Programme in detail

Track 1 Personal conditions

Thermal comfort (TC1)

Thermal comfort (TC2)

Air quality (AQ)

Demand controlled ventilation (DCV)

Personalized ventilation (PV)

Track 2 Air distribution

Air distribution (AD1)

Air distribution (AD2)

Air distribution (AD3)

CFD simulation (CFD1)

CFD simulation (CFD2)

Measurement and visualization methods (MVM1)

Measurement and visualization methods (MVM2)

Track 3 Energy and ventilation

Energy performance of buildings (EPB1)

Energy performance of buildings (EPB2)

Models for ventilation and energy performance (VEP1)

Models for ventilation and energy performance (VEP2)

Models for ventilation and energy performance (VEP3)

Track 4 Applications

Natural ventilation (NV1)

Natural ventilation (NV2)

Hospital ventilation and infection control (HV1)

Hospital ventilation and infection control (HV2)

School ventilation (SV)

Airplane and vehicle ventilation (AVV)

Track 5 Contaminant control

Ventilation systems for contaminant control (CC1)

Ventilation systems for contaminant control (CC2)

Sunday, June 3

PERSONAL CONDITIONS – Session: Thermal Comfort (TC1)		***Chair: Pawel Wargocki*** *Room U119*
11:00—11:15	Required Temperature Distribution Based on a Clothing Insulation and Metabolic Rate Survey	*Masanari Ukai*
11:15—11:30	Effects of Air Temperature Steps on Older People's Thermal Comfort and Skin Temperature	*Zi Wang*
11:30—11:45	A Study on the Influence of Environmental Adjustment Behaviour of Residents on the Thermal Environment Performance of Passive Town	*Sinwon Jeong*
11:45—12:00	An Experimental Study on Airflow Control to Improve Intellectual Concentration	*Soma Kawamoto*
AIR DISTRIBUTION – Session: Air Distribution (AD1)		***Chair: Angui Li*** *Room U3*
11:00—11:15	Numerical Investigation of the Air Distribution in Terraced Assembly Rooms with Open and Closed Rows	*Benjamin Zielke*
11:15—11:30	Ceiling Turbulent Asymmetrical Air Jets Under Interaction Effects of Room Architectural Elements – a Full-Scale Experimental Characterization	*Chi-Kien Nguyen*
11:30—11:45	Comparison of the Thermal Comfort and Ventilation Effectiveness in an Office Room with Three Different Ventilation Supply Devices - a Measurement Study	*Bahram Moshfegh*
11:45—12:00	Air Distribution in a Room with an Active Chilled Beam - and a Comparison with Other Ventilation Systems	*Peter Nielsen*
12:00—12:15	A Field Study on Thermal Environments and Occupant Comfort in Open-Plan Offices with Mixing Ventilation in Winter	*Yong Cheng*
12:15—12:30	Comparative Study of Wall Attached Duct Multi-Directional Jet Supply System and Displacement Ventilation System on the Capacity of Undertaking the Air-Conditioning Load	*Haiwen Shu*

Sunday, June 3

ENERGY AND VENTILATION – Session: Energy Performance of Buildings (EPB1)		***Chair: Markku Virtanen*** *Room U4*
11:00—11:15	Using Measured Occupancy Data to Optimise Space and Energy Use	*Ken Dooley*
11:15—11:30	Wireless Sensor Network for Building Management System on Energy Efficiency	*Nikolajs Bogdanovs*
11:30—11:45	Potential for Peak Cooling Demand Reduction with Active Chilled Beam System by Temperature Stratification in Simulated Perimeter Zone Office Room	*Panu Mustakallio*
11:45—12:00	Experimental Analysis on Wall Jet Night Ventilation System	*Wenhui Ji*
12:00—12:15	Continuous Optimisation of HVAC Systems' Operation Through Graphical Visualization of Performance	*Andrei Litiu*
12:15—12:30	Investigation of Concepts and Control strategies for Centralized and Decentralized HVAC-Systems	*Matthias Eydner*
APPLICATIONS – Session: Hospital Ventilation and Infection Control (HV1)		***Chair: Guangyu Cao*** *Room U5*
11:00—11:15	Operating Room Ventilation: CFU Concentration Measurements	*Aleksanteri Setälä*
11:15—11:30	Indoor Environment and Influenza Air-Borne Infection Risks in Facilities for the Elderly in Japan and Finland	*Motoya Hayashi*
11:30—11:45	The Influence of Indoor Air Distribution on Airborne Spread of Expiratory Droplet Nuclei Between Occupants: A Review and Some New Findings	*Zhengtao Ai*
11:45—12:00	A Numerical Study of an Operating Room Ventilation with Unidirectional Flow Ceiling, Two Surgeons and a Patient	*Laurentiu Tacutu*
12:00—12:15	Experimental Measurements of the Exposition to Exhaled Contaminants from Different Breathing Modes	*Félix Antonio Berlanga Cañete*
12:15—12:30	Influence of the Shape of Surgical Lamps on the Airflow and Particle Distribution in Operating Rooms	*Cong Wang*
POSTER SUMMARIES – Session: Poster Summaries (PS1)		***Chair: Siru Lönnqvist*** *Room U2*
11:00—12:30	Study on the Heat Transfer Performance of the Ceiling Radiant Panel	*Yuki Ichikawa*
	A Transient Two Zone Model for Thermal Stratification in Displacement Ventilated Rooms	*Tor Helge Dokka*
	A Study on CFD Modelling Method of Four Way Cassette Diffuser	*Keiji Goshima*
	Performance Evaluation of Capillary Ceiling Radiant Cooling Panel on Surface Temperature and Indoor Thermal Environment	*Dong Xie*
	Experimental Comparison of Three Indoor Thermal Environment Control Methods: Diffuse Ceiling Ventilation, Chilled Beam System and Chilled Ceiling Combined with Mixing Ventilation	*Simo Kilpeläinen*
	Computational Fluid Dynamics Study of a Diffuse Ceiling Ventilation System Through Perforated Sound-Absorbing Ceiling Panels	*Alessandro Nocente*
	Numerical Study of a Hemp-Concrete Insulation Building	*Georges Costantine*
	A Review of the Current State of Air Tightness of Residential Buildings in Iraq	*Saif Rashid*
	The Use of Earth-to-Air Heat Exchanger (EAHE) and Thermal Mass for Building Thermal Environment Regulation	*Dong Yang*
	Adaptation Strategies of Row-Houses to Climate Change in Taiwan	*Mei-Chen Lu*
	The Search for the Best Possible Solutions of Heating System for Passive Building Located in Polish Climate	*Dawid Tata*

Sunday, June 3

	Recovering Waste Heat from Flue Gas of Combined Heat and Power Plants for District Heating in China	*Haichao Wang*
	Airflow Study Inside an Enclosure with a PCM Wall and a Solar Collector	*Cristiana Croitoru*
	Switchable Thermal Insulation for Auxiliary Heating	*Tobias Schilly*
	Energy Performance of Desiccant and Evaporative Cooling-Assisted 100% Outdoor Air System Combined with a Thermoelectric Module Integrated Fuel Cell	*Hansol Lim*
	Energy Saving Potential of a Dedicated Outdoor Air System with Desiccant Wheel Assisted by Thermoelectric Modules	*Seongyong Cheon*
	Why Couple Renewable Energy Sources with Radiant Systems: Current Trends, Limitations and Potential	*Laura Carnieletto*
	A Study on Energy Consumption Pattern of Middle Schools in Korea	*Byungjoo Kang*
	A Study on Energy Consumption Characteristics of High Schools in Korea	*Taewoo Kim*
	Net Zero Energy Schools: Their Systems, Energy Use and Indoor Air Quality	*Wim Zeiler*
	Indoor Air Quality in Low Energy Schools: The Use of CO2 Based Demand Controlled Ventilation Evaluated	*Wim Zeiler*
PERSONAL CONDITIONS – Session: Thermal Comfort (TC2)		***Chair: Risto Kosonen*** *Room U119*
14:00—14:15	Gender Difference in Diurnal Change in Psychological and Physiological Responses to Consistent Relative Humidity	*Naoshi Kakitsuba*
14:15—14:30	An Experimental Study on Integrated Thermal Control of Office Room and Break Room to Improve Intellectual Concentration	*Kimi Ueda*
14:30—14:45	A Preliminary Study of Optimal Thermal Comfort Criteria in a New Nv Office Building in Norway	*Niels Lassen*
14:45—15:00	Influence of Gender on Thermal Sensation and Comfort in Indoor Environments with Displacement Ventilation	*Kai Rewitz*
15:00—15:15	Factors Influencing the Evaluation of Bed Thermal Environment	*Arsen Melikov*
15:15—15:30	Behavioural Adaptation Characteristics of Occupants in Urban and Suburban Parks	*Junta Nakano*
AIR DISTRIBUTION – Session: Air Distribution (AD2)		***Chair: Xianting Li*** *Room U3*
14:00—14:15	Mixing Ventilation Efficiency Using a Vortex Diffuser - Comparison to a Lobed Multi-Cone Diffuser	*Amina Meslem*
14:15—14:30	A Cooling Load Calculation Method for Stratum Ventilation Based on Equivalent Mixing Air Temperature	*Sheng Zhang*
14:30—14:45	Experimental Comparison of the Thermal Indoor Environment Created by a Radiant, and a Combined Radiant and Convective Cooling System	*Ongun Berk Kazanci*
14:45—15:00	Influencing Factors of Ventilation Rate to Satisfy a Local Zone in a Ventilated Space	*Xianting Li*
15:00—15:15	Performance Comparison of Air Distribution Systems for Lecture Room Ventilation and Their Influence on Vertical Temperature Gradients	*Markku Virtanen*
15:15—15:30	CFD Analysis of the Effect of Pressure Gradients on the Separation Efficiency of a Generic Air Curtain	*Claudio Alanis Ruiz*

Sunday, June 3

ENERGY AND VENTILATION – Session: Energy Performance of Buildings (EPB2)		***Chair: Xu Zhang*** *Room U4*
14:00—14:15	BIM Based Approach for Decision Making and Uncertainty in Building Retrofit Design	*Davor Stjelja*
14:15—14:30	Ventilation Effectiveness of Residential Ventilation Systems - an Assessment of the Energy Saving Potential	*Mohammad Reza Adili*
14:30—14:45	Reducing Energy Consumption of Air Handling Units by Optimized Pump Control	*Jens Teichmann*
14:45—15:00	Measuring Breathing Walls Effectiveness and Dynamic Behaviour	*Adriana Angelotti*
15:00—15:15	Energy Benefit of Organic Rankine Cycle in a Liquid Desiccant and Evaporative Cooling-Assisted Air Conditioning System	*Hye-Won Dong*
15:15—15:30	Empirical Analysis of the Dehumidification Performance of a Packed-Bed Counter-Flow Liquid Desiccant Dehumidifier	*Hye-Jin Cho*
APPLICATIONS – Session: Hospital Ventilation and Infection Control (HV2)		***Chair: Arsen Melikov*** *Room U5*
14:00—14:15	Healthcare Worker Exposure to Patient Exhaled Airborne Contaminants in Hospital Isolation Rooms	*Petri Kalliomäki*
14:15—14:30	Use of a Live Vaccine Virus as a Tracer for Infection Control-Related Air-Sampling and Ventilation Studies	*Julian Tang*
14:30—14:45	CFD Simulation of Health Care Workers' Direct Exposure to Patient's Exhaled Air in Hospital Isolation Rooms	*Hannu Koskela*
14:45—15:00	Patients' Perception of the Thermal Environment in Selected Hospital Wards	*Anna Bogdan*
15:00—15:15	Door and Passage Induced Air Exchange Across Hinged Door	*Trond Thorgeir Harsem*
15:15—15:30	Influence of Air Distribution and Room Pressurisation on Air Velocity and Air-Change Effectiveness in a Bay-Designed Ward with Dedicated Outdoor Air System	*Majeed Oladokun*
CONTAMINANT CONTROL – Session: Ventilation Systems for Contaminant Control (CC1)		***Chair: Dirk Mueller*** *Room U6*
14:00—14:15	Reduction of Particulate Matter Concentrations by Local Removal in a Semi-Enclosed Parking Garage	*Rob Vervoort*
14:15—14:30	Experimental Study of Heavy Contaminant Gas Distribution in a Large Space Chamber	*Qianru Zhang*
14:30—14:45	Adjustable Ventilation Using Induced Jet Fans for a Multi-Purpose Space	*Wei Ye*
14:45—15:00	Additive Metal Manufacturing Emission Characterization	*François-Xavier Keller*
15:00—15:15	Stagnation Characteristics of Exhaust Gas from Fuel Cell Unit Installed in Common Hallway and Alcove Space	*Chihiro Ishihara*
15:15—15:30	Effects of an Electric Fleet on Mine Ventilation and Refrigeration with a Comparison to an Equivalent Diesel Mine	*Melissa Brown*
16:00—17:30	**WS1:** Personal Comfort Systems (PCS): perspectives, characterization procedures and research challenges	***Chair: Marco Peroni*** *Room U119*
16:00—17:30	**WS2:** Typical dimensionless numbers in room airflows	***Chair: Claudia Kandzia*** *Room U4*
16:00—17:30	**WS3:** Airflow visualisation and tracer methods/applications to investigate infectious aerosol movement in the built environment	***Chair: Julian Tang*** *Room U5*

Sunday, June 3

AIR DISTRIBUTION – Session: Air Distribution (AD3)		***Chair: Juha Jokisalo*** *Room U3*
16:00—16:15	Development of Air-Conditioning System and Its Control System Using Vortex Ring Type Pulse Airflow Control Device	*Tomoyuki Chikamoto*
16:15—16:30	Is Building Ventilation a Process of Diluting Contaminants or Delivering Clean Air?	*Mats Sandberg*
16:30—16:45	An Experimental Study of Diffuse Ceiling Ventilation with Symmetrical and Asymmetrical Heat Load Distributions	*Risto Kosonen*
16:45—17:00	An Experimental Study on Airflow Characteristics and Thermal Environment with Asymmetrically Located Heat Loads and Low-Momentum Diffuse Ceiling Ventilation	*Sami Lestinen*
17:00—17:15	The Effect of the Strength of Asymmetric Heat Load on Indoor Air Quality with Diffuse Ceiling Ventilation	*Weixin Zhao*
17:15—17:30	A Comparative Study of the Indoor Environmental Quality in Renovated and Non-Renovated Classrooms	*Christian Anker Hviid*
CONTAMINANT CONTROL – Session: Ventilation Systems for Contaminant Control (CC2)		***Chair: Howard Goodfellow*** *Room U6*
16:00—16:15	Numerical Study on a Novel Vortex Side Hood for High-Temperature Pollutant Control	*Zhixiang Cao*
16:15—16:30	Measurements of Wind Effects on the Efficacy of Asbestos Containment in a High-Rise Building	*Roman Guichard*
16:30—16:45	Control of Exposure to Both Particulate and Semivolatile Components of Metalworking Fluid Aerosols	*Arto Säämänen*
16:45—17:00	A Simple Zone Model for Water Mist Fire in a Chamber with Limited Ventilation	*W.K. Chow*
17:00—17:15	Optimization Design of the Ventilation Opening Structure for a Super Large Space Coal Storage Dome Under the Condition of Natural Ventilation	*Yaohua Hou*
17:15—17:30	Numerical and Experimental Simulation Study of the Efficiency of Local Exhaust Ventilation During Materials Polishing Process	*Ali Bahloul*

Monday, June 4

PERSONAL CONDITIONS – Session: Air Quality (AQ)		***Chair: Cristiana Croitoru*** *Room U119*
10:30—10:45	Evaluation of Residential Ventilation Accompanied with Indoor Particle Filtration	*Tengfei Zhang*
10:45—11:00	Emission of Chemicals After Experiencing Negative Pressure in Newly Built Detached Houses	*Hoon Kim*
11:00—11:15	Particle Transfer Through a Heat Wheel in a Highly Insulated Building	*Hans Martin Mathisen*
11:15—11:30	Water Vapour Mobilises Building Related Non-Volatile Chemicals and Mycotoxins and May Be Used to Remove Substances of Potential Health Hazard from Indoor Surfaces	*Panu Harmo*
11:30—11:45	Study on IAQ of Residential Buildings Based on Site Investigation and Online Monitoring	*Yu Zhao*
AIR DISTRIBUTION – Session: CFD Simulation (CFD1)		***Chair: Hannu Koskela*** *Room U3*
10:30—10:45	Assessment of E-Cigarette Smoking Using in Silico Human Respiratory Tract Model Integrated with Coupled PBPK-CFD Analysis	*Kazuki Kuga*
10:45—11:00	Integrated PBPK-CFD-CSP Analysis for Dermal Exposure Assessment in Indoor Environment	*Hideaki Koyama*
11:00—11:15	Comparative Numerical Simulation of Inhaled Particles Transportation in Upper Human Airway for Intersubject Differences	*Nguyen Lu Phuong*
11:15—11:30	Estimation of Diurnally-Averaged Inhalation Exposure Risk in a Naturally Cross-Ventilated Factory by NWP-CFD Integrated Analysis	*Alicia Murga*
11:30—11:45	Impact of Hygrothermal Transfer Analysis in Numerical Respiratory Tract on Skin Surface Temperature Evaluation by Stolwijk Model	*Chong Wang*
11:45—12:00	Numerical Modelling of Transport and Deposition of Liquid Aerosol Particles in an Anisothermal Indoor Environment Using Virtual Dummies	*Tunc Askan*
ENERGY AND VENTILATION – Session: Models for Ventilation and Energy Performance (VEP1)		***Chair: Petri Kalliomäki*** *Room U4*
10:30—10:45	Dynamical Dimensioning of Air Duct Networks – an Energetic and Economic Optimization	*Michael Schaub*
10:45—11:00	Evaluation Method of Building Leakage Characteristics Considering Geometry and Combination of Openings	*Yoshihiro Toriumi*
11:00—11:15	Comparison of Simplified Models to Estimate Vertical Temperature Gradient in Rooms with Displacement Ventilation	*Natalia Lastovets*
11:15—11:30	Characterization of the Free Plume Created by Stoves Using Laboratory Measurements	*Martin Thalfeldt*

Monday, June 4

11:30—11:45	Validation of a Zonal Model to Capture the Thermal Stratification in a Room Heated by a Stove	*Martin Thalfeldt*
11:45—12:00	Influence of Operation Set-Points of Ventilation Systems with Fan Coils on Yearly Energy Consumption	*Edward Przydrozny*
APPLICATIONS – Session: Natural Ventilation (NV1)		***Chair: Jorma Säteri*** *Room U5*
10:30—10:45	Tracer Gas Measurement of Natural Ventilation Systems: Impact of Unsteady Airflows	*Gabriel Remion*
10:45—11:00	General Wind Pressure Coefficient Database and Its Application for Estimation of Natural Ventilation Rate of Mid- to High-Rise Office Building	*Yoshiko Kawawake*
11:00—11:15	Methodology Approach for Natural Ventilation Potential Assessment at District Level in Tropical Climates	*Valentin Delplanque*
11:15—11:30	Validation of Steady Rans for Natural Ventilation Flow Through Louvered Window Openings	*Twan Van Hooff*
11:30—11:45	Simplified Estimation of Wind-Induced Natural Ventilation Rate Caused by Turbulence for a Room with Minute Wind Pressure Difference	*Tomohiro Kobayashi*
11:45—12:00	Evaluation of the Thermal Environment and Effect of the Natural Ventilation in the Green Building with Large Thermal Capacity	*Hiroshi Muramatsu*
POSTER SUMMARIES – Session: Poster Summaries (PS2)		***Chair: Tiina Strand*** *Room U2*
10:30—12:00	Real-Time Measurement of Indoor Air Formaldehyde	*Olavi Vaittinen*
	A Study on the Pollutant Removal Rate of Floor Surface Through Various Cleaning Methods	*Hyuntae Kim*
	Impact of Ventilation on Indoor Air Quality in a Sport Articles Store	*Laurence Robert*
	Indoor Air Quality Solutions for Commercial Buildings	*Sean Menezes*
	Air Purifiers' Pollutants Removal Effectiveness and Further Action: Case Study of Shanghai Hotel	*Xu Bin*
	Effects of Meteorological Factors on CO2 Concentrations	*Maria Marrero*
	Mathematical Modelling of Photocatalytic Oxidation Process of Toluene for Building Material with Locally Doped Titanium Dioxide	*Koki Nakahara*
	Numerical Prediction of Thermal and Humidity Conditions in the Ventilated Ice Rink Arena in Summer Conditions Using a Validated CFD Model	*Agnieszka Palmowska*
	Evaluating Eddy-Viscosity Turbulence Models to Predict the Airflow in Elbows	*Kátia Cordeiro Mendonça*
	Numerical Prediction of Indoor Air Distribution and Thermal Comfort for an Office Room	*Bahadir Erman Yuce*

Monday, June 4

	Energy Efficient Air Conditioning Via Occupancy Identification and a Higher-Level Intelligent Controller	*Osman Akyildiz*
	Predicted and Actual Energy Performance of Residential Buildings in Czechia. Case Study on Evaluation of Detailed Energy and IEQ Monitoring in Family House	*Ondrej Horak*
	Innovative Solar Desiccant Component for Direct Dehumidification and Cooling of Humid Air	*Vincenzo Gentile*
	Assessing the Natural Ventilation Cooling Potential of Residential Buildings in the Hot Summer and Cold Winter Zone of China	*Jie Xiong*
	Infiltration of Air into Two World Heritage Farmhouses in Sweden During Winter Conditions	*Mikael Björling*
	Improvement of Ventilation Performance and Contamination Control for a Bio-Tech Cleanroom	*Fu-Jen Wang*
	Field Measurements of the Airflow Distribution in Close Proximity to a Patient in an Operating Room	*Anders Mostrøm Nilssen*
PERSONAL CONDITIONS – Session: Demand Controlled Ventilation (DCV)		***Chair: Marco Perino*** *Room U6*
13:30—13:45	Improvement of Supply Air Temperature Reset Control by Targeting ATF for VAV Systems	*Eikichi Ono*
13:45—14:00	Validation and Optimization of Air Quality Sensor Based Occupancy Detection Algorithms	*Felix Nienaber*
14:00—14:15	Control Procedure for Demand Controlled Ventilation Performance	*Mads Mysen*
14:15—14:30	The Influence of Indoor Air Flow on the Optimum Sensor Position	*Ralf Gritzki*
14:30—14:45	A Parametric Study of Adaptive Ventilation Strategy in Workspaces with Ductless Split Air-Conditioners	*S Shriram*
14:45—15:00	Demand Response of Space Heating and Ventilation - Impact on Indoor Environmental Quality	*Kristian Martin*
AIR DISTRIBUTION – Session: CFD Simulation (CFD2)		***Chair: Panu Mustakallio*** *Room U3*
13:30—13:45	CFD Modelling of Indoor Contaminants and Their Visualization by Simulated Smoke Videos	*Pertti Pasanen*
13:45—14:00	Large Eddy Simulation of Airflow in a Room with a Sidewall Jet: Comparison with Benchmark Test Data for Occupied Zone	*Nikolay Ivanov*
14:00—14:15	Verification and Transferability of a Multizone Air Flow Model in Modelica to a CFD Environment for Decentralized Ventilation Systems	*Tim Röder*

Monday, June 4

14:15—14:30	CFD Modelling for Transient Jet with Change of Airflow Direction	*Yoshihisa Momoi*
14:30—14:45	Enhanced Energy Modelling of Buildings in Sheltered Scenarios Using Integrated CFD and Bes Method	*Ruijun Zhang*
14:45—15:00	Simulation of the Airflow Pattern from Multi-Nozzle Diffuser	*Pekka Kanerva*
ENERGY AND VENTILATION – Session: Models for Ventilation and Energy Performance (VEP2)		***Chair: Guillermo Carrilho da Graça*** *Room U4*
13:30—13:45	Study on the Simulation Model of a Balcony Greenery System with Ventilation in a Hot and Humid Climate	*Yun-Hao Hsieh*
13:45—14:00	Fast Prediction of Temperature Distribution: Adaptability for Different Air Distribution Patterns	*Xiaoliang Shao*
14:00—14:15	Comparison of Dehumidification Performance of a Single and Two Stage Dehumidifiers in a Liquid Desiccant-Assisted Dedicated Outdoor Air System	*Joon-Young Park*
14:15—14:30	Heat Transfer Enhancement of Free Convection Flows with Kármán Vortex Streets in Vertical 3D-Channels Heated from Two Sides	*Paul Mathis*
14:30—14:45	Warm and Cold Air Temperature Setpoints in Dual-Duct Ventilation Systems with Extract Air Recirculation	*Aleksandra Przydrozna*
14:45—15:00	Numerical Study on Energy Loss Through Door Open While Air Conditioner Running	*Sihwan Lee*
APPLICATIONS – Session: Natural Ventilation (NV2)		***Chair: C W Chow*** *Room U5*
13:30—13:45	Nydalen Vy: A Nearly Zero Energy Building in Norwegian Climate with Natural Ventilation	*Maria Myrup*
13:45—14:00	Indoor Air Quality and Health in Naturally Ventilated Residential Buildings in Nigeria	*Catherine J Noakes*
14:00—14:15	Simulation Study on Optimizing the Hygrothermal Condition of an Underfloor Ventilation Chamber	*Yoshinori Homma*
14:15—14:30	Condensation Prevention Algorithm Experiment by Controlled and Occupancy Situation	*June Hae Lee*
14:30—14:45	Experimental Evidence of Effective Single Sided Natural Ventilation Beyond 20ft or 2.5 Floor to Ceiling Heights in Open Plan Office Spaces	*Guilherme Carrilho Da Graça*
14:45—15:00	A Systematic Approach for Improving the Accuracy of Cross-Ventilation Airflow Calculation Using Adaptive Discharge Coefficient for Unsheltered and Sheltered Building Conditions	*Parham Mirzaei Ahranjani*
13:30—15:00	**WS4:** Industrial ventilation guidebook	***Chair: Risto Kosonen*** *Room U119*
15:30—17:00	**WS5:** Thermal Comfort – New contributions and future options	***Chairs: Dirk Müller and Thomas Sefker*** *Room U119*

Monday, June 4

AIR DISTRIBUTION – Session: Measurement and Visualization Methods (MVM1)		***Chair: Mats Sandberg*** *Room U3*
15:30—15:45	A Novel Diagnostic Technology for Air Infiltration in Buildings Using an Infrared Camera	*Wei Liu*
15:45—16:00	Development of a Test Bench for the Calibration of a Two-Dimensional Velocity Sensor for Low Airflows	*Yuanchen Wang*
16:00—16:15	Tracer Gas Experimental Method Applied for Air Recirculating Systems Part 1 Theory and CFD Verification	*Takashi Kurabuchi*
16:15—16:30	Cost-Effective Human Comfort Manikin with Realistic Thermal Load for Studies of Convection-Driven Ventilation Systems	*Pascal Lange*
16:30—16:45	On-Site Airflow Measurement of a Laboratory Fume Hood Using Customized Large-Scale Image-Based Velocimetry	*Romain Schuster*
16:45—17:00	A New Method to Identify Local Mean Age of Air Using Pulse Response Theory Inside a Room with Return Air Flow in Supply Air	*Toshio Yamanaka*
15:30—17:00	**WS6:** Halton: Advanced airflow distribution methods for protection of occupants from exposure to indoor airborne pollution	***Chair: Guangyu Cao*** *Room U4*
APPLICATIONS – Session: School Ventilation (SV)		***Chair: Martin Thalfeldt*** *Room U5*
15:30—15:45	The Indoor Environmental Quality in a Dutch Day Care Centres: The Effects of Ventilation on the Conditions Within the Baby Cots	*Wim Zeiler*
15:45—16:00	Experimental Assessment of Airborne Transmission Through a Clean Room Door During the Door Opening and Closing at Non-Isothermal Conditions	*Kaho Hashimoto*
16:00—16:15	Healthy Low Energy Redesigns for School in Delhi: Inventory Study of the Current Conditions	*Jill Vervoort*
16:15—16:30	A Study of an Improved Operation of Ventilation Equipment in Schools' Classrooms Based on CFD Analysis of VOCs	*Peng Ruichao*
16:30—16:45	Measurement of Thermal Comfort Field in a Classroom Conditioned by a Split-Type System	*Anastacio Da Silva Junior*
16:45—17:00	Experimental Campaign on Thermal Comfort in Naturally Ventilated University Classrooms	*Michael Fabozzi*

Tuesday, June 5

10:30—12:00	**WS 7:** Trends in demand-oriented non-uniform air distributions	***Chair: Zhang Lin*** *Room U119*
AIR DISTRIBUTION – Session: Measurement and Visualization Methods (MVM2)		***Chair: Joon-Ho Choi*** *Room U3*
10:30—10:45	Measurement of Velocity Above Commercial Cooking Gas Stove with Particle Image Velocimetry	*Yuki Shimanuki*
10:45—11:00	New Schlieren Imaging System: Setup and First Results	*Amayu Wakoya Gena*
11:00—11:15	Measurement of Entrainment into an Axisymmetric Jet Using Temperature as a Tracer: A Pilot Study	*Alan Kabanshi*
11:15—11:30	Detection of Vertical Air Temperature Distribution by Long-Wave Infrared Thermography	*Paul Seiwert*
11:30—11:45	Particle Image Velocimetry Measurements in a Reduced-Scale Simplified Airplane Cabin	*Jo-Hendrik Thysen*
ENERGY AND VENTILATION – Session: Models for Ventilation and Energy Performance (VEP3)		***Chair: Wei Ye*** *Room U4*
10:30—10:45	Early Design Tool for Earth Tubes in Canada	*Sébastien Brideau*
10:45—11:00	Numerical Study of Thermal Performances of a House Equipped with Airflow Windows - Comparison to Conventional Double-Glazed Windows	*Ghislain Michaux*
11:00—11:15	Assessment of Modelling Techniques for Interzonal Air Exchange in the Context of Residential Dwellings.	*Matthias Lux*
11:15—11:30	Preservation Risk Reduction by Adaptive Ventilation: The Case Study of Historical Fresco	*Michala Lysczas*
11:30—11:45	The Challenges of Ventilation in Buildings with Tight Envelope in Cold Climate	*Lari Eskola*
APPLICATIONS – Session: Airplane and Vehicle Ventilation (AVV)		***Chair: Ilinca Nastase*** *Room U5*
10:30—10:45	Assessment of a New Ventilation System for Commercial Aircraft Cabins Using Wells-Riley Equation	*Yan Chen*
10:45—11:00	Influence of Sensible Heat Release on the Performance of Displacement Ventilation in a Train Compartment	*Daniel Schmeling*
11:00—11:15	Experimental Analysis of the Influence of a Personalized Ventilation System on the Back of the Front Seat on the Dispersion of Expiratory Droplets in an Aircraft Cabin	*Victor Barbosa Felix*
11:15—11:30	Multi-Zonal Temperature Control of Transient Thermal Loads in Aircraft Cabin Airflow	*Tobias Dehne*
11:30—11:45	Scale Model Study for Air Diffusion Inside a Crew Quarter on Board of ISS	*Ilinca Nastase*

Tuesday, June 5

POSTER SUMMARIES – Session: Poster Summaries (PS3)		***Chair: Henna Maula*** *Room U2*
10:30—12:00	A Moving Thermal Manikin for the Simulation of Walking Passengers in Aircrafts or Trains	*Daniel Schmeling*
	Numerical Study for the Improvement of the Ventilation System of the Crew Quarters on Board the International Space Station	*Florin Bode*
	Developing a Realistic CFD Model of the Air Distribution Inside a Vehicle Cockpit	*Angel Dogeanu*
	CFD Simulation of Natural Ventilation in Hospital Wards: The Effect of Insect Screen and Plenum on Dust Particle Penetration	*M.A. Mohammed*
	Tracer Gas Experimental Method Applied for Air Recirculating Systems Part 2 Experimental Verification	*Kazuya Nagashige*
	Evaluating the Body Cooling Effect of Personalized Ventilation Systems	*Hayder Alsaad*
	Energy Saving Potential of a Ventilated Seat Cushion	*Mariya Bivolarova*
	Improvement Effect of Personal Heating and Cooling on Thermal Comfort While Using Toilet	*Jin Ishii*
	The Effect of the Lack of Sleep on the Thermoregulatory Responses in the High Temperature Environment	*Ayako Yasuoka*
	Proposal of a Method to Investigate the Thermal Demands of Office Workers	*Naoki Katori*
	Human Thermal and Airflow Sensations in Temperature and Humidity Ramps with Small Air Movement	*Kazuo Nagano*
	Effects of Office Indoor Floor Plants on the Human Sensory Perceptions	*Yoshihito Kurazumi*
	Indoor Thermal Comfort and Heat Gain Mitigation Capability of Utilizing Window Films for Building Envelope Retrofit	*Yi-Jhen Li*
	Ventilation System Optimization Inside a Sludge Dewatering Hall	*Mihnea Sandu*
	Innovative Solution for Improving Occupational Hygiene in a Machine Tool Environment	*Pirkko Pihlajamaa*
PERSONAL CONDITIONS – Session: Personalized Ventilation (PV)		***Chair: Anna Bogdan*** *Room U3*
13:30—13:45	Investigation of the Reliability of an Efficient Supply Air Control Method in Air-Cooled Data Centers with Aisle Containment	*Ken Jesse Lindenberg*
13:45—14:00	Computational Fluid Dynamics Simulations of Personalised Ventilation: The Effect of Distance and Temperature on Thermal Comfort and Air Quality.	*Natalie Gilkeson*
14:00—14:15	Perception of Constant and Adjustable Cooling Jets in Warm Office Environment	*Henna Maula*

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14:15—14:30	Characterization of Personal Comfort Systems by Means of Subjective Comfort Investigation	*Marco Perino*
14:30—14:45	Development and Evaluation of the Cool Chair 2016 Model	*Yusuke Doi*
14:45—15:00	Effect of Airflow Interaction on Temperature and Velocity at the Breathing Zone of Seated Person	*Eva Zavrl*
13:30—15:00	**WS 8:** Accuracy of Indoor airflow measurement	***Chair: Arsen Melikov*** *Room U119*
13:30—15:00	**WS 9:** Scanvac: Smart Indoor Climate Control: How to utilize Smart Readiness Indicator Approach in Intelligent Buildings	***Chair: Markku J. Virtanen*** *Room U4*
13:30—15:00	**WS 10:** What will be the desired airflow distribution solutions in operating rooms: theoretical and practical challenges?	***Chair: Guangyu Cao*** *Room U5*
13:30—15:00	**WS 11:** IEA: Supplementing Ventilation with Gas-phase Air Cleaning, Implementation and Energy Implications. A proposed IEA-EBC Annex	***Chair: Bjarne W. Olesen*** *Room U6*
CLOSING SESSION		***Chairs: Hannu Koskela and Guangyu Cao*** *Room U2*
15:30—15:45	A short summary of papers	*Hannu Koskela*
15:45—15:55	Best Posters Award	*Guangyu Cao*
15:55—16:15	Best Papers Award	*Hannu Koskela*
16:15—16:30	Announcement of Conference: Roomvent 2020	*Olli Seppänen*