

SUNDAY 26th of May 2019

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

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

DAY 1	MONDAY, 27 May 2019 Venue – Romania National Library, Bulevardul Unirii 22, Bucharest 030833, GPS 44.4256° N, 26.1102° E	DAY 1
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8:30	IMTECH Belgium-Diamond Sponsor	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	COFFEE BREAK	10:00

	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	ORDINARY SESSION 1
	Chairs: Mervi Ahola Room:	Chairs: Jorma Säteri Room:	Chairs: TBC Room:	Chairs: TBC Room:	Chairs: Aleksí Mäki Room:	Chairs: TBC Room:	Chairs: Christian Inard Room:	Chairs: Dušan Petráš Room:	Chairs: TBC Room:	Chairs: Jarek Kurnitski Room:	
10:30	Samira Rahnama, Peter Vilhelm Nielsen, Alireza Afshari, Niels Christian Bergsøe, Hicham Johra and Rasmus Lund Jensen Evaluating the cooling capacity of diffuse ceiling ventilation system – Full-scale experimental study	Andreas Heinz and Christian Gaber Combinations of heat pump and photovoltaics for renovated buildings	Hitomi Igarashi, Takashi Akimoto, Daisuke Hatori, Shun Kato, Hikari Sakakibara and Madoka Kimura 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 ImmoGap - Analysis of the performance gap of apartment buildings	Kyosuke Hiyama and Liwei Wen 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 Calibration of a building energy model using operation conditions derived from monitoring	Issa Jaffal and Christian Inard A study of the nonlinearity of a building thermal behavior based on metamodelling	Xin Zhang, Junjie Liu, Xilei Dai and Jingjing Pei Experimental Analysis of Residential Ventilation and Dehumidification Strategies in Chongqing	Anders Overgaard, Carsten Skovmose Kallesøe, Jan Dimon Bendtsen and Brian Kongsgaard Nielsen Mixing Loop Control using Reinforcement Learning	Raimo Simson, Endrik Arumägi, Kalle Kuusk and Jarek Kurnitski 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 Indoor Climate and Energy Performance in Nearly Zero Energy Day Care Centers and School Buildings	Yosuke Watanabe, Yumiko Araki, Mika Saito, Chaichang Chen, Misa Imazu, Shin-Ichi Kagiya, Hiroko Fujimura, Keiko Tsuda and Shin-Ichi Tanabe. Evaluation Method for Thermal Environment in Residential Houses Using Score on Warmth	Dragos-Ioan Bogatu, Eleftherios Bourdakis, Ongun Berk Kazanci and Bjarne Olesen Experimental comparison of radiant ceiling panels and ceiling panels containing phase change material (PCM)	Arash Rasooli and Laure Itard 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 A simple methodology for comparing cost-benefit of traditional, green and cool roofs	Ryosuke Inomata, Takashi Akimoto, Daisuke Hatori, Shigeaki Takanishi, Shunsuke Nakamura, Yosuke Mochizuki, Nana Araki and Daiki Yamashina Study on environment conscious technologies in a super tall building: Evaluation of PV performance considering aerological climate	Delia D'Agostino and Danny Parker 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 A novel spherical packed bed application on decentralized heat recovery ventilation units	Andrea Costa, Marco Pietrobon and Thomas Messervey Hit2Gap Project: Highly Innovative building control Tools Tackling the energy performance gap	Kaiser Ahmed, Gyuyoung Yoon, Makiko Ukai and Jarek Kurnitski 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 Evaluation of Four Models for Predicting Thermal Sensation in Chinese Residential Kitchen	Max Rohn, Paul Mathis and Dirk Mueller Experimental investigation of different nozzle designs inside active chilled beams	Hikari Sakakibara, Takashi Akimoto, Hitomi Igarashi, Shunsuke Nakamura and Madoka Kimura 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 Identifying typical hourly DHW energy use profiles in a hotel in Norway by using statistical methods	Jinkyun Cho, Yongdae Jeong and Beungyong Park Investigation on the energy and air distribution efficiency with improved data centre cooling to support high-density servers	Sebastian Theißen, Jannick Höper, Michaela Lambertz and Reinhard Wimmer Importance of building services in ecological building assessments	Xingwang Zhao and Qingyan Chen Optimal design of an indoor environment using an adjoint RNG k-ε turbulence model	Ko Murakami, Kenta Sakai, Daisuke Nakamura, Haruno Ishikawa, Sayana Tsushima and Shin-Ichi Tanabe 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 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 Ilmaz and Nazanin Moazzen 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 Krese and Žiga Lampret 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. 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. 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-Yeong Song 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-Marijuán, Giulia Mezzasalma, Leonardo Rossi, Loredana Fodor, Emil Lezak and Adriana Bernardi. Innovative pre-fabricated components including different waste construction materials reducing building energy and minimising environmental impacts (InnoWEE)	Boggarm Setty and James Woods. A Cradle-to-Grave Carbon Index (CI) for Design, Construction and Operations of Site-Specific Buildings	Dick van Dijk and Jaap Hogeling. The new EN ISO 52000 family of standards to assess the energy performance of buildings put in practice	Rok Kozelj, Ziga Ahcin, Eva Zavrl and Uros Stritih. Improved thermal energy storage for heating and cooling of buildings	Gilles Notton, Cyril Voyant, Alexis Fouillou, Jean Laurent Duhaud and Marie Laure Nivet. Forecasting of Three Components of Solar irradiation for Building Applications	Yantong Li and Gongsheng Huang. 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 Experimental evaluation of phase change material radiant cooling panel integrated thermoelectric modules	Toshio Yamanaka, Mari Kuranaga, Tatsunori Maeda and Haruto Kitakaze 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 Zeiler 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 Passive generation from a novel thermoelectric energy harvesting system model integrated with phase change material	Cormac Ryan Certified commissioning: "COPILOT" solutions for commissioning engineers from pre-design to post-delivery	Tian Yan, Xinhua Xu and Jiajia Gao Modelling study on pipe-encapsulated PCM wall system for building insulation and active heat removal	Mohammad Reza Adili Numerical Investigation of School Stratified Ventilation Systems - A Ventilation Effectiveness Study	Alessio Cavaterra, Andreas Böttcher and Steven Lambeck The "HumFlow" Project – Developing a minimal invasive measurement system for estimating energy and humidity transfer processes through building walls	Ambrose Dodoo Techno-economic and environmental performances of heating systems for single-family code-compliant and passive houses	11:30

11:45	Hiroki Takahashi, Mariya Petrova Bivolarova, Athanasia Keli, Jürgen Nickel and Arsen Krikor Melikov. Non-uniformity in outdoor CO2 concentration in city of Copenhagen	Daniel Carbonell, Jeremias Schmidli, Daniel Philipen and Michel Haller. Solar-ice systems for multi-family buildings: hydraulics and weather data analysis	Seong-Yong Cheon, Soo-Yeol Yoon, Su Liu and Jae-Weon Jeong. Energy saving potential of dedicated outdoor-air system assisted by vacuum based membrane dehumidifier	Brendan Banfield Evaluation of in-depth energy modelling for the design and operation of a net-positive energy Solar Decathlon house	Tobias Skov Pedersen and Helle Foldbjerg Rasmussen. Workflow For Coupled Daylight And Energy Simulations	Ovidiu Noran, Ion Sota and Peter Bernus. Towards Next Generation Building Management Systems	Feng-Yi Lin, Ruey-Lung Hwang and Tzu-Ping Lin. Establish high-resolution hourly weather data for simulating building energy consumption in different regions	Jana Bartosova and Dušan Petráš. Energy and economical evaluation of residential buildings in Slovakia	Marius Ostermeier and Jochen Müller. Automated investigation, evaluation and optimisation of simple heating circuits in building automation	Hilde Breesch, Barbara Wauman and Marcus Peeters. 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 Human-Oriented Design of an Indoor Thermal Environment	Alo Mikola, Juhan Rehand and Jarek Kurnitski Air change efficiency of room ventilation units	Hye-Won Dong, Hye-Jin Cho and Jae-Weon Jeong Effect of Desiccant Regeneration Temperature on Regeneration Performance of a Cross-Flow Regenerator	Aymeric Novel, Francis Allard and Patrice Joubert. Metamodeling of building energy consumption focused on climate, operation, space use and users related factors	Yiğit Yılmaz and Burcu Çiğdem Yılmaz. 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. Can Green Labels become the new normal?	Sebastian Wolf, Maria Justo Alonso, Davide Cali, John Krogstie, Hans Martin Mathisen and Henrik Madsen. CO2-based grey-box model to estimate airflow rate and room occupancy	Yaw-Shyan Tsay and Chih-Hung Yang. 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. 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 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 A review of total volume environment and individually controlled micro-environment	Jorma Säteri, Olli Seppänen and Mervi Ahola Finnish design ventilation rates for residential buildings	Hiroshi Muramatsu and Tatsuo Nobe. Evaluation of Thermal Behavior of the Skeleton in a Green Building with the Aid of TABS	Claus Haendel Heat recovery in ventilation systems - waste heat use or renewable energy	Aleksi Mäki, Juha Jokisalo and Risto Kosonen Demand response of space heating using model predictive control in an educational office building	Timothy Wentz and Blake Wentz Eliminating the Design-Operation Energy Gap: A Case Study on Developing a University Level Course	Vasco Zeferina, Christina Birch, Rodger Edwards and Ruth Wood Sensitivity analysis of peak and annual space cooling load at simplified office dynamic building model	Stijn Verbeke and Amaryllis Audenaert Interlinking the effect of thermal mass and temperature control strategies in dwellings	Jose Joaquin Aguilera, Jørn Toftum and Ongun Berk Kazanci Predicting personal thermal preferences based on data-driven methods	Elena-Camelia Tamas Thermal Zones Modelling for an Energy Efficient Commercial Building – Case Study	12:15
12:30	Yoshihito Kurazumi, Emi Kondo, Kenta Fukagawa, Yoshiaki Yamato, Kunihiro Tobita and Tadahiro Tsuchikawa Thermal environment mitigation effects in suburban area	Tatiana Armijos Moya, Dadi Zhang and Philomena Bluysen Perceived Air Quality of different sources of smell evaluated by primary school children	Ziyi Su and Xiaofeng Li Energy Consumption of the VAC System for Subway Stations: A Model Based on Theoretical Analysis and its Engineering Application	Taewon Kim, Jinchul Park and Sung Ho Choi Mock-up Test of Time-lag in Floor Heating System with PCM	Kuo-Tsang Huang, Yu-Teng Weng and Ruey-Lung Hwang Identifying suitable general circulation model for future building cooling energy analysis	Edoardo Cazzaniga, Luigi Colombo and Stefano De Antonellis Preliminary experimental and numerical analysis of a silica gel packed bed humidification system	Seok-Hyun Kim, Soo Cho and Young-Hum Cho 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 Joppolo and Mario Motta Composite silicone-SAPO-34 foams: experimental characterization for open cycle applications	Yuchen Shi and Xiaofeng Li A convenient method to assess air infiltration rate using particle mass balance principle	Tiberiu Catalina, Daniel Bortis, Catalin Lungu Glazed balconies impact on energy consumption of multi-story buildings	12:30
12:35	Akane Odagiri, U Yanagi, Miyoko Endo and Hisato Oda 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 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 Onuțu Geothermal System Study Case near Bucharest	Gianny Flamaropol and Elena-Camelia Tamas Comparative study on the theoretical electrical power consumption versus monitoring for an outdoor ice rink	Hyuntae Kim A study on the Contamination of Microbial in a Geothermal Exchanger Pipe by Lab-experiment	Mizuki Niimura and U Yanagi Microbiome in an Office Building Using a Cooling Trench as an Outdoor Air Duct	Yuju Homma and Takashi Kurabuchi 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 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 Prediction model for day-ahead solar insolation using meteorological data for smart grid	Valentin Veron Toma, Sebastian Antonie, Tiberiu Catalina 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 Studies of Subjective Sleep 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 Investigation of Ventilation Behaviors in Mechanically Ventilated Residential Buildings in China	Cem Gulseven and Zeki Yilmazoglu 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 Building energy modelling for the energy performance analysis of a hospital building in various locations	Christian A. Hviid, Dessy Wina Harjani and Fabricio Lucchesi 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 Experimental assesment of acoustic comfort in a passive house	Stefan Pavel, Ioan-Bogdan Pascu, Bogdan-Ovidiu Taranu, Oana-Alexandra Grad, Romeo Negrea and Ioan-Silviu Dobosi Aspects regarding the prediction of earth electrode corrosion in the soil of Timisoara	Vinceriuc Mioara, Tarlea Gratiela and Tarlea Ana 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 Variation of window acoustic attenuation depending on air tightness joints	Bodale Anca, Sima Catalin and Tiberiu Catalina 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
13:00	LUNCH										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	COFFEE BREAK										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: Pawel Wargocki	Chairs: Jarek Kurnitski, Quan Jin	Chairs: TBC	Chairs: Joaquim Rigola	Chairs: TBC	Chairs: TBC	Chairs: TBC	Chairs: TBC	Chairs: Ovidiu Noran	Chairs: TBC	
	Room:	Room:	Room:	Room:	Room:	Room:	Room:	Room:	Room:	Room:	
16:00	Athanasia Keli, Arsen K. Melikov, Mariya P. Bivolarova and Panu Mustakallio. Impact of room airflow interaction on metabolic CO2 exposure	Jean Pierre Campana, Matthias Schuss, Ardeshir Mahdavi and Gian Luca Morini Effects of the room temperature sensor position and radiator sizing on indoor thermal comfort and energy performances	Szilveszter-Zoltán Geyer Ehrenberg and Adrian Retezan. Optimising the Number of Pumps and Balancing Valves in Chilled Water Distribution Systems	Arash Rasooli and Laure Itard. Properties of the Triangular Excitation Pulse and the 3D Heat Transfer Effects in the Excitation Pulse Method	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	Ardeshir Mahdavi and Dawid Wolosiuk. Integration of operational data in building information modelling: From ontology to application	Laura Carneletto, Giuseppe Emmi, Marco Artuzzi, 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, Göran 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	Sergio Morales-Ruiz, Carles Oliet, Jesús Castro, Joaquim Rigola and Assensi Oliva. Minimization procedure of experimental tests for calibration purposes, within HVAC&R energy efficiency framework	Taro Sasamoto and Makiko Ukai. 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'Ettore, 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 Kämper. 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, Naoise 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	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	Jan Mehnert, Dirk Reiß, Stefan Plesser and Matthias Hannen. 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 dual-duct dual-fan systems	Ralf Ulmer and Jochen Müller. User-oriented verification of automation stations	Jan Weyr, Richard Kalný and Jiří Hirš. 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 Okumiya. Comparison of Performance of Desiccant Air Handling Unit with Solar Thermal System under Various Control Methods	Merve Atmaca and Ayse Zerrin Yilmaz. A Study on Energy and Cost Efficiency for Existing Hotel Buildings in Turkey	Tiantian Du, Sabine Jansen, Michela Turrin and Andy Van Den Dobbelen. Impact of space layout on energy performance of office buildings coupling daylight with thermal simulation	Yuichi Omodaka, Kyosuke Hiyama, Thanyalak Srisamranrungruang, Yutaka Oura and Yukiyasu Asaoka. Application of Dynamic Insulation Technique to Airflow Window System	Jiří Dostál and Tomáš Bäumelt. 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 Kiil, Alo Mikola, Martin Thalfeldt and Jarek Kurnitski. Some aspects of historical monument buildings central heating	16:45
17:00	Martin Kiil, Alo Mikola, Martin Thalfeldt and Jarek Kurnitski. Thermal comfort and draught assessment in a modern open office building in Tallinn	Chaelyn Lee, Hyunhwa Lee, Jaehan Lim and Seungyeong Song. Experimental Evaluation of the Ability of an Auxiliary Heating Device to Reduce the Condensation Risk around Built-in Wardrobes of Apartment Buildings in Winter	Rana Mahmoud, Mohsen Sharifi, Eline Himpe, Marc Delghust and Jelle Laverge. Estimation of load duration curves from general building data in the building stock using dynamic BES-models	Essam Khalil and Doaa Eisherif. Energy Efficient Designs of Sustainable Buildings in Urban Environment	Erika Guolo, Piercarlo Romagnoni, Fabio Raggiotto and Francesca Cappelletti. Environmental impacts for polyurethane panels	Mcarmen Guerrero Delgado, José Sánchez Ramos, Servando Álvarez Domínguez, José Antonio Tenorio Ríos, Luisa F. Cabeza, Cesar Bartolomé and Mcarmen Pavón Moreno. Innovative solutions of prefabricated facades of concrete with PCMs for nearly zero energy buildings	Bart Merema, Hilde Breesch and Dirk Saelens. Comparison of model identification techniques for MPC in all-air HVAC systems in an educational building	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	Peter Op T Veld and Ana Tisov. H2020 BIMplement Project - Can BIM be used for smart upskilling professions involved in the construction process?	Michal Krajčík 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 Ruponen and Natalia Lastovets. Influence of installation of displacement ventilation diffusers above occupied zone on the vertical temperature gradient in simulated office rooms	Martin Ivanov. Exhaled air speed measurements of respiratory air flow, generated by ten different human subjects, under uncontrolled conditions	Renars Millers, Aleksandrs Korjakins and Arturs Lesinskis. Thermally Activated Concrete Slabs with Integrated PCM Materials	Milan Gojak and Tamara Bajc. Thermodynamic sustainability assessment for heating of residential building	Mikkel Poulsen Rydborg, 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	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 Østrup, Magnus Bachalarz and Henrik Madsen. climify.org: an online solution for easy control and monitoring of the indoor environment	Kaoutar Zeghari, Hasna Louahlia, Malo Leguern, Mohamed Boutouil, Hamid Gualous, Michael Marion, Pierre Schaezel, Steve Goddew 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	Răzvan Calotă, Mădălina Nichita, Anica Ilie, Alina Girip and Robert Titi. Comparative analysis for renovation of an air heating and cooling system from a Romanian administrative building	Wei Liu, Zhen Yu, Jianlin Wu, Huai Li, Caifeng Gao and Hongwei Gong. Influence of Building Air Tightness on Energy Consumption of Ventilation System in Nearly Zero Energy Residential Buildings	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 Krajčík and Ondřej Šikula. Radiant wall cooling with pipes arranged in insulation panels attached to facades of existing buildings	Ruslan Zhuravchak, Natasa Nord and Helge Brattebø. Control strategy for battery-supported photovoltaic systems aimed at peak load reduction	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	17:30
17:45	Ongun Berk Kazanci, Dolaana Khovalyg, Takayoshi Iida, Yoshitaka Uno, Tomo-Okii Ukiana and Bjarne W Olesen. Human response to the thermal indoor environment created by a radiant, and a combined radiant and convective cooling system	Petr Zelenský, Martin Barták, Vojtěch Zavřel, Vladimír 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, Jiankai Dong, Dayi Lai and Qingyan Chen. Assessment of Thermal Environment in a Kitchen with a New Ventilation System	Christian Friebe, Andreas Hantsch, Sabine Döge and Ralph Krause. Caloric method for the energetic evaluation of decentralised domestic ventilation devices	Paul-Alexandru Danca, Florin Bode, Angel Dogeanu, Cristiana Croitoru, Mihnea Sandu, Amina Meslem and Ilinca Nastase. Experimental study of thermal comfort in a vehicle cabin during the summer season	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 Dolinsek 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	José Quesada Allerhand, Ongun Berk Kazanci and Bjarne Olesen. Investigation of the influence of operation conditions on the discharge of PCM ceiling panels	17:45
18:00	Spare time / Visit to House OVER4 - Romanian Representative at SolarDecathlon Hungary 2019										18:00
19:00	AIIR's PRESIDENT DINNER										19:00
Venue: Building Services Engineering Faculty Campus, Bdul Pache Protopopescu 66, Bucharest 021414, GPS 44.4397° N, 26.1260° E											
23:00	END OF THE CONGRESS FIRST DAY										23:00
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
	Session 3 A	Session 3 B	Session 3 C	Session 3 D	Session 3 E	Session 3 F	Session 3 G	Session 3 H	Session 3 I	Session 3 J	

ORDINARY SESSION 3	Criteria for thermal environment, comfort and health	HVAC for special environments	Quality of the building use: indoor environment comfort, productivity, safety and health	Low and zero energy building case studies	User-HVAC-building interaction	Heat pumps and refrigeration	Simulation models and predictive tools for the buildings HVAC	Systems using renewable energy sources	From sustainable and smart buildings to sustainable and smart cities & Miscellaneous	Energy efficient renovation of existing buildings	ORDINARY SESSION 3
	Chairs: Detelin Markov	Chairs: Cristiana Croitoru, , Quan Jin	Chairs: Pawel Wargocki	Chairs: Mihaela Dudita	Chairs: Qingyan Chen	Chairs: TBC	Chairs: Florin Bode	Chairs: Pedro Vicente-Quiles	Chairs: Mihnea Sandu	Chairs: Juha Jokisalo	
	Room:	Room:	Room:	Room:	Room:	Room:	Room:	Room:	Room:	Room:	
10:30	Arsen Melikov and Detelin Markov. Validity of CO2 based ventilation design	Angui Li, Risto Kosonen, Arsen Melikov, Bin Yang, Thomas Olofsson, Bjørn 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	Akemi Iwaki, Takashi Akimoto, Naho Misumi and Takuya Furuhashi. Verification of the effect of sleeping environment and humidification on middle-aged people in whole-house air-conditioning ventilation system housing	Manuel Koch and Ralf Dott Contributions to System 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	Michele De Carli, Amaia Castelruiz Aguirre, Angelo Zarrella, Lucia Cardoso, Sarah Noyé, Robert Gast, Samantha Graci, Giuseppe Emmi, David Bertermann, Johannes Mueller, Antonio Galgaro, Giorgia Dalla Santa, Fabio Poletto, Giulia Mezzasalma, Silvia Contini, Javier Urchueguía, Riccardo Pasquali, Marco Belliardi and Adriana Bernardi. Two software tools for facilitating the choice of ground source heat pumps by stakeholders and designers	Shima Ebrahimiagharehbaghi, 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 Snášelová, Mariya Petrova Bivolarova 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, Ryoza Ooka and Wonseok 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 Mehrfeld, 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 Huseyin Gunerhan. Investigation of energetic and exergetic performances of parabolic trough collector with using different heat transfer fluids	Francesco Causone and Martina Pelle. Building stock simulation to support the development of a district multi-energy grid	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, Ryoza Ooka, Wonseok 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, Ryoza 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 Farchado, 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, Marianonietta 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 Piazz, 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	Gilles Notton, Cyril Voyant and Jean-Laurent Duchaud. Difficulties of Solar PV Integration in Island Electrical Networks – Case Study in the French Islands	Carlea Filip, Raboaca Simona and Filipe Constantin. Green Hybrid Energy for Office Building	Minyoung Kwon, Andy van den Dobbelaert and Remoy Hilde. User Perception of Indoor Temperature and Preferences in Energy-Efficient Office Renovation Cases in the Netherlands	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	Mihaela Dudita, 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 Verbeeck and Elke 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 Böttcher. 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	Ece Kalaycioglu and A. Zerrin Yilmaz. Settlement scale analysis approach to reach nearly zero energy communities	Zeki Yilmazoglu, Gulsu Ulukavak Harputlugil and Gokhan Unlu. Assessing the reliability of Turkish building energy performance tool (BEP-TR2) by case tests	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 Sadrizadeh. 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	Igor Mojic and Michel Haller. OpEEr - Optimising the energy efficiency of buildings through individual room temperature control	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	Shuji Furui, Rui Fonseca, Ryoh Masuda, Kouichi Nakagawa, Shuui Fujimoto, Teppei Seguchi, Takuya Nakao and Nobuki Matsui. LISCOOL - Smart airconditioning with cold storage as flexibility provider for automated demand response and virtual power plant supported by cloud based system	Nazanin Moazzen, Mustafa Erkan Karagüler and Touraj Ashrafian. Life Cycle Energy Assessment of a School Building under Envelope Retrofit: An Approach towards Environmental Impact Reduction	11:30
11:45	Akihisa Nomoto, Yoshito Takahashi, Yoshiichi Ozeki, Masayuki Ogata and Shin-Ichi Tanabe. Prediction of physiological exertion in hot environments using the JOS-2 thermoregulation model	Nikolay Ivanov, Evgueni Smirnov, Chang Son and Denis Telnov. CFD Evaluation of Directional Variation Effects of the Air Supply Diffuser for the International Space Station Cabin Atmosphere	Imrich Sánka, Thomas Schoberer, Werner Stutterecker and Dušan Petráš. Indoor environmental quality evaluation in NZEB	Henrik N. Knudsen. House owners' experience and satisfaction with Danish low-energy houses - focus on ventilation	Simona D'Oca, Dan Podjed, Jure Vetršek, Slavko Dolinsek and Peter Op 'T Veld. Contextual and behavioural factors influencing human-building interaction in university offices: a cross-cultural comparison	Ji Li. Analysis and Discussion of Baoji "Shigu • Tian Xi Tai", "Shigu • Sun City" Ground Source Heat Pump Energy Station System	Matthias Eydner Investigation of a multizone building with hvac system using a coupled thermal and air flow model	Aslı Birtürk, Orhan Ekren, Sinan Aktakka, Özdem Özel and Macit Toksoy. Solar Powered Mechanical Ventilation: A case study	Tianyun Gao, Bartosz Boguslawski, Sylvain Marié, Patrick Béguery, Simon Thebault and Stéphane Lecoeuche. Data mining and data-driven modelling for Air Handling Unit fault detection	Juha Jokisalo, Paula Sankelo, Juha Vinha, Kai Sirén and Risto Kosonen. Cost optimal energy performance renovation measures in a municipal service building in a cold climate	11:45
12:00	Sanjay Kumar, Manoj Kumar Singh and Varun Kumar Gupta. Quantification of indoor environments and study of thermal comfort in naturally ventilated buildings in the tropical country, India	Wenxuan Zhao, Wei Ye, Qianru Zhang and Xu Zhang. Simulations on arrangements of induced jet-fans as auxiliary ventilation for a mechanical ventilated space with openings	Jun Koyama, Yusuke Doi, Masanari Ukai and Tatsuo Nobe. Study on Cool Chair equipped with warming function	Karl-Villem Võsa, Andrea Ferrantelli and Jarek Kurnitski. Annual performance analysis of heat emission in radiator and underfloor heating systems in the European reference room	Lucile Sarran, Morten Herget Christensen, Christian Anker Hviid, Andrea Marin Radoszynski, Carsten Rode and Pierre Pinson. Data-driven study on individual occupant comfort using heating setpoints and window openings in new low-energy apartments – preliminary insights	David Keogh, Mohammad Saffari, Mattia de Rosa and Donal P. Finn. Energy assessment of hybrid heat pump systems as a retrofit measure in residential housing stock	Ettore Zanetti, Rossano Scoccia, Marcello Aprile, Mario Motta, Livio Mazzarella, Maurizio Zaglio and Jakub Pluta. Building hvac retrofitting using a pv assisted dc heat pump coupled with a pcm heat battery and optimal control algorithm	Francisco Aguilar-Valero, Damián Crespi-Llorens and Pedro Vicente-Quiles. Experimental and numerical study of the domestic hot water production with PV panels and a heat pump	Suzi Mangan, Gul Koclar Oral and Idil Erdemir Kocagil. Impact of urban textures on residential building performances in terms of energy and cost efficiency	Janne Hirvonen, Juha Jokisalo, Juhani Heljo and Risto Kosonen. Optimization of emission reducing energy retrofits in Finnish apartment buildings	12:00

12:15	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	Aleksandra Zarzycka, Wim Maassen and Wim Zeiler. Towards Zero Energy Hospital Buildings: Energy saving opportunities in Operating Theatres, a literature study	Annemarie Eijkelenboom, Philomena M. Bluyssen and Geke A. Comfort and satisfaction of patients, visitors and staff with patient rooms at inpatient wards, a pilot study	Javier M. Rey Hernández, Francisco J. Rey Martínez, Ana Tejero González, Sergio L. González González, Eloy Velasco Gómez and Julio F. San José Alonso. Smart energy management of combined ventilation systems in a nZEB	Mingzhe Liu, Hicham Johra, Per Kvols Heiselberg, Ivan Kolev and Kremena Pavlova. Energy flexibility of office buildings – Potential of different building types	Talpiga Mugurel, Eugen Mandric and Florin Iordache. Numerical approach regarding functional and design optimization for a residential building heating system composed by heat pump and auxiliary source	Nicolás Ablanque, Santiago Torras, Carles Oliet, Joaquim Rigola and Carlos D. Pérez-Segarra. Dynamic simulation of indirect air conditioning systems with optimized computational time	Sebastian Valeriu Hudisteanu and Catalin George Popovici. Experimental investigation of the wind direction influence on the cooling of photovoltaic panels integrated in double skin façades	Joachim Seifert, Paul Seidel, Jens Werner and Andrea Meinzenbach. The Regional Virtual Power Plant – Experiences of a field test	Soma Sugano, Shingo Yamaguchi, Yugo Tsuneoka, Reina Oki, Jun Nakagawa, Naoya Watanabe, Tatsuhiko Kobayashi, Shin-ichi Tanabe and Takashi Akimoto. A Renovation Proposal for Zero-Energy Houses: Outline of Building Planning and Evaluation of Thermal Environment	12:15
12:30	Laurentiu Tacutu Local and general ventilation system for an operating room with surgeons and patient	Lars Schinke, André Schlott, Maximilian Beyer, Joachim Seifert and Marcel Fink. Investigations on a hybrid element with cellular metallic material for heating, cooling and ventilation	Haida Tang, Chunying Li and Jianhua Ding. Field study of indoor environment quality in an open atrium with ETFE membrane in a healthcare facility	Catalin Lungu and Florin Baltaretu. Innovative HVAC system using an integrated green house for a virtual low energy office building	Larisa Melita Aerogel, a high performance material for thermal insulation - A brief overview of the building applications	Carsten Wemhoener, Simon Buesser and Lukas Rominger. Design and integration of heat pumps for nZEB in IEA HPT Annex 49	Hayato Kiyosuke. Study on Reproduction of Thermal Plume over a Gas Stove by CFD	Gheorghe Ilisei, Tiberiu Catalina and Robert Gavriluc Sensitivity analysis using simulations for a ground source heat pump – implementation on a solar passive house	Zoltan Magyar Comfort assessment in an office building in Budapest, Hungary	Piercarlo Romagnoni, Fabio Peron, Paolo Bison, Gianluca Cadelano, Alessandro Bortolin, Giovanni Ferrarini and Antonio Stevan. Indoor monitoring of Scrovegni Chapel Crypt	12:30
									Tiberiu Catalina, Alexandra Ene and Andreea Biro Visual and acoustic performance of shading devices – real scale laboratory measurements		12:35
									Sihwan Lee, Takuya Kishi and Yoshiharu Asano Applicability of the whole-house air conditioning system in cold climate district		12:40
12:45	Noriko Umemiya Summer sleep quality and change of bedroom thermal environment -from the beginning to the end of sleep	Naoki Kagi, U Yanagi, Kenichi Azuma and Hoon Kim Field measurement of PM2.5 concentration in office buildings	Marjolein Overtoom and Philomena Bluyssen A game to determine preferences and needs for an indoor environment	Marius Adam Implementation of an algorithm for determining the effectiveness of ventilation and energy efficiency in industrial ventilation systems	Hwataik Han and Muhammad Hatta Comparison of performance of heat recovery ventilator and air purifier in reducing indoor PM10 concentrations in a classroom	Jose Naveteur Replacing the existing thermo-frigo-pump (with pistons compressors) by a new thermo-frigo-pump with variable-speed screw resulted in a 50% saving of energy use!	Ion Zabet and Gratiela Maria Tarlea Mathematical simulation of the thermodynamic processes associated with the vapour-injected scroll compressor	Stefan Burchila and Catalin Lungu. Wind energy and environment	Razvan Stefan Popescu, Lelia Letitia Popescu, Andrei Preda and Karim Limam Air pollution measurements related to urban traffic in Bucharest	Gratiela Tarlea, Valentin Draghici and Mioara Vinceriu A Supermarket Eco-Eficiencization	12:45
12:50	Hoon Kim, Yohei Inaba, Kanae Bekki, Motoya Hayashi, Kenichi Azuma and Naoki Kunugita SVOC Concentrations in House dust and Residential Environment in Japanese Houses	Vasile Dogaru In-process measurement of urban energy-oxygen-pollution for the main residential building areas in Timisoara	Yoshiaki Yamato, Yoshihito Kurazumi, Keta Fukagawa, Kunihito Tobita and Emi Kondo Assessment of method for measuring clo value using human body – Assessment of method for measuring clo value that assumes human body temperature adjustment	Sihwan Lee Study on energy loss and thermal environment through door open while air conditioner running	Ronny Mai, Ralph Krause and Christian Friebe Enhancement of ventilation efficiency in residential buildings by pulsating air-flow	Hezhi Zhang, Bo Xu and Zhenqian Chen Study on heat transfer performance of geothermal pile-foundation heat exchanger in GSHP system	Silviana Brata, Cristina Tanasa, Valeriu Stoian, Dan Stoian, Daniel Dan, Cristian Pacurar and Sorin Brata Measured and Calculated Energy Saving on Ventilation of a Residential Building equipped with Ground-Air Heat Exchanger	Calin Sebarchievici Performance assessment between a ground coupled and air source heat pump used for domestic hot water preparation	Vasile Dogaru and Ioan Silviu Dobosi Energy metrics for European residential buildings for cities, towns&suburbs and rural areas – the case of Romania	Adriana Tokar, Arina Negoitescu, Marius Adam, Dănuț Tokar and Dan Negoitescu Recovering lost energy an energy efficiency solution for the industrial sector	12:50
12:55	<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>	12:55
13:00	LUNCH										13:00
14:00	KeyNote Lecturer Dr.Eng. Werner R. LUTSCH (Euroheat&Power President GERMANY)										14:00
14:40	ISHRAE India										14:40
14:50	KeyNote Lecturer Prof.Dr.Eng. Bjarne W. OLESEN (Technical University DENMARK)										14:50
15:30	COFFEE BREAK										15:30
ORDINARY SESSION 4	Session 4 A	Session 4 B	Session 4 C	Session 4 D	Session 4 E	Session 4 F	Session 4 G	Session 4 H	Session 4 I	Session 4 J	ORDINARY SESSION 4
	Other HVAC systems	HVAC for special environments	Quality of the building use: indoor environment comfort, productivity, safety and health	Low and zero energy building case studies	User-HVAC-building interaction	Fundamentals & Miscellaneous	Filtration, air cleaning and air distribution	Low energy heating and cooling systems	ICT-based solutions for systems and building automation	Energy efficient renovation of existing buildings	
	Chairs: TBC Room:	Chairs: Cristiana Croitoru Room:	Chairs: Kaho Hashimoto Room:	Chairs: Dušan Petráš Room:	Chairs: TBC Room:	Chairs: TBC Room:	Chairs: Tengfei Zhang Room:	Chairs: TBC Room:	Chairs: TBC Room:	Chairs: Horia Petran Room:	
16:00	Martin Kremer, Paul Mathis and Dirk Müller. Moisture Recovery - A Dynamic Modelling Approach	Dahae Seong, R. Sean Norman and Shamia Hoque. Influence of indoor ventilation conditions on microbial diversity and quantity	Joana Ortiz, Maria Leandra Gonzalez Matterson, Paolo Taddeo and Jaume Salom. Post-Occupancy Evaluation of Indoor Environmental Quality in a nZEB sport hall in a Mediterranean climate	Pierrick Mandrou, José Naveteur, David Penhouet, René Sauger and Edouard Cereuil. Kergrid: A Low-Carbon Footprint Building in Western France	Daria Zukowska, Myrto Ananida, Jakub Kolarik, Mandana Sarey Khanie and Toke Rammer Nielsen. Solar control solutions for reducing overheating risks in retrofitted Danish apartment buildings from the period 1850-1900 – A simulation-based study	Mihai Baiceanu, Tiberiu Catalina, Catalin Lungu Parametric simulation study for green roof retrofit over high performance solar house prototype "EFdeN Signature	Tao Huang, Zhengtao Ai and Arsen Melikov. Characteristics of airborne transmission under stratum ventilation	Maximilian Beyer, Lars Schinke, Giulia Alessio, Joachim Seifert and Michele De Carli. Investigations of (local) thermal comfort as a function of radiation asymmetry and vertical air temperature difference	Hussain Syed Asad, Yuen Richard Kwok Kit and Lee Eric Wai Ming. Energy Modeling with Nonlinear-Autoregressive Exogenous Neural Network	Neşe Ganiç Sağlam, A. Zerrin Yılmaz and Stefano P. Corgnati. Identification of the Retrofit Actions to Achieve Cost-Optimal and NZEB Levels for Residential Buildings in Istanbul Considering the Remaining Building Lifetime	16:00
16:15	Şahin Güngör, Levent Aydın, Umut Ceyhan, Büşra Kaya and Ziya Haktan Karadeniz. Analysis of Backward and Forward Effects on a Grooved Co-axial Heat Exchanger by Response Surface Methodology	Sami Lestinen, Mark Wesseling, Risto Kosonen, Hannu Koskela and Dirk Müller. Airflow characteristics under planar opposed ventilation jets in a controlled indoor environment	Cristina Becchio, Marta Bottero, Stefano Paolo Corgnati, Federico Dell'Anna, Valentina Fabi, Carola Lingua, Leonardo Prendin and Micaela Ranieri. The effects of indoor and outdoor air pollutants on workers' productivity in office building	Kai Corten, Eric Willems, Shalika Walker and Wim Zeiler. Energy performance optimization of buildings using data mining techniques	Dragana Krstić, Miomir Vasov, Veliborka Bogdanović, Marko Ignjatović and Dušan Randelović. Effect of external solar shading usage on energy consumption and thermal comfort in the student dormitory in Niš	Sheila J. Hayter and Sherry Stout. The Role of Building Codes and Controls in Enhancing Community Resilience	Morten Sæther Grande and Guangyu Cao. Air quality in sport facilities	Philomena Bluyssen, Dadi Zhang, Arend-Jan Krooneman and Arno Freeke. The effect of wall and floor colouring on temperature and draught feeling of primary school children	Yuanchen Wang, Michael Müller, Christian Lodroner and Konstantinos Stergiaropoulos. Monitoring of indoor airflows with a new two-dimensional airflow sensor	Phan Anh Nguyen, Regina Bokel and Andy van den Dobbelen. Facade Refurbishment For Energy Saving In Tube Houses. A case study in Hanoi, Vietnam	16:15

16:30	George-Madalin Chitaru, Tiberiu Catalina and Andrei Marian Istrate Numerical analysis of the impact of natural ventilation on the Indoor Air Quality and Thermal Comfort in a classroom	Essam Khalil, Ahmed Elashray, Abdelmaged Ibrahim and Ismail Elbially. Thermal Comfort Analysis in Naturally-Ventilated Handball Arena Utilizing CFD Techniques	Yoshito Takahashi, Masayuki Ogata, Jun-Ichi Asaka, Akihisa Nomoto and Shin-Ichi Tanabe. Coupling of a cardiovascular model with a thermoregulation model to predict human blood pressure under unsteady environmental conditions	Jana Bartosova and Dušan Petráš. Energy and economical evaluation of residential buildings in Slovakia	Mohammed Khalaf, Touraj Ashrafian and Cem Demirci. Energy Efficiency Evaluation of Different Glazing and Shading Systems in a School Building	Nikolajs Bogdanovs, Romualds Beļinskis, Ernests Petersons, Andris Krūmiņš and Artūrs Brahmānis. Development of Temperature Process Control Method Using Smith Predictor	Ayse Fidan Altun and Muhsin Kilic. Utilization of electrostatic precipitators for healthy indoor environments	Laura Bellia, Francesca Romana d'Ambrosio Alfano, Francesca Fragiasso, Boris Igor Palella and Giuseppe Riccio. Hue-Heat Hypothesis: A Step forward for a Holistic Approach to IEQ	Atze Boerstra, Arjen Raue and Louie Cheng. Smart monitoring of ventilation system performance with IEQ sensor networks	Annamaria Belleri, Chiara Dipasquale and Jennifer Adami. A framework for the technical evaluation of residential buildings' energy retrofit	16:30
16:45	Clélia Moraes, Edson Melanda and Nilson Roberto de Barros Carneiro. The study of urban climate and traffic: Considerations from the Araraquara case, SP	Hanna Melsnes Svenneby and Guangyu Cao. Investigation of indoor environment quality in the storage areas of NTNU Gunnerus Library	Martin Thalfeldt, Anders Skare, Laurent Georges and Øyvind Skreiberg. A Simplified Power Sizing Method for the Correct Building Integration of Wood Stoves	Gyuyoung Yoon, Kyoko Sugiyama, Saya Yoshioka and Shinji Sakai. Energy Efficiency and Cost Performance of Direct-Current Power Supply Systems in Residential Buildings by 2030s and 2050s	Tetsushi Ono, Aya Hagishima, Jun Tanimoto, Sheikh Ahmad Zaki and Naja Aqilah Hisham. Statistical analysis of air conditioning peak loads of multiple dwellings	Laura Carnieletto, Samantha Graci and Michele De Carli. Hypothesis for a more efficient and sustainable development of a district heating in Padova, integrating renewable energies and existing generation plant	Tin Tai Chow, Wenjing Zhang and Jinliang Wang. Studying the influence of moving vehicle on air pollutant dispersion through environmental chamber	Dadi Zhang, Martin Tenpierik and Philomena Bluyssen. The effect of acoustical treatment on primary school children's performance, sound perception, and influence assessment	Tianyun Gao, Bartosz Boguslawski, Sylvain Marié, Patrick Béguery, Simon Thebault and Stéphane Lecoeuche. Data mining and data-driven modelling for Air Handling Unit fault detection	Johann Zirngibl, Carolina Mateo-Cecilia and Carlos Espigares-Correa. Alliance for deep renovation in buildings. A step forward to the common European voluntary certification scheme	16:45
17:00	Evdoxia Paroutoglou, Alireza Afshari, Niels Bergsøe, Peter Fojan and Göran Hultmark. A pcm based cooling system for office buildings: a state of the art review	Lin Lin, Lingshan Li and Xiaohua Liu. Performance investigation of indoor thermal environment and air handling unit in a hub airport terminal	Kaho Hashimoto, Zhengtao Ai and Arsen Melikov. Airborne transmission during short-term events under stratum ventilation	Kaoutar Zeghari, Hasna Louahlia, Malo Leguern, Mohamed Boutouil, Hamid Gualous, Michael Marion, Pierre Schaetzel, Steve Goodhew and François Streiff. Annual energy consumption between conventional and cob building	Helle Foldbjerg Rasmussen and Tobias Skov Pedersen. An industry perspective on building simulations with solar shading	Birol Kilkis. Exergy: Game Changer or Game Maker	Ayşe Fidan Altun and Muhsin Kiliç. Synthesis of knowledge on utilization of adsorption filters for healthy indoor environments	Sosui Nakamura, Shin-Ichi Tanabe, Junta Fujisawa, Emi Takai, Sayana Tsushima, Masayuki Ogata, Yugo Tsuneoka, Takayoshi Iida, Yoshitaka Uno, Ryoko Nomura and Tomo-Oku Ukiana. Effects of Wellness-Conscious Buildings on the Well-Being and Comfort of Workers	Toru Yano and Miho Sako. A field study of space heating control using acceptable set-point temperature estimation: winter experiment in Japan office	Joao Pedro Panagassi Forte and Vasco Rato. Energy environmental impact of functional units of a university building	17:00
17:15	Ondřej Zlevor and Jiří Dostál. Demand-oriented Hydronic Heating System and the Active One-pipe System Design Tool	Takashi Akimoto, Naoya Odagiri, Yoichi Nakashima, Seiji Miyazaki, Takashi Yanai, Takashi Matsumoto, Daiki Yamashina and Nana Araki. Development of HVAC Diffuser Unit for Task and Ambient Air Conditioning Allowing User to Control Built-in Fan — Evaluation of Air Supply Mode by Subjective Experiment and Field Measurement in Office	Anastácio Silva Junior, Kátia Cordeiro Mendonça, Rogério Vilain, Marcelo Luiz Pereira and Nathan Mendes. On the improvement of thermal comfort in indoor spaces conditioned by split-type systems	Irina Rotaru. From Sustainable Urban Mobility Plans (SUMP) to Operational Energy Policies and Measures for the City of Tomorrow	Loes Visser, Boris Kingma, Eric Willems, Wendy Broers, Marcel Loomans, Henk Schellen, Peter Op 'T Veld and Wouter van Marken Lichtenbelt. Occupant behavior and thermal comfort in buildings: Monitoring the end user	Marco Ortiz, Dadi Zhang and Philomena Bluyssen. Table top surface appraisal by school children under different lighting conditions tested in the SenseLab	Xian Li, Tengfei Zhang and Shugang Wang. Aerosolization of Aspergillus niger spores from colonies on different positions of a circular tube	Martin Kiiil, Alo Mikola, Martin Thalfeldt and Jarek Kurnitski Enhancing cooling performance via airflow temperature fluctuations	Taha Arghand, Jan-Olof Dalenbäck, Anders Trüschel and Saqib Javed. Some aspects of controlling radiant and convective cooling systems	Michele De Carli, Laura Carnieletto, Antonino Di Bella, Samantha Graci, Giuseppe Emmi, Angelo Zarrella, Nicola Baseggio, Marco Belliardi, Luciano Mulè Stagno, Borja Badenes, Javier Urchueguía, Burkhard Sanner, Gianluca Cadelano, Adriana Bernardi, Antonio Galgaro and Giorgia Dalla Santa. Archetype definition for analysing retrofit solutions in urban areas in Europe	17:15
17:30	Yoshihiro Toriumi and Takashi Kurabuchi. Impact of Negative Pressure in a Room Due to Increased Airtightness in Residential Apartment Housing	Anil Berk Atalar and Murat Cakan. Effect of Cross-Ventilation and Solar Irradiation on IAQ as a function of Roof Angle	Giulia Alessio, Angelo Zarrella, Antonino Di Bella and Michele De Carli. A new test room for indoor environmental quality analysis	Dragos Mihaila, Ioan Silviu Dobosi, Stefan Duna, Laura Troi, Daniel Teodorescu and Alexandru Hordila. Special engineering techniques: Ecole des Trefles	Alzbeta Dederova Kohoutkova, Jana Horváthová, Martin Kny and Ondrej Nehasil. The effect of the heating system on the occupant's thermal comfort and optimum room air temperature	Ruoyu Zhang, Haichao Wang, Xiaozhou Wu, Xiangli Li and Lin Duanmu. The application of the TES technology in CHP heating system with Chinese demand profiles—A techno-economic feasibility case study	Qianru Zhang, Chengqiang Zhi, Yixiang Huang, Wei Ye, Jun Gao and Xu Zhang. The effect of the contaminant emission rate on the velocity field and contaminant distribution with the presence of an obstacle in a large space	Mariya Bivolarova, Arsen Melikov, Tereza Snaselova and Chong Shen. Passive Control Of The Bed Micro-Environment By Quilts	Andreea Irina Baran, Teodor Dorin Dumitru Mateescu and Razvan Silviu Luciu. Thermal convection analysis of heat pump systems	Horia Petran, Szabolcs Varga and Noémi Fogas. Experimental Nearly Zero Energy Building with Green Technology – Renovation Pilot through Passive House Expertise	17:30
17:45	Zeki Yilmazoglu and Cem Gulseven. Ventilation Performance Improvement in a Container with an Extraction Free Cooling System	Matteo Bilardo, Lorenzo Comba, Paolo Cornale, Andrea Costantino and Enrico Fabrizio. Relation between energy use and indoor thermal environment in animal husbandry: a case study	Gert-Jan Braun and Wim Zeiler. The CO2 conditions within the baby cots of day care centres	Debates/Discussions	Doru Daniel Sabie, Viorel Fatu and Adrian-Gabriel Ghiaus. Local analysis of airflow distribution in open concept passive houses	Denis Miček and Jiri Hirs. Energy, economic and environmental analysis of opened natural heating water source	Bård Venås, Merethe Cecilie Lind and Trond Thorgeir Harsem. Air Flow Door Barrier for Airborne Infection Isolation Rooms	Heike Erhorn-Kluttig, Hans Erhorn and Micha Illner. Cost-efficient Nearly Zero-Energy Buildings	Răzvan Bucureşteanu, Mihai Husch, Roxana Apetrei, Monica Ioniță, Ludmila Otilia Cintează and Lia Mara Dițu. Photocatalytic techniques to prevent and combat healthcare associated infections	Erika Guolo, Lorenza Pistore and Piercarlo Romagnoni. The role of the reference building in the evaluation of energy efficiency measures for large stocks of public buildings	17:45
18:00	Spare time /Visit to House OVER4 - Romanian Representative at SolarDecathlon Hungary 2019										18:00
19:00	GALA DINNER Venue: Diplomatic Club, Șoseaua București-Ploiești 2B, Bucharest 077190, GPS 44.4852° N, 26.0802°										19:00
23:00	END OF THE CONGRESS SECOND DAY										23:00
DAY 3	WEDNESDAY, 29 May 2019 Venue – Romania National Library, Bulevardul Unirii 22, Bucharest 030833, GPS 44.4256° N, 26.1102° E										DAY 3
8:30	Keynote Lecturer Prof.Dr.Eng. William P. BAHNFELTH (Indoor Environment Center USA)										8:30
9:10	CLIMA 2019 SPONSOR/GUEST										9:10
9:20	KeyNote Lecturer Dr.Eng. Ovidiu NORAN (Griffith University AUSTRALIA)										9:20
10:00	COFFEE BREAK										10:00
ORDINARY SESSION 5	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	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	
	Chairs: TBC Room:	Chairs:Pawel Wargocki Room:	Chairs: Florin Bode Room:	Chairs: Mihnea Sandu Room:	Chairs: Nicolay Ivanov Room:	Chairs: Ovidiu Noran Room:	Chairs: TBC Room:	Chairs: TBC Room:	Chairs: TBC Room:	Chairs: TBC Room:	

10:30	Osamu Kunitomo, Isao Satoh and Masanori Hiroshima. 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. Aircraft passenger comfort evaluation: sitting and standing passengers in commercial cabin	Luca Zaniboni, Giovanni Pernigotto, Andrea Gasparella and Ardeshir Mahdavi. Experimental and numerical analysis of indoor environmental conditions in two physiotherapy facilities in Northern Italy	Andreas Henne and Nina Kloster. Standardization of building technology on demand via robotic	Jan Drzymalla and Andreas Henne. 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. 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, Tatsuhiro Kobayashi, Shin-Ichi Tanabe, Takashi Akimoto, Yasuhiro Hayashi and Shinji Wakao. Proposal and Evaluation of an Equipment Operating Method Using Solar Radiation Prediction in a Zero Energy House	Matteo Bilardo, Maria Ferrara and Enrico Fabrizio. Resilient optimal design of multi-family buildings in future climate scenarios	Mohsen Sharifi, Rana Mahmoud, Eline Himpe and Jelle Laverge. Interaction of GEOTABS and secondary heating and cooling systems in hybridGEOTABS buildings: towards a sizing methodology	Yue Zhang, Xiaofeng Li, Zheren Song and Bin Wang. Optimal operation strategy for subway HVAC system in transition seasons	10:30
10:45	Tymofii Tereshchenko, Dmytro Ivanko, Natasa Nord and Igor Sartori. 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. Model of Thermal Plume above Cooking Gas Stove for Designing Ventilation	Chenqiu Du, Yongqiang Li, Mengnan Xu and Runming Yao. Validation and improvement of the PHS model based on Chinese worker thermophysiological responses in hot environments	Ralph Krause, Christian Friebe, Michael Kerscher and Christof Puhle. Investigations on noise sources on a contra-rotating axial fan with different modifications	Tobias Zimmer. Comfort IAQ – a new tool to simulate the indoor particulate matter pollution in relation to the chosen supply air filter quality	Ovidiu Noran. An Adaptive Architecture for Long Term Energy Programme Management	Shohei Miyata, Yasunori Akashi, Jongyeon Lim and Yasuhiro Kuwahara. Fault detection in HVAC systems using a distribution considering uncertainties	Adrian Ciutina, Raluca Buzatu and Daniel M. Muntean. Heat transfer vs environmental impact of modern façade systems	Marcellinus Okafor and Ikechukwu Onyegiri. 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 Petráš. Energy retrofitting of a single-family house	10:45
11:00	Andrew Lyden and Paul Tuohy. 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. Performance investigation of a novel deep dehumidification process using liquid desiccant	Silke Verbruggen, Marc Delghust, Jelle Laverge and Arnold Janssens. Inclusion of window opening habits in a window model based on activity and occupancy patterns	Nitish Perisetla, Purushothaman G, Raghuvhar Vijayakumar and Suresh Kumar Ramasamy. Enhancing coefficient of performance of window air-conditioner using heat pipes	Madoka Kimura, Takashi Akimoto, Nobuhiro Hirasuga, Yu Sakamoto, Sakurako Yamakita and Hikari Sakakibara. Odor Problems in Toilets with Reduced Ventilation Frequencies	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	Jong Man Lee, Won Hee Kang and Kwang Ho Lee. ANN Based Optimized AHU Discharge Air Temperature Control of Conventional VAV System for Minimized Cooling Energy in an Office Building	Birol Kilkis. Decarbonization: exergy to the rescue	Michele De Carli, Antonio Galgano, Gianluca Cadelano, Francesco Cicolin, Sergio Bobbo, Javier Urchueguía, Giulia Mezzasalma, Riccardo Pasquali, Fabio Poletto, Amaia Castelruiz Aguirre, Amo J. Romanowsky, Davide Poletto, David Bertermann, Robert Gavriluc, Dimitrios Mendrinou, Davide Righini, Burkhard Sanner, Jacques Vercruyse, Leonardo Rossi, Michele Vavallo, Luciano Mulè Stagno, Marco Belliardi and Adriana Bernardi.	Imrich Sánka and Dušan Petráš. Energy conservation by retrofitting of dwellings	11:00
11:15	Tin-Tai Chow, Guangya Zhu and Chun Kwong Lee. System optimization of innovative tri-generation system for distributed power application	Matei Razvan Georgescu, Ilinca Nastase, Amina Meslem, Mihnea Sandu and Florin Bode. Design of a Small-Scale Experimental Model of the ISS Crew Quarters for a PIV Flow Field Study	Ardeshir Mahdavi and Christiane Berger. An inquiry into the certification potential of built environments' affordance	Marie R. Krusaa, Christian Anker Hviid, Jonathan Magnes and Jakub Kolarik. Combined radiant ceiling panels with diffuse ventilation – a numerical parametric study of thermal performance	Wei Ling, Maho Ichikawa, Kaho Hashimoto, Masayuki Ogata, Hitomi Tsutsumi, Shoichi Morimoto, Shin-Ichi Tanabe and Satoshi Hori. Evaluation of Short-Distance Airborne Infection Risk Using a Cough Generator	Jose Sanchez, M.Carmen Guerrero, M.Carmen Pavón, J.Luis Molina and Servando Alvarez. Sensitivity analysis and potential evaluation using building thermal mass combined with DSM strategies	Brian De Keijzer, Pol De Visser, Víctor García Romillo, Víctor Gómez Muñoz, Daan Boesten, Megan Meezen and Tadeo Baldiri Salcedo Rahola. Forecasting residential gas consumption with machine learning algorithms on weather data	Evangelia Loukou, Mingzhe Liu, Hicham Johra, Per Kvols Heiselberg, Bianca A. Dia and Rógví K. D. Clementsen. 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. Assessment of the energy efficiency of a public university building in Southern Brazil	Kalle Kuusk, Peep Pihelo and Targo Kalamees. 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 Kolokotroni. Comparison of operational performance and analytical model of high concentrator photovoltaic thermal (HCPV/T) system at 2000 concentration ratio	Christoffer Pedersen and Guangyu Cao. Can we meet the requirement for ultra-clean operation room (10CFU/m3) with dilution ventilation?	Mustafa Mutlu. Effect of Zero Air Change Rate On Particle Dispersion in A Room with Floor Heating	Djallel Abada, Chadi Maalouf, Tala Moussa, Amel F. Boudjabi, Guillaume Polidori, Djamilia Rouag Saffidine, Oualid Sotehi, Zoheir Derghout and Etienne Wurtz. Design of a dew point evaporative cooler for buildings in Mediterranean climate	Kentaro Morita, Kaho Hashimoto, Masayuki Ogata, Hitomi Tsutsumi, Shin-Ichi Tanabe and Satoshi Hori. Measurement of Face-touching Frequency in a Simulated Train	Jihui Yuan, Toshio Yamanaka, Tomohiro Kobayashi, Haruto Kitakaze and Kazuo Emura. Effect of highly reflective building envelopes on outdoor environment temperature and indoor thermal loads using CFD and numerical analysis	Ziwei Xiao, Jiaqi Yuan, Wenjie Gang, Chong Zhang and Xinhua Xu. A NILM method for cooling load disaggregation based on artificial neural network	Christoph Schellenberg, Laurentiu Dimache and John Lohan. 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. 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	Fei Lu, Yu Zou, Deyu Sun, Biao Qiao, Ji Li, Zhenyu Yu and Jianlin Wu. 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. A multipurpose test rig for district heating substations: domestic hot water preparation and keep-warm function comparison	Jinkyun Cho, Beungyong Park and Yongdae Jeong. Thermal performance evaluation of a high-density data centre for cooling system under fault conditions	Mustafa Mutlu and Emre Çalişkan. Numerical investigation of air conditioners' control unit position on temperature distribution and energy consumptions of a room	Tomohiro Kobayashi, Toshiya Nishiumi and Noriko Umemiya. Simplified Prediction Method of Vertical Temperature Distribution for Impinging Jet Ventilation System	Yong Woo Song, Min Young Kim and Jin Chul Park. Mock-up Test for NOx Reduction by Photocatalyst Paint for Indoor Use	Abdellah Zerroug and Egils Dzelzitis. Analysis of different building exterior walls insulations using eQUEST	Andreas Hantsch and Sabine Döge. Assessment of micro-organism growth risk on filters with machine learning	Balázs András-Tövissi, László Kajtár and Pawel Wargocki. The influence of the combined effect of draught and radiant thermal asymmetry on human performance	Eline Himpe and Arnold Janssens. Identification of Energy Use Time Patterns of Occupied Dwellings using Smart Meter Data	Margherita Finamore. Double skin suitable for mediterranean climate in school-gym buildings.	11:45
12:00	Juan Hou, Haoran Li and Natasa Nord. Optimal control of secondary side supply water temperature for substation in district heating systems	Yunus Emre Cetin, Mete Avci and Orhan Aydin. Effect of Air Exchange Rate on Particle Decay in a Cleanroom: A Numerical Study	Stefan Duna, Ioan Silviu Dobosi, Alexandru Hordila, Daniel Teodorescu, Dragos Mihaila and Laura Troi. The notion of comfort, from word to concept	Yoonjei Hwang, Hanyoung Park and Holim Lee. The evaluation of energy saving performance for the modular design centrifugal chiller	Jie Xiong, Runming Yao and Baizhan Li. Prediction of local particle pollution level based on artificial neural network	Cornel Muntea. Some aspects of historical monument buildings central heating	Andrei Vladimir Litau, Stijn Verbeke, Jakob Hahn, Davor Stjelja, Ken Dooley, Nejc Brelih-Wasowski, Ivo Martinac, Niklas Lavesson, Jonas Gräslund, Per Ola Isaksson, David Hälleberg and Pär Carling. Mapping digital transformation in building performance assessment and management - commercial	Beungyong Park, Jinkyun Cho and Yongdae Jeong. Development of zero energy flexible unit with no infrastructure for disaster	Andrei Preda and Popescu Razvan Stefan. New method of increasing building efficiency	Shima Ebrahimigharebaghi, Queena Qian, Frits Meijer and Henk Visscher. 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 Culeşan. Aspects regarding the use of recovered energy for air conditioning	Aleyna Agirman, Yunus Emre Cetin, Mete Avci and Orhan Aydin. Influence of ceiling height on airflow and particle distribution in an operating room	Catalin Bailescu, Vlad Iordache and Tiberiu Catalina. Optimal cost-efficiency solution of acoustic treatment for a complex meeting room	Dominika Juhošová and Jana Peráčková. Recovery of waste heat from the sewer system	Klaas De Jonge, Arnold Janssens and Jelle Laverge. Performance assessment of demand controlled ventilation controls concerning indoor VOC exposure based on a dynamic VOC emission model	Laura Troi, Ioan Silviu Dobosi, Stefan Duna, Dragos Mihaila, Daniel Teodorescu and Alexandru Hordila. Rehabilitation of the utility spaces and boiler room Monnaie Royal Theatre	Gabriel Mărcus and Cătălin Lungu. Partial load efficiency analysis of a CCHP plant with RICE and H2O-LiBr absorption chiller	Debates/Discussions	Clélia Moraes. Questionnaire's Elaboration and application to the contribution at knowledge of certificate LEED's application at Brazil with based on case studies.	Derya Kislak Tekin, Levent Colak and Birol Kilkis. A Decision Making Algorithm for Energo-Economic Sustainability and Efficiency in Buildings: A Case Study in Turkey	12:15

12:30	<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>	12:30
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										