



**5th, 6th, 7th**  
September  
**2019**

Bari, Italy

# **X IAQVEC 2019**

10th International Conference on Indoor Air Quality,  
Ventilation and Energy Conservation in Buildings

PROGRAM





# X IAQVEC 2019

10TH INTERNATIONAL CONFERENCE  
ON INDOOR AIR QUALITY,  
VENTILATION  
AND ENERGY CONSERVATION  
IN BUILDINGS

Conference theme:

**Healthy Nearly Zero Energy Buildings**

Main topics:

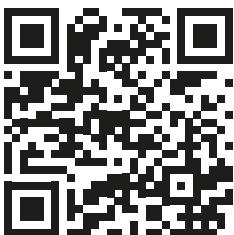
Ventilation and measurement techniques

IAQ and Indoor Environmental Quality

HVAC systems

Smart Technologies for ZEBs

ZEBs: design and energy modelling



[www.iaqvec2019.org](http://www.iaqvec2019.org)



[info@iaqvec2019.org](mailto:info@iaqvec2019.org)



[iaqvec2019](https://www.facebook.com/iaqvec2019)

[#iaqvec2019](https://twitter.com/iaqvec2019)

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# X IAQVEC 2019

**There's an app  
for that.**



It's simple ! You can download  
Conference4me for free !  
3 platforms available



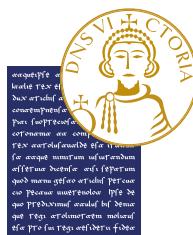
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## PARTNERS

### ORGANIZING UNIVERSITIES



### INSTITUTIONAL PARTNERS

MEDAGLIA  
DEL  
PRESIDENTE  
DELLA  
REPUBBLICA



## ENDORSEMENTS



## MEDIA PARTNERS



## WELCOME MESSAGE

Dear Colleagues,

on behalf of the Organizers, it is our great pleasure and an honor to welcome you to the **X IAQVEC 2019: Healthy Nearly Zero Energy Buildings**, which will be held on September 5th to 7th in Bari, Italy.

The Conference will be hosted by the Politecnico di Bari and co-organized by three universities, the Ryerson University (Ontario, Canada), the Politecnico di Bari (Italy) and the Università del Sannio (Italy).

X IAQVEC 2019 will be focused on the theme "Healthy nearly Zero Energy Buildings" and envisages the participation of a large number of scientists, researchers and practitioners and the submission of papers covering a broad range of topics relevant to the main subjects of Building Science.

This conference has been organized around the following five streams: Ventilation and measurement techniques; IAQ and Indoor Environmental Quality; HVAC systems; Smart Technologies for Zero Energy Buildings (ZEBs); and ZEBs: design and energy modeling.

The conference will provide a forum for the exchange of knowledge among scientists, researchers, and practitioners from all over the world.

It will help to disseminate technical information, new ideas, as well as the latest and future developments of research in the field of building science.



**Dr. Umberto Berardi**  
**Chair of the Organizing Committee IAQVEC 2019**  
Associate Professor  
Faculty of Engineering and Architectural Science  
Ryerson University, Toronto, ON.

Moreover, the conference is expected to create a platform through which stakeholders from various countries will be able to exchange their knowledge, traditions, and experiences.

The Conference has attracted over 500 submissions from 77 countries around the world. The final X IAQVEC's technical program consists of over 280 oral presentations and about 58 poster presentations, plus five keynote lectures to be delivered by prominent scientists, researchers, and professors.

Thanks are due to the many people who have freely given their time and goodwill to make X IAQVEC a success. We are grateful to the Politecnico di Bari for the valuable support in the conference.

We would like to thank the members of the International and National Scientific Committees and the additional Reviewers whose help has been essential to ensure a high level of quality. Their names are reported at the end of this introduction.

Important contributors to the conference have been made by the Authors, Presenters, and Delegates, without whom the conference could not take place. We, therefore, offer them our heartfelt thanks.

We hope that you will enjoy the conference program, and take some time to experience the rich culture and history of Bari. We wish you a productive, fruitful and enjoyable stay!



**Dr. Francis Allard**  
**Chair of the Scientific Committee IAQVEC 2019**  
Professor  
Université de La Rochelle  
La Rochelle, France



IAQVEC is a premier international conference series, held once every three years, and hosted in different countries every time (in the past, it has been organized in Canada, France, China, Japan, USA, Czech Republic, and Korea).

The conference covers a wide range of key research areas with the goal of improving indoor environmental quality (IEQ) and energy efficiency enhancing wellbeing and sustainability.

IAQVEC 2019 is dedicated to Healthy Nearly Zero Energy Buildings, and is organized around the following five streams:

- Ventilation and measurement techniques;
- IAQ and Indoor Environmental Quality;
- HVAC systems;
- Smart Technologies for ZEBs;
- ZEBs: design and energy modelling.

IAQVEC 2019 is a major international event, attracting delegates from around the world. So far the meeting has received support from many national and international societies, including AiCARR, Architectural Institute of Korea,

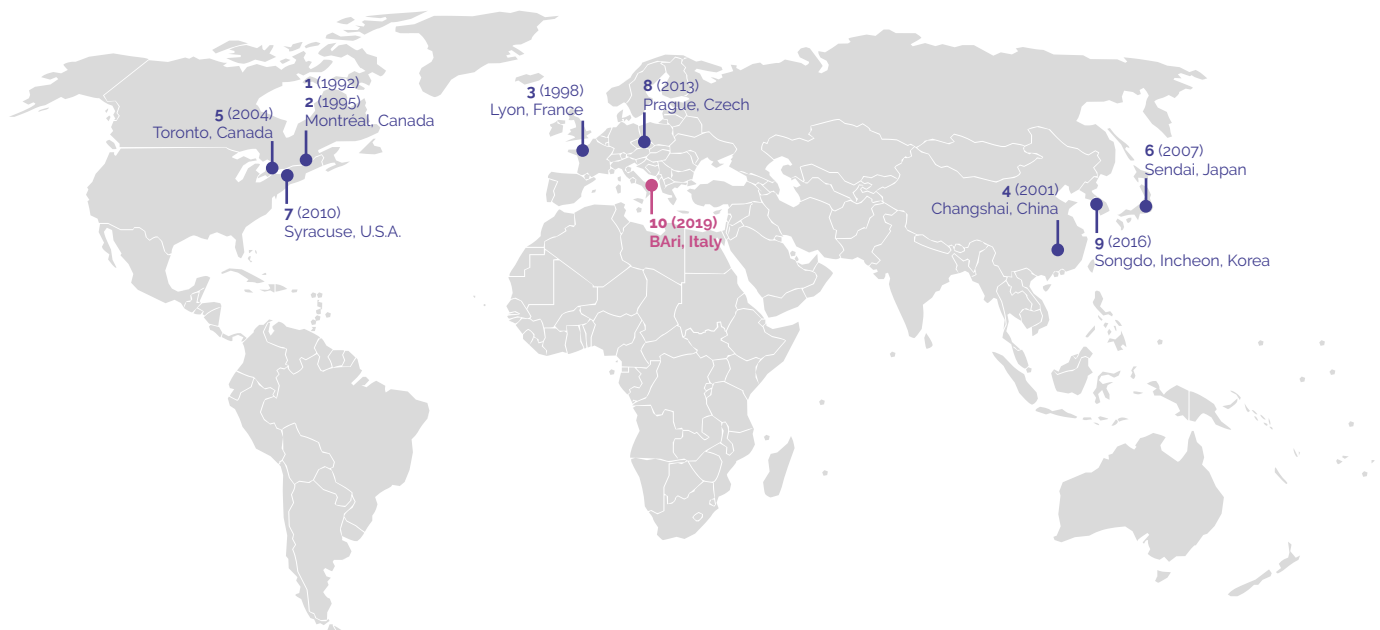
Associazione della Fisica Tecnica Italiana, Association des Ingénieurs en Climatique, Ventilation et Froid (AICVF), Associazione Termotecnica Italiana, CIB, IBPSA-Canada, REHVA, the Society of Heating, Air conditioning and Sanitary Engineering of Japan, and many others.

This milestone anniversary of the IAQVEC conference has been organized in a beautiful Mediterranean city.

We are sure that the South of Italy will offer a fantastic backdrop of landscape and architecture, merged with outstanding food that the delegates will enjoy while they participate in the scientific program at IAQVEC 2019.

The conference will start on September 5th and will end on the afternoon of September 7th, 2019. IAQVEC will be host within the **Politecnico di Bari**, Italy ([www.poliba.it](http://www.poliba.it)).

The social program is enriched by events in each of the three nights.



# COMMITTEES AND ORGANIZERS

## Scientific Committee

**Francis Allard** (Université de La Rochelle, France) - *chair of the committee*

**Andreas Athienitis** (Concordia University, Canada)

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**Marco Filippi** (Politecnico di Torino, Italy)

**Tariku Fitsum** (BCIT, Canada)

**Bernardo Fortunato** (Politecnico di Bari, Italy)

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**Michele Zinzi** (ENEA, Italy)

## Organizer Committee

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**Alessandro Cannavale** (Politecnico di Bari, Italy)

**Michele Dassisti** (Politecnico di Bari, Italy)

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**Francesco Fiorito** (Politecnico di Bari, Italy)

**Luca Grilli** (Università di Foggia, Italy)

**Francesco Martellotta** (Politecnico di Bari, Italy)

**Marco Pantaleo** (Università di Bari, Italy)

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## Proceedings Copyeditor

**Habiba Elmi** (Ryerson University, Canada)

## Graphic Design

**Miriam Chtioui** (Politecnico di Bari, Italy)

## ABOUT THE VENUE

The city of Bari, Puglia's provincial capital, is bathed by the Adriatic Sea, and is one of the finest destinations in southern Italy. It's a mix of history, culture and fun. Located in the sun-drenched, picturesque, coastal gem of the **Apulia region** (or Puglia, as it is known to the locals),

In recent years Bari has gradually built a reputation as a bridge between West and East, that mirrors an increasingly multi-cultural, open, tolerant and friendly community, connecting people, individuals and businesses, from different countries and cultures. More, Bari and the Puglia overall can boast some of the **best Italy's food and wines**, and a genuine authentic, simple and tasty vernacular cuisine.

Bari has a **maritime flavour** and deserves a glance for the panoramic seafront promenade, and the historic and atmospheric old town, called **Bari Vecchia**, a medieval warren of tight alleyways and graceful piazzas, narrow streets where you can admire the colors of the artisans' workshops; several cultural places; fascinating Romanesque-styled churches as **Basilica of San Nicola**

(Largo Abate Elia, Bari) and the **Cathedral of St. Sabino** (Piazza dell'Odegitria, Bari).

Also the modern part and heart of the city, named **Borgo Murattiano**, is a great place to spend time, with a major shopping district and gorgeous architectures built in the 19th and early 20th centuries.

Among the things not to be missed are: **Norman Swabian castle** (Piazza Federico II di Svevia, Bari), Bari's symbol, at the entrance of the city, inside collections of archaeological **Petruzzelli Theater** (Corso Cavour, 12, Bari), built around 1903, **Margherita Theater** (Piazza IV Novembre, Bari) originally opened in 1914, is one of the city's most loved and iconic buildings.

Moreover, from Bari it is easy to reach the UNESCO World Heritage site of **Castel del Monte**; the fascinating village of **Alberobello** an UNESCO World Heritage site for its unusual districts of trulli, the characteristic white-washed conical-roofed houses of the area; and **Matera**, European Capital of Culture 2019, only one hour away (approximately 50 km from Bari).



## HOW TO REACH THE CONFERENCE VENUE



### How to reach the Conference Venue:

**By plane:** Airport "Karol Wojtyła" Bari Palese (BRI)  
([www.aeroportidipuglia.it/homepagebari](http://www.aeroportidipuglia.it/homepagebari))

### From the Airport to the city center/conference venue:

**By Taxi:** Taxis are readily available at the airport. Fixed fares by RadioTaxiBari (+39 080 554 33 33) taxi firm from the airport to the venue will cost around €25 ([www.taxibari.it/en](http://www.taxibari.it/en))

**By Light Rail** – to Bari Centrale Train Station:  
The Ferrotramviaria regional railway company connects the airport to the train station, with the cost of a one-way ticket €5. Regular daily train services operate up to every 40 minutes, from 5:00am to 11:00pm. ([www.ferrovienordbarese.it](http://www.ferrovienordbarese.it))

**By Bus** – to Bari Centrale Train Station:  
The city of Bari is served by the Amtab local bus company. Take the no16 line from the airport going to the train station, and get off at the last stop. Tickets can be bought directly from the bus driver at €1.5, and are available at newspaper kiosks and bars at €1.

### By Shuttle – to Bari Centrale Train Station:

The Tempesta AutoServizi shuttle bus travels from the airport to the train station and runs 37 times a day between 5:00 am and midnight. The journey time is 30 minutes approximately, and the single ticket can be bought on the bus, at a cost of €4.00.

### From the Bari Centrale Train station to the conference venue (Politecnico di Bari):

**By walk:** From the Bari Centrale Train Station, it is possible to reach by walk the Conference Venue (Politecnico di Bari) in 15 minutes.

**By Bus:** Amtab local buses are available. Take the no21 line from the Bari Centrale Train Station going to the Via Re David - Politecnico di Bari. Ask to the bus driver which is the bus stop. Tickets can be bought directly from the bus driver at €1.5, and are available at newspaper kiosks and bars at €1. ([www.moovitapp.com](http://www.moovitapp.com))

*More interactive about the city of Bari at the webapp:*



**AROUND  
BARI**

[www.around.bari.it/?lang\\_set=ENG](http://www.around.bari.it/?lang_set=ENG)



## Currency, Exchange, Credit card

The official currency in Italy is the Euro (€). You can change foreign currency in several banks and Currency Exchange Businesses. Bank cheques are not so popular and they are seldom accepted. Credit cards are very common in the urban areas. Shops and restaurants that normally accept credit cards display a list of these cards on their shop windows. It is advisable to carry some cash, since for small purchases shops do prefer to be paid cash. Banks are open: Mon-Fri, from 08:30 to 13:30 and from 14:30 to 16:30.

## Electricity Supply

In Italy electricity is generally supplied at 220 volts and a frequency of 50 Hz. Plugs are normally with two or three pins. Plug adaptors or converters might be necessary for guests from United States, United Kingdom, Japan and others.

## Emergencies, Medical Advice

Emergencies Numbers are free of charge:

Ambulance 118

Police 113 or 112

Fire Department 115

For information, please contact the Registration Desk.

## Telephones

International calls can be made using any public telephone in the city center. Please remember to dial the international code of the country you want to call to. The dialing code for Italy is +39 followed by the telephone number you call. Pre-paid telephone cards are very easy to use and can be bought in any tobacco shop or newspaper kiosk.

## Shopping

The usual shopping hours in Bari are from 9 a.m. to 1 p.m. and from 4 p.m. to 8 p.m. Large shopping centers are open from 9 a.m. to 9 p.m.

## Smoking

Smoking is not allowed inside the Congress buildings, venues of social events and in all public places in the city. Smokers are kindly requested to smoke outdoors.

## WIFI

There's free WIFI at the venue, please contact the Secretariat for the access keys.

## TAXI

You can take a taxicab anywhere in the city. Ask the reception of your hotel or dial number: +39 080 554 33 33. ([www.taxibari.it/en](http://www.taxibari.it/en))

## Official Language

The official language of the Congress is English.

## Staff

Should you have any questions, congress staff (look for the PURPLE T-SHIRT) will be pleased to help you. Please contact the Registration Desk.



2

3

4

5

1

7

6

1,2 km  
13'

1,6 km  
17'

1

**CONFERENCE VENUE  
POLITECNICO DI BARI**

Via Edoardo Orabona, 4, Bari (Italy)

2

**WELCOMING PARTY  
FORTINO DI SANT'ANTONIO ABATE**

Lungomare Imperatore Augusto, Bari (Italy)

3

**GALA DINNER  
BARION SPORTING CLUB**

Molo S. Nicola, 5, Bari (Italy)

4

**PARTY  
LA BIGLIETTERIA BARI**

Largo Adua, 3, Bari (Italy)

**PUBLIC TRANSPORTATIONS**

5

BARI CENTRALE TRAIN STATION  
(from Bari Centrale Train station to the Airport)

6

AMTAB BUS STOP - line 21  
(from Politecnico di Bari to Bari Centrale Train station)

7

AMTAB BUS STOP lines C or 4  
(from Viale Unità d'Italia - close to Politecnico di Bari  
to Camera di Commercio - close to points 2-3-4 )

**TOURIST SITES**

**BASILICA OF S. NICOLA**

Largo Abate Elia, Bari (Italy)

**CATHEDRAL OF S. SABINO**

Piazza dell'Odegitria, Bari (Italy)

**NORMAN SWABIAN CASTLE**

Piazza Federico II di Svevia, Bari (Italy)

**MARGHERITA THEATER**

Piazza IV Novembre, Bari (Italy)

**PETRUZZELLI THEATER**

Corso Cavour, 12, Bari (Italy)

# CONFERENCE VENUE MAP POLITECNICO DI BARI

## PLENARY SESSIONS

### AULA MAGNA ATTILIO ALTO

I floor

## COFFE BREAK/LUNCH

### ATRIO COPERTO

Ground floor

## PARALLEL SESSIONS

### AULE 3-5-7-9-11

II floor

## FORUM/PARALLEL SESSIONS

### AULA 2

II floor

## ENTRANCES

ENTRANCE

Via Re David

ENTRANCE

Via Orabona

ENTRANCE

Via Orabona

Ground floor

II floor



1

2

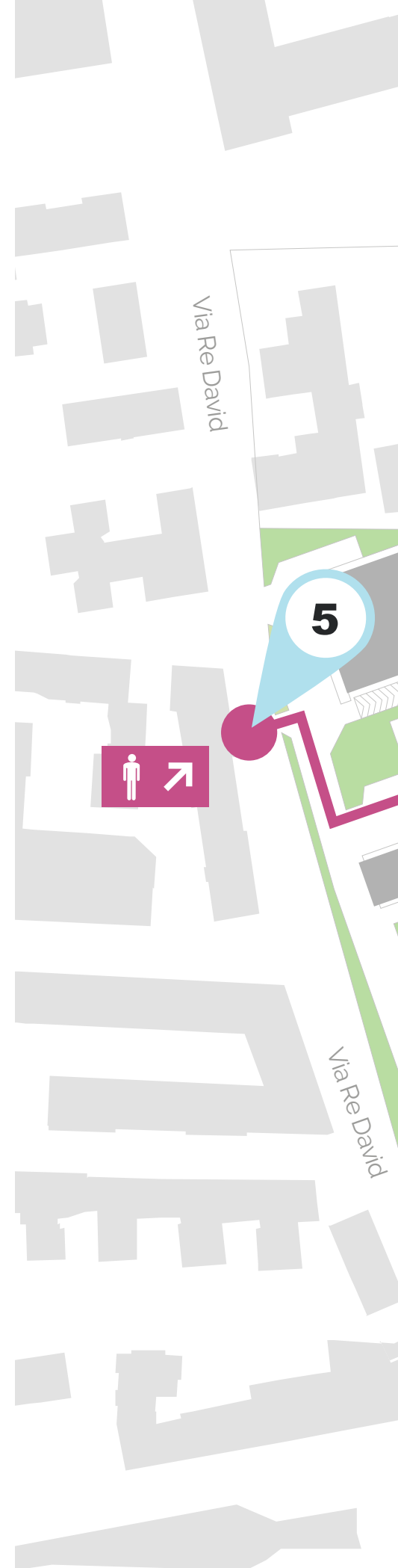
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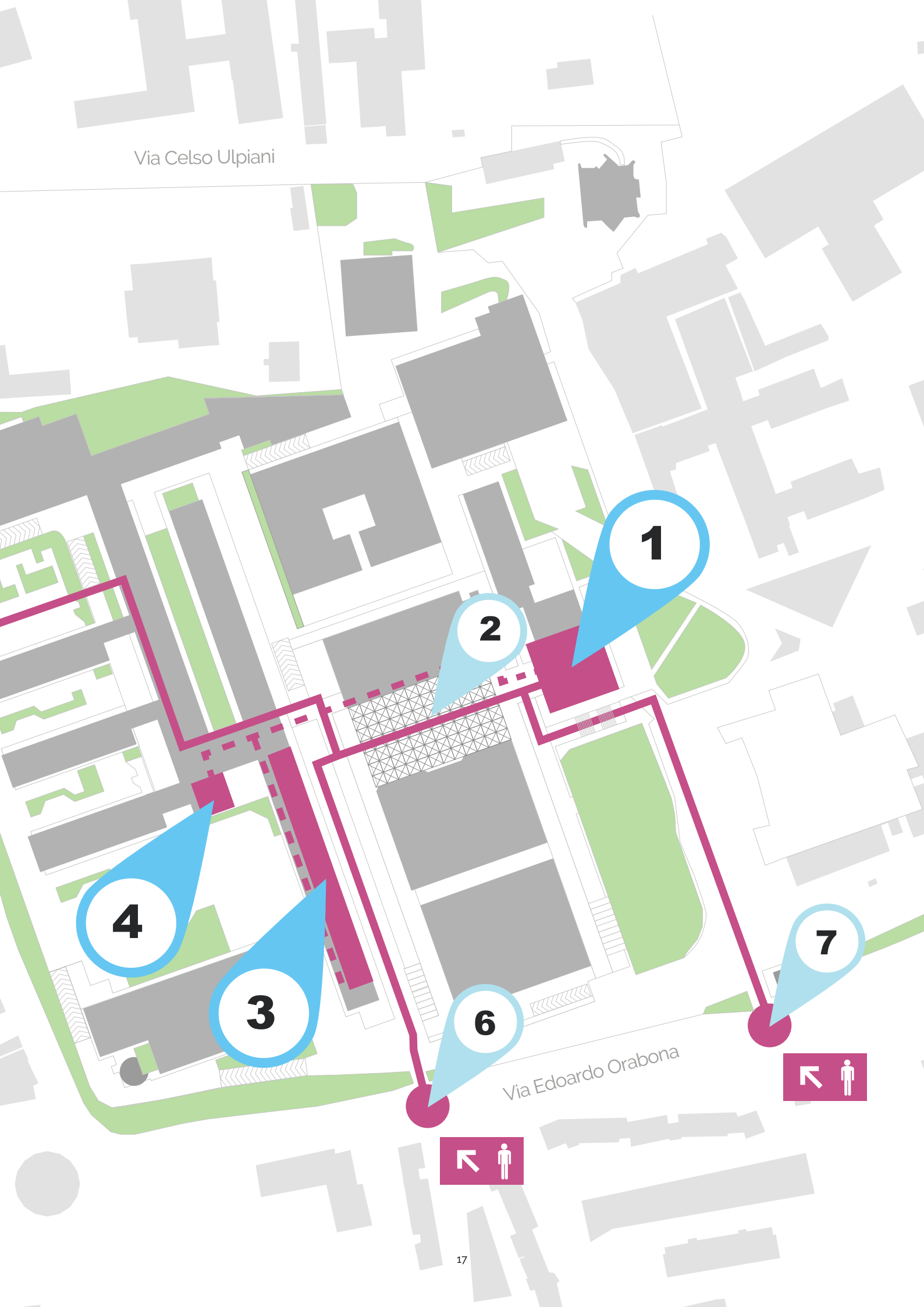
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7





Via Celso Ulpiani



1

2

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3

6

7

Via Edoardo Orabona



# PROGRAM SUMMARY SCHEME

		5 <sup>TH</sup> SEPTEMBER 2019 Thursday	6 <sup>TH</sup> SEPTEMBER 2019 Friday	7 <sup>TH</sup> SEPTEMBER 2019 Saturday
a.m.	8:00	REGISTRATION		
	8:30			
	9:00	OPENING CEREMONY	PLENARY 2 Keynote Dr. Philomena Bluysen	PLENARY 4 Keynote Dr. Xudong Yang
	9:30			
	10:00	PLENARY 1 Keynote Dr. Qingyan (Yan) Chen	PLENARY 3 Keynote Dr. Mauro Strada	PLENARY 5 Keynote Dr. Mat Santamouris
	10:30			
	11:00	Coffe break	Coffe break	Coffe break & Old Car Show
	11:30			
	12:00	PARALLEL SESSIONS HVAC1, IAQ1, IAQ2, Ventilation1, ZEB1	PARALLEL SESSIONS HVAC4, IAQ6, IAQ7, Ventilation5, ZEB5	PARALLEL SESSIONS HVAC8/ZEB10, IAQ10,IAQ11, Ventilation8
	12:30			
p.m.	1:00			
	1:30	Lunch	Lunch	
	2:00			
	2:30	PARALLEL SESSIONS HVAC2, IAQ3, IAQ4, Ventilation2, ZEB2, ZEB3	PARALLEL SESSIONS HVAC5, HVAC6, IAQ8 Ventilation6, ZEB6, ZEB7	IAQVEC General Assembly
	3:00			
	3:30			
	4:00	Coffe break	Coffe break	Awards & Closing Ceremony
	4:30	PARALLEL SESSIONS HVAC3, IAQ5, Ventilation3, Ventilation4, ZEB4	POSTER SESSIONS	
	5:00			
	5:30		PARALLEL SESSIONS HVAC7, IAQ9 Ventilation7, ZEB8, ZEB9	
	6:00		IAQVEC Board Assembly (By Invitation)	
	6:30	Bari Historic Town visit		
	7:00			
	7:30			
	8:00			
	8:30	Welcoming Party	Gala Dinner	
	9:00			
	9:30			
	10:00			

## PLENARY SESSIONS KEYNOTE SPEAKERS

### PLENARY 1



**Dr. Qingyan (Yan) Chen**

Ventilation strategies and measurement techniques  
James G. Dwyer Professor of Mechanical Engineering  
Purdue University, West Lafayette, U.S.A.

#### **A Holistic Approach to Natural Ventilation Study**

Dr. Qingyan "Yan" Chen is the James G. Dwyer Professor of Mechanical Engineering at Purdue University, USA. He serves also as the Editor-in-Chief of the international journal "Building and Environment". Dr. Chen earned his degrees from Tsinghua University in China and Delft University of Technology in the Netherlands. He worked as a Research Scientist at ETH-Zurich, as a Project Manager at TNO, and as a professor at MIT. Dr. Chen has been an Honorary/Named/Affiliated/Visiting/Guest Professor in 15 institutions in Australia, China, Denmark, Finland, and UK. Dr. Chen's current research topics include indoor environments; aircraft cabin environments; and energy-efficient, healthy, and sustainable building design and analysis. He has received a total funding exceeding US\$35M. He has also published three books, more than 230 journal papers and more than 200 book chapters and conference papers and has been invited to deliver more than 160 lectures internationally. Google Scholar shows that his journal publications have been cited by more than 13,000 times and his H-index is 64. Dr. Chen has received the Distinguished Achievement Award for from International Building Performance Simulation Association (IBPSA) in 2013. Chen has also received several technical paper and poster awards and Distinguished and Exceptional Service Awards from ASHRAE. He is a fellow of the ASHRAE and the International Society of Indoor Air Quality.

### PLENARY 2



**Dr. Philomena Bluysen**

IAQ and Indoor Environmental Quality  
Professor Indoor Environment  
Delft University of Technology, Netherlands

#### **Towards an integrated analysis of the indoor environment and its effects on occupants**

Prof. dr. Philomena M. Bluysen received her building engineering degree in 1986 at the Technical University of Eindhoven, and in 1990 her PhD at the Technical University of Denmark with a thesis on 'Air quality evaluated by a trained panel'. After working for more than twenty years as researcher with TNO, where she coordinated among others several European projects on optimization of Indoor Environment Quality and energy use, she was appointed full Professor Indoor Environment in 2012 at the Faculty of Architecture and the Built Environment, of the Delft University of Technology in Delft. At the TU Delft she initiated the SenseLab, a recently opened semi-lab environment partly open to the public, sponsored by 25 companies and organizations (<https://vimeo.com/220927174>). Prof. Bluysen is member of many organizations, including TVVL, REVHA, ASHRAE, ISIAQ and CIB. She is co-founder of the Dutch ISIAQ chapter and was the first president of ISIAQ.nl. She has contributed and/or authored to more than 220 publications. For 'The Indoor Environment Handbook: How to make buildings healthy and comfortable', she received the prestigious Choice Outstanding Academic Titles of 2010 Award. Her book 'The Healthy Indoor Environment – How to assess occupants' wellbeing in buildings', was published in 2014 and received the IDEC 2016 Book Award.

## PLENARY SESSIONS KEYNOTE SPEAKERS

### PLENARY 3



**Dr. Mauro Strada**

HVAC systems

Former Professor at IUAV in Venice

President and Technical Director of STEAM srl, Italy

#### **Recent experience in HVAC design for High Performance Buildings**

Prof. Strada has taught from 1974 till 1992 in the Engineering Faculty of Padua University giving classes in Technical Physics, Refrigeration Technology and Applied Acoustic.

From 1990 till 2010 he got the position of Full Professor of Environmental Control Technology at the Faculty of Architectural Construction at IUAV, the University Institute of Architecture of Venice. Prof. Strada has carried out his professional activity in the sectors of HVAC, especially concerning with laboratories, sports facilities, combined production of heat and electricity plants, hospitals, and airports. He has written more than 170 publications among which two didactical volumes.

From 2007 to 2012, he was Associate Director of the branch based in Doha (Qatar) of the joint venture between Steam Srl and Technital S.p.A. designing the Dukhan College and other buildings in Doha. He was Chief Designer and Supervisor of Works of many huge hospitals in Italy and abroad e.g. the new Treviso Hospital, the new Galliera Hospital in Genoa, the new Este/Monselice Hospital, the refurbishment and development of the three Hospitals of Nis, Novi Sad and Kragujevac in the Republic of Serbia. From 2008 to 2011, he was a member of the team of the Iraq Health Task Force at the Italian Ministry of Foreign Affairs.

### PLENARY 4



**Dr. Xudong Yang**

Smart Technologies for ZEBs

Chang-Jiang Chair Professor - Deputy Director

Department of Building Science

Tsinghua University, Beijing, China

#### **The Role of Simulation in Preventing Indoor Air Pollution: A Foregone**

Dr. Xudong Yang is presently the Chang-Jiang Professor and Deputy Director of the Institute of Built Environment, Tsinghua University, China. He received his Ph.D. from MIT and was a tenured Associate Professor at the University of Miami, USA. Dr. Yang is a Fellow ASHRAE and ISIA. He currently serves as the founding Editor-in-Chief of Building Simulation and associate editor of Building and Environment. He is also an executive committee member and representative of China in the IEA-EBC and an advisor to various Chinese ministries and cities on energy and environment intervention programs. He has co-authored eight books, more than 120 papers in leading international journals, 110 papers in international conferences and Chinese journals, and holds 36 patents. Dr. Yang's research interests center on fundamental and practical aspects of indoor environmental quality and sustainable buildings within the following thematic areas: (1) understanding and modeling various indoor air pollutant sources and sinks; (2) developing new air pollutant control technologies; and (3) energy intervention and environmental improvement in rural household and communities. His work has been covered by Nature, the Wall Street Journal, CCTV, PBS, etc. Award from the Chinese Bureau of Energy (2015) and the ASHRAE Exceptional Service Award (2018).

### PLENARY 5



#### Dr. Mattheos Santamouris

ZEBs: design and energy modelling

Anita Lawrence Professor of High Performance Architecture  
University of New South Wales, Sydney, Australia

#### Urban Overheating and Impact on Buildings

Dr. Mat Santamouris is a Scientia Professor of High Performance Architecture at UNSW, and past Professor in the University of Athens, Greece. Visiting Professor of the Cyprus Institute, Metropolitan University London, Tokyo Polytechnic University, Bolzano University, Brunel University and National University of Singapore. Past president of the National Center of Renewable and Energy Savings of Greece.

Editor in Chief of the Energy and Buildings Journal, Past Editor in Chief of the Advances Building Energy Research, Associate Editor of the Solar Energy Journal and Member of the Editorial Board of 14 Journals. Editor of the Series of Book on Buildings, published by Earthscan Science Publishers.

Editor and author of 14 international books published by Elsevier, Earthscan, Springer, etc. Dr. Santamouris is also the author of 320 scientific articles published in journals. Reviewer of research projects in 29 countries including USA, UK, France, Germany, Canada, and Sweden.

# CONFERENCE AGENDA

Date: Thursday, 05/Sep/2019

8:00am - 9:00am	Registration					
8:30am - 9:30am	<b>Opening Ceremony</b> Location: <b>Aula Magna</b> Chair: <b>Umberto Berardi &amp; Francis Allard</b>					
9:30am - 10:30am	<b>Pleanary I: Dr. Qingyan (Yan) Chen</b> <b>Title: A Holistic Approach to Natural Ventilation Study</b> Location: <b>Aula Magna</b> Chair: <b>Marco Filippi</b>					
10:30am - 11:00am	Coffee break					
11:00am - 1:00pm	<b>Forum: HVAC: HVAC systems Control Approaches towards Energy Efficient Building</b> Location: <b>Room 2</b> Chair: <b>Fulin Wang</b> This workshop aims to have a deep discussion about progress and challenges, as well as future perspectives of control issues for energy efficient buildings. The focus is on control strategies and their adaptability in the perspectives of practical requirements of energy efficient buildings. Presentations: Optimal control of HVAC systems for today's and future buildings and its benefits (prof. Shengwei Wang - Hong Kong Polytechnic University); Improving energy performance and thermal comfort in large office buildings: lessons from a multi-objective optimization of HVAC set points (prof. Elie Azar - Khalifa University of Science and Technology); Active control of natural ventilation towards healthy and energy efficient buildings (prof. Fulin Wang - Tsinghua University, China); Building passive conditioning method and its effect on the building microclimate and energy consumption (prof. Qiong Li - South China University of Technology); Implementation and visualization of artificial intelligent ventilation control system using fast prediction models and limited monitoring data (prof. Shijie Cao - Guangzhou University).	<b>HVAC 1</b> Location: <b>Room 3</b> Chair: <b>Livio de Santoli</b> <b>11:00am - 11:15am</b> <b>Characterization of heat load profiles in buildings and their impact on demand side flexibility</b> Harald Taxt Walnum, Maria Justo Alonso, John Clauß, Karen Byskov Lindberg <b>11:15am - 11:30am</b> <b>Experimental and Numerical Investigation of a Thermal Storage Medium for Ground Source Heat Pump Applications</b> Aggrey Mwesigye, Hiep V. Nguyen, David Salt, Seth B. Dworkin <b>11:30am - 11:45pm</b> <b>Validation of thermoregulation human model considering mist wettedness on mist spraying environment</b> Wonseok Oh, Ryoza Ooka, Hideki Kikumoto, Osamu Ogawa	<b>IAQ 1</b> Location: <b>Room 5</b> Chair: <b>Sumin Kim</b> <b>11:00am - 11:15am</b> <b>Conception and deployment of the Apolline sensor network for IAQ monitoring</b> Benjamin Hanoune, Redha Kassi, Bernard Verbeke, Eliane Assy, Laurent Clavier, Suzanne Crumeyrolle, Samuel Degrande, Xavier Le Pallec, Romain Rouvov <b>11:15am - 11:30am</b> <b>Personal inhalation risk assessment based on a hybrid method using CFD-CSP-PBTK modeling: quantification of time-averaged and peak concentration differences</b> Alicia Maria Murga Aquino, Kazuki Kuga, Sung-Jun Yoo, Kazuhide Ito <b>11:30am - 11:45am</b> <b>Investigation of indoor air quality in a low energy high school building combining micro gas sensors and unsupervised learning</b> Alexandre Caron, Nathalie Redon, Coddeville Patrice, Benjamin Hanoune	<b>IAQ 2</b> Location: <b>Room 7</b> Chair: <b>Fariborz Haghighat</b> <b>11:00am - 11:15am</b> <b>Optimization of fibrous air filter on the basis of particle condensational growth during the air cooling and de-humidification process using numerical simulations</b> Zhuangbo Feng, Shi-Jie Cao <b>11:15am - 11:30am</b> <b>Numerical evaluation of a ductless personalized ventilation (DPV) combined with a radiant HVAC system: Thermal comfort</b> Jiyiing Liu, Yingying Zhao, Zhuangzhuang Li, Shengwei Zhu, Linhua Zhang, Jelena Srebric <b>11:30am - 11:45am</b> <b>Experimental Study on the Performance Evaluation of Active Chilled Beams in Cooling Operation under Varied Boundary Conditions</b> Marc-Antoine Jean, Rohit Upadhyay, Mike Koupriyanov, Rodrigo Mora	<b>Ventilation 1</b> Location: <b>Room 9</b> Chair: <b>Shi-Jie Cao</b> <b>11:00am - 11:15am</b> <b>Influence of the intermittent cooling methods combined active with passive on building energy consumption</b> Jiandong Ran, Ke Xiong, Mingfang Tang, Zhenjing Yang <b>11:15am - 11:30am</b> <b>Sensitivity analysis of control strategies for mechanical ventilation in low-energy apartment buildings</b> Jakub Kolarik, Mathias Jørgen Larsen, Johan Bojsen, Daria Zukowska-Tejsen <b>11:30am - 11:45am</b> <b>Experimental comparison on turbulent characteristics of airflows produced by pulsating and steady air supply under stratum ventilation</b> Xue Tian, Bozheng Li, Yong Cheng	<b>ZEB 1</b> Location: <b>Room 11</b> Chair: <b>Lamberto Tronchin</b> <b>11:00am - 11:15am</b> <b>Building performance monitoring: from in-situ measurement to regression-based approaches</b> Lamberto Tronchin, Massimiliano Manfren, Benedetto Nastasi, Vincenzo Vodola, Fabio Bisegna, Fabio Nardecchia <b>11:15am - 11:30am</b> <b>Towards resilient cities: advancements allowed by a multi-criteria optimization tool to face the new challenges of European Union's climate and energy goals</b> Antonio Buggin, Maria La Gennusa, Giorgia Peri, Gianfranco Rizzo, Gianluca Scaccianoce, Massimiliano Scarpa, Luigi Schibuola, Chiara Tambani <b>11:30am - 11:45am</b> <b>BIM-BEM support tools for early stages of zero-energy building design</b> Giulia Spiridigliozzi, Laura Pompei, Cristina Cornaro, Livio De Santoli, Fabio Bisegna



<p><b>11:45pm - 12:00pm</b></p> <p><b>Performance comparison between metal-organic framework (MOFs) and conventional desiccants (silica gel, zeolite) for a novel high temperature cooling system</b></p> <p><u>Kan Zu</u>, <u>Shuqing Cui</u>, <u>Menghao Qin</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>Development of Metabolic Rate Prediction Model Using Deep Learning via Kinect Camera in an Indoor Environment</b></p> <p><u>Hooseung Na</u>, <u>Taeyeon Kim</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>Comparative study of commercial home air cleaners</b></p> <p><u>Philippe Berne</u>, <u>Christophe Brouard</u>, <u>Luana Golanski</u>, <u>Arthur Roussey</u>, <u>Barnabé Wayser</u>, <u>Arnaud Guiot</u>, <u>Simon Clavaguera</u>, <u>Olivier Delléa</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>Effect of Mechanical Ventilation on Air Infiltration Rate in a Concert Hall</b></p> <p><u>Yuchen Shi</u>, <u>Xiaofeng Li</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>Static and dynamic thermal properties of construction components: A comparison in idealized and experimental conditions using lumped parameter models</b></p> <p><u>Lamberto Tronchin</u>, <u>Massimiliano Manfren</u>, <u>Vincenzo Vodola</u>, <u>Fabio Bisegna</u>, <u>Fabio Nardecchia</u></p>
<p><b>12:00pm - 12:15pm</b></p> <p><b>Performance evaluation on VRF systems based on large scale monitoring data in China</b></p> <p><u>Hua Liu</u>, <u>Mingyang Qian</u>, <u>Da Yan</u>, <u>Umberto Berardi</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>Relationship of Indoor/Outdoor particles in residential buildings in Korea</b></p> <p><u>Kyungmo Kang</u>, <u>Taeyeon Kim</u>, <u>Yun Gyu</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>Evaporation and dispersion of exhaled droplets in thermally-stratified indoor environments</b></p> <p><u>Fan Liu</u>, <u>Hua Qian</u>, <u>Xiaohong Zheng</u>, <u>Jinwei Song</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>A benchmark for room air distribution: The backward facing step flow</b></p> <p><u>Peter Vilhelm Nielsen</u>, <u>Chen Zhang</u>, <u>Rasmus L. Jensen</u>, <u>Christina Kjær</u>, <u>Daniel Leiria</u>, <u>Henriette Nørholm</u>, <u>Truls Ramstad</u>, <u>Anastasios Rovithakis</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>Enhancing values of roofs albedo for lowering cities air temperature and electric demand of buildings: a simple economic evaluation.</b></p> <p><u>Diletta Di Lorenzo</u>, <u>Barbara Maini Lo Casto</u>, <u>Giorgia Peri</u>, <u>Gianfranco Rizzo</u>, <u>Gianluca Scaccianoce</u>, <u>Chiara Tambani</u></p>
<p><b>12:15pm - 12:30pm</b></p> <p><b>Theoretical Models of Particles Detachment from the Rotating Wheel in Indoor Environment</b></p> <p><u>Jinwei Song</u>, <u>Hua Qian</u>, <u>Xiaohong Zheng</u>, <u>Fan Liu</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>A physiological chamber experiment to explore human thermal adaption on the seasonal scale</b></p> <p><u>Wenjie Ji</u>, <u>Bin Cao</u>, <u>Yingxin Zhu</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Effect of Air - Exhaust Location on Surgical Site Particle Distribution in an Operating Room</b></p> <p><u>Aleyna Agirman</u>, <u>Yunus Emre Cetin</u>, <u>Mete Avci</u>, <u>Orhan Aydin</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Air conditioning online control by incorporating low-dimensional linear models and artificial neural network</b></p> <p><u>Chen Ren</u>, <u>Shi-Jie Cao</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Effects of Energy Efficiency Measures on building performance – An analysis in seven European cities</b></p> <p><u>Tullio de Rubeis</u>, <u>Mirco Muttillio</u>, <u>Vincenzo Stornelli</u>, <u>Dario Ambrosini</u></p>
<p><b>12:30pm - 12:45pm</b></p> <p><b>Numerical Simulation of a UV-PCO Plate Reactor</b></p> <p><u>Hao Luo</u>, <u>Guangxin Zhang</u>, <u>Lexuan Zhong</u>, <u>Zaher Hashisho</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>IoT network-based ANN for ventilation pattern prediction and actuation to optimize IAQ in educational spaces</b></p> <p><u>Lavinia Chiara Tagliabue</u>, <u>Fulvio Re Cecconi</u>, <u>Stefano Rinaldi</u>, <u>Angelo Luigi Camillo Ciribini</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Application of the Ecological Valency concept to buildings' environmental control systems</b></p> <p><u>Ardeshir Mahdavi</u>, <u>Helene Teufl</u>, <u>Christiane Berger</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Residential balanced ventilation and its impacts on indoor pressure, ventilation and IAQ</b></p> <p><u>Boualem Ouazia</u>, <u>Doyun Won</u>, <u>Daniel Aubin</u>, <u>Chantal Arsenault</u>, <u>Stephanie So</u>, <u>Wenping Yang</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Fast computation approaches for parameterized design and simulation of vertical ground heat exchangers and GCHP systems</b></p> <p><u>Youming Chen</u>, <u>Bingbing Pang</u>, <u>Xunshui Zhang</u></p>

		<p><b>12:45pm - 1:00pm</b></p> <p>Comparison of local equivalent temperatures and subjective thermal comfort ratings with regard to passenger comfort in a train compartment</p> <p><u>Pascal Lange</u>, Daniel Schmeling, Hans-Jürgen Hörmann, Andre Volkmann</p>	<p><b>12:45pm - 1:00pm</b></p> <p>Benchmarking thermal performance of buildings and identifying preferred thermal conditions with highly deployable IoT devices</p> <p><u>Georgios Kokogiannakis</u>, Wenye Lin, Massimo Fiorentini, Laia Ledo-Gomis, Paul Cooper, Eve Hoskins, Tim Elgood</p>	<p><b>12:45pm - 1:00pm</b></p> <p>Reviewing MnOx-Based Catalyst for Decomposition of Indoor Ozone</p> <p><u>Marzieh Namdari</u>, Chang-Seo Lee, Fariborz Haghighat, Ali Bahloul, Melanie Huard</p>	<p><b>12:45pm - 1:00pm</b></p> <p>Full-scale experimental study of moisture condensation on the glazing surface: condensation rate characterization</p> <p>Chi-Kien Nguyen, <u>Cătălin Teodosiu</u>, Frédéric Kuznik, Damien David</p>	<p><b>12:45pm - 1:00pm</b></p> <p>A Techno-Socio-Economic Approach to Management of Exposure to Volatile Organic Compounds in Indoor Air Environment: Case study in China</p> <p><u>Nasrin Khalili</u>, Lanh Nguyen, Yanglong Wang, Sohail Murad, Weiquan Cheng, Andrew Kumiega</p>
1:00pm - 2:00pm	Lunch					
2:00pm - 4:00pm	<p><b>HVAC 2</b></p> <p>Location: <b>Room 2</b> Chair: <b>Antonio Marco Pantaleo</b></p>	<p><b>IAQ 3</b></p> <p>Location: <b>Room 3</b> Chair: <b>Valentina Serra</b></p>	<p><b>IAQ 4</b></p> <p>Location: <b>Room 5</b> Chair: <b>Rajat Gupta</b></p>	<p><b>Ventilation 2</b></p> <p>Location: <b>Room 7</b> Chair: <b>Tomasz Kisilewicz</b></p>	<p><b>ZEB 2</b></p> <p>Location: <b>Room 9</b> Chair: <b>Michael Robert Donn</b></p>	<p><b>ZEB 3</b></p> <p>Location: <b>Room 11</b> Chair: <b>Sergio Camporeale</b></p>
	<p><b>2:00pm - 2:15pm</b></p> <p>Residential dual core energy recovery ventilation system for cold climates and its impacts on ventilation and IAQ</p> <p><u>Boualem Ouazia</u>, Doyun Won, Chantal Arseneault, Yunyi Li</p>	<p><b>2:00pm - 2:15pm</b></p> <p>Investigation of Indoor Air Quality in Six Office Buildings in Chengdu, China based on Continuous Monitoring Data</p> <p><u>Yang Qiu</u>, Ya Tang</p>	<p><b>2:00pm - 2:15pm</b></p> <p>Numerical investigation of particle distribution in a floor heated room with different air change rates</p> <p><u>Mustafa Mutlu</u></p>	<p><b>2:00pm - 2:15pm</b></p> <p>Characterizing the efficiency of natural ventilation with a motorized skylight and ventilated window</p> <p><u>Diane Bastien</u></p>	<p><b>2:00pm - 2:15pm</b></p> <p>Measurement Data Analysis for Heat Balance of Air Conditioning System in Actual Office Space</p> <p>Shogo Tamaki, Hayato Horie, Shinichi Ito, Mamoru Hamada, Takehiro Koyano</p>	<p><b>2:00pm - 2:15pm</b></p> <p>Warm climate performance of water-filled double-glazing</p> <p>Tin Tai Chow, Wenjie Liu</p>
	<p><b>2:15pm - 2:30pm</b></p> <p>Energy consumption for domestic hot water use in Norwegian hotels and nursing homes</p> <p>Harald Taxt Walnum, Åse Lekang Sørensen, Bjørn Ludvigsen, Dmytro Ivanko</p>	<p><b>2:15pm - 2:30pm</b></p> <p>A comparison of indoor air quality and employee absenteeism in 'local' and 'imported' green building standards</p> <p><u>Rana Abd Elnaklah</u>, Sukumar Natarajan</p>	<p><b>2:15pm - 2:30pm</b></p> <p>Ventilation mode effect on thermal comfort in a mixed mode building</p> <p><u>Jungsoo Kim</u>, Richard de Dear, Federico Tartarini, Thomas Parkinson, Paul Cooper</p>	<p><b>2:15pm - 2:30pm</b></p> <p>Study on energy loss through door open while air conditioner running in commercial store</p> <p><u>Sihwan Lee</u></p>	<p><b>2:15pm - 2:30pm</b></p> <p>Data-driven prediction models of multi-dimensional energy consumed in public buildings</p> <p>Yibo Chen, <u>Umberto Berardi</u></p>	<p><b>2:15pm - 2:30pm</b></p> <p>Thermal performance of a wall-type thermosyphon used in solar heating</p> <p>Chi-Ming Lai, C.S. Huang, R.H. Chen, C.J. Ho</p>
	<p><b>2:30pm - 2:45pm</b></p> <p>Simulation and Analysis of Load Shifting and Energy Saving Potential of CO<sub>2</sub>-Based Demand-Controlled Ventilation in a Sports Training Center</p> <p><u>Hamidreza Heidar Esfehani</u>, Jakob Schäuble, Elena Paul, Dirk Bohne</p>	<p><b>2:30pm - 2:45pm</b></p> <p>Improving the indoor climate of the traditional ottoman houses in the medina of algiers</p> <p><u>Marwa Bencheikroun</u>, Samia Chergui, Francesco Ruggiero, Silvia Di Turi</p>	<p><b>2:30pm - 2:45pm</b></p> <p>Comparative evaluation of the link between measured and perceived indoor environmental conditions in naturally and mechanically ventilated office environments</p> <p>Rajat Gupta, Alastair Howard</p>	<p><b>2:30pm - 2:45pm</b></p> <p>An Analysis of the ventilation rates in residential building</p> <p><u>Jihyun Yoo</u>, Seungrim Lee, Junseok Park</p>	<p><b>2:30pm - 2:45pm</b></p> <p>Lessons learned after one-year use of a high efficient neighborhood in Norway</p> <p><u>Maria Justo Alonso</u>, Tor Line, Randi Kalskin Ramstad, Erling Naess, Peter Breuhaus, Kirsti Midttømme</p>	<p><b>2:30pm - 2:45pm</b></p> <p>Performance comparison between building insulating materials made of straw bales and EPS for timber walls</p> <p>Gianpiero Evola, <u>Stefano Cascone</u>, Gaetano Sciuto, Chiara Baroetto Parisi</p>



2:45pm - 3:00pm

**Prediction of DHW energy use in a hotel in Norway**

Dmytro Ivanko,  
Natasa Nord,  
Åse Lekang Sørensen,  
Igor Sartori,  
Thale Sofie Wester  
Plesser,  
Harald Taxt Walnum

3:00pm - 3:15pm

**Smart Heat Storage Building Material Development with Hwangtoh and SSPCM for Zero Energy Buildings**

Sungwoong Yang,  
Seunghwan Wi,  
Jongki Lee,  
Beom Yeol Yun,  
Ji Hun Park,  
Sumin Kim

3:15pm - 3:30pm

**Towards an Ontology for Holistic Building Occupant Information Modeling**

Shide Salimi,  
Mazdak Nik-Bakht,  
Amin Hammad

3:30pm - 3:45pm

**From awareness to energy saving: using user engagement to change occupants' behaviour**

Ubaldo Ayr,  
Davide Guarini,  
Francesco Martellotta,  
Daniela Porcelli,  
Antonio Sacchetti,  
Masimiliano Siliberti,  
Leonardo Sulpasso

3:45pm - 4:00pm

**Numerical Simulation the Effect of Natural Ventilation on Indoor Environment Quality in the Inner-corridor-type Student Dormitory in Winter**  
Zhuangzhuang Li,  
Kaiyue Li,  
Jin Chang,  
Huazhen Wu,  
Jiying Liu

2:45pm - 3:00pm

**An approach to develop a green technology database for residential buildings**

Jialei Shen,  
Jianshun Zhang

3:00pm - 3:15pm

**Methodology for assessing the indoor environmental quality in low energy buildings in the Czechia**

Karel Kabele,  
Zuzana Veverkova,  
Miroslav Urban

3:15pm - 3:30pm

**Investigation into the Risk of Overheating in New Zealand's Public Libraries**

Lesley Metibogun,  
Regan Potangaroa,  
Nigel Isaacs

3:30pm - 3:45pm

**IEQ and energy improvement of existing buildings by prefabricated façade additions: the case of a student house in Athens**

Giovanni Semprini,  
Annarita Ferrante,  
Anastasia Fotopoulou,  
Davide Cantelli,  
Chrysanthi Efthymiou,  
Dimitra Papadaki,  
Margarita-Niki  
Assimakopoulos

3:45pm - 4:00pm

**Analysis of thermal performance improvement technology for window of old Buildings in South Korea**

Suin Lee,  
Gyeong-Seok Choi,  
Jae-Sik Kang,  
Hyun-Jung Choi

2:45pm - 3:00pm

**Evaluation of vertical ventilation concepts for a typical mid-size car in terms of heating and cooling dynamics**

Tobias Dehne,  
Andreas Westhoff

3:00pm - 3:15pm

**An improved integrated comfort control with cooling and ventilation systems to maintain occupants' thermal comfort**

Sun Ho Kim,  
Jeong Won Kim,  
Young Ran Yoon,  
Hyeun Jun Moon

3:15pm - 3:30pm

**Night Ventilation Hollow Core Slab Activation for Cooling Load Reduction Under the Operative Temperature Criterion**

Christopher  
Raghubar,  
Umberto Berardi

3:30pm - 3:45pm

**Demand-controlled ventilation: do different user groups require different CO2-setpoints?**

Martine Borgen  
Haugland,  
Aileen Yang,  
Sverre Bjørn Holøs,  
Kari Thunshelle,  
Mads Mysen

3:45pm - 4:00pm

**Ventilation characteristics of window types in naturally ventilated residential buildings in Asaba, Nigeria**

Ben Ugochukwu  
Iwuagwu,  
Marcel Okafor,  
Ikechukwu Onyegirir,  
Charles Chime

2:45pm - 3:00pm

**Ventilative cooling potential of buildings in Australia**

Federico Tartarini,  
Massimo Fiorentini,  
Laia Ledo Gomis, Paul  
Cooper

3:00pm - 3:15pm

**Estimating Ventilation Rates In Schools In Indian Context**

Sandhiya Jayakumar,  
Michael G Apte

3:15pm - 3:30pm

**Optimal night mechanical ventilation control strategy in office buildings**

Rui Guo,  
Yue Hu,  
Mingzhe Liu,  
Per Heiselberg

3:30pm - 3:45pm

**Case study assessment for natural ventilation performance of heritage buildings located in the Mediterranean city Alexandria, Egypt.**

Ahmed K. Taher,  
Oriel Prizeman,  
Bakr Gomaa,  
Simon Lannon

3:45pm - 4:00pm

**Experimental characterization of the impact of unsteady airflows on tracer gas measurements**

Gabriel Remion,  
Bassam Moujalled,  
Mohamed El Mankibi

2:45pm - 3:00pm

**A data mining model for building occupancy prediction based on deep learning methods**

Yaping Zhou,  
Zhun Yu,  
Jun Li,  
Guoqiang Zhang

3:00pm - 3:15pm

**Occupant behavior: a major issue for building energy performance**

Yousra Laaroussi,  
Myriam Bahrar,  
Mohamed Elmankibi,  
Draoui Abdeslam,  
Amir el Arbi

3:15pm - 3:30pm

**Understanding the driving factors and patterns of window opening and closing behavior in French households**

Jun Li,  
Karthik  
Panchabikesan,  
Zhun (Jerry) Yu,  
Fariborz Haghighat,  
Mohamed El Mankibi,  
Guoqiang Zhang

3:30pm - 3:45pm

**District household electricity consumption pattern analysis based on auto-encoder algorithm**

Yuan Jin,  
Da Yan,  
Xingxing Zhang,  
Mengjie Han,  
Xuyuan Kang,  
Jingjing An,  
Hongsan Sun

3:45pm - 4:00pm

**Towards net zero energy buildings: building performance optimization, simulation and analysis**

Sadaf Alam

2:45pm - 3:00pm

**Control Method for Adaptive Façades based on Energy Conservation and Glare Protection Strategies**

Dongseok Lee,  
Kyung Hwan Ji,  
Jae Hun Jo

3:00pm - 3:15pm

**Towards more sustainable patterns of building design through ventilated rainscreens**

Francesco Paolo  
Rosario Marino,  
Filiberto Lembo

3:15pm - 3:30pm

**Dynamic simulation of cross-ventilated buildings with night-flush cooling in neighbourhood environment using integrated CFD-CFD-BES strategy**

Ruijun Zhang,  
Parham A. Mirzaei,  
Benjamin M. Jones

3:30pm - 3:45pm

**Microstructure and Chemical Characterization of Foam Insulations**

Jelena Madzarevic,  
Umberto Berardi

3:45pm - 4:00pm

**Energy use and indoor air quality in indoor swimming pool facilities**

Therese Nitter,  
Snorre Olsen,  
Salvatore Carlucci

# CONFERENCE AGENDA

4:00pm - 4:30pm	Coffee break				
4:00pm - 6:30pm	Poster Sessions				
4:30pm - 6:00pm	<b>HVAC 3</b> Location: <a href="#">Room 2</a> Chair: <a href="#">Hiroshi Yoshino</a>	<b>IAQ 5</b> Location: <a href="#">Room 3</a> Chair: <a href="#">Gloria Pignatta</a>	<b>Ventilation 3</b> Location: <a href="#">Room 5</a> Chair: <a href="#">Piercarlo Romagnoni</a>	<b>Ventilation 4</b> Location: <a href="#">Room 7</a> Chair: <a href="#">Ardeshir Mahdavi</a>	<b>ZEB 4</b> Location: <a href="#">Room 9</a> Chair: <a href="#">Pietro Stefanizzi</a>
	<b>4:30pm - 4:45pm</b> <b>Modelling and Optimization of Helical Steel Piles as In-Ground Heat Exchangers for Ground Source Heat Pumps</b> <a href="#">Sarah Ruth Nicholson</a> , <a href="#">Aggrey Mwesigye</a> , <a href="#">Seth Dworkin</a>	<b>4:30pm - 4:45pm</b> <b>An extensive study on the relation between energy use, indoor thermal comfort, and health in social housing: the case of the New South Wales, Australia</b> <a href="#">Shamila Haddad</a> , <a href="#">Gloria Pignatta</a> , <a href="#">Riccardo Paolini</a> , <a href="#">Afroditi Synnefa</a> , <a href="#">Mattheos Santamouris</a>	<b>4:30pm - 4:45pm</b> <b>Development of a procedure to measure the performance of ventilation filters for nanoparticles</b> <a href="#">Ali Bahloul</a> , <a href="#">Clothilde Brochot</a> , <a href="#">Pooya Abdolghader</a> , <a href="#">Fariborz Haghighat</a>	<b>4:30pm - 4:45pm</b> <b>Numerical Modeling and Experimental Validation of PCM-to-Air Heat Exchangers - Application of Ventilated Building Envelopes</b> <a href="#">Mohamed Dardir</a> , <a href="#">Mohamed EL-Mankibi</a> , <a href="#">Fariborz Haghighat</a>	<b>4:30pm - 4:45pm</b> <b>Towards a universal ranking system for design parameters impact on buildings' lifecycle energy</b> <a href="#">Rafaela Panizza</a> , <a href="#">Mazdak Nik-Bakht</a>
	<b>4:45pm - 5:00pm</b> <b>Performance investigation of ground source heat exchanger desiccant-based hybrid cooling system in humid climate</b> <a href="#">Ghassem Heidarinejad</a> , <a href="#">Umberto Berardi</a> , <a href="#">Saeed Rayegan</a>	<b>4:45pm - 5:00pm</b> <b>Effect of ventilation on perceived air quality in 18 classrooms</b> <a href="#">Aileen Yang</a> , <a href="#">Sverre Bjørn Høies</a> , <a href="#">Kari Thunshelle</a> , <a href="#">Mads Mysen</a>	<b>4:45pm - 5:00pm</b> <b>Minimize the airborne particle migration to the operating rooms during door opening and passage</b> <a href="#">Merethe Cecilie Lind</a> , <a href="#">Sasan Sadrizadeh</a> , <a href="#">Cong Wang</a> , <a href="#">Parastoo Sadeghian</a> , <a href="#">Bård Venås</a> , <a href="#">Sture Holmberg</a> , <a href="#">Trond Thorgerir Harsem</a>	<b>4:45pm - 5:00pm</b> <b>Experimental study of thermal characteristics for a novel ventilation roof with composite phase change material (VRPCM)</b> <a href="#">Xiangfei Kong</a> , <a href="#">Xiaofei Li</a> , <a href="#">Xu Qiao</a> , <a href="#">Yufan Chang</a> , <a href="#">Wanhe Chen</a>	<b>4:45pm - 5:00pm</b> <b>Analysis of energy performances of a nZEB kindergarten building in Bisceglie (Apulia region)</b> <a href="#">Monica Misceo</a> , <a href="#">Luca Peralta</a> , <a href="#">Sabrina Angelillo</a> , <a href="#">Pietro Stefanizzi</a>
	<b>5:00pm - 5:15pm</b> <b>Numerical investigation on the impact of different supply air terminal devices on the performance of the newly combined ventilation and heating system</b> <a href="#">Parastoo Sadeghian</a> , <a href="#">Joanna Polak</a> , <a href="#">Alireza Afshari</a> , <a href="#">Sasan Sadrizadeh</a>	<b>5:00pm - 5:15pm</b> <b>Modelling drivers of variance and adaptation for the prediction of thermal perception and energy use in zero energy buildings</b> <a href="#">Marcel Schweiker</a>	<b>5:00pm - 5:15pm</b> <b>Contamination risk in a cleanroom with weakened aerodynamic barrier</b> <a href="#">Lasse Lind Knudsen</a> , <a href="#">Kiril Georgiev</a> , <a href="#">Naydenov</a> , <a href="#">Carsten Rasmussen</a> , <a href="#">Arsen Krikor Melikov</a> , <a href="#">Lei Fang</a>	<b>5:00pm - 5:15pm</b> <b>Curved wall jets and their effect on the airflow in a generic enclosure: validation of RANS models</b> <a href="#">Jo-Hendrik Thysen</a> , <a href="#">Twan van Hooff</a> , <a href="#">Bert Blocken</a> , <a href="#">GertJan van Heijst</a>	<b>5:00pm - 5:15pm</b> <b>A Nearly Zero Energy Building in Mediterranean climate: A case study in Mesagne (Apulia)</b> <a href="#">Roberto Stasi</a> , <a href="#">Salvatore Paterno</a> , <a href="#">Antonio Stragapede</a> , <a href="#">Stefania Liuzzi</a> , <a href="#">Pietro Stefanizzi</a>
	<b>5:15pm - 5:30pm</b> <b>Application of air-source heat pump (ASHP) technology for residential buildings in Canada</b> <a href="#">Artur Udovichenko</a> , <a href="#">Lexuan Zhong</a>	<b>5:15pm - 5:30pm</b> <b>Building Energy and IAQ improvement by Coupled Model</b> <a href="#">Seyed Mohammadreza Heibati</a> , <a href="#">Wahid Maref</a> , <a href="#">Hamed Saber</a>	<b>5:15pm - 5:30pm</b> <b>Operating room ventilation with laminar air flow ceiling and a local laminar air flow system near the operating table for the patient</b> <a href="#">Laurențiu Tăcutu</a> , <a href="#">Ilinca Năstase</a> , <a href="#">Florin Bode</a>	<b>5:15pm - 5:30pm</b> <b>Steady RANS CFD simulations for air curtain flows</b> <a href="#">Adelya Khayrullina</a> , <a href="#">Twan van Hooff</a> , <a href="#">Bert Blocken</a> , <a href="#">GertJan van Heijst</a>	<b>5:15pm - 5:30pm</b> <b>Numerical and experimental performances of a multi-family nZEB in Putignano (Bari, Italy)</b> <a href="#">Pietro Stefanizzi</a> , <a href="#">Alessandra Altobello</a> , <a href="#">Monica Misceo</a> , <a href="#">Piero Russo</a> , <a href="#">Ilaria Vignola</a>

# CONFERENCE AGENDA

	<p><b>5:30pm - 5:45pm</b></p> <p><b>Multiple Regression Model and Benchmarking for HVAC Energy Consumption of Railway Passenger Stations</b></p> <p><u>Ziyi Su,</u> Xiaofeng Li</p> <hr/> <p><b>5:45pm - 6:00pm</b></p> <p><b>Exergy analysis of solar thermal energy utilization for buildings Comparison between Multiple source &amp; Multiple use Heat Pump (MMHP) and Solar Water Heater (SWH) systems for winter season</b></p> <p><u>Daisuke Inagaki,</u> Ryozo Ooka, Masanori Shukuya, Wonjun Choi</p>	<p><b>5:30pm - 5:45pm</b></p> <p><b>Experimental Investigation on Thermal Insulation Performance of Air Interlayer under an Impinging Jet at High Temperature</b></p> <p><u>Jian Cai,</u> Wei Ye, Chengqiang zhi, Yixiang Huang, Xu Zhang</p> <hr/> <p><b>5:45pm - 6:00pm</b></p> <p><b>Prefabricated and low impact residential modules: optimization of environmental quality</b></p> <p>Santi Maria Cascone, Giuseppe Russo, Nicoletta Tomasello, Matteo Vitale</p>	<p><b>5:30pm - 5:45pm</b></p> <p><b>Long-term performance of fibrous ventilation/air cleaner filter for particle removal</b></p> <p><u>Lili Ji,</u> <u>Jingjing Pei,</u> Wenlong Liu</p> <hr/> <p><b>5:45pm - 6:00pm</b></p> <p><b>The displacement ventilation patterns in two parallel-connected chambers with a mechanical extraction device</b></p> <p><u>Yi-Jiun Peter Lin,</u> Shang-Qian Li</p>	<p><b>5:30pm - 5:45pm</b></p> <p><b>Controlled inlet airflow in ventilated prototypes: a numerical analysis</b></p> <p><u>Marianna Pergolini,</u> <u>Giulia Ulpiani,</u> Orjena Shehi, Costanzo Di Perna, Francesca Stazi</p> <hr/> <p><b>5:45pm - 6:00pm</b></p> <p><b>Beyond Recovery: Measuring ventilation strategies and their impact on energy.</b></p> <p><u>Nilesh Bakshi,</u> Michael Robert Donn, Sanjeev Ganda, James Wallace</p>	<p><b>5:30pm - 5:45pm</b></p> <p><b>Heating demand and indoor air temperature prediction in a residential building using physical and statistical models: A comparative study</b></p> <p><u>Ying Sun,</u> Mahmood Mastani Joybari, Karthik Panchabikesan, Alain Moreau, Miguel Robichaud, Fariborz Haghighat</p> <hr/> <p><b>5:45pm - 6:00pm</b></p> <p><b>Hourly dynamic and monthly semi-stationary calculation methods applied to nZEBs: Impacts on energy and comfort</b></p> <p>Elisa Di Giuseppe, Giulia Ulpiani, Serena Summa, Costanzo Di Perna, Marco D'Orazio, Luca Tarabelli</p>
6:30pm - 7:30pm	Bari Historic Town visit				
7:00pm - 9:30pm	Welcoming Party				

# CONFERENCE AGENDA

Date: Friday, 06/Sep/2019

8:00am - 8:30am	Registration					
8:30am - 9:30am	<b>Plenary 2: Dr. Philomena Bluysen</b> <b>Title: Towards an integrated analysis of the indoor environment and its effects on occupants</b> Location: <b>Aula Magna</b> Chair: <b>Marianne Frances Touchie</b>					
9:30am - 10:30am	<b>Plenary 3: Prof. Mauro Strada</b> <b>Title: Recent experience in HVAC design for High Performance Buildings</b> Location: <b>Aula Magna</b> Chair: <b>Valentina Serra</b>					
10:30am - 11:00am	Coffee break					
11:00am - 1:00pm	<b>Forum: Data-driven approaches for building energy modelling (IBPSA-China update)</b> Location: <b>Room 2</b> Chair: <b>Chris Bales</b> Chair: <b>Da Yan</b> Integrating data from building management systems (BMS) in energy simulation using unsupervised learning and Gaussian processes; Occupancy and usage profiling in energy simulation of residential buildings; District household electricity consumption pattern analysis based on auto-encoder algorithm; A review of reinforcement learning methodologies on control systems for building energy; Data-driven procedure to model occupancy and occupant-related electric load profiles in multi-residential buildings for use in energy simulation; Impact of electrical vehicle (EV) penetration on the cost-optimal building integrated photovoltaics (BIPV) at a small residential district in Sweden.	<b>HVAC 4</b> Location: <b>Room 3</b> Chair: <b>Alberto Muscio</b> <b>11:00am - 11:15am</b> <b>Smart use of mechanical ventilation for energy retrofit of residential dwellings</b> <b>Simone Pedrazzi, Chiara Ferrari, Giulio Allesina, Alberto Muscio</b> <b>11:15am - 11:30am</b> <b>Energy Flexibility of Office Buildings Using Passive Thermal Mass Storage and Global Temperature Adjustment</b> <b>Fei Lu, Zhenyu Yu, Xudong Yang, Yu Zou</b> <b>11:30am - 11:45am</b> <b>Auto-tuning method for data-driven models in building energy consumption prediction: a case of cooling load prediction</b> <b>Xuyuan Kang, Da Yan, Yuan Jin, Hongsan Sun</b>	<b>IAQ 6</b> Location: <b>Room 5</b> Chair: <b>Marco Perino</b> <b>11:00am - 11:15am</b> <b>A Personal Visual Comfort Model: Predict Individual's Visual Comfort Using Occupant Eye Pupil Size and Machine Learning</b> <b>Lingkai Cen, Joon-Ho Choi, Xiaomeng Yao, Yolanda Gil, Shrikanth Narayanan, Maryann Pentz</b> <b>11:15am - 11:30am</b> <b>Design of Online Platform and Visualization System based on Three-Dimensional Spatial Information for Occupant Satisfaction with Indoor Environment Quality</b> <b>Jong-Won Lee, Deuk-Woo Kim</b> <b>11:30am - 11:45am</b> <b>Measuring and identifying background noises in offices during work hours</b> <b>Elena Rossi, Domenico De Salvo, Dario D'Orazio, Massimo Garai</b>	<b>IAQ 7</b> Location: <b>Room 7</b> Chair: <b>Francis Allard</b> <b>11:00am - 11:15am</b> <b>Impact of essential-oil-based cleaning products on indoor air quality: From liquid composition to test chamber emission evaluation</b> <b>Shadia Carolina Angulo Milhem, Marie Verrielle, Mélanie Nicolas, Frédéric Thevenet</b> <b>11:15am - 11:30am</b> <b>Formaldehyde Monitoring in Office Buildings Located in Tropical Climates of India</b> <b>Kiran Kumar D E V S, Jyothi Latha T, Suresh R, Arunvel T</b> <b>11:30am - 11:45am</b> <b>Model-Based Testing and Evaluation of VOC Emission Sources and Sinks in the Indoor Environment: Theory and Applications</b> <b>Jianshun Jensen Zhang, Zhenlei Liu, Beverly Bing Guo</b>	<b>Ventilation 5</b> Location: <b>Room 9</b> Chair: <b>Stefano Fantucci</b> <b>11:00am - 11:15am</b> <b>The effect of airflow rate control on the performance of a fan-assisted solar air heating façade</b> <b>Francesco Isaia, Stefano Fantucci, Valentina Serra, Valeria Longo</b> <b>11:15am - 11:30am</b> <b>Façade Integrated Greenery for Bio-dynamic Filtration of Air</b> <b>Vincenzo Gentile, Marco Simonetti</b> <b>11:30am - 11:45am</b> <b>The effect of changing emissivity on the natural ventilation rate of narrow air cavity integrated in a transparent insulation façade</b> <b>Miroslav Čekon, Jakub Čurpek, Richard Slávik</b>	<b>ZEB 5</b> Location: <b>Room 11</b> Chair: <b>Michele Zinzi</b> <b>11:00am - 11:15am</b> <b>The energy retrofit of building façades in 22@ innovation district of Barcelona: impact of the energy performance analysis on the business model.</b> <b>Mauro Manca, Zuzana Prochazkova, Umberto Berardi, Silvana Flores Larsen, Felipe Pich-Aguilera, Teresa Batlle</b> <b>11:15am - 11:30am</b> <b>Analysis of monitoring data for a nZEB in Mediterranean climate</b> <b>Fabrizio Ascione, Martina Borrelli, Rosa Francesca De Masi, Filippo de Rossi, Giuseppe Peter Vanoli</b> <b>11:30am - 11:45am</b> <b>Cost-efficient Nearly Zero-Energy Buildings (NZEBS)</b> <b>Heike Erhorn-Kluttig, Hans Erhorn, Micha Illner, Kirsten Engelund Thomsen, Kim Wittchen, Ove Mørck, Miriam Sanchez Mayoral Gutierrez, Michele Zinzi, Benedetta Mattoni, Gaetano Fasano, Marjana Šijanec-Zavrl, Marko Jacimovic</b>

<p><b>11:45am - 12:00pm</b></p> <p><b>A Robust Chiller Sequencing Control Method for Enhancing Cooling Supply Reliability and Energy Efficiency</b></p> <p><u>Yundan Liao,</u> <u>Zhenbing Cai,</u> <u>Zhaosong Fang</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>Climate and Occupancy Based Investigation of Air Pollutants in Office Spaces</b></p> <p><u>Ulrike Passe,</u> <u>Farzad Hashemi</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>Development of a novel method for determining the gas-phase concentration of emitted phthalates from indoor materials at room temperature</b></p> <p><u>Tamara Ghanem Braish,</u> <u>Mélanie Nicolas,</u> <u>François Maupetit,</u> <u>Valérie Desauziers</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>A test bed for thermal fluid dynamic analysis of double skin facade systems</b></p> <p><u>Aleksandar Jankovic,</u> <u>Francesco Goia,</u> <u>David Eckert,</u> <u>Philipp Müller</u></p>	<p><b>11:45am - 12:00pm</b></p> <p><b>Survey and solutions to identify potential cost reduction in the design and construction process of nearly zero energy multi-family houses</b></p> <p><u>Michele Zinzi,</u> <u>Benedetta Mattoni,</u> <u>Fabio Bisegna</u></p>
<p><b>12:00pm - 12:15pm</b></p> <p><b>Frost reduction in mechanical balanced ventilation by efficient means of preheating cold supply air</b></p> <p><u>Simon Härer,</u> <u>Behrouz Nourozi,</u> <u>Qian Wang,</u> <u>Adnan Ploskic</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>Impacts of energy retrofits on indoor CO2 concentrations and air change rates</b></p> <p><u>Virpi Leivo,</u> <u>Tadas Prasauskas,</u> <u>Anu Aaltonen,</u> <u>Dainius Martuzevicius,</u> <u>Ulla Haverinen-Shaughnessy</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>Active coating including microorganism for indoor formaldehyde degradation</b></p> <p><u>Tangi Senechal,</u> <u>Cristiana Cordeiro de Castro,</u> <u>Julian Viseur,</u> <u>Aline Ducoulebrier,</u> <u>Anne-Lise Hantson,</u> <u>Driss Lahem</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>The Influence of urban microclimate vertical variations on the building performance of a high-rise office building at different floors</b></p> <p><u>Jing Li,</u> <u>Michael Donn,</u> <u>Geoff Thomas</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>End-users' opinion on living in multi-family Nearly Zero Energy Buildings</b></p> <p><u>Marjana Šijanec Zavrl,</u> <u>Marko Jaćimović,</u> <u>Heike Erhorn-Kluttig,</u> <u>Hans Erhorn,</u> <u>Micha Illner,</u> <u>Kirsten Thomsen,</u> <u>Kim Wittchen,</u> <u>Ove Christen Mørck,</u> <u>Miriam Sanchez Mayoral Gutierrez,</u> <u>Michele Zinzi,</u> <u>Benedetta Mattoni,</u> <u>Gaetano Fasano</u></p>
<p><b>12:15pm - 12:30pm</b></p> <p><b>Tuning Approach of Dynamic Control Strategy of Temperature Set-point for Existing Commercial Buildings</b></p> <p><u>Zakia Afroz,</u> <u>GM Shafiullah,</u> <u>Tania Urmee,</u> <u>Gary Higgins</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Optimizing Indoor Environmental Quality in Hot Arid Climates</b></p> <p><u>Dalia Wagdi,</u> <u>Khaled Tarabieh,</u> <u>Phillipa Grant</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Experimental and Numerical Investigation of Submicron Particle Deposition Enhancement by Patterned Surface</b></p> <p><u>Haolun Xu,</u> <u>Tsz Wai Lai,</u> <u>Sau Chung Fu,</u> <u>Chili Wu,</u> <u>Huihe Qiu,</u> <u>Christopher Y.H. Chao</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Effect of cavity ventilation on hygrothermal performance of heavyweight building envelope</b></p> <p><u>Marina Bagaric,</u> <u>Banjad Pecur,</u> <u>Bojan Milovanovic</u></p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Solutions sets for cost optimisation of nearly zero energy buildings (NZEBS) in four European countries</b></p> <p><u>Kim B. Wittchen,</u> <u>Kirsten Engelund Thomsen,</u> <u>Ove Mørck,</u> <u>Heike Erhorn-Kluttig,</u> <u>Hans Erhorn,</u> <u>Micha Illner,</u> <u>Miriam Sanchez Mayoral Gutierrez,</u> <u>Michele Zinzi,</u> <u>Benedetta Mattoni,</u> <u>Gaetano Fasano,</u> <u>Marjana Šijanec-Zavrl,</u> <u>Marko Jacimovic</u></p>
<p><b>12:30pm - 12:45pm</b></p> <p><b>Case Study of Smart Dual Fuel Switching System (SDFSS)</b></p> <p><u>Saunak Shukla,</u> <u>King Tung,</u> <u>Danilo Yu,</u> <u>Alan S. Fung</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>The effect of student activity and outdoor condition on particulate matter concentration in university classroom</b></p> <p><u>Sowoo Park,</u> <u>Doosam Song</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Evaluation of the occupants' exposition to the indoor environment</b></p> <p><u>Jakub Wladyslaw Dziedzic,</u> <u>Da Yan,</u> <u>Vojislav Novakovic</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Simulations of a novel demand-controlled room-based ventilation system for renovated apartments</b></p> <p><u>Kevin Michael Smith,</u> <u>Jakub Kolarik</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Life-cycle cost and environmental assessment of nearly zero-energy buildings (NZEBS) in four European countries</b></p> <p><u>Ove Christen Mørck,</u> <u>Miriam Sanchez Mayoral Gutierrez,</u> <u>Kirsten Engelund Thomsen,</u> <u>Kim Bjarne Wittchen</u></p>



# CONFERENCE AGENDA

		<p><b>12:45pm - 1:00pm</b></p> <p><b>An Effective Ventilation System for Preventing Indoor PM2.5 Dispersion</b></p> <p>Hangyeol Park, Haneul Choi, Kyung Mo Kang, Hyung Keun Kim, Taeyeon Kim</p>	<p><b>12:45pm - 1:00pm</b></p> <p><b>Acoustic Environment of Large Terminal Airside Concourse in China</b></p> <p>Huang Yehnsiang, Zhu Yingxin, Zhang Zhongchen, Lin Borong</p>	<p><b>12:45pm - 1:00pm</b></p> <p><b>Thermal comfort and visual interaction: a subjective survey</b></p> <p>Laura Bellia, d'Ambrosio Alfano, Francesca Romana, Fragliasso Francesca, Boris Igor Palella, Riccio Giuseppe</p>	<p><b>12:45pm - 1:00pm</b></p> <p><b>Climatic potential maps of ventilative cooling techniques in Italian climates including resilience to climate changes</b></p> <p><u>Giacomo Chiesa</u></p>	<p><b>12:45pm - 1:00pm</b></p> <p><b>Model House F3 in Ljubljana - Nearly Zero Energy Building</b></p> <p>Damjana Varsek, Gaj Rak</p>
1:00pm - 2:00pm	Lunch					
2:00pm - 4:00pm	<p><b>HVAC 5</b> Location: <b>Room 2</b> Chair: Marianne Frances Touchie</p>	<p><b>HVAC 6</b> Location: <b>Room 3</b> Chair: Lexuan Zhong</p>	<p><b>IAQ 8</b> Location: <b>Room 5</b> Chair: Richard de Dear</p>	<p><b>Ventilation 6</b> Location: <b>Room 7</b> Chair: Carsten Rode</p>	<p><b>ZEB 6</b> Location: <b>Room 9</b> Chair: Jianshun Jensen Zhang</p>	<p><b>ZEB 7</b> Location: <b>Room 11</b> Chair: Francesco Asdrubali</p>
	<p><b>2:00pm - 2:15pm</b></p> <p><b>Introduction of Hybrid Radiant Cooling System for adapting Hot and Humid Climates</b></p> <p><u>Moon Keun Kim</u></p>	<p><b>2:00pm - 2:15pm</b></p> <p><b>The Thermodynamic Investigation and Optimization of an Ejector Refrigeration System using R1233zd(E) as a Working Fluid</b></p> <p><u>Aggrey Mwesigye</u>, Amir Kiamari, Seth B. Dworkin</p>	<p><b>2:00pm - 2:15pm</b></p> <p><b>On the temporal dimension of adaptive thermal comfort mechanisms in residential buildings</b></p> <p><u>Jihye Ryu</u>, Jungsoo Kim, Wonhwa Hong, Richard de Dear</p>	<p><b>2:00pm - 2:15pm</b></p> <p><b>Key findings of IEA EBC Annex 68 - Indoor Air Quality Design and Control in Low Energy Residential Buildings</b></p> <p><u>Carsten Rode</u>, Marc Abadie, Menghao Qin, John Grunewald, Jakub Kolarik, Jelle Laverge</p>	<p><b>2:00pm - 2:15pm</b></p> <p><b>Experimental assessment of the combined effect of retroreflective façades and pavement in urban canyons</b></p> <p><u>Beatrice Castellani</u>, Andrea Nicolini, Alberto Maria Gambelli, Mirko Filipponi, Elena Morini, Federico Rossi</p>	<p><b>2:00pm - 2:15pm</b></p> <p><b>Simulation-supported shading design optimisation for a multi-storey building with passive cooling</b></p> <p><u>Sören Eikemeier</u>, Robert Wimmer, Ardeshir Mahdavi</p>
	<p><b>2:15pm - 2:30pm</b></p> <p><b>Analysis of the energy saving benefits of a radiant cooling system integrating phase change materials</b></p> <p>Andres Gallardo, Umberto Berardi</p>	<p><b>2:15pm - 2:30pm</b></p> <p><b>Method identifying oversizing of mechanical ventilation systems in office buildings using airflow and electrical power measurements</b></p> <p>Donya Sheikh Khan, Jakub Kolarik, Christian Anker Hviid, Peter Weitzmann</p>	<p><b>2:15pm - 2:30pm</b></p> <p><b>Bayesian Inference of Thermal Comfort: Evaluating the Effect of "Well-Being" on Perceived Thermal Comfort in Open-Plan Offices</b></p> <p><u>Sarah Crosby</u>, Steven Rogak, Adam Rysanek</p>	<p><b>2:15pm - 2:30pm</b></p> <p><b>Body fat rate and human thermal comfort relativity study with BIA in HVAC condition</b></p> <p><u>Mengyuan Liu</u></p>	<p><b>2:15pm - 2:30pm</b></p> <p><b>Effects of Increasing Urban Reflectivity on Energy Consumption in Buildings in Toronto during the 2018 Heat Wave Period</b></p> <p><u>Zahra Jandaghian</u>, Umberto Berardi</p>	<p><b>2:15pm - 2:30pm</b></p> <p><b>A Natural Ventilation "Calculator" and</b></p> <p><u>Michael Robert Donn</u>, Nilesch Bakshi</p>
	<p><b>2:30pm - 2:45pm</b></p> <p><b>Study on the heat transfer performance of the ceiling radiant panel</b></p> <p>Yuki Ichikawa, Ryoichi Kuwahara, Hideki Sato</p>	<p><b>2:30pm - 2:45pm</b></p> <p><b>Assessment of Natural Ventilation: Case Study of Landmark Building</b></p> <p>Marc-Antoine Jean, Rohit Upadhyay, Chris Flood, Rodrigo Mora</p>	<p><b>2:30pm - 2:45pm</b></p> <p><b>A field study on the effect of cold radiation on human thermal comfort in winter</b></p> <p>Zhaojun Wang</p>	<p><b>2:30pm - 2:45pm</b></p> <p><b>Experimental investigation into thermal comfort and energy utilization efficiency of stratum ventilation under heating mode</b></p> <p><u>Shuangshuang Liang</u>, Bozheng Li, Xue Tian, Yong Cheng</p>	<p><b>2:30pm - 2:45pm</b></p> <p><b>Influence of microclimate boundary conditions in net zero energy settlements on HVAC efficiency</b></p> <p>Matteo Di Grazia, Cristina Piselli, Anna Laura Pisello</p>	<p><b>2:30pm - 2:45pm</b></p> <p><b>Impact of effective conductivity value of building insulation materials on estimating heating and cooling load using typical and historical weather data</b></p> <p><u>Chun Yin Siu</u>, Yu Ying Wang, Zaiyi Liao</p>

2:45pm - 3:00pm

**Exergetic review on passive and active systems for ventilation**

Masanori Shukuya

3:00pm - 3:15pm

**Simulation and control of radiant floor cooling systems: intermittent operation and weather-forecast-based predictive controls**

Linfang Zhang,  
Hao Li,  
Jiying Liu,  
Moon Keun Kim,  
Linhua Zhang

3:15pm - 3:30pm

**Performance of Occupancy-Controlled Smart Thermostats in Contemporary Multi-Unit Residential Building Suites**

Helen Stopps,  
Marianne F Touchie

3:30pm - 3:45pm

**Creation of a simulated dataset for Smart and Continuous Commissioning**

Rony Shohet,  
J. J. McArthur

3:45pm - 4:00pm

**Development of Numerical Heat and Mass Transfer Model for Predicting Total Heat Exchange Performance in Energy Recovery Ventilator**

Hajime Sotokawa,  
Keiji Kameishi,  
Juyeon Chung,  
Sung-Jun Yoo,  
Kazuhide Ito

2:45pm - 3:00pm

**Monitoring and Evaluation of Nearly-Zero Energy House (NZEH) with Hybrid HVAC System for Cold Climate - Canada**

Gulsun Demirezen,  
Navid Ekrami,  
Alan S. Fung,  
Danilo Yu

3:00pm - 3:15pm

**Investigation on the thermal performance of the diaphragm wall in deep buried engineering: a simulation study**

Chao zeng,  
Yanping Yuan,  
Fariborz Haghighat,  
Xiaoling Cao,  
Liangliang Sun,  
Bo Xiang

3:15pm - 3:30pm

**Application of data mining in understanding the operation of thermal storage tank in a residential building: A case study**

Maryam Sadat Mirnaghi,  
Karthik Panchabikesan,  
Fariborz Haghighat

3:30pm - 3:45pm

**Optimal Control for the Natural Ventilation in Buildings with Large Depth**

Fulin Wang,  
Rui Yan,  
Yansheng Liu

3:45pm - 4:00pm

**Energy and exergy analysis of waste-water heat recovery in a multi-family residential complex**

Genku Kayo,  
Masanori Shukuya,  
Ivo Martinac

2:45pm - 3:00pm

**Usability and comfort in Canadian offices: Interview of 170 university employees**

Mohamed Ouf,  
Ruth Tamas,  
William O'Brien

3:00pm - 3:15pm

**The impact of internal gains on thermal stratification for public buildings**

Nisrine Laghmich,  
Zaid Romani,  
Remon Lapisa,  
Abdeslam Draoui

3:15pm - 3:30pm

**Manufacture of optimized PCM within thermal comfort range to improve building energy performance**

Ji Hun Park,  
Seunghwan Wi,  
Jongki Lee,  
Beom Yeol Yun,  
Sungwoong Yang,  
Sumin Kim

3:30pm - 3:45pm

**Analysing the effects of thermal comfort and indoor air quality in design studios and classrooms on student performance**

Ali Ranjbar,  
Yasemin Afacan

3:45pm - 4:00pm

**An experimental study of spray foam insulation products - evidence of 1,2-dichloropropane and 1,4-dioxane emissions**

Dzhordzhio Naldzhiev,  
Dejan Mumovic,  
Matija Strlic

2:45pm - 3:00pm

**Comfort-oriented control strategies for decentralized ventilation using co-simulation**

Nicolas Carbonare,  
Thibault Pflug,  
Constanze Bongs,  
Andreas Wagner

3:00pm - 3:15pm

**Analysis of the field tests efficiency of indoor environmental control and energy saving technology: The cases of Solar Decathlon China 2018**

Haitian Zhao,  
Borong Lin,  
Yingxin Zhu,  
Zhe Wang,  
Jinghua Zhang,  
Hongli Sun

3:15pm - 3:30pm

**Prediction of thermal sensation using low-cost infrared array sensors monitoring system**

Yuxin Wu

3:30pm - 3:45pm

**Considerations for Providing Healthy, Comfortable, Energy-Efficient Whole-House Mechanical Ventilation During Humid Weather in Near Zero Energy Homes**

Charles Richard Withers Jr

3:45pm - 4:00pm

**Improving the Energy Performance Certificate recommendations accuracy for residential building through simple measurements of key inputs**

Alex Gonzalez-Caceres,  
Tor Arvid Vik

2:45pm - 3:00pm

**Robust and resilient buildings: A framework for defining the protection against climate uncertainty**

Amin Moazami,  
Salvatore Carlucci,  
Stig Geving

3:00pm - 3:15pm

**Weather Data Analysis in Energy Simulation**

Yu Ying Wang, Chun Yin Siu, Zaiyi Liao

3:15pm - 3:30pm

**Study on building performance considering climate characteristics for university facility in Japan**

Yuki Naito,  
Ryoichi Kuwahara

3:30pm - 3:45pm

**Assessing the annual power reliability of a residential building in relation to its ventilation system type: The case study of the off-grid container house in Shanghai**

Daniel Satola,  
Audun Bull Kristiansen,  
Jakub Wladyslaw Dziedzic,  
Arild Gustavsen

3:45pm - 4:00pm

**Ventilated slabs: Energy consumption mitigation and thermal comfort augmentation**

Murat Özdenefe,  
Soad Abokhamis Mousavi,  
Uğur Atikol

2:45pm - 3:00pm

**A systematic methodology for energy modeling improvement of cross-ventilated buildings in dense urban areas**

Mohammadreza Shirzadi,  
Parham Mirzaei Ahranjani,  
Mohammad Naghashzadegan

3:00pm - 3:15pm

**Analysis of the heating energy demand of a generic shop with an air curtain through coupled CFD and building energy simulations**

Claudio Alanis Ruiz,  
Twan van Hooff,  
Bert Blocken,  
GertJan van Heijst

3:15pm - 3:30pm

**DanBERA: A Tool for Danish Buildings Energy Renovation Design and Assessment**

Muhyiddine Jradi,  
Sandra Sommer Schmidt Andersen,  
Morten Hagenau

3:30pm - 3:45pm

**An early-design stage assessment method based on constructibility for building performance evaluation**

Francesca Contrada,  
Andrea Kindinis,  
Jean- François Caron,  
Christophe Gobin

3:45pm - 4:00pm

**Green roof for Zero Energy Buildings: a pilot project**

Francesco Asdrubali,  
Luca Evangelisti,  
Claudia Guattari

# CONFERENCE AGENDA

4:00pm - 4:30pm	Coffee break				
4:00pm - 6:30pm	Poster Sessions				
4:30pm - 6:00pm	<b>HVAC 7</b> Location: <b>Room 2</b> Chair: <b>Ryozo Ooka</b>	<b>IAQ 9</b> Location: <b>Room 3</b> Chair: <b>Boris Igor Palella</b>	<b>Ventilation 7</b> Location: <b>Room 5</b> Chair: <b>Christos Markides</b>	<b>ZEB 8</b> Location: <b>Room 7</b> Chair: <b>Adolfo Palombo</b>	<b>ZEB 9</b> Location: <b>Room 9</b> Chair: <b>Fabio Fatiguso</b>
	<b>4:30pm - 4:45pm</b> <b>RELaTED, Decentralized &amp; Renewable Ultra Low Temperature District Heating, Concept Conversion from traditional District Heating</b> <b>Mikel Lumbreras, Roberto Garay, Victor Sanchez</b>	<b>4:30pm - 4:45pm</b> <b>Thermal environment perceptions considering length of stay for cardiovascular inpatients in hospitals: a statistical approach</b> <b>Badr Saad Alotaibi, Stephen Lo</b>	<b>4:30pm - 4:45pm</b> <b>The investigation of Indoor Air quality and Ventilation of an Airport Terminal Building in China</b> <b>Hong Jiajie, Lin Borong</b>	<b>4:30pm - 4:45pm</b> <b>Modelling of a Net-Zero Energy Condo in a Cold Climate Using an Interdisciplinary Design Framework</b> <b>Sarah Ruth Nicholson, Rony Shohet, Alan Fung</b>	<b>4:30pm - 4:45pm</b> <b>Roadmap Toward NZEB in Quito</b> <b>Elizabeth Ordoñez, David Mora, Karl Gaudry</b>
	<b>4:45pm - 5:00pm</b> <b>District heating thermal plant fed by biomass residues in a rural area of Central Italy</b> <b>Mattia Manni, Alessandro Petrozzi, Andrea Nicolini, Franco Cotana</b>	<b>4:45pm - 5:00pm</b> <b>Understanding indoor environmental conditions and occupant's responses in houses of older people</b> <b>Veronica Soebarto, Terence Williamson, Andrew Carre, Larissa Arakawa Martins</b>	<b>4:45pm - 5:00pm</b> <b>A study of low-temperature zone in tunnel with large longitudinal ventilation</b> <b>Jun Wang, Miao-cheng Weng, Fang Liu</b>	<b>4:45pm - 5:00pm</b> <b>Techno-economic feasibility of sewage wastewater heat recovery (WWHR) based community energy network (CEN) in a cold climate-a case study of Ryerson university, Toronto, Canada</b> <b>Usama Sohail, Conrad Kwiatek, Alan Fung, Darko Joksimovic</b>	<b>4:45pm - 5:00pm</b> <b>A developed tool allowing the south-mediterranean cities to establish their sustainable energy plans</b> <b>Sabine Younes Saad, Adel Mourtada, Marwan El Brouche, Mazen Ghandour</b>
	<b>5:00pm - 5:15pm</b> <b>Heat analysis for energy management in neighbourhoods: Case study of a large housing cooperative in Norway</b> <b>Åse Lekang Sørensen, Karen Byskov Lindberg, Harald Taxt Walnum, Igor Sartori, Ulf Roar Aakenes, Inger Andresen</b>	<b>5:00pm - 5:15pm</b> <b>The strategies of natural ventilation for hospitals in Rio de Janeiro: a comparative study between hospitals in the city of Rio de Janeiro and the Brazilian standard of thermal performance</b> <b>Kátia Fugazza, Mirna Gobbi, Mauro Santos</b>	<b>5:00pm - 5:15pm</b> <b>A smoke exhausting method through a baffle-coupled shaft during tunnel fires</b> <b>Qiankun Hou, Miao-cheng Weng, Fang Liu</b>	<b>5:00pm - 5:15pm</b> <b>Solar Strategies for Net-zero Energy Housing in Canadian North</b> <b>Li Ma, Hua Ge, Asok Thirunavukarasu, Andreas Athienitis</b>	<b>5:00pm - 5:15pm</b> <b>Building Energy Demand Within a Climate Change Perspective</b> <b>Pouriya Jafarpur, Umberto Berardi</b>
	<b>5:15pm - 5:30pm</b> <b>New substation and booster systems for Ultra Low Temperature District Heating</b> <b>Mikel Lumbreras, Roberto Garay, Victor Sanchez, Kasper Korsholm, Matteo Caramaschi</b>	<b>5:15pm - 5:30pm</b> <b>Investigation into the adaption of PMV to evaluation of the medical staff in hospitals in Guangzhou</b> <b>Zhaosong Fang, Xiangfei Ji, Yundan Liao</b>	<b>5:15pm - 5:30pm</b> <b>Influences of stack effect and longitudinal ventilation on the movement of buoyancy-driven contaminants in slopping tunnels</b> <b>Ping Li, Tao Du, Dong Yang</b>	<b>5:15pm - 5:30pm</b> <b>Using Smart Technologies to Identify Occupancy and Plug-in Appliance Interaction Patterns in an Office Environment</b> <b>Zeynep Duygu Tekler, Raymond Low, Lucienne Blessing</b>	<b>5:15pm - 5:30pm</b> <b>Development of a multi criteria analysis method to optimize the sustainable architectural design of residential buildings</b> <b>Iris Reuter, Sigrid Reiter</b>



# CONFERENCE AGENDA

	<p><b>5:30pm - 5:45pm</b></p> <p>Pipe sizing based on domestic hot water consumption in Norwegian hotels, nursing homes and apartment buildings</p> <p>Karolina Stråby, Harald Taxt Walnum, Åse Lekang Sørensen</p>	<p><b>5:30pm - 5:45pm</b></p> <p>Improvement of Thermal Comfort in Naturally Ventilated Classroom by Phase Change Material Roof in Taiwan</p> <p><u>Sheng-Fen Chang</u>, Ruey-Lung Hwang, Kuo-Tsung Huang</p>	<p><b>5:30pm - 6:00pm</b></p> <p>Combined cooling, heating and power systems based on solar-thermal and hybrid PV-thermal technologies</p> <p>Christos Markides</p>	<p><b>5:30pm - 5:45pm</b></p> <p>Nearly Zero Energy - Construction Site Temporary Office Buildings</p> <p>Ishan Kalra, Michael Boyle, Nilesch Deshpande</p>	<p><b>5:30pm - 5:45pm</b></p> <p>Prediction of buildings' cooling energy demand: A comparison of simulation-based and prescriptive approaches</p> <p>Mahmoud Alhayek, Ameer Wadi, Ulrich Pont, <u>Ardeshir Mahdavi</u></p>
	<p><b>5:45pm - 6:00pm</b></p> <p>Building To Vehicle To Building approach for the NZEB target at a micro-grid level: a comprehensive sensitivity and parametric post-optimality analysis</p> <p>Giovanni Barone, <u>Annamaria Buonomano</u>, Cesare Forzano, Adolfo Palombo</p>	<p><b>5:45pm - 6:00pm</b></p> <p>Daylighting provision and glare prevention in side-lit rooms</p> <p><u>Dayan de Loyola Ramos Garcia</u>, Fernando Oscar Ruttkay Pereira</p>		<p><b>5:45pm - 6:00pm</b></p> <p>Re-designing a temporary pavilion into a NZEB Open Lab for a university campus</p> <p><u>Graziano Salvalai</u>, Marco Imperadori, Marta Maria Sesana, Marco Baccaro, Luca Del Favero, Andrea Tagliabue</p>	<p><b>5:45pm - 6:00pm</b></p> <p>Impact of electrical vehicle (EV) penetration on the cost-optimal building integrated photovoltaics (BIPV) at a small residential district in Sweden</p> <p>Marco Lovati, Xingxing Zhang</p>
5:30pm - 6:30pm	IAQVEC Board Assembly (By Invitation)				
8:00pm - 10:00pm	Gala Dinner				

# CONFERENCE AGENDA

Date: Saturday, 07/Sep/2019

8:00am - 8:30am	Registration					
8:30am - 9:30am	<b>Plenary 4: Dr. Xudong Yang</b> <b>Title: The Role of Simulation in Preventing Indoor Air Pollution: A Foregone</b> Location: <b>Aula Magna</b> Chair: <b>Francesco Martellotta</b>					
9:30am - 10:30am	<b>Plenary 5: Dr. Mat Santamouris</b> <b>Title: Urban Overheating and Impact on Buildings</b> Location: <b>Aula Magna</b> Chair: <b>Francesco Fiorito</b>					
10:30am - 11:15am	Coffee break and Old car show					
11:15am - 1:30pm	<b>Forum: Annex 68: Indoor Air Quality Design and Control in Low Energy Residential Buildings</b> Location: <b>Room 2</b> Chair: <b>Carsten Rode</b> Key findings of IEA EBC Annex 68 - Indoor Air Quality Design and Control in Low Energy Residential Buildings. Chair: Carsten Rode, Technical University of Denmark (DTU) - Co-chair: Menghao Qin, DTU Speakers: Carsten Rode, Technical University of Denmark Jensen Zhang, Syracuse University Menghao Qin, Technical University of Denmark Xudong Yang, Tsinghua University Weihui Liang, Nanjing University	<b>Forum: Annex 69: IEA EBC Annex 69</b> <i>(Meeting starting from 9am to 5 pm for Annex participants only)</i> Location: <b>Room 3</b> Chair: <b>Richard de Dear</b> The planned deliverables from this Annex are: Database with user interface including information of human thermal reaction together with their behavior and energy consumption; Model and criteria for the application of adaptive thermal comfort in built environment; Guidelines for low energy building design based on adaptive thermal comfort concept; Guidelines for personal thermal comfort systems in low energy buildings.	<b>HVAC 8 / ZEB 10</b> Location: <b>Room 5</b> Chair: <b>Oronzio Manca</b> <b>11:15am - 11:30am</b> <b>Cementitious plasters for façade finishing with phase change materials and thermochromic pigments</b> <b>Shahrazad Soudian, Umberto Berardi</b> <b>11:30am - 11:45am</b> <b>A simulation study on the performance of double skin façade through experimental design methods and analysis of variance</b> <b>Aleksandar Jankovic, Francesco Goia</b> <b>11:45am - 12:00pm</b> <b>A performance comparison between two novel technologies for building integration: a focus on perovskite-based cells and solid-state electrochromic glazing</b> <b>Alessandro Cannavale, Francesco Martellotta, Ubaldo Ayr</b>	<b>IAQ 10</b> Location: <b>Room 7</b> Chair: <b>Karel Kabele</b> <b>11:15am - 11:30am</b> <b>VOC concentrations in healing environments: a protocol for monitoring activities in inpatient wards and its application on some case studies</b> <b>Gaetano Settimo, Marco Gola, Stefano Capolongo</b> <b>11:30am - 11:45am</b> <b>Comparative inhalation exposure/toxicology analysis of e-cigarette vapors with different puffing behaviors using PBPK-CSP-CFD approach</b> <b>Kazuki Kuga, Kazuhide Ito</b> <b>11:45am - 12:00pm</b> <b>Performance of Surface Fluorinated P25-TiO2 on the Photocatalytic Degradation of Volatile Organic Compounds in Indoor Environment</b> <b>Zahra Shayegan, Fariborz Haghighat, Chang-Seo Lee</b>	<b>IAQ 11</b> Location: <b>Room 9</b> Chair: <b>Da Yan</b> <b>11:15am - 11:30am</b> <b>Analysis of airtightness performance improvement technology for window of dilapidated dwellings in South Korea</b> <b>Suin Lee, Gyeong-Seok Choi, Hyun-Jung Choi, Jae-Sik Kang</b> <b>11:30am - 11:45am</b> <b>Indoor air quality solutions for commercial buildings</b> <b>Sean Menezes</b> <b>11:45am - 12:00pm</b> <b>Novel methodology for the diagnosis of the causes associated with mould growth in dwellings</b> <b>Paula Lopez-Arce, Hector Altamirano-Medina, James Berry, Dimitrios Rovas, Fernando Sarce, Steve Hodgson</b>	<b>Ventilation 8</b> Location: <b>Room 11</b> Chair: <b>Giovanni Semprini</b> <b>11:15am - 11:30am</b> <b>Including EAHX (earth-to-air heat exchanger) in early-design phases considering local bioclimatic potential and specific technological requirements</b> <b>Giacomo Chiesa</b> <b>11:30am - 11:45am</b> <b>Ventilation Performance in Single-zone Occupied Space Ancient Myanmar Multistage Roof Buildings</b> <b>May Zune, Conrad Pantua, Lucelia Rodrigues, Mark Gillott</b> <b>11:45am - 12:00am</b> <b>Passive systems in traditional house in Middle East Areas: solutions and effects of natural ventilation</b> <b>Kindah Mousli, Giovanni Semprini</b>

<p><b>12:00pm - 12:15pm</b></p> <p><b>Thermal insulating cementitious composite containing aerogel and phosphate cement</b></p> <p><u>Mohammad Hajmohammadian Baghban</u></p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>A Simulation Study on Correlation between Indoor Volatile Organic Compounds and Carbon Dioxide Concentration in Beijing, China</b></p> <p>Wei-hui Liang</p>	<p><b>12:00pm - 12:15pm</b></p> <p><b>Optimizing Indoor Environmental Quality in Hot Arid Climates</b></p> <p>Dalia Wagdi, Khaled Tarabieh, Phillipa Grant</p>	<p><b>12:00am - 12:15pm</b></p> <p><b>Villa Aeolia (Costozza, Italy) cooling system detailed analysis: comfort from ancient palladian villas to modern-day structures</b></p> <p><u>Margherita Ferrucci, Fabio Peron</u></p>
<p><b>12:15pm - 12:30pm</b></p> <p><b>Dynamic heat transfer analysis on hwangtoh with PCM/eco-material for improving thermal inertia</b></p> <p>Seunghwan Wi, Sungwoong Yang, Jongki Lee, Beom Yeol Yun, Ji Hun Park, Sumin Kim</p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Impact of essential-oil-based cleaning products on indoor air quality: From liquid composition to test emission chamber</b></p> <p>Shadia Carolina Angulo Milhem, Marie Verrielle, Mélanie Nicolas, Frédéric Thevenet</p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Sensitivity analysis of envelope design on the summer thermal comfort of naturally ventilated classrooms in Taiwan</b></p> <p>Ying-Hsiang Chen, Ruey-Lung Hwang, Kuo-Tsang Huang</p>	<p><b>12:15pm - 12:30pm</b></p> <p><b>Climate adaptability study on the roof buffer space of traditional Tujia folk dwellings</b></p> <p><u>Xin Dong, Zhenjing Yang, Yanan Xu</u></p>
<p><b>12:30pm - 12:45pm</b></p> <p><b>A cost-effective building in the Mediterranean area: Passivhaus design and energy modelling</b></p> <p><u>Piero Russo, Giuseppe Colaci De Vitis, Grazia Gentile</u></p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Residential Indoor Pollution by Nitrogen Dioxide</b></p> <p>Aukse Miskinyte, Audrius Dedele</p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Simulations on potential moisture-related issues in relation to mandated ventilation rates for NZEBs in China</b></p> <p>Shengyi Tang, Wei Ye, Xing Su, Xu Zhang</p>	<p><b>12:30pm - 12:45pm</b></p> <p><b>Technoeconomic assessment of solar combined heat and power systems based on hybrid PVT collectors in greenhouse applications</b></p> <p>Kai Wang, <u>Antonio Marco Pantaleo, Giacomo Scarascia Mugnozza, Christos N. Markides</u></p>
<p><b>12:45pm - 1:00pm</b></p> <p><b>Primary air treatment vs energy saving: comparison between different design solutions</b></p> <p>Giuseppe Emmi, <u>Angelo Zarrella, Michele De Carli, Marco Mariotti</u></p>	<p><b>12:45pm - 1:00pm</b></p> <p><b>Concentration levels and impact factors of benzene series in Chinese dwellings</b></p> <p><u>Yihui Yin, Beibei Hou, Jingjing Pei, Junjie Liu</u></p>	<p><b>12:45pm - 1:00pm</b></p> <p><b>Higher risk of radon-induced lung cancer in rented accommodation?</b></p> <p><u>Torben Valdbjorn Rasmussen</u></p>	<p><b>12:45pm - 1:00pm</b></p> <p><b>Thermal Analysis in Daytime Radiative Cooling</b></p> <p>Jie Feng, Mattheos Santamouris, Kwok Wei Shah, Gianluca Ranzi</p>
<p><b>1:00pm - 1:15pm</b></p> <p><b>A new air handling unit system for residential buildings: experiment and simulation based analysis</b></p> <p>Emanuele Lazzarini, <u>Angelo Zarrella, Giuseppe Emmi, Enrico Biasin</u></p>	<p><b>1:00pm - 1:15pm</b></p> <p><b>Indoor environmental monitoring of residential buildings in Saudi Arabia, Makkah: a case study</b></p> <p><u>Mosaab Alaboud, Mohamed Gadi</u></p>	<p><b>1:00pm - 1:15pm</b></p> <p><b>Assessment of an experimental method for determining the three key parameters of VOC emission from solid materials</b></p> <p><u>Florent Caron, Frédéric Thevenet, Marie Verrielle, Romain Guichard, Laurence Robert</u></p>	<p><b>1:00pm - 1:15pm</b></p> <p><b>Mitigation of rising urban temperatures starting from historic and modern street canyons towards zero energy settlement</b></p> <p><u>Paola Lassandro, Silvia Di Turi, Sara Antonella Zaccaro</u></p>

# CONFERENCE AGENDA

		<p><b>1:15pm - 1:30pm</b></p> <p><b>Improved Thermal Comfort of Light Weight Structure with Macro-Encapsulated PCM</b></p> <p>Rok Stropnik, Eva Zavrl, Uroš Stritih</p>	<p><b>1:15pm - 1:30pm</b></p> <p><b>Numerical prediction of surface radiation effect on thermal comfort and indoor air quality in a ventilated cavity heated from below</b></p> <p><u>Lounes Koufi</u>, Stéphane Ginestet, Zohir Younsi</p>	<p><b>1:15pm - 1:30pm</b></p> <p><b>Experimental setup and testing of an in-field system for real-time IEQ occupant feedback</b></p> <p><u>Niels Lassen</u>, Terje Josefsen</p>	<p><b>1:15pm - 1:30pm</b></p> <p><b>HN_ZEB technologies applied for the construction of On Plain Air Tourist Villages and Standard Sustainable Production Villages</b></p> <p>Roberto De Pascalis, Francesco Palmisano, Rocco Luciano Uva, Francesco Clori, Sergio Martano</p>
1:30pm - 2:30pm	Lunch				
2:30pm - 3:15pm	<b>General Assembly</b> Location: <b>Aula Magna</b>				
3:15pm - 4:00pm	<b>Awards and Closing Ceremony</b> Location: <b>Aula Magna</b>				

## POSTER SESSIONS I (5th Sept)

Contribution Title	Author(s)
1 Comparative analysis of thermal environment between raised- and row-based cooling in a campus data center	Jin, Chaoqiang; Bai, Xuelian; An, Yanan; Zhang, Xin
2 The impact of some factors (building materials, seasonality) on indoor radon content in Chelyabinsk region, Russia	Mashkova, Irina; Kostryukova, Anastasiya; Schelkanova, Elena; Slavnaya, Alina
3 Development and Performance Evaluation of Natural Building Materials with Pyrolyzed Agricultural By-Products for Carbon Reduction and Energy Saving	Yang, Sungwoong; Wi, Seunghwan; Lee, Jongki; Yun, Beom Yeol; Park, Ji Hun; Kim, Sumin
4 Simulation-based analysis of optimized PCM to improve building energy performance and indoor thermal environment	Park, Ji Hun; Wi, Seunghwan; Yun, Beom Yeol; Yang, Sungwoong; Lee, Jongki; Kim, Sumin
5 A Parametric Design Method for CFD-supported Wind-Driven Ventilation	Abbas, Günsu Merin; Gürsel Dinçpek
6 Analysing the Challenges of designing Nearly Zero Energy Building and retrofitting of the existing housing stock in Nigeria: A study South-Eastern Nigeria.	Iwuagwu, Ben Ugochukwu; Onyegiri, Ikechukwu
7 Development human thermoregulation model for Korean young men	Choi, Heewon; An, Youngmin; Cho, Sungwon; Park, Junseok; Yu Seoyeon; Kwak, Jiyoung; Chun, Chungyoon
8 Development of methods for sampling and quantifying emissive isothiazolinones in indoor environments from building and consumer products	Ducup de Saint Paul, Léa; Nicolas, Mélanie; Quivet, Etienne
9 Energy consumption, thermal comfort and load match: study of monitored nearly Zero Energy Building in Mediterranean climate	Erba, Silvia; Pagliano, Lorenzo; Charani Shandiz, Saeid; Pietrobello Marco
10 Evaluation of Energy Conservation Measures for Deteriorated Single-Family House	An, Sang Min; Kim, Joo Han; Kim, Sung Wan; Lee, Kyung Hoi
11 Factor Controlling the Formaldehyde Emission Rate from Building Materials in Small, Airtight, Glass Desiccators	Kang, Yujin; Yoo, Sung-Jun; Ito, Kazuhide
12 Indoor Air Quality in Air-Conditioned Museum Gallery	Sulaiman, Raha; Kamaruzzaman, Syahrul Nizam; Yat Huang, Yat
13 Intervention field study in the Canadian arctic: Improving ventilated indoor air quality, and the respiratory health in Nunavut dwelling children	Aubin, Daniel; Ouazia, Boualem; Poulin, Patrick; Levesque, Bence; Boulet, Louis-Philippe; Duchaine, Caroline; Maltais, François; Brisson, Mario
14 Investigating the impact of electrochromic glazing on energy performance in hot arid climate using parametric design	Lahmar, Imene; Zemmouri, Noureddine; Cannavale, Alessandro; Martellotta, Francesco
15 Optimization of Daylighting and Energy Performance in Hot - Arid Climate	Altemmamy, Mahmoud Zakaria Shafik; Abd-Rabo, Lamiaa Mostafa
16 Research Concerning the Amount of Energy Consumption of Heating Source Systems at Public Office Building	Sonoda, Yuya; Kuwahara, Ryoichi
17 Research on the Influence of Coal to Electric Heating on Regional Power Grid in Northern China	Ding, Xingli; Ma, Rongjiang; Shan, Ming; Wang, Xianlin; Rong, Xirang; Xudong
18 Simulation analysis of Macro-Packed Phase Change Materials (MPPCM) to reduce building energy use	Yun, Beom Yeol; Yang, Sungwoong; Park, Ji Hun; Lee, Jongki; Wi, Seunghwan; Kim, Sumin
19 The Assessment of Natural Ventilation Performance for thermal comfort in Educational Space: A Case Study of Design Studio in AAST-Alexandria	Sarhan, Alaa El Din; El Gelil, Rania Abd; Awad, Hana Ahmed Tarek
20 The challenges of designing a NRVU-BVU for energy efficiency enhanced IAQ	Cross, Ana Cristina
21 Thermal Performance in Single-Zone Occupied Space Ancient Myanmar Multistage Roof Buildings	Zune, May; Rodrigues, Lucelia; Gillott, Mark
22 VOC concentrations in healing environments: a protocol for monitoring activities in inpatient wards and its application on some case studies	Settimo, Gaetano; Gola, Marco; Capolongo, Stefano
23 Cost-effective MEP solutions for a Passivhaus multi-family building in Mediterranean climate	Russo, Piero; Faganello, Stefano; Colaci De Vitis, Giuseppe
24 Performance Evaluation and Comparison between Rural New and Traditional House in Severe Cold Regions of China	Shao, Teng; Jin, Hong
25 The evaluation of air distribution considering different supply positions	Yang, Li
26 Passive Ventilative Cooling in Residential Buildings: A Review	Song, Ge; Ai, Zhengtao; Zhang, Guoqiang
27 A Field Study on the Indoor Air Quality of Wooden Welfare Facilities in Korea	Cho, Hyun Mi; Park, Ji Hun; Lee, Jongki; Wi, Seunghwan; Yang, Sungwoong; Yun, Beom Yeol; Kim, Sumin
28 Computer aided design of water-resistant adsorbent for formaldehyde abatement	Liu, Lumeng; Zhang, Dingchao; Liu, Junjie

## POSTER SESSIONS II (6th Sept)

Contribution Title	Author(s)
1 The generation of building coincident weather data for load calculation and energy conservation	Fang, Zhengcheng; Chen, Youming
2 The emission rate of newly-regulated chemical substances from building materials	Kim, Hyun-tae; Tanabe, Shin-ichi; Koganei, Makoto
3 Influence of LCA procedure on the green building rating tools outcomes	Asdrubali, Francesco; Bisegna, Fabio; Evangelisti, Luca; Guattari, Claudia; Mattoni, Benedetta
4 Performance of mechanical filters used in general ventilation against nanoparticles	Brochot, Clothilde; Abdolghader, Pooya; Haghighat, Fariborz; Bahloul, Ali
5 Comparison of grey-box model and artificial neural network – Prediction of surface condensation in residential space	Ju, Eun Ji; Lee, June Hae; Park, SungHo; Park, Cheol Soo; Yeo, Myoung Souk
6 Energy and environmental analysis of urban environment: methodology and application	Salamone, Francesco; Belussi, Lorenzo; Danza, Ludovico; Di Nunzio, Antonello; Ghellere, Matteo; Meroni, Italo
7 Assessment of the Ventilation in Long-Term Care Institutions in Computational Fluid Dynamics	Tu, Yi-Wen; Tseng, Chia-Ti; Chen, Jia-Kun; Tseng, Tzu-I
8 Active green wall ventilation system	Hung, Yi-Hsuan; Chen, Jia-Kun; Tseng, Chia-Ti; Tseng, Tzu-I
9 Design and testing of I-ZEB, a zero energy laboratory for the integrated evaluation of the performance of building components and HVAC systems	Danza, Ludovico; Belussi, Lorenzo; Ghellere, Matteo; Salamone, Francesco; Scrosati, Chiara; Scamoni, Fabio; Bellazzi, Alice; Devitofrancesco, Anna; Barozzi, Benedetta; Meroni, Italo; Maffè, Claudio; Depalma Michele
10 Effect of Gender on Thermal Comfort under Stratum Ventilation with Pulsating Air Supply	Li, Yunhao; Tian, Xue; Cheng, Yong
11 Effects of building parameters on occupant's window opening behaviour	An, Youngmin; Ko, Bomin; cho, Sungwon; Park, Junseok; Jeong, Jinhwa; Chae, Youngtae
12 Evaluation of Air Change Rates for Estimating Particle Dispersion on a Reduced Scale Model	Cetin, Yunus Emre; Avci, Mete; Aydin, Orhan
13 Field study on indoor air quality in a passive residential building in Chinese severe cold area	Wang, Zhaojun
14 Fusion of environmental monitoring components and gardening modules for manipulating indoor air quality	Chen, Jeng-Chung; Lin, Yi-Jiung; Yang, Zhi-Lun; Yu, Chien-Chung
15 Influence of building airtightness on the internal thermal comfort and air quality in the single family	Kisilewicz, Tomasz; Nowak-Dziesko, Katarzyna; Rojewska-Warchał, Małgorzata
16 On the estimation of the radiant heating surface temperature and the heat transfer rate calculation: new transient simplified analytical model	Merabtine, Abdelatif; Kheiri, Abdelhamid; Mokraoui, Salim; Hawila, Abed El Waheed
17 Proposal of a method for predicting the airtightness performance in high-rise residential building using pressure difference	Park, Seung Hwan; Munkhbat, Undram; Yoon, Sung Min; Kang, Ki Nam; Song, Doo Sam
18 Sustainable Design for Zero Carbon Architecture	Altemmamy, Mahmoud; Zakria Shafik; Abd-Rabo, Lamiaa Mostafa
19 The Influence of urban microclimate vertical variations on the building performance of a high-rise office building at different floors	Li, Jing; Donn, Michael; Thomas, Geoff
20 Assessment of technical-financial analysis of a zero energy building for Brazilian hot and temperate tropical climate	Domingos, Renata Mansuelo Alves; Gabriel, Elaise; Guarda, Emeli Lalesca Aparecida da; Pereira, Fernando Oscar Ruttkay
21 Evaluation of thermal comfort and heat stress indices in different countries and regions of the world – A Review	Yasmeen, Sadia; Liu, Hong
22 Research on Design Method of Coupling Active Natural Lighting System for Prefabricated Buildings	Xu, Feng; Deng, Yuan; Li, Hongqiang
23 The Utilization Rate Of Potential Heat Accumulation Capabilities Using Latent Heat Of Phase-Change Materials	Nowak, Katarzyna; Zastawna-Rumin, Anna
24 A review of reinforcement learning methodologies on control systems for building energy	Han, Mengjie; Zhang, Xingxing; May, Ross; Xu, Liguang; Pan, Song; Wu, Jinshun
25 Improving the Energy Performance Certificate recommendations accuracy for residential building through simple measurements of key inputs.	Gonzalez Caceres, Alex
26 Measurement of airborne ultrafine particles in work and life environments: study design and preliminary trends in an Italian university site	Boccuni, Fabio; Ferrante, Riccardo; Tombolini, Francesca; Iavicoli, Sergio; Pelliccioni, Armando
27 A study on the evaluation of indoor air quality in small scale apartment house in Korea	Kim, Tae-Woo; Kim, Hyun-Tae; Hong, Won-Hwa
28 Analysis of mechanical ventilation systems in Chinese residential buildings	Zhao, Lei; Liu, Junjie

Author Lastname	Author Firstname	Session Title	Author Lastname	Author Firstname	Session Title
Aakenes	Ulf Roar	HVAC 7	Cai	Zhenbing	HVAC 4
Aaltonen	Anu	IAQ 6	Cannavale	Alessandro	HVAC 8/ZEB 10
Abadie	Marc	Ventilation 6	Cantelli	Davide	IAQ 3
Abdeslam	Draoui	ZEB 2	Cao	Bin	IAQ 1
Abdolghader	Pooya	Ventilation 3	Cao	Shi-Jie	IAQ 2, Ventilation 1
Afacan	Yasemin	IAQ 8	Cao	Xiaoling	HVAC 6
Afroz	Zakia	HVAC 4	Capolongo	Stefano	IAQ 10
Afshari	Alireza	HVAC 3	Caramaschi	Matteo	HVAC 7
Agirman	Aleyna	IAQ 2	Carbonare	Nicolas	Ventilation 6
Alam	Sadaf	ZEB 2	Carlucci	Salvatore	ZEB 3, ZEB 6
Alanis Ruiz	Claudio	ZEB 7	Caron	Alexandre	IAQ 1
Alhayek	Mahmoud	ZEB 9	Caron	Jean- François	ZEB 7
Allesina	Giulio	HVAC 4	Carre	Andrew	IAQ 9
Alonso	Maria Justo	HVAC 1	Cascone	Santi Maria	IAQ 5
Alotaibi	Badr Saad	IAQ 9	Cascone	Stefano	ZEB 3
Altamirano-Medina	Hector	IAQ 11	Castellani	Beatrice	ZEB 6
Alto bello	Alessandra	ZEB 4	Čekon	Miroslav	Ventilation 5
Ambrosini	Dario	ZEB 1	Cen	Lingkai	IAQ 6
An	Jingjing	ZEB 2	Cetin	Yunus Emre	IAQ 2
Andersen	Sandra Sommer Schmidt	ZEB 7	Chang	Jin	HVAC 2
Andresen	Inger	HVAC 7	Chang	Sheng-Fen	IAQ 9
Angelillo	Sabrina	ZEB 4	Chang	Yufan	Ventilation 4
Angulo Milhem	Shadia Carolina	IAQ 7, IAQ 10	Chao	Christopher Y.H.	IAQ 7
Anker Hviid	Christian	HVAC 6	Chen	R.H.	ZEB 3
Apte	Michael G	Ventilation 2	Chen	Wanhe	Ventilation 4
Arakawa Martins	Larissa	IAQ 9	Chen	Yibo	ZEB 2
Arsenault	Chantal	HVAC 2, Ventilation 1	Chen	Ying-Hsiang	IAQ 11
Arvid Vik	Tor	Ventilation 6	Chen	Youming	ZEB 1
Ascione	Fabrizio	ZEB 5	Cheng	Weiquan	ZEB 1
Asdrubali	Francesco	ZEB 7			Ventilation 1,
Assimakopoulos	Margarita-Niki	IAQ 3			Ventilation 6
Assy	Eliane	IAQ 1	Chergui	Samia	IAQ 3
Athienitis	Andreas	ZEB 8			Ventilation 5,
Atikol	Uğur	ZEB 6			Ventilation 8
Aubin	Daniel	Ventilation 1	Chime	Charles	IAQ 4
Avci	Mete	IAQ 2	Choi	Gyeong-Seok	IAQ 3, IAQ 11
Aydin	Orhan	IAQ 2	Choi	Haneul	HVAC 4
Ayr	Ubaldo	HVAC 2,	Choi	Hyun-Jung	IAQ 3, IAQ 11
		HVAC 8/ZEB 10	Choi	Joon-Ho	IAQ 6
Arunvel	T	IAQ 7	Choi	Wonjun	HVAC 3
Baccaro	Marco	ZEB 8	Chow	Tin Tai	ZEB 3
Bagaric	Marina	Ventilation 5	Chung	Juyeon	HVAC 5
Bahloul	Ali	IAQ 2, Ventilation 3	Ciribini	Angelo Luigi Camillo	IAQ 1
Bahrar	Myriam	ZEB 2	Clauß	John	HVAC 1
Bakshi	Nilesh	ZEB 7, Ventilation 4	Clavaguera	Simon	IAQ 2
Baroetto Parisi	Chiara	ZEB 3	Clavier	Laurent	IAQ 1
Barone	Giovanni	HVAC 7	Colaci De Vitis	Giuseppe	HVAC 8/ZEB 10
Bastien	Diane	Ventilation 2	Contrada	Francesca	ZEB 7
Battle	Teresa	ZEB 5			IAQ 1, IAQ 4,
Bellia	Laura	IAQ 7			Ventilation 2
Benchekroun	Marwa	IAQ 3	Cordeiro de Castro	Cristiana	IAQ 7
Berardi	Umberto	IAQ 4, HVAC 1, HVAC 3,	Comaro	Cristina	ZEB 1
		HVAC 5, HVAC 8/ZEB 10	Cotana	Franco	HVAC 7
		ZEB 2, ZEB 3, ZEB 5,	Crosby	Sarah	IAQ 8
		ZEB 6, ZEB 9	Crumeyrolle	Suzanne	IAQ 1
Berger	Christiane	IAQ 2	Cui	Shuqing	HVAC 1
Berne	Philippe	IAQ 2	Čurpek	Jakub	Ventilation 5
Berry	James	IAQ 11	d'Ambrosio Alfano	Francesca Romana	IAQ 7
Biasin	Enrico	HVAC 8/ZEB 10	D'EvS	Kiran Kumar	IAQ 7
Bisegna	Fabio	ZEB 1, ZEB 5	D'Orazio	Dario	IAQ 6
Blessing	Lucienne	ZEB 8	D'Orazio	Marco	ZEB 4
Blocken	Bert	ZEB 7, Ventilation 4	Dardir	Mohamed	Ventilation 4
Bode	Florin	Ventilation 3	David	Damien	Ventilation 1
Bohne	Dirk	HVAC 2	de Dear	Richard	IAQ 4, IAQ 8
Bojsen	Johan	Ventilation 1	De Masi	Rosa Francesca	ZEB 5
Bongs	Constanze	Ventilation 6	de Rossi	Filippo	ZEB 5
Borong	Lin	Ventilation 7, IAQ 6	de Rubeis	Tullio	ZEB 1
Borrelli	Martina	ZEB 5	De Salvio	Domenico	IAQ 6
Boyle	Michael	ZEB 8	De Santoli	Livio	ZEB 1
Braish	Tamara Ghanem	IAQ 7	Dedele	Audrius	IAQ 10
Breuhaus	Peter	ZEB 2	Degrade	Samuel	IAQ 1
Brochot	Clothilde	Ventilation 3	Dehne	Tobias	IAQ 4
Brouard	Christophe	IAQ 2	Del Favero	Luca	ZEB 8
Buggin	Antonio	ZEB 1	Delléa	Olivier	IAQ 2
Buonomano	Annamaria	HVAC 7	Demirezen	Gulsun	HVAC 6



Author Lastname	Author Firstname	Session Title	Author Lastname	Author Firstname	Session Title
Desauziers	Valérie	IAQ 7	Gomaa	Bakr	Ventilation 2
Deshpande	Nilesh	ZEB 8	Gonzalez-Caceres	Alex	Ventilation 6
Di Giuseppe	Elisa	ZEB 4	Grant	Phillipa	
Di Grazia	Matteo	ZEB 6	Grunewald	John	Ventilation 6
Di Lorenzo	Diletta	ZEB 1	Guarini	Davide	HVAC 2
Di Perna	Costanzo	Ventilation 4, ZEB 4	Guattari	Claudia	ZEB 7
Di Turi	Silvia	IAQ 3	Guiot	Arnaud	IAQ 2
Dong	Xin	Ventilation 8	Guo	Beverly Bing	IAQ 7
Donn	Michael	Ventilation 5	Guo	Rui	Ventilation 2
Donn	Michael Robert	Ventilation 4, ZEB 7	Gupta	Rajat	IAQ 4
Draoui	Abdeslam	IAQ 8	Gustavsen	Arild	ZEB 6
Du	Tao	Ventilation 7	Gyu	Yun	IAQ 1
Ducoulemhier	Aline	IAQ 7	Haddad	Shamila	IAQ 5
Dworkin	Seth B.	HVAC 1, HVAC 3, HVAC 6	Hagenau	Morten	ZEB 7
		IAQ 7, ZEB 6	Haghighat	Fariborz	HVAC 6, IAQ 2, IAQ 10, Ventilation 3, Ventilation 4, ZEB 2, ZEB 4
Dziedzic	Jakub Wladyslaw	Ventilation 5			
Eckert	David	IAQ 3			
Efthymiou	Chrysanthi	ZEB 7	Han	Mengjie	ZEB 2
Eikemeier	Sören	HVAC 6	Hanoune	Benjamin	IAQ 1
Ekrami	Navid	ZEB 2	Hantson	Anne-Lise	IAQ 7
el Arbi	Amir	Ventilation 2, Ventilation 4, ZEB 9	Härer	Simon	HVAC 4
EL Brouche	Marwan	IAQ 1	Harsem	Trond Thorgeir	Ventilation 3
		ZEB 2	Hashemi	Farzad	IAQ 6
Elgood	Tim	IAQ 3	Hashisho	Zaheer	HVAC 1
Elmankibi	Mohamed	HVAC 8/ZEB 10	Haugland	Martine Borgen	IAQ 4
Elnaklah	Rana Abd	ZEB 5	Haverinen-Shaughnessy	Ulla	IAQ 6
Emmi	Giuseppe	ZEB 5	Heibati	Sayedmohammadreza	IAQ 5
Engelund Thomsen	Kirsten	ZEB 5	Heidar Esfehiani	Hamidreza	HVAC 2
Erhorn-Kluttig	Heike	ZEB 5	Heidarinejad	Ghassem	HVAC 3
Erhorn	Hans	ZEB 7	Heiselberg	Per	Ventilation 2
Evangelisti	Luca	ZEB 3	Higgins	Gary	HVAC 4
Evola	Gianpiero	HVAC 8/ZEB 10	Ho	C.J.	ZEB 3
Faganello	Stefano	Ventilation 3	Hodgson	Steve	IAQ 11
Fang	Lei	HVAC 4, IAQ 9	Holmberg	Sture	Ventilation 3
Fang	Zhaosong	Ventilation 5	Holøs	Sverre Bjørn	IAQ 4/IAQ 5
Fantucci	Stefano	ZEB 5	Hong	Wonhwa	IAQ 8
Fasano	Gaetano	Ventilation 8	Horie	Hayato	ZEB 2
Feng	Jie	IAQ 2	Hörmann	Hans-Jürgen	HVAC 1
Feng	Zhuangbo	IAQ 3	Hoskins	Eve	IAQ 1
Ferrante	Annarita	HVAC 4	Hou	Beibei	IAQ 10
Ferrari	Chiara	Ventilation 8	Hou	Qiankun	Ventilation 7
Ferrucci	Margherita	ZEB 6	Howard	Alastair	IAQ 4
Filipponi	Mirko	IAQ 1, Ventilation 2	Hu	Yue	Ventilation 2
Fiorentini	Massimo	HVAC 6	Huang	C.S.	ZEB 3
Flood	Chris	ZEB 5	Huang	Kuo-Tsang	IAQ 9, IAQ 11
Flores Larsen	Silvana	HVAC 7	Huard	Melanie	IAQ 2
Forzano	Cesare	IAQ 3	Hwang	Ruey-Lung	IAQ 9, IAQ 11
Fotopoulou	Anastasia	IAQ 7	Ichikawa	Yuki	HVAC 5
Fragliasso	Francesca	Ventilation 8	Illner	Micha	ZEB 5
Francescotu	Clori	IAQ 7	Imperadori	Marco	ZEB 8
Fu	Sau Chung	IAQ 9	Inagaki	Daisuke	HVAC 3
Fugazza	Kátia	ZEB 8	Isaacs	Nigel	IAQ 3
Fung	Alan	HVAC 4, HVAC 6	Isaia	Francesco	Ventilation 5
Fung	Alan S.	HVAC 5	Ito	Kazuhide	IAQ 1, IAQ 10, HVAC 5
Gallardo	Andres	ZEB 6	Ito	Shinichi	ZEB 2
Gambelli	Alberto Maria	Ventilation 4	Ivanko	Dmytro	HVAC 2
Ganda	Sanjeev	IAQ 6	Iwuagwu	Ben Ugochukwu	IAQ 4
Garai	Massimo	HVAC 7	Jacimović	Marko	ZEB 5
Garay	Roberto	ZEB 9	Jafarpur	Pouriya	ZEB 9
Gaudry	Karl	ZEB 8	Jandaghian	Zahra	ZEB 6
Ge	Hua	HVAC 8/ZEB 10	Jankovich	Aleksandar	HVAC 8/ZEB 10
Gentile	Grazia	Ventilation 5			Ventilation 5
Gentile	Vincenzo	ZEB 6	Jayakumar	Sandhiya	Ventilation 2
Geving	Stig	ZEB 9	Jean	Marc-Antoine	HVAC 6, IAQ 2
Ghandour	Mazen	IAQ 6	Jensen	Rasmus L.	Ventilation 1
Gil	Yo landa	Ventilation 8	Ji	Kyung Hwan	ZEB 3
Gillott	Mark	IAQ 7	Ji	Lili	Ventilation 3
Giuseppe	Riccio	IAQ 9	Ji	Wenjie	IAQ 1
Gobbi	Mina	ZEB 7	Jiajie	Xiangfei	IAQ 9
Gobin	Christophe	HVAC 8/ZEB 10	Jin	Hong	Ventilation 7
Goia	Francesco	Ventilation 5	Jo	Yuan	HVAC 4, ZEB 2
		IAQ 10	Joksimovic	Jae Hun	ZEB 3
Gola	Marco	IAQ 2	Jones	Darko	ZEB 8
Golanski	Luana			Benjamin M.	ZEB 3



Author Lastname	Author Firstname	Session Title	Author Lastname	Author Firstname	Session Title
Jørgen Larsen	Mathias	Ventilation 1	Li	Xiaofeng	HVAC 3, Ventilation 1
Jradi	Muhyiddine	ZEB 7	Li	Yunyi	HVAC 2
Justo Alonso	Maria	ZEB 2	Li	Zhuangzhuang	HVAC 2, IAQ 2
Jyothi Latha	T	IAQ 7	Liang	Shuangshuang	Ventilation 6
Kabele	Karel	IAQ 3	Liang	Weihui	IAQ 10
Kalra	Ishan	ZEB 8	Liao	Yundan	HVAC 4, IAQ 9
Kameishi	Keiji	HVAC 5	Liao	Zaiyi	ZEB 6, ZEB 7
Kang	Jae-Sik	IAQ 3, IAQ 11	Lin	Borong	Ventilation 6
Kang	Kyung Mo	HVAC 4, IAQ 1	Lin	Wenye	IAQ 1
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Kassi	Redha	IAQ 1	Lind	Merethe Cecilie	Ventilation 3
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