Lab-experiment   | Mizuki Niimura and U Yanagi<br>Microbiome in an Office Building Using a Cooling Trench as an Outdoor Air Duct   | Yoju Homma and Takashi Kurabuchi<br>Study on Cross-Ventilation Performance of Residences in the Passive Town Kurobe Model Based on Measurements and CFD   | Naoya Ikemura, Takashi Kurabuchi, Jinya Takeuchi, Hazime Yoshino and Yoshihiro Toriumi<br>Fundamental Study on a Tracer Gas Experimental Method that uses Dynamic Steady State Concentration and can be Applied to an Air Recirculating System | Min Hee Chung<br>Prediction model for day-ahead solar insolation using meteorological data for smart grid  | Valentin Veron Toma, Sebastian Antonie, Tiberiu Catalina<br>The effects of thermal insulation on the interior noise level during the day. A case study of a 1960 block of flats located in downtown Bucharest | 12:35              |
| 12:40              | Weiping Hong, Dayi Lai, Junjie Liu and Jingjing Pei<br>Thermal Comfort and Adaptive Behaviors in Chinese Residential Buildings in Nine Cities   | Yue Qi, Junjie Liu, Xilei Dai, Lei Zhao, Dayi Lai and Shen Wei<br>Investigation of Ventilation Behaviors in Mechanically Ventilated Residential Buildings in China  | Cem Gulseven and Zeki Yilmazoglu<br>Heating Water and Tap Water Production with an Air-to-Water Heat Pump by Using the Waste Heat of an Oil-Free Air Compressor   | Ioan Silviu Dobosi, Cristina Tanasa, Nicoleta Elena Kaba, Adrian Retezan and Dragos Mihaila<br>Building energy modelling for the energy performance analysis of a hospital building in various locations                                 | Christian A. Hviid, Dessy Wina Harjani and Fabricio Lucchesi<br>Internal insulation retrofit with ventilated wall and circulation of dry air - focus on airflow distribution and mitigation of noise  | Catalin Bailescu, Tiberiu Catalina, Vlad Iordache<br>Experimental assessment of acoustic comfort in a passive house   | Stefan Pavel, Ioan-Bogdan Pascu, Bogdan-Ovidiu Taran, Oana-Alexandra Grad, Romeo Negrea and Ioan-Silviu Dobosi<br>Aspects regarding the prediction of earth electrode corrosion in the soil of Timisoara                      | Vinceriuc Mioara, Tarlea Gratiela and Tarlea Ana<br>Air-Water-Heat Pump with low GWP refrigerant   | Vlad Iordache, Tiberiu Catalina, Mihai Vlad Ionita, Florin Iordache, Alexandra Ene, Claudiu Stanciu, Marta Cristina Zaharia, Ioana Alexe and Ciprian Ene<br>Variation of window acoustic attenuation depending on air tightness joints   | Bodale Anca, Sima Catalin and Tiberiu Catalina<br>Adaptation of buildings to climate change through bioclimatic strategies, in Romania.   | 12:40              |
| 12:45              | <i>Debates/Discussions</i>  | <i>Debates/Discussions</i>  | <i>Debates/Discussions</i>  | <i>Debates/Discussions</i>   | <i>Debates/Discussions</i>  | <i>Debates/Discussions</i>  | <i>Debates/Discussions</i>  | <i>Debates/Discussions</i>   | <i>Debates/Discussions</i>   | <i>Debates/Discussions</i>  | 12:45              |

### LUNCH

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|-------|---|-------|
| 13:00 |   | 13:00 |
| 14:00 | KeyNote Lecturer Prof.Dr.Eng. Francis ALLARD (Universite de La Rochelle FRANCE) | 14:00 |
| 14:40 | AMTEH Romania-EMERALD SPONSOR   | 14:40 |
| 14:50 | KeyNote Lecturer Mika HALTTUNEN (Halton Group Chairman FINLAND)                 | 14:50 |
| 15:30 | <b>COFFEE BREAK</b>   | 15:30 |

| ORDINARY SESSION 2 | Session 2 A                                      | Session 2 B                   | Session 2 C                            | Session 2 D  | Session 2 E                                       | Session 2 F   | Session 2 G   | Session 2 H                  | Session 2 I                                      | Session 2 J                                       | ORDINARY SESSION 2 |
|--------------------|--|-------------------------------|--|--|---|---|---|------------------------------|--|---|--------------------|
|                    | Criteria for thermal environment and ventilation | HVAC in residential buildings | Low energy heating and cooling systems | Predicted and real energy performance of buildings | High Energy Performance and Sustainable Buildings | Building components and double skin facades and energy efficiency | Simulation models and predictive tools for the buildings HVAC | Other efficient HVAC systems | Machine learning and digitalization of buildings | Energy efficient renovation of existing buildings |                    |
|                    | Chairs: TBC                                      | Chairs: TBC                   | Chairs: TBC                            | Chairs: TBC  | Chairs: TBC                                       | Chairs: TBC   | Chairs: TBC   | Chairs: TBC                  | Chairs: TBC                                      | Chairs: TBC                                       |                    |
|                    | Room:  | Room:                         | Room:                                  | Room:  | Room:   | Room:   | Room:   | Room:                        | Room:  | Room:   |                    |
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|-------|--|---|--|--|--|--|--|---|--|--|-------|
| 16:00 | Athanasia Keli, Arsen K. Melikov, Mariya P. Bivolorova and Panu Mustakallio. Impact of room airflow interaction on metabolic CO2 exposure  | Yosuke Watanabe, Yumiko Araki, Mika Saito, Chaichang Chen, Misa Imazu, Shin-ichi Kaguya, Hiroko Fujimura, Keiko Tsuda and Shin-ichi Tanabe. Evaluation Method for Thermal Environment in Residential Houses Using Score on Warmth                                   | Szilveszter-Zoltán Geyer Ehrenberg and Adrian Retezan. Optimizing the Number of Pumps and Balancing Valves in Chilled Water Distribution Systems   | Andy Lewry, Mindy Hadi, Jale Bennett and Richard Peters. The 'Mind the Gap' project: Investigating the difference, in performance, between design and the building 'in-use'                        | Yuya Suzuki, Misa Imazu, Jun Shinoda, Ryoya Furukawa, Yumiko Araki, Shin-ichi Tanabe, Kenji Fujino, Daisuke Hatori, Nobuhiro Hirasuga, Shun Kato, Shiori Sasahara and Hiroki Iwata. Efficient Operation of Heat Source using High-temperature Chilled Water in an Advanced Office Building | Elisa Van Kenhove, Lien De Backer and Jelle Laverge. Optimizing production efficiencies of hot water units using building energy simulations - Trade-off between Legionella pneumophila contamination risk and energy efficiency               | Louis Cony, Nouamane Belhaj, Olivier Ramalho and Marc Abadie. Analysis of the need of detailed modelling for the assessment of indoor air quality in residential buildings   | Wim Maassen. Evaluation Dutch preliminary nZEB requirements for hospital and university buildings   | Ardehsir Mahdavi and Dawid Woloskiuk. Integration of operational data in building information modelling: From ontology to application  | Laura Carneletto, Giuseppe Emmi, Marco Arzuffi, Maria Celeste Piazza, Angelo Zarrella and Michele De Carli. Retrofit solutions for an historic building integrated with geothermal heat pumps                        | 16:00 |
| 16:15 | Sheng Zhang, Yong Cheng, Xiaoliang Shao and Zhang Lin. Subzone Control of Air Distribution to Improve Thermal Comfort and Energy Efficiency  | Shaochen Tian, Xing Su and Xu Zhang. Application of heat pump combined two-stage desiccant wheel fresh air system of residential buildings in mixed climate zone  | Alessandro Maccarini, Gáran Hultmark, Niels C. Bergsøe and Alireza Afshari. Full-scale operation of a novel two-pipe active beam system for simultaneous heating and cooling of office buildings | Arash Rasooli and Laure Irtard. Properties of the Triangular Excitation Pulse and the 3D Heat Transfer Effects in the Excitation Pulse Method  | Taro Sasamoto and Makiko Ueki. Measurement Analysis and Evaluation of Desiccant Air Handling Units with Various Heat Source  | Jakub Wladyslaw Dziedzic, Da Yan and Vojislav Novakovic. Framework for a transient energy-related occupant behaviour agent-based model   | Francesco D'Etterre, Marcus Brennenstuhl, Anjukan Kathirgamanathan, Mattia De Rosa, Malcolm Yadack, Ursula Eicker and Donal Patrick Finn. A set of comprehensive indicators to assess energy flexibility: a case study for residential buildings | Ivan Verhaert, Freek Van Riet, Robin Baetens, Margot De Pauw and Michiel Van Erdeweghe. Performance evaluation of different micro-CHP configurations in real life conditions and the influence of part load behaviour   | Maximilian Both, Jochen Müller and Björn Kämpfer. Development of Industry 4.0 models and their applicability for BIM   | Ondrej Hnilica, Stefan Bichlmair and Josef Plasek. Indoor Climate in Jesuit Church of Holy Name of Jesus in Telc   | 16:15 |
| 16:30 | Christoph Kaup, Jens Knissel and Christoph Kaup. European Study on heat recovery in non-residential buildings  | David Hunt, Naioise Mac Suibhne, Laurentiu Dimache, David McHugh and John Lohan. Thermal performance characterisation of a reverse-flow energy recovery ventilator for a residential building application   | Jun Shinoda, Ongun B. Kazanci, Shin-ichi Tanabe and Bjarne W. Olesen. Review on the Surface Heat Transfer Coefficients of Radiant Systems  | Claus Haendel. Heat recovery in ventilation systems - waste heat use or renewable energy   | Jan Mehnert, Dirk Reiß, Stefan Plessner and Matthias Hennen. An algorithmic module toolkit to support quality management for building performance  | Tokimi Kawase, Tatsuo Nobe and Atsushi Hashimoto. Energy Performance Evaluation of Hybrid VRF Systems Based on Japanese Government-Designated Method   | Natalia Lastovets, Risto Kosonen, Juha Jokisalo and Simo Kilpeläinen. Dynamic design model of displacement ventilation   | Edward Przydrozny, Aleksandra Przydrozna. Energy-efficient hybrid duct-dual-fan systems   | Ralf Ulmer and Jochen Müller. User-oriented verification of automation stations  | Jan Weyr, Richard Kalný and Jiří Hirs. Impact of IPCC Scenarios on internal microclimate of historic buildings   | 16:30 |
| 16:45 | Mervi Ahola, Jorma Säteri and Laura Sariola. Revised Finnish classification of indoor climate 2018   | Fabian Ochs, Toni Calabrese, Dietmar Siegele and Georgios Dermentzis. Compact ventilation and heat pump with recirculation air for renovation of small apartments   | Makiko Ukai and Masaya Okumura. Comparison of Performance of Desiccant Air Handling Unit with Solar Thermal System under Various Control Methods   | Huai Li, Zhen Yu, Jianlin Wu, Wei Xu and Shicong Zhang. Discussion of Optimized Operation of a nearly Zero Energy Building's Energy System in China  | Tiantian Du, Sabine Jansen, Michela Turin and Andy Van Den Dobbelaere. Impact of space layout on energy performance of office buildings coupling daylight with thermal simulation  | Yuichi Omodaka, Kyosuke Hiyama, Thanyalak Srisamanranruang, Yutaka Oura and Yukiyasu Asaoka. Application of Dynamic Insulation Technique to Airflow Window System  | Jiří Dostál and Tomáš Baumelt. Model predictive control for buildings with active one-pipe hydronic heating  | Daniel Kierdorf, Jakob Hahn and Werner Lang. Climate Change and Building Technologies: Investigations of Future Weather Scenarios on Building Energy Performance  | Haoran Li and Natasa Nord. Operation strategies to achieve low supply and return temperature in district heating system  | Martin Kili, Alo Mikola, Martin Thalfeldt and Jarek Kurnitski. Some aspects of historical monument buildings central heating   | 16:45 |
| 17:00 | Martin Kili, Alo Mikola, Martin Thalfeldt and Jarek Kurnitski. Thermal comfort and draught assessment in a modern open office building in Tallinn  | Chaelyn Lee, Hyunhwa Lee, Jaehun Lim and Seungyeong Song. Experimental Evaluation of the Ability of an Auxiliary Heating Device to Reduce the Convensation Risk around Built-in Wardrobes of Apartment Buildings in Winter  | Rana Mahmoud, Mohsen Sharifi, Eline Himpe, Marc Delgust and Jelle Laverge. Estimation of load duration curves from general building data in the building stock using dynamic BES-models          | Atmaca and Ayse Zerrin Yilmaz. A Study on Energy and Cost Efficiency for Existing Hotel Buildings in Turkey  | Erika Guolo, Piercarlo Romagnoni, Fabio Raggiotto and Francesca Cappelletti. Environmental impacts for polyurethane panels   | Mcarmen Guerrero Delgado, José Sánchez Ramos, Servando Álvarez Dominguez, José Antonio Tenorio Ríos, Luisa F. Cabeza, Cesar Bartolomé and Mcarmen Pavón Moreno. Innovative solutions of prefabricated facades of concrete with PCMs for nearly | Zeki Yilmazoglu, Gulsu Ulukavak Harputlugil and Gokhan Unlu. Assessing the reliability of Turkish building energy performance tool (BEP-TR2) by case tests   | Dr Aleksandra Przydrozna and Prof Edward Przydrozny. The influence of external air supply to air-conditioning systems with fan coil units on the design set-points and the energy consumption   | Ovidiu Noran, Ion Sota and Peter Bernus. Towards Next Generation Building Management Systems   | Michal Krajčik and Ondřej Šikula. The possibilities of application of radiant wall cooling in existing buildings as a part of their retrofit   | 17:00 |
| 17:15 | Panu Mustakallio, Risto Kosonen, Mika Ronponen and Natalia Lastovets. Influence of installation of displacement ventilation diffusers above occupied zone on the vertical temperature gradient in simulated office rooms | Christian Friebe, Andreas Hantsch, Sabine Döge and Ralph Krause. Coloric method for the energetic evaluation of decentralised domestic ventilation devices  | Renars Millers, Aleksandrs Korjakins and Arturs Lesinsks. Thermally Activated Concrete Slabs with Integrated PCM Materials   | Essam Khalil and Doaa Elshehrif. Energy Efficient Designs of Sustainable Buildings in Urban Environment  | Andy Lewry, James Fisher and Matt Holden. The Value of sustainability  | Georges Constantine, Chadi Maalouf, Tala Moussa and Guillaume Polidori. Monitoring of a Hemp Lime External Building Insulation   | Wei Liu and Chun Chen. Integration of fast fluid dynamics and Markov chain model for predicting transient particle transport in buildings  | Ivan Verhaert. Design methodology for combined production and distribution for domestic hot water and space heating   | Davide Cali, Ekkart Kindler, Razgar Ebrahimi, Peder Bacher, Kevin Hu, Michelle Lind Östrup, Magnus Bachalarz and Henrik Madsen. climly.org: an online solution for easy control and monitoring of the indoor environment | Kaoutar Zeghari, Hasna Louahia, Malo Leguern, Mohamed Boutouil, Hamid Guatous, Michael Marion, Pierre Schaezel, Steve Goodshew and François Streiff. Annual energy consumption between conventional and cob building | 17:15 |
| 17:30 | Tim Röder, Paul Mathis and Dirk Müller. Effects on the Ventilation of a Two-Storey Building under Different Thermal Conditions   | Jarek Kurnitski, Martin Thalfeldt, Harry van Weele, Macit Toksoy, Thomas Carlsson, Petra Vladykova Bednarova and Olli Seppänen. Evidence based residential ventilation: sizing procedure and system solutions addressed by REHVA Residential Ventilation Task Force | Tuule Mall Kull, Martin Thalfeldt and Jarek Kurnitski. Optimal PI control parameters for accurate underfloor heating temperature control   | Milan Gojak and Tamara Bajc. Thermodynamic sustainability assessment for heating of residential building   | Mikkel Poulsen Rydberg, Michael Lauring and Camilla Brunsgaard. Vulnerabilities and resilience in Danish housing stock: A comparative study of architectural answers to climate change in Danish housing in relation to other oceanic climates   | Sihwan Lee. Numerical study on heat blocking efficiency of non-recirculating air curtain and its optimal discharge velocity  | Mehrdad Rabani, Habtamu Bayera Madessa, Natasa Nord and Peter Schild. Performance analysis of an active diffuser in mixing ventilation for cell office by using numerical approach   | Martin Šimko, Michal Krajčik and Ondřej Šikula. Radiant wall cooling with pipes arranged in insulation panels attached to facades of existing buildings   | Ruslan Zhuravchak, Natasa Nord and Helge Brattebo. Control strategy for battery-supported photovoltaic systems aimed at peak load reduction  | Minyoung Kwon, Andy van den Dobbelaere and Remoy Hilde. User Perception of Indoor Temperature and Preferences in MPC in all-air HVAC Office Renovation Cases in the Netherlands                                      | 17:30 |
| 17:45 | Nikolay Ivanov, Marina Zasimova, Evgueni Smirnov, Alexey Abramov, Detelin Markov and Peter Stankov. Unsteady RANS Simulation of Air Distribution in a Ventilated Classroom with Numerous Jets                            | Petr Zelenský, Martin Barták, Alexey Abramov, Vladimir Zmrhal and Radislav Krupa. Numerical Analysis of Air Flow in a Modular Fan Unit Using CFD Simulation   | Sumei Liu, Xiaojie Zhou, Xuan Liu, Weizhen Zhang, Jian Li, Jiansai Dong, Dayi Lai and Qingyan Chen. Assessment of Thermal Environment in a Kitchen with a New Ventilation System                 | Sergio Morales-Ruiz, Carles Oñet, Jesús Castro, Joaquim Rigola and Assensi Oliva. Minimization procedure of experimental tests for calibration purposes, within HVAC&R energy efficiency framework | Wei Liu, Zhen Yu, Jianlin Wu, Huai Li, Cai Feng Gao and Hongwei Gong. Influence of Building Air Tightness on Energy Consumption of Ventilation System in Nearly Zero Energy Residential Buildings  | Sebastian Valeriu Hudisteanu and Catalin George Popovici. Numerical analysis of the efficiency and energy production of the building integrated photovoltaics for various configurations   | Stephan Kusche and André Badura. Energy Efficient Control of the Dehumidification Process in Heat Exchangers with Air Bypass   | Gregor Cerinsek, Domen Bancic, Dan Podjed, Simona D'Oca, Jure Vetrsek, Slavko Dolinsak and Peter Op't Veld. Boosting affordability, acceptability and attractiveness of deep energy renovations of residential buildings – a people-centred ethnographic approach | Laura Amaiei and Clarissa Ivan. Certification systems for green buildings in Romania – LEED, BREEAM, green homes & the importance of BIM interdisciplinary collaboration in order to achieve energy-efficient projects   | Bart Merema, Hilde Breesch and Dirk Saelens. Comparison of model identification techniques for MPC in all-air HVAC systems in an educational building  | 17:45 |
| 18:00 | Spare time   |   |  |  |  |  |  |   |  |  | 18:00 |
| 19:00 | AIIR's PRESIDENT DINNER<br>Venue: Building Services Engineering Faculty Campus, Bdul Pache Protopescu 66, Bucharest 021414, GPS 44.4397° N, 26.1260° E   |   |  |  |  |  |  |   |  |  | 19:00 |
| 23:00 | END OF THE CONGRESS FIRST DAY  |   |  |  |  |  |  |   |  |  | 23:00 |

| DAY 2  |  |  |  |  |  |   |   |  |  |   | DAY 2              |
|--|--|--|--|--|--|---|---|--|--|---|--------------------|
| TUESDAY, 28 May 2019   |  |  |  |  |  |   |   |  |  |   |                    |
| Venue – Romania National Library, Bulevardul Unirii 22, Bucharest 030833, GPS 44.4256° N, 26.1102° E |  |  |  |  |  |   |   |  |  |   |                    |
| 8:30   | PAB Romania-DIAMOND SPONSOR  |  |  |  |  |   |   |  |  |   | 8:30               |
| 8:50   | KeyNote Lecturer Dr.Eng. Hui ZHANG (UC Berkeley USA)   |  |  |  |  |   |   |  |  |   | 8:50               |
| 9:30   | EU Representative (TBC)  |  |  |  |  |   |   |  |  |   | 9:30               |
| 9:50   | HALTON Finland-EMERALD SPONSOR   |  |  |  |  |   |   |  |  |   | 9:50               |
| 10:00  | COFFEE BREAK   |  |  |  |  |   |   |  |  |   | 10:00              |
| ORDINARY SESSION 3   | Session 3 A<br>Criteria for thermal environment, comfort and health<br>Chairs: TBC<br>Room: Room   | Session 3 B<br>HVAC for special environments<br>Chairs: TBC<br>Room: Room  | Session 3 C<br>Quality of the building use: indoor environment comfort, productivity, safety and health<br>Chairs: TBC<br>Room: Room   | Session 3 D<br>Low and zero energy building case studies<br>Chairs: TBC<br>Room: Room  | Session 3 E<br>User-HVAC-building interaction<br>Chairs: TBC<br>Room: Room   | Session 3 F<br>Heat pumps and refrigeration<br>Chairs: TBC<br>Room: Room  | Session 3 G<br>Simulation models and predictive tools for the buildings HVAC<br>Chairs: TBC<br>Room: Room   | Session 3 H<br>Systems using renewable energy sources<br>Chairs: TBC<br>Room: Room   | Session 3 I<br>From sustainable and smart buildings to sustainable and smart cities & Miscellaneous<br>Chairs: TBC<br>Room: Room   | Session 3 J<br>Energy efficient renovation of existing buildings<br>Chairs: TBC<br>Room: Room   | ORDINARY SESSION 3 |
| 10:30  | Arsen Melikov and Detelin Markov. Validity of CO2 based ventilation design   | Angui Li, Risto Kosonen, Arsen Melikov, Bin Yang, Thomas Olofsson, Björn Sørensen, Linhua Zhang, Ping Cui and Ou Han. Ventilation and environmental control of underground spaces: a short review        | Silvia de Lima Vasconcelos, Marcel Sattler, Birgit Müller, Wolfgang Plehn and Wolfgang Horn. The Influence of textile floor coverings on the indoor air quality                                    | Karl-Villem Võsa, Andrea Ferrantelli and Jarek Kurnitski. Experimental study of radiator, underfloor, ceiling and air heating systems heat emission performance in TUT nZEB test facility  | Silke Verbruggen, Marc Delgust, Jelle Laverge and Arnold Janssens. Inclusion of window opening habits in a window model based on activity and occupancy patterns   | Manuel Koch and Ralf Dott. Integration of PV and PVT Collectors with Heat Pumps in Buildings  | Marko G. Ignjatović, Bratislav D. Blagojević, Mirko M. Stojiljković, Aleksandar S. Anđelković, Milena B. Blagojević and Dejan M. Mitrović. Energy performance of air conditioned buildings based on short-term weather forecast | Chunying Li, Haida Tang, Jianhua Ding and Yuanli Lyu. Numerical research on thermal performance of water-flow window as hospital curtain-wall                                | Marcelo Langner, Helenice Maria Sacht and Thais Aline Soares. The usage of ground-coupled heat exchangers in subtropical climates  | Shima Ebrahimigharebaghi, Faidra Filippidou, Paula van den Brom, Queena Qian and Henk Visscher. Analysing the Energy Efficiency Renovation Rates in the Dutch Residential Sector              | 10:30              |
| 10:45  | Tereza Šnašelová, Mariya Petrova Bivolorova and Arsen Melikov. Passive control of the bed micro-environment by using naturally ventilated mattress   | Haiguo Yin, Angui Li, Linna Li and Rui Wu. Performance Evaluation of An Innovative Column Attachment Ventilation   | Shan Gao, Ryoze Ooka and Wenseok Oh. Effects of ambient temperature, airspeed, and wind direction on heat transfer coefficient for the human body by means of manikin experiments and CFD analysis | Kyriaki Foteinaki, Rongling Li, Alfred Heller, Morten Herget Christensen and Carsten Rode. Dynamic thermal response of low-energy residential buildings based on in-wall measurements  | Zhipeng Deng and Qingyan Chen. Impact of occupant behavior on energy use of HVAC system in offices   | Martin Knorr, Joachim Seifert, Lars Schinke, Philipp Mehrlid, Markus Nürenberg and Maximilian Beyer. Using the Hardware-in-the-Loop concept for energetic evaluation of heat generators | Ahmet Yüksel, Muslum Arici and Hasan Karabay. Investigation of Effect of Window-to-Wall Ratio on the Indoor Temperature by Lumped Capacitance Approach  | F. Mertkan Arslan and Hüseyin Günerhan. Investigation of energetic and exergetic performances of parabolic trough collector with using different heat transfer fluids        | Michele De Carli, Amaia Castelruiz Aguirre, Angelo Zarrella, Lucia Cardoso, Sarah Noyé, Robert Gast, Samantha Graci, Giuseppe Emmi, David Bertermann, Johannes Mueller, Antonio Galgano, Giorgia Dalla Santa, Fabio Pletto, Giulia Mezzasalma, Silvia Contini, Javier Urchueguía, Riccardo Pasquali, Marco Bellardi and Adriana Bernardi. Two software tools for facilitating the choice of ground source heat pumps by stakeholders and designers | Lorenzo Teso, Tiziano Dalla Mora, Piercarlo Romagnoni and Fabio Peron. European projects on districts energy-renovations and Italian best practices   | 10:45              |
| 11:00  | Qianwen Guo, Ryoze Ooka, Wenseok Oh, Wonjun Choi and Doyun Lee. Effect of insulation on indoor thermal comfort in a detached house with a floor heating system   | Taro Ono, Hideaki Nagano, Suguru Shiratori, Kenjiro Shimano and Shinsuke Kato. Analysis of Defogging Performance, Thermal Comfort, and Energy Saving for HVAC System Optimization in Passenger Vehicles. | Toshiki Namai, Jun Shinoda, Ryoya Furukawa, Shin-ichi Tanabe, Kosuke Sato, Eri Kataoka and Kosuke Yoshida. Measurement and Operational Improvement in an Office with Thermo Active Building System | Mihaela Dudita, Meryem Farhacho, Alexander Englert, Dani Carbonell Sanchez and Michel Haller. Heat and Power Storage Using Aluminum for Low and Zero Energy Buildings  | Andrei Vladimir Litiu, Verena Marie Barthelmes, Cristina Becchio, Valentina Fabi, Mariantonietta Tarantini, Giulia Vergerio, Stefano Paolo Corgnati and Ivo Martinac. Graphical visualization of behavioural patterns in relation to indoor environment quality and energy use | Matteo Dongellini, Agostino Pizzi, Filippo De Biagi and Gian Luca Morini. The modelling of reverse defrosting cycles of air-to-water heat pumps with TRNSYS                             | Hyungkeun Kim, Kyungmo Kang, Yun-Gyu Lee and Taeyeon Kim. CFD simulation analysis on integrated operation of range-hood and make-up air supply for cooking-generated particulate matter   | Dragos-Ioan Bogatu, Ongun Berk Kazanci and Bjarne W. Olesen. A preliminary analysis on the night cooling potential of photovoltaic/thermal (PV/T) panels for European cities | Francesco Causone and Martina Pelle. Building stock simulation to support the development of a district multi-energy grid  | José Quesada Allerhand, Ongun Berk Kazanci and Bjarne W. Olesen. Energy and thermal comfort performance evaluation of PCM ceiling panels for cooling a renovated office room                  | 11:00              |
| 11:15  | Reo Sugino, Shin-ichi Tanabe, Mikio Takahashi, Tomoko Tokumura, Kazuki Wada, Tomohiro Kuroki, Jun Nakagawa, Jun Shinoda and Takuma Shinoyama. Relationship between Attributes of Individual Workers and Concentration at Work    | Essam Khalil, Eslam Abdelghany, Hatem Haridy and Ahmed Ashraf. Numerical analysis for smoke spread in an aircraft hangar   | Tomoyuki Chikamoto and Ryouto Mimura. Influence of Carbon Dioxide Fluctuation and Thermal Environment on Workability, Physiology and Psychology  | Federica Fuligni, Marina Kyprianou Dracou and Nikos Kampelis. Coupling building energy simulation software and microclimatic simulation for the evaluation of the impacts of urban outdoor conditions on the energy production and consumption in nZEBs: A Case Study in Cyprus. | Nick Van Loy, Griet Verbeek and Eke Knapen. Potential of spatial use patterns for developing localized conditioning systems to reduce energy consumption   | Adriana Angelotti and Luca Molinaroli. A laboratory apparatus to study Thermal Response Test in the presence of groundwater flow  | Simon Harasty, Steven Lambeck and Andreas Daniel Bötcher. Using Artificial Neural Networks for Indoor Climate Control in the Field of Preventive Conservation   | Dakouo Koita, Catalin-Viorel Popa, Bruno Robert and Catalin Daniel Galatanu. Numerical study of the effect of wind on the cooling of photovoltaic panels                     | Eline Himpe and Arnold Janssens. Identification of Energy Use Time Patterns of Occupied Dwellings using Smart Meter Data   | José Quesada Allerhand, Ongun Berk Kazanci and Bjarne W. Olesen. Investigation of the influence of operation conditions on the discharge of PCM ceiling panels                                | 11:15              |
| 11:30  | Cristina Becchio, Marta Carla Bottero, Stefano Paolo Corgnati, Federico Dell'Anna, Valentina Fabi, Carola Lingua, Leonardo Prendin and Micaela Ranieri. Effects on energy savings and occupant health of an antibacterial filter | Sasan Sadrzadeh. Numerical Investigation of Thermal Comfort in Aircraft Passenger Cabin  | Junta Nakano and Shin-ichi Tanabe. Thermal Comfort Condition of Passengers in Naturally Ventilated Train Stations  | Jiale Chai, Pei Huang and Yongjun Sun. Climate change impact on energy balance of net-zero energy buildings in typical climate regions of China  | Cihan Turhan and Gulden Gokcen Akkurt. Development of a novel energy-efficient personalized thermal comfort driven control for HVAC systems  | Elena Fuentes and Jaume Salom. Validation of black-block performance models for a water-to-water heat pump operating under steady state and dynamic loads                               | Chun Chen and Ruoyu You. Differentiating between direct and indirect exposure to exhaled particles in indoor environments with mechanical ventilation systems   | Nur Çobanoğlu, Ziya Haktan Karadeniz and Alpaslan Turgut. Carbon-based Nanofluid Applications in Solar Thermal Energy  | Ece Kalaycioglu and A. Zerrin Yilmaz. Settlement scale analysis approach to reach nearly zero energy communities   | Nazanin Moazzan, Mustafa Erkan Karagüler and Touraj Ashrafiian. Life Cycle Energy Assessment of a School Building under Envelope Retrofit: An Approach towards Environmental Impact Reduction | 11:30              |

Main conference program table with 11 columns (Time, Session, Title, Authors, Abstract, Venue, etc.) and 25 rows of sessions. Includes keynotes from Dr. Eng. Werner R. LUTSCH and Prof. Dr. Eng. Bjarne W. Olesen. Sessions cover various topics like HVAC systems, energy efficiency, and building simulation.

GALA DINNER

Venue: Diplomatic Club, Şoseaua Bucureşti-Ploieşti 2B, Bucharest 077190, GPS 44.4852° N, 26.0802° E

END OF THE CONGRESS SECOND DAY

| WEDNESDAY, 29 May 2019   |  |   |   |   |   |   |  |  |  |   | DAY 3              |
|--|--|---|---|---|---|---|--|--|--|---|--------------------|
| Venue – Romania National Library, Bulevardul Unirii 22, Bucharest 030833, GPS 44.4256° N, 26.1102° E |  |   |   |   |   |   |  |  |  |   |                    |
| Keynote Lecturer Prof. Dr. Eng. William P. BAHNFELTH (Indoor Environment Center USA)                 |  |   |   |   |   |   |  |  |  |   |                    |
| CLIMA 2019 SPONSOR/GUEST   |  |   |   |   |   |   |  |  |  |   |                    |
| Keynote Lecturer Dr. Eng. Ovidiu NORAN (Griffith University AUSTRALIA)                               |  |   |   |   |   |   |  |  |  |   |                    |
| COFFEE BREAK   |  |   |   |   |   |   |  |  |  |   |                    |
| DAY 3  | Session 5 A  | Session 5 B   | Session 5 C   | Session 5 D   | Session 5 E   | Session 5 F   | Session 5 G  | Session 5 H  | Session 5 I  | Session 5 J   | DAY 3              |
| 8:30   |  |   |   |   |   |   |  |  |  |   | 8:30               |
| 9:10   |  |   |   |   |   |   |  |  |  |   | 9:10               |
| 9:20   |  |   |   |   |   |   |  |  |  |   | 9:20               |
| 10:00  |  |   |   |   |   |   |  |  |  |   | 10:00              |
| ORDINARY SESSION 5   | Energy management and distributed energy systems (heat and power generation, district heating and cooling)   | HVAC for special environments   | Quality of the building use: indoor environment comfort, productivity, safety and health  | Other advanced HVAC&R&S system components   | PM and contaminants in outdoors and indoors   | From sustainable and smart buildings to sustainable and smart cities  | Big data and machine learning applications in buildings  | Climate action, environment, resource efficiency and raw materials   | Energy performance requirements, compliance assessment and cost optimality   | Energy efficient renovation of existing buildings   | ORDINARY SESSION 5 |
|  | Chairs: TBC  | Chairs: TBC   | Chairs: TBC   | Chairs: TBC   | Chairs: TBC   | Chairs: TBC   | Chairs: TBC  | Chairs: TBC  | Chairs: TBC  | Chairs: TBC   |                    |
|  | Room:  | Room:   | Room:   | Room:   | Room:   | Room:   | Room:  | Room:  | Room:  | Room:   |                    |
| 10:30  | Osamu Kunitomo, Isao Satoh and Masanori Hiroshima.<br>Reduction of Conveyance Power Consumption of District Cooling and Heating Systems using Demand-Supply Coordinated Control Part 2 - Energy Saving Effect of Demand-Supply Coordinated Control System              | Clelia Mendonça De Moraes, Fulvio Vittorino and Fernando Catalano.<br>Aircraft passenger comfort evaluation: sitting and standing passengers in commercial cabin                                | Luca Zaniboni, Giovanni Pernigotto, Andrea Gasparella and Ardeshir Mahdavi.<br>Experimental and numerical analysis of indoor environmental conditions in two physiotherapy facilities in Northern Italy                   | Andreas Henne and Nina Kloster.<br>Standardization of building technology on demand via robotic   | Jan Drzymalla and Andreas Henne.<br>Use of low-cost PM-sensors to determine the infiltration of outdoor particles into indoor environments  | Thea Johnsen, Katrine Taksdal, John Clauß, Xingji Yu and Georges Laurent.<br>Influence of thermal zoning and electric radiator control on the energy flexibility potential of Norwegian detached houses                           | Reina Oki, Yugo Tsuneoka, Shingo Yamaguchi, Soma Sugano, Jun Nakagawa, Naoya Watanabe, Tatsuhiko Kobayashi, Shin-ichi Tanabe, Takashi Akimoto, Yasuhiro Hayashi and Shinji Wakao.<br>Proposal and Evaluation of an Equipment Operating Method Using Solar Radiation Prediction in a Zero Energy House                                    | Matteo Bilardo, Maria Ferrara and Enrico Fabrizio.<br>Resilient optimal design of multi-family buildings in future climate scenarios   | Carsten Wemhoener, Simon Buesser and Lukas Rominger.<br>Design and integration of heat pumps for nZEB in IEA HPT Annex 49  | Yue Zhang, Xiaofeng Li, Zheren Song and Bin Wang.<br>Optimal operation strategy for subway HVAC system in transition seasons  | 10:30              |
| 10:45  | Tymofii Tereshchenko, Dmytro Ivanko, Natasa Nord and Igor Sartori.<br>Analysis of energy signatures and planning of heating and domestic hot water energy use in buildings in Norway   | Yuki Shimanuki, Takashi Kurabuchi, Yoshihiro Toriumi and Yasuhisa Asawa.<br>Model of Thermal Plume above Cooking Gas Stove for Designing Ventilation  | Chenqiu Du, Yongqiang Li, Mengnan Xu and Runming Yao.<br>Validation and improvement of the PHS model based on Chinese worker thermophysiological responses in hot environments  | Chengqiang Zhi, Wei Ye, Qianru Zhang, Yixiang Huang and Xu Zhang.<br>Optimization on segmentation spraying for cooling a moving source at high temperature in a confined space  | Tobias Zimmer.<br>Comfort IAQ – a new tool to simulate the indoor particulate matter pollution in relation to the chosen supply air filter quality  | Branislav B. Todorovic.<br>From Pyramids To Smart Buildings And Cities Of The Second Part Of This Century   | Shohei Miyata, Yasunori Akashi, Jongyeon Lim and Yasuhiro Kuwahara.<br>Fault detection in HVAC systems using a distribution considering uncertainties  | Adrian Ciutina, Raluca Buzatu and Daniel M. Muntean.<br>Heat transfer vs environmental impact of modern façade systems   | Clelia Moraes. Questionnaire's Elaboration and application to the contribution at knowledge of certificate LEED's application at Brazil with based on case studies.  | Imrich Sánka and Dušan Petrás.<br>Energy retrofitting of a single-family house  | 10:45              |
| 11:00  | Andrew Lyden and Paul Tuohy.<br>A methodology for designing decentralised energy systems with predictive control for heat pumps and thermal storage  | Bowen Guan, Jun Liu, Xiaohua Liu, Tao Zhang, Liangliang Chen and Xiaoyang Chen.<br>Performance investigation of a novel deep dehumidification process using liquid desiccant                    | Gert-Jan Braun and Wim Zeiler.<br>The CO2 conditions within the baby cots of day care centres   | Ralph Krause, Christian Friebel, Michael Kerscher and Christof Puhle.<br>Investigations on noise sources on a contra-rotating axial fan with different modifications  | Madoka Kimura, Takashi Akimoto, Nobuhiro Hirasuga, Yu Sakamoto, Sakurako Yamakita and Hikari Sakakibara.<br>Odor Problems in Toilets with Reduced Ventilation Frequencies                                     | Ovidiu Noran.<br>An Adaptive Architecture for Long Term Energy Programme Management   | Jong Man Lee, Won Hee Kang and Kwang Ho Lee.<br>ANN Based Optimized AHU Discharge Air Temperature Control of Conventional VAV System for Minimized Cooling Energy in an Office Building  | Helenice Sacht, Andrea Oliveira Cardoso and Victor F. Roriz.<br>Influence of the surroundings areas in the microclimates of Santo André City – Brazil and Indication of Bioclimatic Strategies for Buildings | Marcellinus Okafor and Ikechukwu Onyegiri.<br>Relating Forms and Materials of Traditional and Contemporary Building Types to Indoor and Outdoor Air Temperatures for Sustainable Development in Okigwe, Nigeria  | Imrich Sánka and Dušan Petrás.<br>Energy conservation by retrofitting of dwellings  | 11:00              |
| 11:15  | Tin-Tai Chow, Guangya Zhu and Chun Kwong Lee.<br>System optimization of innovative tri-generation system for distributed power application   | Aleksandra Zarzycka, Wim Maassen and Wim Zeiler.<br>Towards Zero Energy Hospital Buildings: Energy saving opportunities in Operating Theatres, a literature study                               | Ardeshir Mahdavi and Christiane Berger.<br>An inquiry into the certification potential of built environments' affordance  | Nitish Perisetla, Purushothaman G, Raghuvardhan Kumar Ramasamy.<br>Enhancing coefficient of performance of window air-conditioner using heat pipes  | Wei Ling, Maho Ichikawa, Kaho Hahimoto, Masayuki Ogata, Hitomi Tsutsumi, Shoichi Morimoto, Shin-ichi Tanabe and Satoshi Hori.<br>Evaluation of Short-Distance Airborne Infection Risk Using a Cough Generator | Marija S. Todorovic.<br>BIPV via Smart Grid, Heat Pumps Thermal Use of Underground and Abandoned Mines Energy Storage and Large-Scale Terrestrial/Space Power Generation for Global Warming Mitigation                            | Brian De Keijzer, Pol De Visser, Victor Garcia Romillo, Victor Gomez Muñoz, Daan Boesten, Megan Meezen and Tadeo Baldiri Salcedo Rahola.<br>Forecasting residential gas consumption with machine learning algorithms on weather data   | Birol Kilikis.<br>Decarbonization: energy to the rescue  | Michele De Carli, Antonio Galgano, Gianluca Cadelano, Francesco Cicollin, Sergio Bobbo, Javier Urchueguia, Giulia Mezzasalma, Riccardo Pasquali, Fabio Poletto, Amaia Castelnuovo Aguirre, Amo J. Romanowsky, Davide Poletto, David Bertermann, Robert Gavriluc, Dimitrios Mendrinos, Davide Righini, Burkhard Sanner, Jacques Vercrucysse, Leonardo Rossi, Michele Vavallo, Luciano Mulé Stagno, Marco Belliard and Adriana Bernardi.<br>The H2020 project GEO4CIVIC (Most Easy, Efficient and Low Cost Geothermal Systems for Retrofitting Civil and Historical Buildings) | Kalle Kuusk, Peep Pihelo and Targo Kalamees.<br>Renovation of apartment buildings with prefabricated modular panels   | 11:15              |
| 11:30  | Emmanuel Shittu, Filippo Paredes, Benedetto Schiavo, Luca Venezia, Sergio Milone, Fabio Montagnino and Maria Kokotroni.<br>Comparison of operational performance and analytical model of high concentration photovoltaic thermal (HCPV/T) system at 2000 concentration | Christoffer Pedersen and Guangyu Cao.<br>Can we meet the requirement for ultra-clean operation room (10CFU/m3) with dilution ventilation?   | Mustafa Mutlu.<br>Effect of Zero Air Change Rate On Particle Dispersion in A Room with Floor Heating  | Marie R. Kruusa, Christian Anker Hviid, Jonathan Magnes and Jakub Kolarik.<br>Combined radiant ceiling panels with diffuse ventilation – a numerical parametric study of thermal performance  | Kentarō Morita, Kaho Hashimoto, Masayuki Ogata, Hitomi Tsutsumi, Shin-ichi Tanabe and Satoshi Hori.<br>Measurement of Face-touching Frequency in a Simulated Train  | Gilles Notton, Cyril Voyant and Jean-Laurent Duchaud.<br>Difficulties of Solar PV Integration in Island Electrical Networks – Case Study in the French Islands  | Zwei Xiao, Jiaqi Yuan, Wenjie Gang, Chong Zhang and Xinhua Xu.<br>A NILM method for cooling load disaggregation based on artificial neural network   | Evangelia Loukou, Mingzhe Liu, Hicham Johra, Per Kvols Heiselberg, Bianca A. Dia and Rógvi K. D. Clementsen.<br>Numerical investigation of the energy flexibility of different heating and cooling systems   | Jayne Garcia, Layane Santos de Souza, Manuela Bazzani Kretzer, Marina Rupp da Silva and Ana Mirthes Hackenberg.<br>Assessment of the energy efficiency of a public university building in Southern Brazil  | Fei Lu, Yu Zou, Deyu Sun, Biao Qiao, Ji Li, Zhenyu Yu and Jianlin Wu.<br>A Case Study for large-scale nearly zero energy retrofits of existing office building in Beijing | 11:30              |
| 11:45  | Jad Al Koussa, Rutger Baeten, Nico Robeyn and Robbe Salenbien.<br>A multipurpose test rig for district heating substations: domestic hot water preparation and keep-warm function comparison   | Jinkyun Cho, Beungyong Park and Yongdae Jeong.<br>Thermal performance evaluation of a high-density data centre for cooling system under fault conditions  | Mustafa Mutlu and Emre Çalıskan.<br>Numerical investigation of air conditioners' control unit position on temperature distribution and energy consumptions of a room  | Djallel Abada, Chadi Maalouf, Tala Moussa, Amel F. Boudjabi, Guillaume Polidori, Djamil Rouag Saffidine, Oualid Sotehi, Zohair Derghout and Etienne Wurtz.<br>Design of a dew point evaporative cooler for buildings in Mediterranean climate | Yong Woo Song, Min Young Kim and Jin Chul Park.<br>Mock-up Test for NOx Reduction by Photocatalyst Paint for Indoor Use   | Jose Sanchez, M.Carmen Guerrero, M.Carmen Pavón, J.Luis Molina and Servando Alvarez.<br>Sensitivity analysis and potential evaluation using building thermal mass combined with DSM strategies                                    | Kai Corten, Eric Willems, Shalika Walker and Wim Zeiler.<br>Energy performance optimization of buildings using data mining techniques  | Christoph Schellenberg, Laurentiu Dimache and John Lohan.<br>Grid Edge Technology - Exploring the flexibility potential of a heat pump and thermal energy storage system [GET-SMART HEAT]                    | Paula van den Brom, Arjen Meijer and Henk Visscher.<br>Parameters that influence the probability on lower-than-expected energy savings - a pre- and post renovation energy consumption analysis of 90,000 renovated houses in the Netherlands  | Margherita Finamore.<br>Double skin suitable for mediterranean climate in school-gym buildings.   | 11:45              |
| 12:00  | Juan Hou, Haoran Li and Natasa Nord.<br>Optimal control of secondary side supply water temperature for substitution in district heating systems  | Yunus Emre Cetin, Mete Avci and Orhan Aydin.<br>Effect of Air Exchange Rate on Particle Decay in a Cleanroom: A Numerical Study   | Akemi Iwaki, Takashi Akimoto, Naho Misumi and Takuya Furuhashi.<br>Verification of the effect of sleeping environment and humidification on middle-aged people in whole-house air-conditioning ventilation system housing | Tomohiro Kobayashi, Toshiya Nishiumi and Noriko Umemiya.<br>Simplified Prediction Method of Vertical Temperature Distribution for Impinging Jet Ventilation System  | Jie Xiong, Runming Yao and Baizhan Li.<br>Prediction of local particle pollution level based on artificial neural network   | Jihui Yuan, Toshiro Yamanaka, Tomohiro Kobayashi, Haruto Kitakaze and Kazuo Emura.<br>Effect of highly reflective building envelopes on outdoor environment temperature and indoor thermal loads using CFD and numerical analysis | Andreas Hantsch and Sabine Döge.<br>Assessment of micro-organism growth risk on filters with machine learning  | Beungyong Park, Jinkyun Cho and Yongdae Jeong.<br>Development of zero energy flexible unit with no infrastructure for disaster   | Carlea Filip, Raboaca Simona and Filote Constantin.<br>Green Hybrid Energy for Office Building   | Shima Ebrahimigharebaghi, Queena Qian, Frits Meijer and Henk Visscher.<br>Homeowners' Decisions Towards Energy Renovations - Critical Stages and Sources of Information   | 12:00              |
| 12:15  | Răzvan Calotă, Alina-Viorica Girip, Mădălina Nichita, Anica Ilie, Sergiu Istrate and Valentin Cubleşan.<br>Aspects regarding the use of recovered energy for air conditioning  | Aleyna Agirman, Yunus Emre Cetin, Mete Avci and Orhan Aydin.<br>Influence of ceiling height on airflow and particle distribution in an operating room   | Catalin Bailescu, Vlad Iordache and Tiberiu Catalina.<br>Optimal cost-efficiency solution of acoustic treatment for a complex meeting room  | Yoonjei Hwang, Hanyoung Park and Holim Lee.<br>The evaluation of energy saving performance for the modular design centrifugal chiller   | Klaas De Jonge, Arnold Janssens and Jelle Laverez.<br>Performance assessment of demand controlled ventilation controls concerning indoor VOC exposure based on a dynamic VOC emission model                   | Abdellah Zerroug and Egils Dzelitis.<br>Analysis of different building exterior walls insulations using eQUEST  | Andrei Vladimir Litvi, Stijn Verbeke, Jakob Hahn, Davor Stjelja, Ken Dooley, Nejc Brelih-Wasowski, Ivo Martinac, Niklas Lavesson, Jonas Gräslund, Per Ola Isaksson, David Hälleberg and Pär Carlung.<br>Mapping digital transformation in building performance assessment and management – commercial activities for the operation phase | Balázs András-Tövissi, László Kajtár and Paweł Wargocki.<br>The influence of the combined effect of draught and radiant thermal asymmetry on human performance   | Andrei Preda and Popescu Razvan Stefan.<br>New method of increasing building efficiency  | Derya Kisla Tekin, Levent Colak and Birol Kilikis.<br>A Decision Making Algorithm for Energy-Economic Sustainability and Efficiency in Buildings: A Case Study in Turkey  | 12:15              |
| 12:30  | Gabriel Mărcus and Cătălin Lungu.<br>Partial load efficiency analysis of a CCHP plant with RICE and H2O-LiBr absorption chiller  | Răzvan Bucureşteanu, Mihai Husch, Roxana Apetrei, Monica Ioniță, Ludmila Otilia Cintează and Lia Mara Dițu.<br>Photocatalytic techniques to prevent and combat healthcare associated infections | George-Mădalin Chitaru, Tiberiu Catalina and Andrei Marian Istrate.<br>Numerical analysis of the impact of natural ventilation on the Indoor Air Quality and Thermal Comfort in a classroom                               | Dominika Juhošová and Jana Peráčková.<br>Recovery of waste heat from the sewer system   | Martin Ivanov.<br>Exhaled air speed measurements of respiratory air flow, generated by ten different human subjects, under uncontrolled conditions  | Debates/Discussions   | Debates/Discussions  | Adrian Ciutina, Raluca Buzatu and Daniel M. Muntean.<br>Heat transfer vs environmental impact of modern façade systems   | Laura Troi, Ioan Silviu Dobosi, Stefan Duna, Dragos Mihaila, Daniel Teodorescu and Alexandru Hordila.<br>Rehabilitation of the utility spaces and boiler room Monnaie Royal Theatre  | Cornel Muntea.<br>Some aspects of historical monument buildings central heating   | 12:30              |
| 12:45  | Debates/Discussions  | Debates/Discussions   | Debates/Discussions   | Debates/Discussions   | Debates/Discussions   | Debates/Discussions   | Debates/Discussions  | Debates/Discussions  | Debates/Discussions  | Debates/Discussions   | 12:45              |
| 13:00  | LUNCH  |   |   |   |   |   |  |  |  |   | 13:00              |
| 14:00  | Award ceremonies, plenary presentations & closure speech (Aula Hall)   |   |   |   |   |   |  |  |  |   | 14:00              |
| 16:30  | END OF THE CONGRESS  |   |   |   |   |   |  |  |  |   | 16:30              |
| Departure for the after-congress tours   |  |   |   |   |   |   |  |  |  |   |                    |