WINDSOR

Rethinking Comfort

Presenters Biographies

10th International Windsor Conference

Cumberland Lodge, Windsor Great Park, UK

12th - 15th April 2018

After Dinner Talk - Chair: Fergus Nicol 20:30 – 22:00

20:30 **Low-tech Comfort: Heating People not Buildings**

Kris de Decker

Low Tech Magazine

Kris De Decker is the author of Low-tech Magazine, an online publication that refuses to assume that every problem has a high-tech solution. He also writes for the Demand Centre at Lancaster University (UK), which researches energy demand in relation to social practices, material infrastructures, and institutional arrangements. Before the creation of Low-tech Magazine in 2007, De Decker was reporting on cutting-edge science and technology as a freelance journalist for newspapers and magazines. He was born in Belgium and lives in Spain.

FRIDAY 13TH APRIL 2018

SESSION 1: Rethinking Thermal Comfort 09:00 - 11:00

Invited Chairs: Edward Ng and Luisa Brotas

09:00

Puzzles and paradoxes in adaptive comfort

Michael A Humphreys and J Fergus Nicol

School of Architecture, Oxford Brookes University, UK

Michael is known for his early work on the adaptive approach to comfort. He has been Head of the Human Factors Section at the UK Building Research Establishment, and has been a Research Professor in the School of Architecture at Oxford Brookes University.

09:15

Thermal adaptation and seasonal alliesthesia: Two conflicting concepts?

Marcel Schweiker, Susanne Becker and Karin Schakib-Ekbat**an**

Karlsruhe Institute of Technology, Building Science Group, Karlsruhe, Germany

After finishing his PhD on occupant behaviour in 2010 at Tokyo City University, Marcel Schweiker joined the Building Science Group at KIT. He was in charge of building the LOBSTER field laboratory and focuses on experimental studies related to individual adaptive processes. He is a co-sub-task leader of Annex 69.

09:30

Performance of medium-rise, thermally lightweight apartment buildings during a heat wave

Ella S. Quigley ES and **Kevin J. Lomas**

School of Architecture Building and Civil Engineering, Loughborough University UK

Kevin Lomas is Professor of Building Simulation and a Director of the EPSRC, London-Loughborough Centre for Doctoral Training in Energy Demand. He has a long standing interest, built up over 35 years, in the design, modelling and post-occupancy performance of buildings. Recent research interest has centred around summertime overheating.

09:45

Percentage of commercial buildings showing at least 80% occupant satisfied with their thermal comfort

Caroline Karmann, Stefano Schiavon, Edward Arens

UC Berkeley, Berkeley, The United States of America

Caroline Karmann, Ph.D. recently graduated from UC Berkeley. She is now working at Arup as a consulting research scientist. Caroline is passionate about architecture and cities. Her research and work experience focused on indoor environmental quality and ways to reduce energy use in buildings.

10:00	**Revisiting overheating indoors** **Runa T. Hellwig** *Augsburg University of Applied Sciences, Energy Efficiency Design, Building Physics and Indoor Climate, Augsburg, Germany* Dr. Hellwig is Professor at Augsburg University of Applied Sciences, Germany. She has over 20 years of experience in application-oriented research projects in the area of indoor environment, building physics and energy efficiency. She has been contributing to working groups and advisory boards of professional organizations and governmental initiatives.
10:15	**Changing Thermal Comfort Expectations: Studies in Darwin, Australia** **Terence Williamson** and Lyrian Daniel *School of Architecture & Built Environment, The University of Adelaide, Adelaide, Australia* Dr Terence (Terry) Williamson was educated in engineering and architecture in Australia and is currently Adjunct Associate Professor of the School of Architecture and Built Environment at The University of University, Australia.
10:30	**Light exposure effects on the perception of the thermal environment** Marije te Kulve, Luc Schlangen and **Wouter van Marken Lichtenbelt** *Maastricht University, Maastricht, The Netherlands* Marije te Kulve works at BBA Indoor Environmental Consultancy. Today she will present some of the work she did as a PhD student at Maastricht University.
10:45	DISCUSSION
11:00	COFFEE BREAK

SESSION 2: New approaches to heating and cooling people 11:30 - 13:00
Invited Chairs: Richard de Dear and Atze Boerstra

11:30

The Effect of the Visual Cue of Mist Cooling on Perceived Thermal Comfort

Craig Farnham, Yuki Okazaki, Kazuo Emura, Miki Kubota, Jihui Yuan, and Md Alam Ashraful

Osaka City University, Osaka, Japan

Craig Farnham is an Associate Professor in the Department of Human Life Science at Osaka City University. Much of his research is on the use of water mists for thermal comfort, improving cycle efficiency of air conditioning equipment, and dust suppression.

11:45

Study on Thermal Indices under Mist Spray Condition through Thermal Sensation and Comfort

Wonseok Oh, Ryozo Ooka, Junta Nakano, Hideki Kikumoto, Osamu Ogawa

Graduate School of Engineering, Department of Architecture, The University of Tokyo, Tokyo, Japan

PhD candidate, The Department of Architecture, The University of Tokyo, Japan.

11:50

Evaluation of Radiant Ceiling Heating Systems for Renovated Buildings based on Thermal Comfort Criteria

M. Reza Safizadeh and Andreas Wagner

Building Science Group, Karlsruhe Institute of Technology, Karlsruhe, Germany

Dr. Reza SAFIZADEH is a Postdoc at the Building Science Group at the Karlsruhe Institute of Technology. He pursued his PhD in the field of Mechanical Engineering in NUS, Singapore (Ranked 15th, QS). During his PhD study, he was attached to leading solar institutes including Fraunhofer-ISE, Germany and SERIS in Singapore.

11:55

Comparing occupant thermal perception of air conditioning and ceiling-mounted radiant cooling panels coupled to a roof pond

Eduardo Krüger, Leandro Fernandes, Wolfgang Mutsafi-Haller, Evyatar Erell

Universidade Tecnológica Federal do Paraná, Curitiba, Brazil

Associate Professor at the Universidade Tecnologica Federal do Parana, based in Curitiba, Brazil, PhD in Architecture (Uni Hannover, Germany), post-doc experiences in Israel, Germany and UK. Research interests: bioclimatic architecture, passive and low energy architecture, urban climate, thermal comfort.

12:10

Reliability of characterising buildings as *HVAC* or *NV* for making assumptions and estimations in case studies

Rick Kramer, Henk Schellen, Jos van Schijndel, Wim Zeiler

Eindhoven University of Technology, Eindhoven, The Netherlands

Rick Kramer is currently a post-doctoral researcher at Eindhoven University of Technology focusing on the built environment. He has specialized at energy efficient indoor climate control of museums taking into account collection preservation and thermal comfort of visitors. He defended his PhD with honour in July 2017.

12:25	**Dynamic Evaluation Method for Indoor Thermal Environmental Acceptability Using P-R Chart** **Masanari Ukai** and Tatsuo Nobe *Kogakuin University, Tokyo, Japan* Masanari Ukai is Graduate Student at Kogakuin University in Japan, and Research Fellow of the Japan Society for the Promotion of Science.
12:40	**How does Passive Chilled Beam system rate from an indoor thermal comfort perspective when compared to Variable Air Volume and Under Floor Air Distribution HVAC systems?** **Ashak Nathwani** *The University of Sydney, School of Architecture, Design, and Planning, Sydney, Australia* After 39 years in Property Industry, Ashak joined the University of Sydney in 2011 where he is Senior Lecturer and a PhD candidate. He designed building services for IEQ Laboratory. In 2017 he was awarded Member of Order of Australia (AM) for services to Ismaili community, sustainability and engineering.
12:45	**Effects of ceiling fans on the thermal comfort of students in learning environments of Bayero University, Kano, Nigeria** **Sani M. Ali,** Brett D. Martinson, Sura Al-Maiyah, and Mark Gaterell *University of Portsmouth, Portsmouth, United Kingdom* Sani, is a PhD candidate at the University of Portsmouth conducting research work on comfort of learning environments in higher education institution in Nigeria. An architect by profession, having had a carrier in the construction management for years, and finally joined the department of architecture of Bayero University, Kano, Nigeria.
12:50	DISCUSSION
13:00	LUNCH

SESSION 3: Personal Control, Perception and Adaptive Behaviours 14:00 - 16:00
Invited Chairs: Michael Humphreys and Madhavi Indraganti

14:00	**Personal control: windows, fans, and occupant satisfaction** Margaret Pigman**, Gail Brager,** Hui Zhang *Center for the Built Environment, Berkeley, The United States of America* Gail Brager, Ph.D., is a Professor in the Building Science Program of the Dept. of Architecture at the University of California, Berkeley, where she is also the Associate Director of the Center for the Built Environment, an industry/university collaborative research center.
14:15	**Rethinking user behaviour comfort patterns in the south of Spain - What users do** **Samuel Domínguez Amarillo**, Jesica Fernández-Agüera and Juan José Sendra *Escuela Técnica Superior de Arquitectura. Universidad de Sevilla , Sevilla, Spain* Samuel Domínguez has extensive professional, academic and research experience in the fields of building utilities, building technical systems, energy efficiency and sustainability. He is a Lecturer and Deputy Director of the School of Architecture, University of Seville.
14:30	**What do households do to keep cool?** **Gary Raw** *University College London, London, United Kingdom* Gary is an environmental psychologist with over 30 years of experience in research and consultancy. His work has been mainly on people in domestic and non-domestic buildings, including energy use, indoor environmental quality, health, comfort and productivity.
14:45	**Developing user profiles for mixed-mode office buildings operation based on occupant behaviour evaluation** **Leticia de Oliveira Neves,** Eduardo Rodrigues Quesada, Camila Anchieta and Karin Soares Chvatal *University of Campinas, Campinas, SP, Brazil* Assistant professor in the Department of Architecture and Construction of the School of Civil Engineering, Architecture and Urban Design, University of Campinas. PhD in Architecture from University of Campinas (2012). Board member of ASHRAE chapter Brazil.
14:50	**Managing comfort in low energy housing – the role of gardens, balconies, allotments and greenhouses** **Sonja Oliveira,** Elena Marco, Bill Gething and Martin Green *University of the West of England, Bristol, United Kingdom* Sonja trained in architecture, working in senior design posts in award winning firms in the UK and internationally. She is a Programme Leader in Architecture and Environmental Engineering at UWE and researching the interface between digital and physical energy evaluation as well as heating practices in low carbon architecture.

15:05	**Seeing is Believing, or is it? An assessment of the influence of interior finish characteristics on thermal comfort perception at a University campus in a temperate climate** **Jansen Foo** and Anna Mavrogianni *University College London, London, United Kingdom* Mr Jansen Foo is a Deputy Director at the Housing & Development Board (HDB) of Singapore. Trained as an architect and environmental designer, he holds both a Master of Architecture from the National University of Singapore as well as a MSc in Environmental Design and Engineering from University College London.
15:10	**Personal control over indoor climate in office buildings in a Mediterranean climate - Amman, Jordan** **Farah Al-Atrash,** Runa T. Hellwig, Andreas Wagner *Building Science Group - Karlsruhe Institute of Technology, Karlsruhe, Germany* No biography available
15:15	**Using feature selection techniques to determine best feature subset in prediction of window behavior** **Hailun Xie**, Shen Wei, Li Zhang, Bobo Ng, Song Pan *Northumbria University, Newcastle, United Kingdom* Hailun Xie is a PhD student from Northumbria University. He's currently working on using artificial intelligence to make the predictions about occupant behaviour, especially on window behaviour.
15:30	**Adaptation by coexistence: A comparative study of thermal comfort in individual and shared office spaces in Chile** **Laura Marín-Restrepo,** Maureen Trebilcock and Jaime Soto-Muñoz *Faculty of Architecture, Construction and Design, University of Bío-Bío, Concepcion, Chile* Colombian Architect and a Ph.D. student of Architecture and Urbanism at the Universidad del Bío Bío, Chile.
15:45	DISCUSSION
16:00	TEA BREAK

WORKSHOP 1: Usage and Interpretation of Comfort Scales **16:30 - 18:00**
Invited Chairs: Marcel Schweiker and Giorgia Chinazzo **Hodgson Room**

	A field study investigation on the influence of light level on subjective thermal perception in different seasons **Giorgia Chinazzo,** Luisa Pastore, Jan Wienold and Marilyne Andersen *École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland* Giorgia started her Ph.D. in EPFL in 2015 after having obtained a double Master degree in Building Engineering from Politecnico di Torino and Politecnico di Milano. Giorgia is currently in the last stage of her Ph.D. and she is planning to defend her thesis by the end of the year.
	Collective understanding of ASHRAE thermal sensation phrases among Arab students **Hanan Al-Khatri** and Mohamed B. Gadi *University of Nottingham, Nottingham, United Kingdom* PhD student at the University of Nottingham, Lecturer at the Sultan Qaboos University, Sultanate of Oman
	What do people associate with "cold" or "hot"? - Qualitative analyses of the ASHRAE-scales' labels **Karin Schakib-Ekbatan,** Susanne Becker, Antonina Cannistraro and Marcel Schweiker *Heidelberg Academy of Sciences and Humanities, Heidelberg, Germany* Social Scientist with focus on environmental psychology, PhD, dissertation on the topic of occupants' satisfaction with indoor climate and spatial conditions in office buildings against the background of the German Assessment System for Federal Buildings (BNB), Lecturer in architectural psychology
	DISCUSSION

WORKSHOP 2: Overheating **16:30 - 18:00**
Invited Chairs: Runa Hellwig and Wouter van Marken Lichtenbelt **Sandby Room**

Variance of future UK heat wave incidents with geographic implications on mitigation

Asif Din and Luisa Brotas

London Metropolitan University, London, United Kingdom

Asif has been an architect for over 15 years and has worked on a range of landmark Eco designs such as BedZED. He is currently a PhD candidate at Cass London Metropolitan University hoping to submit this year.

Overheating in UK homes: Adaptive opportunities, actions and barriers

Daniel L Wright, Victoria J Haines and Kevin J Lomas

Building Energy Research Group, School of Architecture Building and Civil Engineering, Loughborough University., UK

Dan Wright is a PhD student with the London-Loughborough EPSRC Centre for Doctoral Training in Energy Demand, based at the School of Architecture, Building and Civil Engineering at Loughborough University. Dan has a background in Psychology and his researching interests include human-building interactions and evidence-based energy behaviours.

DISCUSSION

WORKSHOP 3: Personal Comfort Models **16:30 - 18:00**
Invited Chairs: Stefano Schiavon and Christoph van Treeck **Flitcroft Room**

Personal comfort models – new paradigm in thermal comfort for occupant-centric environmental control

Joyce Kim, Stefano Schiavon, and Gail Brager

University of California, Berkeley, Berkeley, The United States of America

Joyce is a PhD candidate in Building Science at UC Berkeley. Her dissertation focuses on occupant behavior and predictive comfort modeling using Internet of Things, big data, and machine learning. She has 10 years of industry and research experiences in building energy and smart grid.

Personal thermal comfort models based on physiological parameters measured by wearable sensors

Shichao Liu, Ming Jin, Hari Prasanna Das, Costas J. Spanos, **Stefano Schiavon**

Center for the Built Environment, University of California, Berkeley, Berkeley, USA

Stefano Schiavon, Ph.D., is an Associate Professor of Architecture at UC Berkeley. Stefano is focusing on finding ways to reduce energy consumption in buildings while also increasing occupant health, well-being, and productivity. Stefano has primarily worked on radiant-hydronic systems, occupant satisfaction, air movement, thermal comfort, personal comfort systems and others.

Developing Personal Thermal Comfort Models for the Control of HVAC in Cars Using Field Data

Umberto Fugiglando, Daniele Santucci, Iva Bojic, Paolo Santi, Toby Chin To Cheung, Stefano Schiavon and Carlo Ratti

Senseable City Lab, Massachusetts Institute of Technology, Cambridge, USA

Umberto Fugiglando is a Research Fellow Lead at MIT Senseable City Lab. With a background in Applied Mathematics from Politecnico di Torino (Italy) and KTH Royal Institute of Technology (Sweden), his research interests are in the area of digital technology and data science with applications to mobility, acoustics and human behavior characterization.

Equivalent Contact Temperature (ECT) for personal comfort assessment as extension for ISO 14505-2

Carolin Schmidt, Daniel Wölki, Henning Metzmacher and **Christoph van Treeck**

RWTH Aachen University, Aachen, Germany

Christoph van Treeck (Univ.-Prof. Dr.-Ing. habil.) is full professor for energy efficiency and sustainable building at RWTH Aachen University. Before he joined RWTH in 2012, he was head of the Simulation Group of the Department Indoor Environment at the Fraunhofer Institute for Building Physics in Germany and Associate Professor (Privatdozent) at the Technische Universität München. He has a Ph.D. in computational civil engineering, and is working in the fields of computational fluid mechanics, thermal comfort, energy performance simulation at building and district level, and building information modelling.

	Thermal comfort-driven feedback control for electric vehicles based on thermal image recognition, passenger tracking and thermophysiological modelling **Daniel Wölki,** Henning Metzmacher, Carolin Schmidt and Christoph van Treeck *RWTH Aachen University, Aachen, Germany* Education: 2003 - 2008 Electrical Engineering, 2008 - 2010 Biomedical Engineering, 2012 - 2017 PhD at RWTH Aachen University
	DISCUSSION
18:00	END OF WORKSHOPS (workshop 3 is expected to end later)
19:00	DINNER

After Dinner talk **20:30 - 21:30**
Invited Chair: Susan Roaf

Economic, social and culture experiences of thermal comfort from field studies in Brazil

Roberto Lamberts

Universidade Federal de Santa Catarina, Brazil

Professor of Civil Engineering in the Department of Civil Engineering, Federal University of Santa Catarina (Universidade Federal de Santa Catarina / UFSC), based in Florianópolis, Brazil, with a PhD from Leeds University, UK. He teaches and researches in the fields of heat and moisture transfer, building simulation, bioclimatology, thermal comfort and energy efficiency in buildings and has worked with a wide range of research sponsors in Brazil, including Eletrobras, Petrobras, FINEP, CNPq and CAPES. He is past president of Brazilian Association for Technology in the Built Environment and Brazilian Building Performance Simulation Association, and a board member of the Brazilian Council for Sustainable Construction and International Building Performance Association. He has published widely and is on the editorial board of Ambiente Construido, E-mat, and the Habitarebook series, as well as Advances in Building Energy Research.

SATURDAY 14TH APRIL 2018

SESSION 4: Surveys in Hot Climates 09:00 - 11:00

Invited Chairs: Terence Williamson and Ryozo Ooka

09:00

Mixed-mode building with moderately cool temperature and responses of humans

Hitoshi Nagatsugu and Pawel Wargocki

Obayashi corporation, Tokyo, Japan

Mr. Nagatsugu graduated master's degree at Osaka university in 2012. After that, he works for Japanese construction company, Obayashi corporation as a mechanical engineer and He is working in DTU as a guest researcher.

09:15

Upper limits for thermal comfort in a passively cooled office environment across two cooling seasons

Kit Elsworth, Rod Bates, Ryan Welch, and Billie Faircloth

KieranTimberlake, Philadelphia, USA

As a member of the KieranTimberlake Research Group, Kit focuses on performing energy and comfort simulations to support design teams achieve environmental goals. Kit earned a MS in Building Science from UC Berkeley with a thesis topic focusing on thermal comfort using elevated air movement at high metabolic rates.

09:30

Effects of environmental perception on thermal sensation in sub-tropical and high-density cities: a case study of Hong Kong

Mona Sum Ching Chung and Kevin Ka Lun Lau

Institute of Future Cities, The Chinese University of Hong Kong, New Territories, Hong Kong

Sum Ching is currently working in the Institute of Future Cities in the Chinese University of Hong Kong as a research assistant, she graduated from University College London. Her research interests include measuring and improving outdoor thermal comfort in high-density subtropical cities.

09:35

Thermal Environments and Comfort Perception in Shophouse Dwellings of Ho Chi Minh City

Hung Thanh Dang and Adrian Pitts

University of Huddersfield, Huddersfield, United Kingdom

Hung Thanh Dang is a researcher at the University of Huddersfield and a Newton Scheme Scholarship holder. He has also taught at the Ho Chi Minh City University of Architecture. His research interests span architectural design and application of research to optimisation of comfort in warm climates.

09:50	**Developing the adaptive model of thermal comfort for offices in the GCC region** **Madhavi Indraganti** and Djamel Boussaa *Qatar University, Doha, Qatar* A Fulbright Scholar, Madhavi Indraganti, PhD, is a faculty member at the Department of Architecture & Urban Planning of Qatar University. A Japan Society for Promotion of Science Fellow, Madhavi researched on thermal comfort, clothing insulation, vernacular architecture, design student's learning in Qatar, India, Japan, and Saudi Arabia and USA.
10:05	**Thermal comfort in office buildings during the summer season: Findings from a field study in Kuwait** **Rasha AlNajjar,** Adil Al-Mumin and Madhavi Indraganti *Kuwait University- College of Architecture, Khaldiya, Kuwait* Rasha Al Najjar graduated from the University of Utah with a B.S. in Architecture. She persued her M.S. in Architecture at Kuwait University specializing in thermal comfort in office buildings. Worked in a private firm as an architect for 7 years, and Teacher Assisted in the College of Architecture, Kuwait University.
10:10	**Temperature analysis and the effect of urban development on the outdoor thermal comfort and intensification of the Urban Heat Island phenomenon in the United Arab Emirates** **Evangelia Topriska,** Hassam Nasarullah Chaudhry, Mehdi Nazarinia *Heriot Watt University Dubai Campus, Dubai, The United Arab Emirates* Dr Evangelia Topriska is Assistant Professor of Building Services Engineering, in Heriot Watt University, Dubai Campus. Evangelia holds a PhD from Brunel University London on the study of solar powered hydrogen production for applications in developing economies. Her research interests include: NZEB, UHI, PV grid integration, Thermoelectric generators in buildings.
10:25	**Development of a Mexican Standard of Thermal Comfort for Naturally Ventilated Buildings** **Nereyda Morgan-Torres** and G. Gomez-Azpeitia *Faculty of Architecture and Design, University of Colima, Coquimatlan, Colima, Mexico* Master of Architecture. She has written a paper about alternative roof for climate change.
10:30	DISCUSSION
11:00	COFFEE BREAK

SESSION 5: Schools and Homes 11:30 - 13:00
Invited Chairs: Azadeh Montazami and Gary Raw

11:30	**Adaptive Behaviours and Occupancy Patterns in UK Primary Schools: Impacts on Comfort and Indoor Quality** **Sepideh Sadat Korsavi**, Azadeh Montazami *Centre for the Built and Natural Environment (BNE), Coventry University, Coventry, United Kingdom* Sepideh is studying PhD in Centre for the Built and Natural Environment (BNE), Coventry University. Her subject area is children's comfort in primary schools and their adaptive behaviours.
11:35	**Thermal Comfort in the UK Higher Educational Buildings: The Influence of Thermal History on Students' Thermal Comfort** **Mina Jowkar** and Azadeh Montazami *Centre for the Built and Natural Environment (BNE), Coventry University, Coventry, United Kingdom* Mina Jowkar is currently a PhD student in Faculty of Engineering, Environment and Computing at Coventry University. She holds BSc and MSc in architectural engineering with distinction from Razi University in Iran and Heriot Watt University in the United Kingdom. Her research interest is about thermal comfort in learning environments.
11:40	**Thermal comfort study in naturally ventilated lecture room based on questionnaire survey** **Marta Laska** and Edyta Dudkiewicz *Wroclaw University of Science and Technology, Wroclaw, Poland* Assistant professor at Wroclaw University of Science and Technology (Poland) in a field of heating installations and thermal comfort; experienced in energy and CFD building simulations; scholar at University of Leeds (2004/05) and Glasgow Caledonian University (2001/02); cooperating with local institutions; enthusiastic leader of technical workshops for kids.
11:45	**Thermal comfort in Classrooms: A critical review** Manoj Kumar Singh**, Ryozo Ooka,** Hom B Rijal *Faculty of Environmental Studies, Tokyo City University, Yokohama, Japan* Prof. Ryozo Ooka is Professor at Department of Human and Social Systems, Institute of Industrial Science, The University of Tokyo.

12:00	**Thermal comfort in classrooms in Mexico´s hot and humid climate** **Maella González Cetz,** Gabriel Gómez Azpeitia *Universidad Autónoma de Yucatán, Mérida, Mexico* Doctoral candidate in Programa Interistitucional de Doctorado en Arquitectura in Universidad de Colima, research visitor in Harvard School of Public Health in 2016 summer period. ASHRAE and IAQA member. Full time professor in Universidad Autonoma de Yucatan.
12:15	**What the Indoor Air Temperatures in Houses in Three Australian Cities Tell Us** **Dong Chen,** Zhengen Ren, Melissa James *CSIRO, Melbourne, Australia* Dong's research interests are physical and numerical modelling of building thermal performance and energy efficiency. Dong leads the research, development and maintenance of AccuRate, the benchmark software tool for Nationwide House Energy Rating Scheme (NatHERS) in Australia. He is a member of NatHERS Technical Advisory Committee.
12:30	DISCUSSION
13:00	LUNCH

SESSION 6: Comfort in Different Conditions 14:00 - 15:30
Invited Chairs: Eduardo Krüger and Cao Bin

14:00	**Adaptive Mechanisms for Thermal Comfort in Japanese Dwellings** **H.B. Rijal,** M.A. Humphreys and J.F. Nicol *Tokyo City University, Yokohama, Japan , Japan* Prof. Hom Bahadur Rijal is a Professor at Faculty of Environmental Studies, Tokyo City University, 3-3-1 Ushikubo-nishi, Tsuzuki-ku, Yokohama, Japan.
14:15	**Thermal Comfort for Occupants of Nursing Homes: A Field Study** Federico Tartarini**, Paul Cooper** and Richard Fleming *Sustainable Buildings Research Centre (SBRC), University of Wollongong, Wollongong, Australia* Professor Paul Cooper is the Director of the University of Wollongong's Sustainable Buildings Research Centre (SBRC). He has been involved in research on a wide variety of topics in sustainable buildings, energy systems, thermal comfort, energy efficiency and fluid mechanics over the past thirty five years.
14.30	**The influence of outdoor transient conditions on the dynamic response of pedestrian thermal comfort in high-density cities** **Kevin Ka-Lun Lau**, Yuan Shi, Edward Yan-Yung Ng *Institute of Future Cities, The Chinese University of Hong Kong, Hong Kong* Dr Kevin Lau is a research assistant professor from Institute of Future Cities, The Chinese University of Hong Kong. His research interest includes the effect of urban climate on outdoor thermal comfort at various spatial levels and how the built environment affects the health and well-being of urban population.
14:35	**From indoors to outdoors and in-transition; thermal comfort across different operation contexts** **Marialena Nikolopoulou**, Alkis Kotopouleas and Spyridon Lykoudis *Kent School of Architecture, University of Kent., Canterbury, UK* Prof. Nikolopoulou is Director of the Centre for Architecture and Sustainable Environment at the University of Kent. She has extensive experience in managing large collaborative research projects with expertise in thermal comfort in complex environment. Her work on outdoor comfort has received awards from diverse bodies (including ISB and RIBA).

14:50	**Thermal comfort in dwellings in the subtropical highlands – Case study in the Ecuadorian Andes** **Isabel Mino-Rodriguez,** Ivan Korolija and Hector Altamirano *UCL, London, United Kingdom* Third year post graduate research student at the Institute of Environmental Design and Engineering, the Bartlett at UCL, background on Architecture, Sustainable Design and Construction and energy efficiency. Her research involves the thermal comfort criteria for the assessment of domestic buildings operating under free-running conditions in the subtropical highlands.
15:05	**The courtyard pattern's thermal efficiency: Limits and significance of impact** **Omar Al-Hafith,** Satish B K, Simon Bradbury and Pieter de Wilde *Plymouth University, Plymouth, United Kingdom* Omar Al-Hafith is a researcher in the fields of housing and thermal comfort. He is currently doing Ph.D. at Plymouth University in the UK. He has eleven published studies. His most recent research studies focus on determining the thermal performance of different building patterns under desert climate conditions.
15:10	**Methodological framework for evaluating liveability of urban spaces through a human centred approach** **Daniele Santucci,** Umberto Fugiglando, Xiaojiang Li, Thomas Auer and Carlo Ratti *Senseable City Lab, Massachusetts Institute of Technology, Cambridge, USA* Daniele Santucci is an architect and university lecturer with several years of experience in environmental engineering and sustainable design. He is visiting researcher at the Senseable City Lab at MIT where he is developing his research topic at the intersection between microclimatic conditions and people flows in urban space.
15:15	DISCUSSION
15:30	SPECIAL SESSION on the ASHRAE Global Thermal Comfort Database II Chaired by **Richard de Dear**
16:00	TEA BREAK

WORKSHOP 4: The Diversity Factors **16:30 - 18:00**
Invited Chairs: Dolaana Khovalyg and Fergus Nicol **Hodgson Room**

Responses of German subjects to warm-humid indoor conditions

Michael Kleber and Andreas Wagner

Building Science Group - Karlsruhe Institute of Technology, Karlsruhe, Germany

He studied Architecture at the University of Karlsruhe. Since 2002 he had worked as a research assistant in different fields of building performance and renewable energies at the Karlsruhe Institute of Technology. For his PhD he is focusing on indoor comfort at warm-humid conditions since 2015.

Comfort, climatic background and adaptation time: first insights from a post-occupancy evaluation in multicultural workplaces

Luisa Pastore and Marilyne Andersen

School of Architecture, Civil and Environmental Engineering (ENAC), École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

Dr. Pastore received her PhD in Architecture in 2014 from UNIPA (Italy), where she specialized in design strategies to optimize the thermal comfort in temperate countries. In the same year, she joined LIPID as a post-doc and she's currently conducting an extensive POE campaign on Swiss high-energy efficient buildings.

DISCUSSION

WORKSHOP 5: Measuring comfort in the real world **16:30 - 18:00**
Invited Chairs: Atze Boerstra and Adrian Pitts **Sandby Room**

	Data collection methods for accurate spatial use within rooms **Nick Van Loy,** Ann Bosserez, Griet Verbeeck, Elke Knapen *Hasselt University, Hasselt, Belgium* Nick Van Loy received his master degree in architecture in 2016. After graduating he started his PhD in the Architecture and Art department at Hasselt University. His research focuses on the analysis of spatial use patterns in Flemish dwellings and their impact on energy consumption.
	Thermal Comfort Assessment Based on Measurement and Questionnaire Surveys in a Large Mechanically Ventilated Space **Ali Alzaid,** Maria Kolokotroni, Hazim Awbi *Mechanical Engineering, School of Engineering and Design, Brunel University, London* Ali Alzaid is a PhD student in Mechanical Engineering, Brunel University London
	DISCUSSION

WORKSHOP 6: Domestic Comfort and Health at Low temperatures 16:30 - 18:00
Invited Chairs: Lyrian Daniel and Dennis Loveday Flitcroft Room

Residential wintertime comfort in a temperate Australian climate

Lyrian Daniel, Emma Baker and Terence Williamson

School of Architecture & Built Environment, The University of Adelaide, Adelaide, Australia

Dr Lyrian Daniel is a University Research Fellow within the Healthy Cities Research Group at The University of Adelaide. Her current research examines the impacts of Australia's hidden cold housing phenomenon, incorporating issues of housing stress, energy poverty, housing conditions and national performance standards.

Energy and thermal performance of apartment buildings in Albania: the case of a post-communist country

Jonida Murataj, Rajat Gupta, Fergus Nicol

School of Architecture, Oxford Brookes University, Oxford, United Kingdom

Jonida Murataj holds a Master's degree in Architecture from Polytechnic University of Tirana and another one in Sustainable Buildings, Performance and Design from Oxford Brookes University, where she is currently pursuing a PhD focusing on retrofitting the existing housing stock in Albania through bringing together monitoring, modelling and people's perceptions.

DISCUSSION

After Dinner Event 20:30 - 21:30
Hosts: Atze Boerstra, Wouter van Marken Lichtenbelt and Craig Farnham

20:30 QUIZ NIGHT

SUNDAY 15TH APRIL 2018

WORKSHOP 7: Health Physiology and Comfort: Real Life impacts 09:00 - 10:30
Invited Chairs: Wouter van Marken Lichtenbelt and Yingxin Zhu Flitcroft Room

Creating comfort and cultivating good health: The links between indoor temperature, thermal comfort and health

Rachel Bills

School of Architecture & Built Environment, The University of Adelaide, Adelaide, Australia

From a long held interest in housing and health, Rachel's current research focuses on thermal comfort and health in the older population. This includes examining the thermal preferences of older people, the thermal conditions of their homes and determining what conditions best provide both comfort and health.

Health Responses of Acclimatized Construction Workers in Summer Season with high ambient temperature: A case study in Chongqing, China

Sadia Yasmeen, Hong Liu, Chen Lu and He Jiaze

Joint International Research Laboratory of Green Buildings and Built Environments, Chongqing University, Chongqing, China

Sadia Yasmeen, MS student in Environmental Science and Engineering at Chongqing university. Her MS research topic is about Thermal comfort, heat stress and also outdoor worker physical response in hot environment. She was involved in several research projects as a Researcher in her country.

Can regular exposure to elevated indoor temperature positively affect metabolism in overweight elderly men?

Hannah Pallubinsky, Bas Dautzenberg, Esther Phielix, Marleen A. van Baak, Patrick Schrauwen and Wouter D. van Marken Lichtenbelt

Maastricht University, Maastricht, The Netherlands

Hannah is a PhD student at Maastricht University, Department of Human Biology and Human Movement Sciences

DISCUSSION

WORKSHOP 8: Personal Comfort Systems **09:00 - 10:30**

Invited Chairs: Sally Shahzad and Gail Brager **Hodgson Room**

	Self-Learning Framework for Personalised Thermal Comfort Model **Yiqiang Zhao,** Kate Carter, Fan Wang, Ola Uduku and Dave Murray-Rust *University of Edinburgh, Edinburgh, United Kingdom* Yiqiang Zhao is a PhD candidate of Architecture. He finished his BA in University of Liverpool and MSc in spatial analysis in UCL. His research is building personalized thermal comfort model for building energy system. He also developed digital measurement tools EdenApp to high efficiently collect environmental and subjective data.
	Dynamic Decision and Thermal Comfort: CFD and Field Test Analysis of a Personalised Thermal Chair **Sally Shahzad,** John Kaiser Calautit, Ben Richard Hughes *University of Derby, Derby, United Kingdom* Dr Sally Shahzad is a Lecturer and the Programme Leader in Architectural Technology at the University of Derby. She was a Postdoctoral Research Fellow in the University of Leeds and completed her PhD in Architecture in the University of Edinburgh. She collaborates with researchers from Nottingham, Sheffield and Edinburgh University.
	'Intelligent furniture': the potential for heated armchairs to deliver thermal comfort with energy savings in the UK residential context Shiyu Pan, **Ziqiao Li,** Dennis Loveday and Peter Demian *Loughborough University, Loughborough, United Kingdom* Ziqiao Li is a PhD student in School of Architecture Civil and Building Engineering, Loughborough University, UK. He received his undergraduate and Master degree in built environment from Chongqing university and University of Bath. He is working on the effects of psychological incentives on thermal comfort and personal heating/cooling behaviours.
	DISCUSSION

WORKSHOP 9: Using Statistics for Thermal Comfort Data **09:00 - 10:30**

Invited Chairs: Jane Galbraith and Rex Galbraith **Sandby Room**

Moving beyond averages: variations in reported thermal comfort

Stephanie Gauthier and DespoinaTeli

Faculty of Engineering and the Environment, University of Southampton, Southampton, UK

Stephanie Gauthier is a lecturer in Energy and Buildings within the Faculty of Engineering and the Environment at the University of Southampton. Her research interests revolve around thermal performance of buildings and thermal comfort with a focus on energy demand.

Introducing thermal comfort attitudes, psychological, social and contextual drivers in occupant behaviour modelling with Bayesian Networks

Verena M. Barthelmes, Rune K. Andersen, Yeonsook Heo, Henrik Knudsen, Valentina Fabi, and Stefano P. Corgnati

Politecnico di Torino , Turin , Italy

Verena Marie Barthelmes (BArch/MArch) is currently working on her PhD in Energetics at Politecnico di Torino, in close collaboration with University of Cambridge and Danish Technical University. Her main research topics concern the analysis of occupant behaviour and its impact on energy uses and thermal comfort in buildings.

Regression Dilution, Bayesian Analysis and Adaptive Thermal Comfort

Harry R. Kennard, David Shipworth, Gesche Huebner, J. Fergus Nicol

University College London, London, United Kingdom

Harry Kennard has degrees in physics, applied maths and linguistics. He is currently researching the health impacts of low domestic temperatures using a wrist worn sensor. More broadly, he is interested in science communication and public engagement, as well as the historical development of fundamental scientific concepts.

DISCUSSION

COFFEE BREAK

SESSION 7: Sleep, IEQ and Energy 11:00 - 13:00
Invited Chairs: Susan Roaf and Kevin Lomas

11:00	**Room temperature during sleep** **Fergus Nicol** and Michael Humphreys *London Metropolitan University, London, UK* Fergus Nicol is convenor of the Network for Comfort and Energy use in Buildings and is best known for his work on Adaptive Thermal Comfort.
11:15	**A research on the effects of indoor environment on sleep quality** **Nan Zhang,** Bin Cao and Yingxin Zhu *Department of Building Science, School of Architecture, Tsinghua University, Beijing, China* Ms. Nan Zhang is a Ph.D. student in Department of Building Science at School of Architecture, Tsinghua University. She obtained her B.Sc in Southeast University of China and began her doctoral research in 2015. Her research is focusing on sleeping environment and sleep quality.
11:20	**The assessment of the environmental quality directly perceived and experienced by the employees of 69 European offices** **Alla Marchenko,** S. Carlucci, L. Pagliano, M. Pietrobon, T. Karlessi, M. Santamouris, N. Delaere and Margarita Assimakopoulos *Norwegian University of Science and Technology, Trondheim, Norway* Alla Marchenko is a PhD research fellow at Norwegian University of Science and Technology, Department of Civil and Environmental Engineering. Her main topic of research is the thermal comfort, indoor environment quality and reduction of the building performance gap.
11:35	**A real-world empirical investigation of indoor environment and workplace productivity in a naturally-ventilated office environment** **Rajat Gupta** and Alastair Howard *Oxford Brookes University, Oxford, United Kingdom* Professor Rajat Gupta is Director of Oxford Institute for Sustainable Development and Low Carbon Building Group at Oxford Brookes University. His research interests lie in building performance evaluation, local energy mapping for energy retrofits and climate change adaptation. He has won nearly £10m in research grants to investigate these subjects.

11:50	**Thermal comfort and air quality: one-year measurement, analysis and feed back to users of an educational building** **Sébastien Thomas,** Samuel Hennaut and Philippe André *University of Liège, Arlon, Belgium* He is a researcher since 2007 at University of Liège (Belgium) and is graduated as a PhD in environmental sciences in 2013 with a thesis entitled "Analysis of solar air-conditioning systems and their integration in buildings". He is now both researcher at university and engineer in a technical control office.
12:05	**The influence of building envelope design on the thermal comfort of high-rise residential buildings in Hong Kong** **Yu Ting Kwok,** Kevin Ka-Lun Lau, Edward Yan Yung Ng *School of Architecture, The Chinese University of Hong Kong, New Territories, Hong Kong* Yu Ting graduated from Imperial College London and is currently a first year PhD student in Architecture at the Chinese University of Hong Kong. Her research interest lies in urban climatology and its application in urban planning for climate resilient cities.
12:20	**An Exergetic Investigation on the Effect of Long-term Thermo-physical Exposure on Thermal Perception** **Masanori Shukuya,** Rinto Nagai and Hom B. Rijal *Faculty of Environmental Studies, Tokyo City University, Yokohama, Japan* A professor at the Department of Restoration Ecology and Built Environment, Tokyo City University. His major interests in research and education are 1) the development of exergy evaluation methods for various built-environmental systems with both passive and active designs for human thermal comfort to realize rational use of low-exergy resources.
12:25	DISCUSSIONS AND ROUND-UP
13:00	LUNCH
	END OF THE CONFERENCE

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