

18th International Conference on Indoor Air Quality and Climate (INDOOR AIR 2024)

Honolulu, Hawaii, USA
7-11 June 2024

Volume 1 of 3

ISBN: 979-8-3313-0681-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2024) by International Society of Indoor Air Quality and Climate (ISIAQ)
All rights reserved.

Printed with permission by Curran Associates, Inc. (2024)

For permission requests, please contact International Society of Indoor Air Quality and Climate (ISIAQ)
at the address below.

International Society of Indoor Air Quality and Climate (ISIAQ)
c/o Infinity Conference Group, Inc.
1035 Sterling Road, Suite 202
Herndon, VA 20170 USA

Phone: (703)-925-9455 x118

info@isiaq.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

AEROSOLS AND PARTICULATE MATTER

Characteristic and Antibiotic Resistance of Bioaerosols Between Ambient Atmosphere and Semi-Open Night Market.....	1
<i>Ya-Hsuan Teng, You-Zhong Huang, Yu-Jie Chan, Chane-Yu Lai</i>	
Evaluation of SVOC Exposure from Indoor Air using SVOC Gas-Particle Partitioning Model and Airborne Particle Deposition Model onto Human Body Surface	4
<i>Kosuke Kondo, Naoki Kagi, Wataru Umishio</i>	
Health Risks of Trace Metals of quasi-PM2.5 and Quasi-Ultrafine Particles in Metro Stations in the East China	10
<i>Bin Lu, Jialun Chen, Zhengqiang Wang, Jun Guan, Guoqiang Zhang</i>	
Characterization of Indoor Air Quality in 10 French Sports Halls	11
<i>Valérie Desauziers, Barbara Le Bot, Pierre Le Cann, Hervé Plaisance, Nathalie Costarramone, Gaëlle Raffy, Emilie Surget</i>	
Spatial-Temporal Distribution Characteristics and Size Distribution of Particles of Two Different Types of Underground Garages in Harbin.....	19
<i>Yafan Zhao, Fang Wang, Haiyan Wang, Yanling Wang</i>	
The Effects of Energy Retrofits to Variations of Airborne Particulate Matter in Finnish and Lithuanian Multifamily Buildings	21
<i>Judita Švaikauskaitė, Virpi Leivo, Tadas Prasauskas, Dainius Martuzevicius, Violeta Kauneliene, Ulla Haverinen-Shaughnessy</i>	
Nano Aerosol Formation Initiated by Oxidation of Limonene During Bleach Cleaning: A Comparison of Oxidant Chemistry.....	24
<i>Anita Avery, Mitchell Alton, Manjula Canagaratna, Andrew Lambe</i>	
Humans and Their Dogs' Pesticide Air Exposure Concentrations in Boulder Colorado using Passive Wearable Monitors	26
<i>Aniya K. Hollo, Emily Johnson, Elizabeth Z. Lin, Rella Abernathy, Krystal J. G. Pollitt, Shelly L. Miller</i>	
Particulate Matter Infiltration in Colorado Workplaces.....	28
<i>Ben Swanson, Will Clagett, Ashley Geraets, Jadelyn Lippman, Rachel Stevens, Gavin McMeeking, Nicholas Good, Kate Patterson, Kathy Boyers, Odessa Gomez, Kristen Good, Ellison Carter</i>	
Enhancing Precision in Analyzing Childhood Health: A Propensity Score Matching Approach	30
<i>Chanjuan Sun, Zepeng Zhu, Zhijun Zou, Xin Zhou, Haidong Wang, Chen Huang</i>	
Characteristics, Sources and Improvement Measures Regarding Fine Particulate Matter in Subway Station Staff Area	32
<i>Chengzhi Luan, Xiaofeng Li, Chunwang Wang, Yulin Zhu</i>	

Development and Application of a Computational Model to Predict Fugitive Emissions During Nebuliser Therapy	34
<i>Ciarraí O'Toole, James A. McGrath, Marco-Felipe King, Martín López-García, Miriam A. Byrne</i>	
Effect of Ultrasonic Scaler Tip on the Aerosol Generation in Dental Scaling	36
<i>G. Yang, S. C. Fu, K. C. Chan, K. W. Mui, Christopher Y. H. Chao</i>	
Assessing Volatile Organic Compounds Emitted by 3D Printers in Educational Environments	39
<i>Gitaek Oh, Boowook Kim, Taehong Kwon, Myoungho Lee, Choongsik Yoon</i>	
Technological Advancements and Health: Innovations for Enhancing Classroom Air Quality	41
<i>Ho H. Jo, Won D. Suh, Sumin Kim</i>	
Characteristics of Particulate Matter in Smart-Shelter According to Type and Operation of Mechanical Equipment	43
<i>Hye-Jin Cho, Chang-Ho Jeong</i>	
Assessment of Particle Distribution and Concentration in Consumer Spray Products (CSPs) Classified by Usage	51
<i>Hyunbin Jo, Gitaek Oh, Taehong Kwon, Chungsik Yoon</i>	
Effects of Cloth Vibration Duration on Dust Resuspension	53
<i>J. Feng, S. C. Fu, K. C. Chan, Chun-Ho Liu, Christopher Y. H. Chao</i>	
Airborne Influenza Virus in Daycare Centers	55
<i>Jia L. Zhang, Yi L. Lee, Pei-Shih Chen</i>	
Field Study on PM _{2.5} Pollution in Exhaust Air and Piston Air of Metro Station	57
<i>Jialun Chen, Jun Guan, Bin Lu, Zhengqiang Wang, Guoqiang Zhang</i>	
Detection of MPOX Virus in Air and Dust of a Patient Room	65
<i>Judith C. C. Wong, Kalisvar Marimuthu, Sophie Octavia, Xiaowei Huan, Yi K. Ng, Junjing Yang, Stephanie Sutjipto, Kyaw Z. Linn, Yin X. Setoh, Jane Griffiths, Erica S. Neves, Luqman Hakim, Shuzhen Sim, Merrill Lim, Mohammad Nazeem, Shawn Vasoo, Kwok W. Tham, Oon T. Ng, Lee C. Ng</i>	
Collection and Analysis of Indoor and Outdoor Aerosol using a Dual AC/DC Sampling System	67
<i>K. Funasaka, Y. Furuichi, T. Hanada</i>	
A Study of the Increase in Radon Decay Product (RDP) Levels in the Presence of PMs from Wildfire Smoke	75
<i>Kimberley Waldron</i>	
Inhalation Exposure of Polystyrene Microplastics Causes Pulmonary Inflammation	77
<i>Kyuhong Lee, Jong-Hwan Woo</i>	
The State of the Art Characterization of Particles from Respiratory Activities	79
<i>Lidia Morawska, Henry Oswin, Sadegh Niazi, Robert Groth, Zoran Ristovski</i>	
Between-Unit Indoor Air Quality Variability Due to Resident Behavior Within a Single Boston Public Housing Complex	81
<i>Madeleine Wallace, Lacey Satcher, Samantha Teixeira, Rebekah L. Coley, Gary Adamkiewicz</i>	
Source Emissions from a Consumer Iron and Steamer	83
<i>Marie-Michele Dussault, Karen Kang, Annie Zhan, Rachel Tyli</i>	

Impacts of Aging and Relative Humidity on Biomass Burning Smoke in an Indoor Environment	91
<i>Marina E. Vance, Liora Mael, Sofie K. Schwink, Kathryn Mayer, Thomas H. Dunnington, Maximilian Schmid, Nicholas Gotlib, Andrew B. Martin, Dustin Poppendieck, Delphine K. Farmer</i>	
A Thorough Exploration of Cooking Oil Emission Characteristics: Unveiling Comprehensive Insights	93
<i>Mostafa Salmanimojaveri, Motahareh Naseri, Tomiris Madiyarova, Nadezhda Ushakova, Karina Yessengazyeva, Gulnur Sultan, Enoch Adotey, Gulnaz Zhemeny, Ali D. Omrani, Farzaneh Jafarigol, Sumit Sankhyan, Shelly Miller, Lance Wallace, Dhawal Shah, Mehdi A. Torkmahalleh</i>	
Advancing Environmental Health Equity in Underserved Neighborhood: A Pilot Study on the Impact of Outdoor Air Pollutants on Indoor Air Quality	95
<i>Peter Kim, Hongwan Li, Mingze Zhu, Mika Cheng, Anvesh Vanga, Xiao-Ming Hu, Wenwen Cheng, Anni Yang, Changjie Cai</i>	
From Outdoors to Indoors: A Geo-AI Technique to Protect Children from the Invisible Threat of Indoor PM	97
<i>Quang-Oai Lu, Ching-Chang Lee</i>	
A Pilot Study, Aerosol Formation in Medical Device Reprocessing	99
<i>Rachel Tyli, Remus Anders, Garry Bassi, Tony Mazzulli, James Scott</i>	
Aggressive Or Passive Particle Sampling: An Evaluation of AirBorne Particle Distribution After Disturbing Settled Dust as Part of an Exposure Assessment	101
<i>Ryan N. Allenbrand, Kevin Kennedy</i>	
Improved Parametrization of Indoor Ultrafine Particle Coagulation.....	103
<i>Satya S. Patra, Gerhard Steiner, Nusrat Jung, Brandon E. Boor</i>	
Indoor Atmospheric Nanoparticle Growth Rates.....	105
<i>Satya S. Patra, Gerhard Steiner, Nusrat Jung, Brandon E. Boor</i>	
Evaluation of Indoor Ultrafine Particle Dynamic Behavior Considering Heating Status of Hotplate During Decay Period	107
<i>Su-Gwang Jeong, Lance Wallace, Donghyun Rim</i>	
Assessment of Comprehensive Performance of Schools to Resist PM _{2.5}	109
<i>Taeyeon Kim, Sihyeon Kim, Dongjun Park, Donghyun Kim, Bonghoon Jeong, Joosang Lee</i>	
Daily PM ₁₀ Concentration Profiles in Some Parisian Railway Stations	111
<i>V. Rakotonirinjannahary, S. Crumeyrolle, M. Bogdan, B. Hanoune</i>	
A Novel Method for Establishing Typical Profile of PM Concentrations in Underground Railway Stations	113
<i>V. Rakotonirinjannahary, S. Crumeyrolle, M. Bogdan, B. Hanoune</i>	
Numerical Simulation Study on the Distribution Characteristics of Pollutants in the Operating Room Based on the New Annular Differential Air Supply Mode	121
<i>Weixue Cao, Yixuan Zhang, Xudong Zhang, Tianqi Shao</i>	
Ozonation of Thirdhand Smoke Embedded in Carpets and Mattresses.....	123
<i>Xiaochen Tang, Nicolas Lopez-Galvez, Vi Rapp, Marion Russell, Samuel Padilla, Nathan Dodder, Penelope J. Quintana, Hugo Destailats</i>	

Secondhand Exposures to Simulated Cannabis Vaping Aerosols	125
<i>Xiaochen Tang, Vi H. Rapp, Marion L. Russell, Hugo Destailats</i>	
Intervention Effectiveness Assessment of Report-Back Results for In-Home Air Quality and Household-Level Mitigation Actions	127
<i>Xiaoying Li, Jessica Tryner, Mollie Phillips, Thomas Reilly, John Volckens, Ellison Carter</i>	
Study on Particle Distribution and the Impact of Piston Wind on Particle Concentration in Metro: Based on Field Testing	129
<i>Xinyu Sun, Haibo Qu, Jianbin Zang, Yan Wu</i>	
The Impact of Altitude on Dosage of Indoor Particulates to Small Airways.....	131
<i>Yifan Li, Kirstine M. Frandsen, Yiran Lu, Malthe H. Hvelplund, Weiqi Guo, Baimu Suolang, Ziang Xi, Mengjie Duan, Li Liu</i>	
Research and Application of Indoor Air Purification and Nanocatalytic Antimicrobial Technology	139
<i>Yu Huang</i>	
Assessment of Urban Coffee Shop Indoor Air Quality and Examination of Influencing Factors using the Random Forests Model	141
<i>Yu-Wen Lin, Chin-Sheng Tang, Wei-Xiang Huang</i>	
Toilet Lids: Protectors Preventing the Spread of Infectious Bioaerosols Generated During Flushing Bidet Toilet	143
<i>Yuanyuan Niu, Hua Qian, Xiaohong Zheng, Jiayu Huang, Chenxue Song</i>	
Development of a Full-Size-Range Respiratory Droplet Sampler.....	152
<i>Yuchen Shi, Yihan Wang, Jianjian Wei</i>	
The Study on the Performance of Magnetic Filters with Elliptical Magnets.....	154
<i>Yulin Zhu, Xiaofeng Li, Zhenzhe Liu, Fan Yang, Chenzhi Luan, Chunwang Wang, Li Wang</i>	
Assessing Indoor Air Quality Impacts of Tobacco Products: Differential Cytotoxic Effects of Conventional Cigarette and Heated Tobacco Product Aerosols	156
<i>Gaile Pocevičiute, Violeta Kauneliene, Edvardas Bagdonas, Ruta Aldonyte, Jovile Raudoniute, Darius Ciužas, Tadas Prasauskas, Edvinas Krugly, Dainius Martuzevicius</i>	
Effect of Exhaust Airflow Rate and Pressure Difference on the Particle Outflow from Airborne Infection Isolation Room.....	158
<i>Gi-Hoon Kim, Seong-Min Jo, Minki Sung</i>	
A Lagrangian-Based Markov Chain Model with Coarse Grids for Fast Pre-Diction of Particle Transport in Complex Indoor Environments	162
<i>Wenjie Huang, Chun Chen</i>	
Oxidation of Cannabis Smoke Leads to Ultrafine Particle Formation in Indoor Environments	164
<i>Kristen Yeh, Amirashkan Askari, Jenna C. Ditto, Jonathan P. D. Abbatt</i>	
Quantitative Measurement and Application of Droplets on Physical Surfaces Based on LIF Technology	166
<i>Shuaixiong Zhou, Fan Wu</i>	
Effects of Occupant Behaviour and Air Filtration on Indoor Air Quality in Social Housing	168
<i>Vishnupriya V. Narayanan, Arman Hashemi, Heba Elsharkawy, Darryl Newport, Lucienne G. Basaly</i>	

Research on Indoor Droplet Concentration Prediction and Analysis Based on Kernel Function.....	177
<i>Jiyu Yao, Tiantian Wang</i>	
Characterization of Airborne Particle Emissions and Volatile Organic Compounds from 3D Pen Printing.....	180
<i>Chungsik Yoon, Geonho Do, Kyungduk Zoh, Seungsup Kim, Seungmuk Yi, Whajin Kim</i>	
Evaluation of Bioaerosol Propagation Through an Air Curtain.....	182
<i>Andreas Kohl, Yen-Tran Ly, Stefan Leuko, Daniel Schmeling, Claus Wagner, Ralf Moeller</i>	
Experimental Investigation of Particle Dispersion in an Operating Room Under Positive and Negative Pressurization.....	190
<i>Reza Daneshazarian, Rafsan Nahian, Jeffrey Siegel</i>	
Performance Testing of Cordless Handheld Vacuum Cleaners.....	192
<i>Jason Lin, Sheng-Hsiu Huang, Yu-Mei Kuo, Chun-Wan Chen, Chih-Wei Lin, Chih-Chieh Chen</i>	
Measured Air Pollutants in 276 European Homes using Gas or Electric Hobs.....	194
<i>Brett Singer</i>	
Association of Aerodynamic Size of Bioaerosols with Biodiversity and Antibiotic-Resistance in Kindergartens.....	195
<i>Tzu-Hsien Lin, Ying-Hsiang Chou, Tzu-Yu Hsu, Chun-Hui Hung, Chane-Yu Lai</i>	
A Method to Estimate Indoor Instantaneous PM _{2.5} Thresholds for Air Cleaner in Chinese Residences.....	199
<i>Yiming Wang, Keqin Yang, Jingya Wei, Yiping Zhang</i>	
Particle Number Concentrations in Office Spaces Around Europe.....	207
<i>Laura Salo, Ville Silvonen, Tuomas Raunima, Michal Vojtisek-Lom, Jakub Ondracek, Jan Topinka, Roel P. F. Schins, Teemu Lepistö, Henna Lintusaari, Sanna Saarikoski, Luis M. F. Barreira, Jussi Hoivala, Lassi Markkula, Ilpo Kulmala, Juha Vinha, Panu Karjalainen, Topi Rönkkö</i>	
Differences Between Indoor-Outdoor-Atmosphere PM _{2.5} and Their Sources in Low and High PM _{2.5} Seasons.....	215
<i>Chien-Cheng Jung, Chia-Yu Huang, Hui-Tsung Hsu, Xin-Yi Lin, Liang-Ying Chen</i>	
Assessing Sustainable Filtration Solutions for Nano-Plastic and Total Volatile Organic Compounds (TVOC) Mitigation in 3D Printer Emissions.....	217
<i>Yuan Y. Zheng, Kuo-Pin Yu</i>	
Unveiling Spatial-Temporal Patterns of PM _{2.5} Pollution in Kampala City: A Novel Local Moran's I Autocorrelation Approach.....	219
<i>Wabinyai F. Raja, Gideon Lubisia, Deo Okure</i>	
Spatial and Temporal Variations of Airborne Microplastic Concentration, Characteristic, and Influencing Factor in Indoor Air.....	220
<i>Kuan-Ting Lin, I-An Chen, Kuan-Yuan Chen, Chien-Cheng Jung</i>	
Effects on Respiratory Droplet Generation and Virus Concentration of Changes in Oral Opening Geometry.....	226
<i>Nguyen D. Khoa, Kazuki Kuga, Kazuhide Ito</i>	
Monitoring and Management of Particulate Matter Based on Ambient Air Quality in Seoul using Positive Matrix Factorization (PMF).....	228
<i>Jaewook Hwang</i>	

Development of a Sampler Utilizing a Wet-Impactor to Collect Pathogenic Bioaerosols into Liquid Media.....	229
<i>Subin Han, Jae H. Park</i>	
PM _{2.5} from Cannabis Consumption at Dispensaries and Cannabis Festivals in California	231
<i>Abel S. Huang, Bryanna G. Perez, Morgan B. C. Murphy, Suzaynn F. Schick</i>	
Chemical Composition and Toxicity of Fine Particles Emitted from Burning of Pork and Mackerel.....	233
<i>Yeonju Sim, Minhan Park, Kihong Park</i>	
Development of a Korean 3D Printed Lung Model for Estimating Respiratory Deposition of Aerosols.....	234
<i>Jeongyeon Park, Minjung Kim, Chungsik Yoon</i>	
Investigating the Impact of Particle Morphology on the Resuspension of Aerosol Particles in Indoor Air.....	236
<i>Edward Neal, Lukesh Mahato, Richard Thomas, Maurice Walker, Jack Vincent, Simon Parker, Virginia Foot, Emily Kruger, Jonathan Reid</i>	
Multi-Virion Droplets in the Transmission of Respiratory Infection.....	238
<i>Pan Cheng, Yuguo Li</i>	
Emission Factors of Air Pollutants from Joss Paper and Incense Combustion.....	240
<i>Yi-Chen Chen, Abiyu K. Berekute, Kuo-Pin Yu</i>	
Identification of Microplastics in Indoor Environment	242
<i>Weijian Zhang, Ying Xu</i>	
An Experimental Investigation on Vacuum Cleaner Head Flow Path for Cleaner Hygiene Improvement	244
<i>In-Gyu Yang, Kyoung H. Ryou, Ki J. Kang, Jin H. Shin, Young-Chull Ahn</i>	
Training a Random-Forest Regression Model on Data from Low-Cost Sensors on a University Campus to Predict Indoor Air Quality	246
<i>Sabrina Westgate, Nga L. Ng</i>	
Measuring Indoor HCl at the Parts-Per-Trillion Level with Novel Picarro CRDS Gas Concentration Analyzer	248
<i>Cora Young, Juan C. Guerrero</i>	
Measurements of Size Distributions and Water Content of Oily Particles in Machining Workshops	249
<i>Fei Liu, Tengfei Zhang, Wei Liu</i>	
Influence of Human Activities and Occupancy on the Emission of Indoor Particles from Respiratory and Non-Respiratory Sources	257
<i>P. S. Ganesh Subramanian, Joseph V. Puthussery, Yuqing Mao, Sudheer Salana, Thanh H. Nguyen, Ty Newell, Vishal Verma</i>	

BUILDING SIMULATION, SUSTAINABILITY, AND ENERGY

Study on the Optimal Correlation of Storage Volume and Circulation Flowrate of Borehole Thermal Energy Storage (BTES).....	259
<i>Fang Guo, Xudong Yang</i>	

Quality Control of Data Pre-Processing for Improving Prediction Performance of ANN Model Based on CFD Simulations: Effect of Grid Resolutions	268
<i>Ye S. Eom, Sunghyup Hong, Kwangho Lee, Donghyun Rim</i>	
Proposal of Implementation Methods for Advanced HVAC Operation Strategies using Single-Board Microcontrollers	270
<i>Kwangwon Choi, Donggun Lee, Jaewan Joe</i>	
Fugacity Model Incorporating Computational Fluid Dynamics to Predict the Behavior of Insecticide Sprayed in a Room	278
<i>Sayuri Tanaka, Yoshihide Matoba, Hiroaki Kondo, Tomohiko Ihara</i>	
Development of Regression Model for Metacognition of Building Energy Users	280
<i>Semi Park, Jyinyung Park, Jaewan Joe</i>	
Coupling Chemistry and Fluid Dynamics to Assess Indoor Air Quality	287
<i>Bruño Fraga, Zhen Liu</i>	
Seasonal Validity of Stack Pressures Driving Natural Infiltration.....	289
<i>Dominic T. Bledsoe, Will Clagett, Ellison Carter, Misa Soto, Paul W. Francisco, Tami C. Bond</i>	
Simplification of Hyperparameters and Input Parameters of Deep Learning Input Parameters Depending on Building Size using Explainable Artificial Intelligence	291
<i>Dong K. Lee, Woong J. Chung</i>	
Upcycling Clothing Waste into Construction Materials: Improving Thermal Performance by using Phase Change Materials	293
<i>Dongchan Jin, Young U. Kim, Beom Y. Yun, Sungeun Kim, Sumin Kim</i>	
Uncertainty Analysis of Building Energy Consumption Based on Occupant Behavior-Based HVAC Control with Optimal Thermal Comfort.....	295
<i>Dongsu Kim, Eunho Kang, Jongho Yoon</i>	
BuilSysPro-QAI: A New Modelica Library for Macro-Design and thermo-Hygro-Aerodynamic-IAQ Simulations in Residential and Tertiary Buildings	297
<i>Hasan Sayegh, Hugues Bosche, Thierry Duforestel, Hassan Bouia, Bénédicte Wall-Ribot, Sébastien Labbé, Denis Covalet</i>	
Power-Saving Menus in Preparation for Winter Power Shortages Considering Diversity of Housing Performance and Residents' Lifestyles	299
<i>Hikari Harasaki, Kanari Hiram, Yuta Fukawa, Tishiki Shinno, Jun Nakagawa, Shin-Ichi Tanabe</i>	
Predicting Ventilation Rates in Public Housing in the Era of Modular Flat Design in Hong Kong using Deep Neural Network Model.....	307
<i>Ho K. Dai, Yifu Shi, Chun Chen</i>	
Research on the Development of Evaluation for Outdoor Air Pollutants Entering a Vehicle Indoors in Driving	309
<i>Ho-Hyeong Yang, Hyun-Woo Lee, Cha-Ryung Kim, In-Ji Park, Myung-Soo Kim, Ho-Hyun Kim</i>	
Deep-Learning-Based Approach for Automated Analysis of Indoor Thermal Environments	311
<i>Jewon Oh, Daisuke Sumiyoshi, Takahiro Yamamoto, Takahiro Ueno, Tatsuto Kihara, Hyuntae Kim</i>	

Efficient Energy Savings Through Adaptive Control Strategies in Photovoltaic Blinds	313
<i>Jiaze Wei, Jinhan Mo</i>	
Evaluation of Computational Room Flow Simulations by Means of Experimental Methods	315
<i>Jonathan Griener, Susanna Bordin, Arno Dentel</i>	
Optimization of Coupled Displacement-Personalized Ventilation using TOPSIS Method Based on Taguchi Design.....	323
<i>Ken B. Fernandez, Sung-Jun Yoo, Kazuhide Ito</i>	
Impacts of Night Market on Indoor Air Quality and Children’s Lung Function in Nearby Households	325
<i>Kuo P. Tseng, Jia L. Zhang, Pei-Shih Chen</i>	
Reconstructing Outdoor Concentrations for Use by Indoor Models	327
<i>Michael D. Sohn, David M. Lorenzetti</i>	
Tracer Gas Experiment of Urban Pollutant Transport: Urban Canyons and Indoor-Outdoor Transport.....	329
<i>Michael D. Sohn, Marion L. Russell, William W. Delp, David M. Lorenzetti, Kyla Cook</i>	
Digital Twin for Buildings – The Way Towards Sustainable Buildings	331
<i>Mihnea Sandu, Cristiana Croitoru, Alexandra Ene, Andra Tanase</i>	
The Impact of Venetian Blinds on Air Temperatures in a Double Transparent Façade Cavity.....	338
<i>Miloslav Bagona, Martin Lopusniak</i>	
Research on Promoting Energy-Saving Behavior by Providing Information on Office Workers in Glass Buildings.....	340
<i>Ryo Ishikawa, Jeongsoo Kim, Yumiko Kobayashi, Yuma Kouchi, Tokimi Kawase, Sijia Zou, Kensuke Watanabe, Taiga Amino</i>	
Analysis of Carbon Emission Reduction Effect Through Green Remodeling of Public Daycare Centers.....	342
<i>Se H. Lim, Jin C. Park</i>	
Heat Transfer Coefficient of Block Model for Indoor Temperature Distribution	344
<i>Taecheol Lee, Rihito Sato, Takashi Asawa, Seonghwan Yoon</i>	
Household PM _{2.5} Exposure in India at Subnational Scale: Recent Changes and Health Implications	346
<i>S. Dey, A. Mukherjee, S. Ghosh</i>	
Hygrothermal and Energy Performance Evaluation of Cross-Laminated Timber Walls	348
<i>Yujin Kang, Jihee Nam, Sumin Kim</i>	
Research on Time-Series Power Data Analysis Programme using DNN to Save Electricity Without Compromising Environmental Quality.....	350
<i>Yuya Baba, Kim Jeong</i>	
The Impact of the Microenvironment Around a Window on the Temperatures of Its Inner Surface.....	352
<i>Miloslav Bagona, Martin Lopusniak</i>	
Unravelling the Complexities of Window Behaviour in Open Offices: Insights from Semi-Structured Interviews and Content Analysis.....	353
<i>Pengju Zhang, Shen Wei, Niamh Murtagh, Yan Ding</i>	

Improving the Thermal Boundary Conditions During CFD Modelling of Residential Kitchen.....	355
<i>Shou-Wang Chen, Chao-Yen Chang, Wan-Chen Lee, Ying-Chieh Chan</i>	
Enhanced Building Energy Efficiency by a Novel Dynamic Photovoltaic-Integrated Shading Device (PVSD).....	362
<i>Wuwei Zou, Jinhan Mo</i>	
Influence of Leakage Corrections on the Cup Test Results	364
<i>Xinyue Luo, Pengbo Hu, Chi Feng</i>	
Comparative Assessment of Occupant Behavior Models for Early Stage Occupant Centric Design Decisions	371
<i>Sharon Verghese, Timo Hartmann</i>	
Recycled Glass-Based Radiative Cooling Paint: A Feasible Approach for Space Cooling Applications.....	379
<i>Can Xiao, Chun Chen</i>	
Evaluation of Different Categories of Turbulence Models for Calculating Air Pollutant Dispersion in Real Urban Layout	381
<i>Jue Wang, Ruoyu You</i>	
Evolution of Direction Air Supply Induced by Worker Walking Through Dynamic Simulation	383
<i>Yukun Xu, Jun Gao</i>	
The 7-Year Journey to Develop a Radon-in-Water Proficiency Test to Bridge the Gap in This Field Across the Globe	390
<i>Uttam Saha, David Parks, Derek Cooper, Michael Kitto, Pamela Turner</i>	
Improvement Design of Raised Floors in a Semiconductor Cleanroom using Computational Fluid Dynamics Simulation	392
<i>Zulvi A. Hidayatulloh, Tin-Wen Chang, Indra Permana, Fujen Wang</i>	
Simple Tool for Informing Shelter Design on Natural Ventilation and Indoor Air Quality: A Preliminary Study.....	396
<i>Anna Conzatti, Norullah Kuchai</i>	
A Study on Construction Digital Platform Technology Roadmap for Realization of Carbon-Neutral City Based on Building Life Log Data.....	398
<i>Hye-Sun Jin, Bo-Kyoung Koo</i>	
Carbon Dots for Coloured Passive Radiative Cooling Design	401
<i>Kaixin Lin, Chui T. Kwok, Yihao Zhu, Chi Y. Tso</i>	
Occupant-Centric Proactive Control Methodology for IEQ.....	403
<i>Christina Kakoulli, Alexis Kyriacou, Michalis Michaelides</i>	
Quantifying the Cooling Effect of Cool Materials on Building Surfaces and Indoor Temperature at the Neighborhood Scale	405
<i>Fusuo Xu, Zhi Gao, Jianshun J. Zhang</i>	
Coupling Indoor Air Quality, Thermal Comfort and HVAC Energy Consumption using IDA ICE and OpenFOAM.....	413
<i>Niko Siilin, Andrea Ferrantelli</i>	

Environmental Parameters Evaluation of a Hospital Burn Center for Infection Control and Energy Efficiency: Field Measurement and Simulation Analysis.....	421
<i>Indra Permana, Fujen Wang, Zulvi A. Hidayatulloh, Alya P. Agharid</i>	
A Simulation-Based Study on Classroom Air Temperature and Building Cooling Demand During Summer Heatwaves in Boston.....	425
<i>Jianxiang Huang, Jinglei Li, Judith Rodriguez, Ernani Choma, Patricia Fabian, John D. Spengler</i>	
Characterization of Cold Storage Energy Consumption and Control Simulation	428
<i>Qiaobo Shi, Fulin Wang</i>	
Indoor Environmental Conditions in Italian Childcare Buildings: Results from a Monitoring Campaign	430
<i>Elena Crespino, Ludovica M. Campagna, Francesco Carlucci, Francesco Martellotta, Francesco Fiorito</i>	
Analysis on Heating and Cooling Load Reduction of a Building and Integrated Rooftop Greenhouse Depending on the Operating Schedule using Building Energy Simulation	438
<i>Eun J. Choi, Doyun Lee, Jaehyun Kim, Sang M. Lee</i>	
Development of an Adjustment Method for the Calculated Building Energy Consumption Based on the Law at the Design Stage, Considering the Actual Operational Results	440
<i>Akane Shimizu, Tatsuya Hayashi, Jeongsoo Kim</i>	
Building Energy Savings and Efforts for Optimal Capacity of Mechanical Design.....	448
<i>Goopyo Hong, Chanhyung Shim</i>	
Unravelling the Dynamics of Human Movements on Airflow and Bioaerosol Dispersion Within an Isolation Room: A Numerical Study.....	450
<i>Manoj K. Satheesan, Ling-Tim Wong, Kwok-Wai Mui</i>	
Research on Online Energy-Saving Control Methods for Chiller Plant Based on System Models and Calculations of the Adjacent Working Conditions.....	458
<i>Yujiang Wang, Wanyi Zhang, Zhongping Lin</i>	
Analysis of Airflow and Indoor Air Quality Characteristics by Stack Effect in High-Rise Building.....	460
<i>Minseong Kim, Joowook Kim</i>	
Power Consumption Characteristics and Prediction of Airport Terminal Based on Data Mining	468
<i>Sun Yongxiang, Chen Chao, Guan Dongya, Kang Chunhua, Li Zhiyong, Qiao Peng</i>	
Energy Saving Effects of Green Remodeling in Public Libraries According to Passive & Active Technology	474
<i>Sung J. Sim, Jin C. Park</i>	

CLIMATE CHANGE, WILDFIRES, NATURAL DISASTERS, AND URBANIZATION

Quantitative Analysis of Indoor Air Quality Under Future Climate Scenarios: Projection Till 2100's for a Belgian Case-Study.....	476
<i>Mohsen Pourkiaei, Anne-Claude Romain</i>	
Air Pollutant Enhancements in Indoor Environment by Acute Outdoor Emission Events.....	478
<i>Chou-Hsien Lin, Evelyn Deveraux, Daniel Blomdahl, David Jarma, Daniel Sung, Liv Haselbach, Sidney Lin, Elena McDonald-Buller, Yosuke Kimura, Kerry Kinney, Pawel Misztal</i>	

The Effect of Climate Change on the Built Heritage: The Case Study of Le Corbusier’s Studio-Apartment in Paris.....	480
<i>Giulia Lamberti, Francesca Contrada, Andrea Kindinis, Arnaud Lapertot, Elisabeth Marie-Victoire, Myriam Bouichou, Bénédicte Gandini, Marie Monfort</i>	
Observing the Impacts of Wildfires on Indoor Air Quality in Western Canada.....	482
<i>Kristen Yeh, Rowshon Afroz, Ran Zhao, Stephanie Schneider, Rebecca Mesburis, Jason Olfert, Jonathan P. D. Abbatt</i>	
Levels of PM, VOCs, and PAHs in Residences Post-2023 Maui Wildfire: Exposure and Mitigation Assessment.....	484
<i>Parham Azimi, Zahra Keshavarz, Rachel Steiner, Tomi Oyedeki-Olaniyan, Sayed Bateni, Joseph Allen</i>	
Indoor Heat Stress Impairs Emotional and Physical States During Extreme Heat.....	486
<i>Xingtong Guo, Angela C. I. Rodriguez, Shichao Liu</i>	
Particle Infiltration During a Wildfire Event: Method Development.....	488
<i>Zachary Golden, Brett Stinson, Elliott Gall</i>	
Formation of Gaseous Nitrous Acid (HONO) from Reactions on Indoor Surfaces: The Effects of Biomass Burning.....	490
<i>Karla R. Garcia, Cholaphan Deeleepojananan, Vicki H. Grassian</i>	
Urban Indoor Air Quality Disparities Amplified by Wildfire Smoke: Insights from the Mosquito Fire Episode in Reno, Nevada.....	492
<i>L.-W. Antony Chen, Alireza Rezaee, Olufunminire Onamuti</i>	
Health Symptoms and Mitigation Behaviors Are Associated with Olfactory Perception of Indoor Wildfire Smoke.....	493
<i>Rachel Hurley, Shichao Liu, Oren Mangoubi</i>	
Sensitivity Analysis of Cooling Panel Temperature on the Thermal and Comfort Performance of Outdoor Radiant Cooling System.....	495
<i>Dharmasastha Kumar, Shin-Ichi Tanabe, Jianlei Niu</i>	
Characterizing Smoke Emissions Under Varied Burn Conditions with a Quartz Tube Furnace.....	497
<i>Ryan Bixler, Elliott T. Gall</i>	
The Thermal Sensitivity of the Elderly in Public Outdoor Open Spaces in Hong Kong Public Housing Estate.....	499
<i>Jiawei Wang, Jianong Li, Jianlei Niu</i>	
 <u>COVID-19 AND VIRAL TRANSMISSION</u>	
Modelling Study of Disinfection and Contaminant Formation Associated with far-UVC Light (222 nm).....	501
<i>Seongjun Park, Donghyun Rim</i>	
Unveiling Inhalable Particle Resuspension from Clothing: Insights from a Controlled Chamber Study.....	503
<i>Han-Yun Jhang, Dusan Licina</i>	
Associations Between Respiratory Infections and Indoor Air Quality in Classrooms of Elementary Schools in Northeastern China.....	505
<i>Jing Hou, Yuexia Sun, Feihu Yang</i>	

CORINA: A New Aerosol Chamber for the Study of Virus-Containing Aerosols and Their Inactivation.....	507
<i>A. Vázquez-Calvo, M. García-Castey, M. A. Bañares, A. Alcamí</i>	
Comparison of Non-Infectious Air Delivery Rate and Energy Consumption – Room Air Cleaners Versus In-Duct Ultraviolet Light Inactivation of Airborne Pathogens	509
<i>Arto Säämänen, Inga Ehder-Gahm, Anni Luoto, Piia Sormunen, Ilpo Kulmala</i>	
#covidisairborne: Production and Circulation of Evidence on Covid-19 Transmission.....	514
<i>Beatriz K. G. Gama, Rogerio L. Azize, Rosana Castro, Kimberly Prather</i>	
Bipolar Ionization-Mediated Airborne Viral Inactivation and Deposition.....	517
<i>Darryl Angel, Jordan Peccia</i>	
Effect of Portable Air Cleaner Placement on Airborne Infection Control in Learning Environments.....	519
<i>Gen Pei, Parham Azimi, Donghyun Rim, Joseph G. Allen</i>	
Airborne Cross-Infection Risk Under Different Body Orientations in an Air-Conditioned Room.....	521
<i>Hee W. Shin, Hyun W. Park, Jae H. Park, Dong H. Kang</i>	
What is the Acceptable Minimum Ventilation Rate for Mitigating Airborne Infections in Public Places.....	523
<i>Hua Qian, Xiaohong Zheng, Danting Luo, Weiwei Huang</i>	
Minimizing the Infection Risk on Construction Sites	525
<i>Iiris Pulkkinen, Ulla Haverinen-Shaughnessy, Risto Salin</i>	
A Case-Control Study of Behavioural and Built Environment Determinants of COVID-19 Transmission in a Community Space	527
<i>Jiayu Li, Junjing Yang, Bindhu Unni, Rowena Yap, Jue T. Lim, Mohammad Nazeem, Joanna Shen, Lee C. Ng, Shuzhen Sim</i>	
Should We Use Ceiling Fans Indoors to Reduce the Risk of Transmission of Infectious Aerosols?.....	529
<i>Jiayu Li, Sultan Zuraimi, Stefano Schiavon</i>	
Correlations Between Indoor and Outdoor Environmental Measures and In-Fluenza Incidence in New York, Pennsylvania, and California.....	531
<i>Jin Pan, Seema S. Lakdawala, Linsey C. Marr</i>	
SARS-CoV-2 on Portable Air Purifier Filters in Public Spaces Without Confirmed Positive Occupants	533
<i>Jing Li, Merel Bot, Xinlei Liu, Yuan Yao, Roel Ophoff, Yifang Zhu</i>	
A Dual-Action Approach for CO ₂ Adsorption and Water Vapor Impact on Activated Carbon Filters.....	535
<i>Jongsoo Jurng, H. J. Hwang, T. W. Kim, J. S. Kim, E. S. Park</i>	
Aerosol Behavior and Countermeasures for COVID-19 in Public Transportation.....	537
<i>Koichi Tatsu, Naohide Shinohara, Hoon Kim, Naoki Kagi, Kento Takami, Wataru Naito</i>	
Particle Sizing and Size-Resolved Survival of Airborne Phi6 Under Different Environmental Conditions	539
<i>Lok K. So, Chi C. Sou, Jingcui Xu, Cunteng Wang, Jiachi Chiou, Hai Guo</i>	
A Head-Mounted Air-Supply Device for Protecting Healthcare Workers in an Isolation Ward.....	541
<i>Manjiang Yu, Xiaobin Wei, Jun Gao</i>	

In-Situ Effectiveness of Portable Air Cleaners	543
<i>M. Rafsan Nahian, Jeffrey Siegel</i>	
Validation Results of a Reasonably Practicable Methodology using In-Space CO ₂ Concentration to Assess Ventilation to Indoor Spaces	545
<i>Peter McGarry, Lidia Morawska, Henry Oswin</i>	
A Global Survey of the Impacts of Facemask Wear on Perceived Learning or Working Performance During the COVID-19 Pandemic	547
<i>Rachel Hurley, Oren Mangobi, Kai Zhang, Shichao Liu</i>	

VOLUME 2

A Blueprint for the Use of far-UVC to Improve Indoor Air Quality and Prevent Future Pandemics	549
<i>Richard Williamson, Peter Masschelin, Neal N. Oza, Jacob Swett</i>	
Development of a Compact and Easy-Breathing Receptor Control Device for Airborne Contaminants	551
<i>Sheng-Hsiu Huang, Hsing-Yu Yeh, Chun-Wan Chen, Po-Chen Hung, Chih-Wei Lin, Chih-Chieh Chen</i>	
Aerosol Dispersal and Fomite Contamination of Virus from Floor Surfaces During Indoor Activities	553
<i>Stephanie A. Boone, Justin Clark, Julie McKinney, M. Khalid Ijaz, Charles P. Gerba</i>	
Resuspension of Virus (MS2) from Soft Surfaces During Indoor Activities	555
<i>Stephanie A. Boone, Melanie Kridler, Justin Clark, Julie McKinney, M. Khalid Ijaz, Charles P. Gerba</i>	
Effects of Speech Duration on the Respiratory Aerosol Particle Concentration	557
<i>Tomoki Takano, Yiming Xiang, Masayuki Ogata, Yoshihide Yamamoto, Satoshi Hori, Shin-Ichi Tanabe</i>	
How Can We Reimagine the Control of Airborne Pathogens Through Ventilation in the Context of Climate Change?	559
<i>Wendy Miller, Lidia Morawska, Rob Adams, Daniel Lester, Jason Monty</i>	
Comparison of Computational Fluid Dynamics Simulation Results According to Ceiling Fan Modeling Method	561
<i>Yelim Jo, Minki Sung</i>	
Close Contact Behaviors Between Medical Staff and Patients in Dental Clinics	567
<i>Yingjie Luo, Fangli Zhao, Bing Cao, Zhiyang Dou, Nan Zhang, Shenglan Xiao</i>	
Initial Size Distribution of Coughing Particles for CFD Simulation Based on Measurements and Evaporation Model	569
<i>Yunchen Bu, Hideki Kikumoto, Wonseok Oh, Chao Lin, Ryoza Ooka</i>	
Health Benefits Vs. Harms from Different Indoor Air Cleaner Technologies	572
<i>Zhe Peng, Jose-Luis Jimenez, Daven Henze, Charles Weschler, Patrick Kinney, Shelly Miller, Joost De Gouw</i>	
Ventilation and Air Quality of Double-Decker Buses with Known Occupancy	574
<i>Filipa Adzic, Liora Malki-Epshtein</i>	

Propagation and Evaporation of Dental Droplets, Emission and Exposure in Surgery Environments: Preparing for Next "Disease X"	576
<i>Xiujie Li, Cheuk M. Mak, Zhengtao Ai, Kuen W. Ma, Hai M. Wong</i>	
Quantifying the Impact of Hydration Levels on the Formation of Respiratory Aerosols.....	582
<i>Mahender S. Rawat, Dinushani Senarathna, Byron D. Erath, Sumona Mondal, Andrea R. Ferro</i>	
Numerical Investigation of Human Movement Impact on Contaminant Transmission from an Infector in a High-Speed Train Compartment	584
<i>Fan Zhiqiang</i>	
A Novel Method for Quantifying the Airborne Infection Risk of Indoor Spaces	587
<i>Henry P. Oswin, Ville Silvonen, Robert Groth, Raymond Tellier, Lidia Morawska</i>	
Risk Assessment of Dynamic Temporal Asynchrony and Mask Mitigation in Buses Based on Field Monitoring: A Case Study of COVID-19	589
<i>Yinshuai Feng, Xiaoyu Luo, Jianjian Wei, Yifan Fan, Jian Ge</i>	
Acidity of Air as a Tool to Help Understand Airborne Pathogen Viability.....	598
<i>Ville Silvonen, Henry Oswin, Robert Groth, Allen Haddrell, Lidia Morawska, Zoran Ristovski, Topi Rönkkö</i>	
Particle Concentration and Indoor Air Quality in Mechanically Ventilated Isolation Patient rooms: A Field Study in a Hospital Building in Finland	600
<i>Mohamed Elsayed, Ville Silvonen, Henna Lintusaari, Anni Luoto, Natalia Lastovets, Topi Rönkkö, Piia Sormunen</i>	
Human Close Contact Behavior in a Non-Homogenous Indoor Population	608
<i>Ruth Onkangi, Kazuki Kuga, Kazuhide Ito</i>	
Miniature Electrostatic Precipitator for Personal Protection	610
<i>Kulmala Ilpo, Salo Satu, Tella Susanna, Koskinen Patrik</i>	
Modeling the Climatic Influence on Measles Transmissibility in China.....	612
<i>Peihua Wang, Jianjiu Chen, Wenyi Zhang, Wan Yang</i>	
Exploring the Toilet Plume: Experimental Insights into Environmental Contamination using a Mechanically Ventilated Chamber.....	614
<i>Ciara A. Higham, Martín López-García, Catherine Noakes, Louise Fletcher</i>	
Influence of Particle Size Distribution on Airborne Pathogen Concentration in the Breathing Zone	616
<i>Aleksandra Monka, Bruño Fraga</i>	
A Generalized Wells-Riley Equation for Multi-Virion Aerosols	618
<i>Ao Li, Yuguo Li</i>	
A Direct Infection Risk Model for CFD Predictions and Its Application to SARS-CoV-2 Aircraft Cabin Transmission	620
<i>Florian Webner, Andrei Shishkin, Daniel Schmeling, Claus Wagner</i>	
Numerical Modeling of Airborne Infectious Disease Transmission in a Shared-Office Space Under Various Ventilation Strategies.....	622
<i>Saeid Chahardoli, Mina Lesan, Arup Bhattacharya</i>	

Development of a High-Efficiency Source-Control Device for COVID-19.....	623
<i>Sheng-Hsiu Huang, Yu-Mei Kuo, Chun-Wan Chen, Chih-Wei Lin, Ching-Yi Chiu, Chieh-Ling Chen, Chih-Chieh Chen</i>	
Modeling Indoor Infection Risk and Energy Impacts Due to Airborne Pathogens	625
<i>Samuel Fernandes, Dylan Kato, Scott Moura, Michael D. Sohn, Evan Variano, Raja Sengupta</i>	
Study on Performance Test Methods of Air Cleaners.....	634
<i>Chih-Wei Lin, Sheng-Hsiu Huang, Yu-Mei Kuo, Chun-Wan Chen, Chun-Ming Chang, Chih-Chieh Chen</i>	
Evaluation of the Effectiveness of Far Ultraviolet C Light on Bioaerosol Disinfection in Public Transportation Environments	636
<i>Yue Pan, Kangqi Guo, Wenjie Huang, Ho K. Dai, Chun Chen</i>	
Air Sanitizer Efficacy in Indoor Air: Aerovirological Investigations using Airborne Bacteriophages as Surrogate for Non-Enveloped and Enveloped Viruses, Including SARS-CoV-2	638
<i>M. Khalid Ijaz, Bahram Zargar, Raymond Nims, Julie McKinney, Syed A. Sattar</i>	
Ambient Carbon Dioxide Concentration Correlates with SARS-CoV-2 Aerostability and Infection Risk.....	640
<i>Allen Haddrell, Henry Oswin, Mara Otero-Fernandez, Joshua F. Robinson, Tristan Cogan, Robert Alexander, Jamie F. S. Mann, Darryl Hill, Adam Finn, Andrew D. Davidson, Jonathan P. Reid</i>	
A Novel Pseudo-CO ₂ Concept to Monitor Airborne Infections in Indoor Settings	642
<i>Wei Jia, Yuguo Li</i>	
Respiratory Aerosol Emission Rates and Relationship to Exhaled Carbon Dioxide Flux for Assessing Pathogen Transmission Risk in Indoor Air	644
<i>Jonathan P. Reid, Bryan R. Bzdek, Justice Archer, Joshua Harrison, Lauren P. McCarthy, Henry E. Symons, Alicja Szczepanska, William J. Browne, Natalie A. Watson, Christopher M. Orton, Benjamin Moseley, Keir E. J. Philip, James D. Calder, Pallav L. Shah, Declan Costello, Brian Saccente-Kennedy, Ruth Epstein</i>	
Identifying the Safest Seat in Aircraft: Modelling SARS-CoV-2 Infection Risk by CFD for 70 Different Source Locations.....	646
<i>Florian Webner, Andrei Shishkin, Daniel Schmeling, Claus Wagner</i>	
Experimental Study on Optimal CADR Filter Thickness of Air Purifiers.....	654
<i>Cindy Lin, Pei-Yao Tsai, Sheng-Hsiu Huang, Yu-Mei Kuo, Chun-Wan Chen, Chih-Wei Lin, Chih-Chieh Chen</i>	
Transmission Risk and Its Countermeasures in Public Transportation.....	656
<i>Naohide Shinohara, Koichi Tatsu, Naoki Kagi, Hoon Kim, Jun Sakaguchi, Wataru Naito</i>	
Using Virtual Manikins to Tackle Particle Transport and Inhalation Risk Assessment Under Different Advanced Air Distribution Methods	659
<i>Alicia Murga, Rahul Bale, Kazuhide Ito, Makoto Tsubokura</i>	
A Gasper Adjustment Strategy Based on Bayesian Optimization to Minimize the Infection Risks of Airborne Transmission in an Aircraft Cabin.....	661
<i>Yiding Zhou, Yunge Hou, Chun Chen, Ruoyu You</i>	
Scaling a Quantitative Microbial Risk Assessment with DNA-Tagged Aerosol Tracers to Inform Building Strategies to Control Infectious Aerosols	663
<i>Nicholas Clements, Phil Arnold</i>	

University Closure Plays a Critical Role for COVID-19 Control	665
<i>Doudou Miao, Peng Xue, Marco-Felipe King, Nan Zhang</i>	
Dust as a Novel Environmental Media for Monitoring of Viral Illness.....	667
<i>Austin Shamblin, John Van Dusen, Jenny Panescu, Michael G. Sovic, Kyle Bibby, Mikkel B. Quam, Matt Wascher, Joe Tien, Karen C. Dannemiller</i>	
Development of a CFD-GA Coupled Model for Evaluating Optimal Ventilation Strategies in General Inpatient Ward Cubicles.....	669
<i>Kwok-Wai Mui, Tsz-Wun Tsang, Ling-Tim Wong, Manoj K. Satheesan</i>	
Field Demonstration of a Tracer Method to Track Simulated Exhaled Air Trajectories and Mixing in Three Connected Rooms with Upper-Room GUV	671
<i>Chai Y. Um, Marion Russell, William W. Delp, Stefano Schiavon, Brett C. Singer, Michael D. Sohn</i>	
Impact of Lid Closure During Toilet Flushing and of Toilet Bowl Cleaning on Viral Aerosol Contamination of Restroom Surfaces.....	673
<i>Madison P. Goforth, Stephanie A. Boone, Justin Clark, Priscilla B. Valenzuela, Julie McKinney, M. Khalid Ijaz, Charles P. Gerba</i>	
Evidence for Prevailing Positive Air Pressure in High-Rise Drainage System	675
<i>Edwin Chung-Hin Dung, Yuguo Li</i>	

DAMPNESS, MOLD, AND INDOOR MICROBIOME

MVOC Expression of Molds Under Light	677
<i>Benjamin Marshall, Amanda Stickney, Chou-Hsien Lin, Juan P. Maestre, Atila Novoselac, Kerry Kinney, Karen Dannemiller, Pawel Misztal</i>	
Using the Dust from Vacuum Cleaner Bags to Detect Hidden Fungal Growth Indoors.....	679
<i>Evangelia Loukou, Nickolaj F. Jensen, Birgitte Andersen</i>	
Investigation of Fungal Microbiome in Indoor Environments of Multi-Use Facilities in Korea	681
<i>Guinam Wee, Juchan Hwang, Sungchul Seo, Soojin Jang</i>	
Impact of Building Operational Parameters on Mold Status Classification	683
<i>Irvan Luhung, Bridget Hegarty, Jordan Peccia</i>	
Hidden Hazards: Establishing the Influence of Controllable Home Environment Factors on Fungal Density, Diversity, and Environmental Relative Moldiness Index	685
<i>Jemima-Ederéwoma Ohwobete, Sarah Haig</i>	
Degradation of Polyester Polyurethane Foams by Aureobasidium and Naganishia Isolates.....	687
<i>John Van Dusen, Amanda Stickney, Nancy Kelley-Loughnane, Blake Stamps, Vanessa Varaljay, Dominic Wagner, Karen C. Dannemiller</i>	
Impacts of Outdoor Vegetation on Indoor Residential Microbiomes	689
<i>Juan P. Maestre, David Jarma, Evan Williams, Dennis Wylie, Sharon Horner, Kerry Kinney</i>	
Comparing Changes to Indoor Microbiome of Dust Collected from the International Space Station and Homes on Earth Upon Exposure to Simulated Excess Moisture	691
<i>Nicholas Nastasi, Ashleigh Bope, Marit Meyer, John Horack, Karen Dannemiller</i>	

From Harvest to House: Co-Developing Pathways to Sustainable Housing and Healthy Indoor Environments in First Nations Communities	693
<i>Sarah Haines, Helen Stopps</i>	
Balancing Water Conservation and Health: Do Water Saving Showerheads Impact the Microbes We Breathe in During Showering?	695
<i>Sarah Pitell, Cheolwoon Woo, Evan Trump, Sarah Haig</i>	
Fungal Flora on Floor Surfaces in 13 Newly Constructed Wooden Houses in Summer	697
<i>Y. Shinoda, U. Yanagi, K. Azuma, N. Kagi, I. Bamba, T. Tachiki</i>	
Modeling the Public Transport Microbiome: Development of a Microbial Reference Community	699
<i>Yen-Tran Ly, Nina Wetzig, Julia Holtel, Stefan Leuko, Ralf Moeller</i>	
Ventilation in Chinese Elementary Schools and Its Association with Respiratory Infections	707
<i>Yuexia Sun, Feihu Yang, Jing Hou</i>	
Excellent Antibacterial Performance of ROS-Mediated Cu-Doped ZIF-8 and the Mechanism of ROS Generation	712
<i>Yunfa Chen, Jingkun Zhang, Yan Ding, Hang Yin</i>	
Adoption of Multiple Phased Anodes to Dewater a Porous Insulation Material by Electro-Osmosis.....	714
<i>Zhiyi Zhang, Feng Wang, Tengfei Zhang</i>	
Key Messages and Recommendations of the AWMF Guideline for Medical Clinical Diagnostics in Case of Indoor Mould Exposure – Update 2023	716
<i>Julia Hurraß, Birger Heinzow, Sandra Walser-Reichenbach, Ute Aurbach, Sven Becker, Romuald Bellmann, Karl-Christian Bergmann, Oliver A. Cornely, Steffen Engelhart, Guido Fischer, Thomas Gabrio, Caroline E. W. Herr, Marcus Joest, Christian Karagiannidis, Ludger Klimek, Martin Köberle, Annette Kolk, Herbert Lichtnecker, Thomas Lob-Corzilius, Norbert Mülleneisen, Dennis Nowak, Uta Rabe, Monika Jens-Oliver Steiß, Jannik Stemler, Jörg Steinmann, Ulli Umpfenbach, Kerttu Valtanen, Barbora Werchan, Birgit Willinger, Gerhard A. Wiesmüller</i>	
Associations Between Early-Life Fungal Exposures in Homes and Atopic/Gastrointestinal Disease Are Modified by Breastfeeding	723
<i>Jon C. King, Luis M. Acosta, Matthew Perzanowski, Anne M. Reardon, Stephanie Lovinsky-Desir, Adnan Divjan, Ginger L. Chew, Karen C. Dannemiller</i>	
Development of Humidifier Products with Physical Sterilization Technology in Concern of Severe Death of Humidifier Disinfectant Use.....	725
<i>Sunyoung Moon, Ahyoung Kim, Seongkyeol Hong, Kyoha Keum</i>	
The Joint Effect of Temperature and Humidity on Airborne Bacteria and Fungi Concentration in Indoor Environment: A Machine Learning Approach for Cost-Effective Intervention	728
<i>Doheon Kim, Dongmin Shin, Sanghoon Han, Dohyeong Kim, Boyeon Kwon, Choongki Min, Gloria Geevarghese, Ju H. Kim, Nalae Moon, Su J. Heo, Yoon-Hyeong Choi, Jungho Hwang, Sungchul Seo</i>	
The Healthy Building Database: Microbial Growth and Diversity in Building Material Samples in Indoor Air Problem and Reference Buildings	730
<i>Vuokko Lappalainen, Vesa Koskinen, Milla Rantanen, Janita Törnroos, Timo Murtoniemi</i>	
Cooking-Associated Organic Compounds Drove the Bacterial Concentration, Diversity and Composition on Household Surfaces.....	736
<i>Wing L. Chan, Huiju Lin, Yin H. Lam, Theodora Nah, Patrick K. H. Lee</i>	

Investigation into the Inactivation Mechanisms of Bacteria in Aerosol Droplets	738
<i>Allen Haddrell, Mara O. Fernandez, Richard J. Thomas, Henry Oswin, Robert Alexander, Jonathan P. Reid</i>	
Characterizing the Interactions Between Plant and Indoor Air Microbiomes	740
<i>Bridget Hegarty, Abigail Leslie, Muhtashim R. Chowdhury</i>	
Nano-Metal Treatment of Recycled Building Materials to Improve the Resistance of Fungal Growth.....	742
<i>Chi-Chi Lin, Pei-Chen Xiao</i>	
Investigation of Far-UVC Disinfection of Bioaerosols Deposited on Surfaces.....	744
<i>Kangqi Guo, Chun Chen</i>	
Estimation of Inhaled Microbial Exposure in Public-Use Facilities using Genetic-Based Analysis.....	746
<i>Bong G. Lee, Min-Kyeong Yeo</i>	
The Fungal to Allergen Index: Taking Concept to Practice to Better Detect Fungal Problems in Buildings.	748
<i>Morten Reeslev</i>	
Indoor Plants Regulate the Respiratory Bacteria of High-Altitude Migrants and Improve Their Environmental Adaptability.....	752
<i>Yi Deng, Yiran Lu, Yifan Li, Mengjie Duan, Li Liu</i>	
Towards a Deeper Understanding of Mould Growth Mechanisms on Construction Materials	760
<i>Hiba Ajib, Ala Bouhanguel, Elisabeth Lys, Bénédicte Wall-Ribot, Marc Abadie, Karim Limam, Yves Andrès, Thierry Duforestel</i>	
Gender-Related Indoor Fungal Diversity: A Case Study of University Dormitory in Chongqing, China	762
<i>Ting Fu, Qiuqia Lai, Di Huang, Shan Gao, Huan Liu, Chi Feng</i>	
Fungal Function Provides Novel Targets for Indicators of Mold Growth in Homes.....	770
<i>Neeraja Balasubrahmaniam, Jonathan King, Ashleigh Bope, Bridget Hegarty, Karen C. Dannemiller</i>	
From Bacteria, Fungi, and Viruses to Microbial Communities: How Does Indoor Daylight Affect the Built Environment Microbes?.....	772
<i>Man I. Lam, Michael Zhao, Sophia Liao, Sam Yeo, Kinga Vojnits, Piers MacNaughton, Sepideh Pakpour</i>	
Diagnostic Algorithm for Clarifying Suspected Indoor Mould-Related Health Problems According to the AWMF Guideline for Medical Clinical Diagnostics in Case of Indoor Mould Exposure – Update 2023	774
<i>Gerhard A. Wiesmüller, Dennis Nowak, Birger Heinzow, Marcus Joest, Jannik Stemler, Julia Hurraß</i>	
Indoor Microbiomes in Korean Homes: A Synthesis of Our Past Research.....	782
<i>Naomichi Yamamoto, Cheolwoon Woo, Choa An, Mohammad I. U. Bhuiyan, Donghyun Kim, Priyanka Kumari, Seung-Kyung Lee, Ji Y. Park, Ke Dong, Kiyoun Lee</i>	
Elucidating the Role of Microorganisms in the Removal of VOCs from Indoor Air	784
<i>Maria S. Montaluisa-Mantilla, Raquel Lebrero, Pedro García-Encina, Raúl Muñoz</i>	

Burdens of Respiratory Illnesses in School Staff Can Be Predicted with Dampness and Mold Scores Assessed with the NIOSH DMAT	786
<i>Ju-Hyeong Park, Jerry Roseman, Jean Cox-Ganser</i>	

HEALTH OUTCOMES AND EXPOSURE ASSESSMENT

Effects of Indoor Polystyrene Microplastic Exposure on Growth, Metabolism and Neurobehavior in Mice.....	788
<i>Yuan Xuan, Yujing Shi, Fang Wang, Qihong Deng</i>	
Modelling the Transfer of Legionella Pneumophila Concentration in Shower Water to Indoor Air	791
<i>Laura De Jonge, Lien De Backer, Elisa Van Kenhove, Jelle Laverge</i>	
Contamination of Settled Dust by Biocides in Daycare Centers from the CRESPI Cohort and Exposure of Young Children	799
<i>Mayoro Mane, Gaëlle Raffy, Philippe Glorennec, Nathalie Bonvallot, Pierre Bonnet, Oriane Dumas, Anastasie E. Nchama, Gaëlle Saramito, Camille Duguépéroux, Corinne Mandin, Nicole Le Moual, Barbara Le Bot</i>	
Fed-States in Vitro Bioaccessibility Method for SVOCs in Indoor Dust.....	801
<i>Marie Dufresne, Gaëlle Raffy, Camille Duguépéroux, Matthieu Delannoy, Barbara Le Bot</i>	
In Vivo Respiratory Toxicology of Fine Particulate Matter Air Pollution and High Relative Humidity Exposure: Evidence, Mechanisms and Prevention.....	803
<i>Ziyu Shu, Runming Yao</i>	
Comparative Analysis of Indoor Air Research Hotspots at Home and Abroad Based on Citespace Visualization Map in Recent 20 Years.....	804
<i>Han Xiu, Wu Jie, Shen Jinghua</i>	
How to Evaluate the Indoor Air Quality Through Users' Perception and Low-Cost Sensors: A Methodology for Defining How to Match the Qualitative and Quantitative Analysis in Indoor Working Spaces, as a Strategy for Promoting Health.....	805
<i>Alice Laghezza, Yong Yu, Gaetano Settimo, Stefano Capolongo, Marco Gola</i>	
Investigation of Occupational Exposure to Particulate Matter Among Stone Fabricators in Chicago	807
<i>Alissa DeVaughn, Yuan Shao</i>	
Towards Developing an Indoor Air Pollution Emission Inventory for the UK: Challenges and Future Directions.....	808
<i>Andrea Mazzeo, Zaheer A. Nasir, Christian Pfrang</i>	
Characterization of Human Exposure Sources in Human Hair and Indoor Dust using a Thermal Desorption Vocus-PTR-TOF-MS (TD-Vocus).	810
<i>Anna C. Neville, David Jarma, Kerry A. Kinney, Pawel K. Misztal</i>	
The Finnish Indoor Air and Health Programme 2018–2028 - Towards a Good Indoor Environment.....	812
<i>Anniina Salmela, Kati Huttunen, Kaisa Jalkanen, Juha Pekkanen, Anne Hyvärinen</i>	
Indoor Environment in Room Offices vs. Flexible Activity-Based Office – Employee Experiences vs. Measurement Results During Relocation.....	814
<i>Arttu Sivula, Jenni Radun, Henna Maula, Reijo Alakoivu, Johann Laukka, Valteri Hongisto</i>	
Onset Factors of Environmental Hypersensitivity from Questionnaire Survey.....	822
<i>Atsushi Mizukoshi, Sachiko Hojo, Chikako Nakama, Jiro Okumura, Kenichi Azuma</i>	

Reducing Measured Levels of Household Chemicals Plus Educational Intervention Reduces Symptoms of Chemical Intolerance	824
<i>Carl Grimes</i>	
The Effects of Indoor Air Filtration on Cardiometabolic Outcomes Among Individuals in Urban Los Angeles	826
<i>Chenyu Qiu, Jiawen Liao, Wu Chen, Zhenchun Yang, Yan Lin, Ruoxue Chen, Yihui Ge, Enrique Trigo, Sulema I. S. Rodriguez, Vivien Le, Michael H. Bergin, Marilyn Black, Howard N. Hodis, Frank D. Gilliland, Junfeng Zhang, Zhanghua Chen</i>	
Effects of Natural Scenery Projected onto Virtual Windows on the Quality of the Indoor Environment and Intellectual Productivity	828
<i>Chiaki Shimoyama, Ryosuke Onoda, Yuta Fukawa, Shin-Ichi Tanabe</i>	
Particulate Matter Pollution and Pediatric Renal Health: Insights from a Study on Chronic Kidney Disease in Children.....	836
<i>Ching-Chang Lee, Quang-Oai Lu, Nian-Wei Lee, Jyun-Yi Ciou, Po-Cheng Chen, Tzu-Huai Wei, Yuan-Yow Chiou</i>	
Associations Between Indoor Environmental Exposure and Sleep Disorders Among College Students: A Nationwide Cross-Sectional Study in China	838
<i>Chunliang Wang, Kai Su, Linmin Hu, Siqing Wu, Xixian Fang, Xinjie Dai, Jianbang Xiang</i>	
Learning from COVID-19: Teaching Undergraduate Students Concepts in Indoor Air and Environmental Quality Related to Human Health.....	840
<i>Derek Shendell</i>	
Mechanisms Underlying Acute Cognitive Impairment Following Carbon Dioxide Inhalation in a Randomized Crossover Trial	842
<i>Frederic T. Lu, Disha Gupta, Nancy Fiedler, Usha Satish, Kathleen G. Black, Alicia Legard, Adriana De Resende, Changjiang Guo, Andrew J. Gow, Howard M. Kipen</i>	
Indoor Sulfur Dioxide and Carbon Monoxide Are Associated with Asthma and Reduced Lung Function in Schoolchildren in an Industrial City.....	844
<i>Guo P. Tseng, Jia L. Zhang, Pei-Shih Chen</i>	
Prenatal Exposure to PM _{2.5} and Element Constituents Associated with Glucose Metabolism and Adiposity in Young Children	846
<i>Hang Wang, Liyi Zhang, Ying Tian, Yunhui Zhang</i>	
Modelling the Accumulation of Phthalates in the Respiratory Tract During Long-Term Inhalation.....	848
<i>Haoyu Dang, Pengfei Zhang, Runjie Li, Jiachen Zheng, Xinke Wang</i>	
Environmental Factors Affecting Sleep Quality in Accommodation and Training Facilities	850
<i>Hayata Yokoyama, Jengsoo Kim, Youhei Moriyama, Tatsuya Hayashi</i>	
Impact of Opening Retrofit on the Incidence of OAB and Sleep Disorders Initial First Year Period.	852
<i>Hayato Wakiyama, Shintaro Ando, Wataru Umishio, Toshiharu Ikaga, Yoshihisa Fujino, Shuzo Murakami</i>	
Using Portable CO ₂ Monitors to Explore the Air Quality of Indoor Spaces	854
<i>Henry Oswin, Lucien Glachant, Lidia Morawska</i>	
Potential Occupational Exposures Associated with Indoor Marijuana Growing Facilities: A Pilot Study.....	856
<i>Hongwan Li, Mika Cheng, Anni Yang, Changjie Cai</i>	

Association Between Paraben Exposure and Thyroid Indicators in Taiwanese Pregnancy Women.....	858
<i>Hsi Chen, Po-Chin Huang, Jung-Wei Chang, Yu-Lung Lin, Hsin-Chang Chen, Wan-Ting Chang</i>	
Associations of Allergic Diseases with Indoor and Outdoor Living Environments in Preschool Children in the Taipei Metropolis.....	861
<i>Hsing J. Chao, Ya-Wen Yang, Ssu-Yin Chen, Ming-Lun Zou, Yi H. Chen, Ling-Chu Chien</i>	
The Effects of Dietary Pattern May Modify the Kidney Injury Induced by Exposure to Indoor PM _{2.5}	863
<i>Hsiu-Ling Chen, Wan-Ru Wang</i>	
The Effect of Micro-Movement of a Computer-Simulated Person on the Formation of Breathing Zones	865
<i>Hyungyu Park, Sung-Jun Yoo, Kazuki Kuga, Kazuhide Ito</i>	
Prophylactic Cost-Benefit of Hypertension and Overactive Bladder Symptoms by Improving Indoor Thermal Environment in Japan.....	867
<i>Itsuki Tanaka, Shintaro Ando, Wataru Umishio, Toshiharu Ikaga</i>	
A Case Study on the Effect of Mat Surface Temperature and Sleep Quality in Cooling Season.....	869
<i>Jeong W. Kim, Hyeun J. Moon</i>	
Health Implications of Microplastic Exposure: A Study on Face Masks	871
<i>Ji H. Seo, In W. Choi, Sungwoo Cho, Hyun J. Kim, Jong R. Sohn</i>	
Toxicity Screening Through Measurement of Reactive Oxygen Species Emitted from Indoor Sources	873
<i>Jonas Enarsson, Zachary Brown, Branka Miljevic, Zoran Ristovski, Aneta Wierzbicka</i>	
Nanoparticle Exposure and Immune Compromise: Insights from Natural Killer Cell Functionality.....	875
<i>Juheon Lee, Seokho Kim</i>	
Exposure Distribution and Profiles of Paraben in Taiwanese (2013-2016).....	882
<i>Jung-Wei Chang, Yen-Hsuan Huang, Yu-Jung Lin, Hsin-Chang Chen, Wan-Ting Chang, Po-Chin Huang</i>	
Novel Method for Designing Outdoor Cool Spots using JOS-3 Thermoregulation Model.....	889
<i>Kaho Higuchi, Kan Shindo, Ryota Matsumura, Kazuki Aono, Ryo Nakanishi, Kanari Hirama, Shinichi Tanabe</i>	
The InChildHealth Walkthrough Survey – Towards a Standardized Characterization of Classrooms for Indoor Air Quality Studies in Europe	897
<i>Katrin Vorkamp, Carla Viegas, Marta Almeida, Maria A. Aretaki, Rossana Bossi, Emmanuelle Castagnoli, Renata Cervantes, Judith Desmet, Evangelia Diapouli, Alan Domínguez, Claudia M. Fabian, Patrik Fauser, Robert M. W. Ferguson, Ulla Haverinen-Shaughnessy, Timo Hugg, Pentti Kuurola, Mihalis Lazaridis, Andreas Massling, Inês Paciência, Pedro Pena, Aino K. Rantala, Teresa Schaefer, Mar Viana, Camilla Vornanen-Winqvist, Linyan Zhu, Heidi Salonen</i>	
How Does Wellness Office Influence Workers' Health and Work Capacity?.....	899
<i>Kazuhiro Minami, Futa Watanabe, Takayoshi Iida</i>	
Human Physiological Responses to Indoor CO ₂ Concentrations and the Resulting Reduction in CO ₂ Emission Rates	901
<i>Kazuki Kuga, Jiayi Zhu, Pawel Wargocki, Kazuhide Ito</i>	

Characteristics of House Dust Mite Allergens in Southeast and East Asia with the Effect of Hygienic Practice	903
<i>Kiyoung Lee, Ji Y. Park</i>	
Induced Airflow and Inhaling Pollutant Exposure to a Standing Adult After Flushing a Urinal.....	905
<i>Kuibo Wu, Tengfei Zhang, Feng Wang</i>	
Examining Home Environments and Asthma Interventions in the Tennessee Valley.....	913
<i>Laura Humphrey, Bruce Tonn, Erin Rose, Allie Cardiel, Bruce Glanville</i>	
The Impacts of Cleaning on the Airborne and Surface Microbiota in Finnish Primary School Classrooms.	916
<i>Martin Täubel, Emmanuelle Castagnoli, Hanna Leppänen, Camilla Vornanen-Winqvist, Miina Juntunen, Leila Kakko, Tuomas Alapieti, Anniina Salmela, Raimo Mikkola, Maria Valkonen, Heidi Salonen</i>	
Exposure of Secondary Organic Aerosols in Beijing in 2017	918
<i>Mingyao Yao, Ao Zhang, Bin Zhao</i>	
Characterize and Intervene the Indoor Air Quality in Early Childhood Education Settings to Reduce the School Absenteeism Caused by Infectious Diseases	920
<i>Mingze Zhu, Peter Kim, Bukunmi Akanji, Diane Horm, Barbara Fuhrman, Balaji Sad-Hasivam, Oliver Stroh, Geb Thomas, Thomas Peters, Changjie Cai</i>	
Benzene Detection Within Cleaning Agents: A Study on Real-Time Volatile Organic Compounds Concentrations.....	922
<i>Minjung Kim, Chungsik Yoon</i>	
Research on Individual Differences in Sensitivity to Environmental Factors Affecting Sleep Quality of Nursing Home Dwelling Older Adults.....	924
<i>Mio Kono, Rei Nara, Natsuko Nagasawa</i>	
Effect of Indoor Thermal Environment Before Bedtime on Sleep in Winter	926
<i>Misaki Miyazaki, Tomomi Kanou, Shintaro Ando, Toshiharu Ikaga</i>	
The Role of Offices in Workers' Resilience	928
<i>Nodoka Tagawa, Masanari Ukai, Kosuke Ihara, Toshiki Shinno, Osamu Kiyota, Osamu Kunitomo, Hiromichi Nishida, Shin-Ichi Tanabe</i>	
Household Socioeconomic Status Influences the Indoor Environments Affecting Chinese Children's Respiratory and Allergy Health	936
<i>Nuo Han, Linyan Li, Tingshao Zhu, Gary Adamkiewicz, John D. Spengler</i>	
Improving Learning Through Classroom Experience in East Africa; Preliminary Findings.....	938
<i>Oluyemi Toyinbo, Eunice Jengo, Xuzel V. Peralta, Björn Häfler</i>	
Predicting Absence Rates Due to Indoor Environmental Quality in Pre-Retrofitted USA Schools: An Analytical Study on Classroom Parameters.....	940
<i>Oluyemi Toyinbo, Richard Shaughnessy, Ulla Haverinen-Shaughnessy</i>	
How Much Ventilation is Necessary to Avoid Disturbance to Sleep?	942
<i>Pawel Wargocki, Mizuho Akimoto, Xiaojun Fan, Kazuya Matsuo, Chandra Sekhar, Li Lan</i>	
Exposure to Phthalates from Home Dusts Among Infertile Women and Its Influence on in Vitro Fertilization	944
<i>Pei-Hua Hsu, Chia-Wei Lee</i>	

Evaluation of Ambient Temperature Impacts on Domestic Kitchen Hoods using Validated Computational Fluid Dynamics Models.....	946
<i>Pei-Yu Fan, Ying-Chieh Chan, Wan-Chen Lee</i>	
Exposure Risk and Characteristics of Bisphenol A and Its Substitutes in the General Taiwanese	948
<i>Po-Chin Huang, Yu-Jung Lin, Hsin-Chang Chen, Wan-Ting Chang, Jung-Wei Chang</i>	
Validating the Use of CONTAM to Predict Indoor Air Quality in Tertiary Institutions Starting with the SOE (School of Engineering) for the Indoor Air Pollutants Carbon Dioxide, PM _{2.5} and Formaldehyde.....	949
<i>Ricardo Martin, Micheal Blake, Michael McGregor, Lisa Bramwell</i>	
Indoor Exposure to Carbonyls Associated with Biomarkers of Oxygen-Carrying Capacity of Blood Among College Students in Lhasa, Tibet	958
<i>Ruohong Qiao, Qiaoyi Hua, Yingjun Liu, Jicheng Gong, Tong Zhu</i>	
Dormitory PM _{2.5} Exposure and Its Association with an Acute Inflammation Biomarker: A Panel Study in Lhasa, Tibet.....	960
<i>Ruohong Qiao, Wu Chen, Tong Zhu, Jicheng Gong, Yingjun Liu</i>	
Examining Environmental Contentment and Job Efficiency in Offices: An Assessment of Hot Desking's Impact on Post Occupancy Evaluation.....	962
<i>Shreya Satodia, Joon-Ho Choi, Saba Imani</i>	
Environmental Assessment of Indoor Air using Apollo, a Novel Ambient Air Sampling Device.....	966
<i>Stephanie Filep, Maria Oliver, Rhys Meredith, Max Bermingham, Anna Kuklinska-Pijanka, Ross Yarham, Hayley Mills, Martin Chapman</i>	
In Silico 3D Ocular Model Integrating Tear Evaporation and Physiologically Based Pharmacokinetic Modelling.....	968
<i>Teruaki Hirayma, Kazuki Kuga, Kazuhide Ito</i>	
District-Wide Bond Program for School Renovation and Upgrading - Implications on Indoor Environmental Quality and Health	970
<i>Ulla Haverinen-Shaughnessy, Richard Shaughnessy</i>	
Exposure to Indoor PM _{2.5} May Induce Kidney Injury	972
<i>Wan-Ru Wang, Hsiu-Ling Chen, Huey-Jen Su</i>	
A Pilot Study of Indoor PM _{2.5} Exposure and Their Correlation with the Sleep Behaviors of the Aging and Dementia Population in Pacific Northwest in USA	974
<i>Wan-Tai Au-Yeung, Josephine Lau, Chao-Yi Wu, Hiroko Dodge, Joel Steele, Zachary Beattie, Jeffrey Kaye</i>	
Effect of Low Set Temperature of Bedroom Heating System on Sleep Thermal Comfort.....	976
<i>Xiaojing Zhang, Tianyang Zhang, Jingchao Xie, Jinyue Zhou</i>	
Cumulative Risk Assessment and Exposure Characteristics of Parabens in a Representative Taiwanese Population.....	978
<i>Yen-Hsuan Huang, Po-Chin Huang, Jung-Wei Chang, Hsin-Chang Chen, Yu-Jung Lin, Wan-Ting Chang</i>	
Occupational Inhalation Exposure to Welding Fumes: Distance, Level and Composition	981
<i>Yiran Lu, Mengjie Duan, Daoyu Yang, Weiqi Guo, Shibiao Su, Xudong Li, Li Liu</i>	

Analysis of Activity-Based Office Worker Selection Behaviour and Reasons for Working in an Office.....	991
<i>Yuki Takeda, Minami Seto, Shin-Ichi Tanabe, Mikio Takahashi, Kazuki Wada, Tomoko Tokumura, Hiroki Takahashi, Naoki Shinohara</i>	
Individual Exposure Characteristics and Health Effects of PM _{2.5} and PM _{0.25} Combined Polycyclic Aromatic Hydrocarbons and Their Derivatives Under Different Heating Methods in Fen-Wei Plain	999
<i>Yunxuan Gu, Hongmei Xu</i>	
Determination of Permeation Parameters for Dermal Exposure to Endocrine-Disrupting Compounds in Consumer Products	1007
<i>Zidong Song, Ying Xu</i>	
Rapid Review of Radon Concentrations in Multi-Family Buildings.....	1016
<i>Amanda Giang, Tianyuan Li</i>	
Using Logistic Regression to Analyze the Impact of External Environmental Factors on Indoor Air Quality at Postpartum Home	1018
<i>Cheng C. Chen, Ko C. Liu, Chieh H. Lin, Wei C. Chen</i>	
Indoor Air Pollution in Low-Income Countries – Assessment and Characterization of Particulate Matter from Cooking with Solid Biofuels.....	1021
<i>Axel Eriksson, Asmamaw Abera, Ebba Malmqvist, Christina Isaxon</i>	
Assessing the Impacts of Indoor Air Quality on Dementia Care in Nursing Homes: A Mixed-Method Study	1023
<i>Mika Cheng, Julie Gordon, Shakil Shimul, Diana Sturdevant, Xiaobo Quan, Javeed Kittur, Hongwan Li</i>	
Roles of Various Chemical Personal Care Consumer Products on IAQ in Public Secondary School Classrooms and Teaching Hair/Nail Salon Rooms.....	1025
<i>Derek G. Shendell, Juhi Aggarwal, Maryanne Campbell, Midhat Rehman</i>	
Improving Pesticide Exposure Assessment in an Indoor Residential Environment via Model Refinement	1027
<i>Noshin A. Kamal, Raghavendhran Avanasai, Carrie Huffman, Allison Killius, Gabriel Sinclair, Raj Saran, Tharacad Ramanarayanan, Deborah H. Bennett, Hyeong-Moo Shin</i>	
Simultaneous Method of Volatile Organic Compounds' Metabolites in Human Urine Samples using a Novel In-Syringe Based Fast Urinary Metaboites Extraction (FaUMEx) Technique Coupled with UHPLC-MS/ MS Analysis	1028
<i>Po-Chin Huang, Vinoth K. Ponnusamy</i>	
Indoor Sport Facilities: Health and Environmental Assessment - User Experience, Material Emissions, and Indoor Air Quality	1032
<i>Marko Hyttinen, Isla Hahl, Linda Luostarinen, Pertti Pasanen</i>	
Oxidative Potential of the Particulate Matter Emitted from Common Household Sources.....	1034
<i>P. S. Ganesh Subramanian, Zhuying Dai, Brent Stephens, Mohammad Heidarinejad, Vishal Verma</i>	
Identify Indoor Sources Responsible for PM _{2.5} and PM ₁ Exposure and Associated Health Impacts in Two Asian Countries with Low-Cost Sensors	1036
<i>Shih-Chun C. Lung, Ming-Chien M. Tsou, Chih-Hui C. Cheng, Wiwiek Setyawati</i>	

Impact of Use of Silicone Bakeware on the Levels of Cyclic Volatile Methylsiloxanes (cVMS) in Surrounding Indoor Air	1038
<i>Jiping Zhu, Jianjun Niu, Adam Wawrzynczak</i>	
Health Risk Assessment of Indoor Air Pollutants in Modern Large Office Buildings in Japan	1040
<i>Kenichi Azuma, Hoon Kim, Yohei Inaba, Shigehisa Uchiyama, Naoki Kagi, Kenichi Kobayashi</i>	
Effect of Ventilation and CO ₂ on Sleep Quality and Cognitive Performance.....	1042
<i>Kazuya Matsuo, Xiaojun Fan, Pawel Wargocki</i>	
Occupants' Exposure to Indoor Air Contaminants in European Sports Halls.....	1044
<i>Heidi Salonen, Camilla Vornanen, Emmanuelle Castagnoli, Raimo Mikkola, Martin Täubel, Tunga Salthammer, Lidia Morawska</i>	
Exposure to Particles in Schools – How to Control it	1050
<i>Pertti Pasanen, Maija Leppänen, Hanna Koponen, Olli Sippula, Marko Hyttinen</i>	
Leveraging Multimedia PFAS Exposure Data to Understand Important Residential Sources and Pathways.....	1052
<i>Elaine C. Hubal, Nikki Deluca, Jason Boettger, Jeffrey Minucci, Dylan Wallis, Lisa Melnyk, James McCord, Kent Thomas</i>	
Users' Exposure to Indoor Air Contaminants in European Swimming Pools.....	1054
<i>Heidi Salonen, Tunga Salthammer, Camilla Vornanen, Emmanuelle Castagnoli, Raimo Mikkola, Lidia Morawska</i>	
Synergistic Effects of Ozone Reaction Products and Fine Particulate Matter on Pulmonary Physiology in Children with Asthma	1062
<i>Linchen He, Charles J. Weschler, Glenn Morrison, Marilyn Black, Michael H. Bergin, Junfeng Zhang</i>	
Sick Building Syndrome, Indoor Air Quality, and Related Health Effects: A Systematic Literature Review.....	1064
<i>Liudmyla Yutskevych, Kaelan Moore, Jacqueline M. Gibson</i>	
Long Term Monitoring of Indoor Carbon Monoxide Levels in Disproportionately Impacted Neighborhoods in Denver.....	1066
<i>Sumit Sankhyam, Aniya K. Hollo, Dulce Gonzalez-Beltran, Nicholas Clements, Shelly L. Miller</i>	
Numerical Analysis using CFD for Preventing Infectious Diseases Through Sanitary Plumbing Network Isolation	1068
<i>Joo H. Moon, Wonseok Oh, Jinkyun Cho</i>	
Time-Dependency and Individual Variation in Sensory Irritation from Masked Exposure to Acrolein.....	1076
<i>Anna-Sara Claeson, Eduardo Rosa, Steven Nordin</i>	
Trace Metals in Secondhand and Thirdhand Tobacco Smoke	1078
<i>Xiao Chen Tang, Wenming Dong, Hugo Destaillets</i>	
IAQ National Survey in French Dwellings 2020-2023: Protocols and Quality Measurements	1080
<i>Olivier Ramalho, Claire Dassonville, Anthony Gregoire, Sutharsini Sivanantham, Emma Lafaurie, María J. R. Lopez, Virginie Desvignes, Driss Samri</i>	

Health Footprint of Endocrine-Disrupting Chemicals in Consumer Products: A System-of-Systems Approach	1088
<i>Yili Wu, Hongwan Li, Yujie Fan, Elaine A. C. Hubal, John C. Little, Clara M. A. Eichler, Chenyang Bi, Zidong Song, Ying Xu</i>	
High Ambient Air Pollution Undermines the Effect of Clean Cooking Fuels in Preventing Low Birth Weight	1099
<i>Ritu Parchure, Ekta Chaudhary, Shrinivas Darak, Santu Ghosh, Alok Kumar, Sagnik Dey</i>	
Drosophila Melanogaster Detection and Colliding Segmentation for Studying the Behavioural Effects of Pollutant Exposure	1101
<i>Xiaoying Li, Zhenhai Li</i>	

VOLUME 3

Impact of Overheated Bedroom Conditions on Occupant Thermal Comfort and Sleep Quality: An Experimental Study	1109
<i>Jaydeep Bhadra, Arash Beizae, Iuliana Hartescu, Kevin Lomas</i>	
Paired Household Dust & Clinical Samples Indicate Relationship Between Benzalkonium Chloride Disinfectant Use & Biological & Environmental Persistence	1111
<i>Shelby J. Tillema, Mary J. Akel, Leena B. Mithal, Estefania Espinosa, Frances Kincaid, Abigail Aron, Tonia N. Branche, Stephanie A. Fisher, Erica M. Hartmann</i>	
PM _{2.5} Exposure Modeling App for Mitigation Strategies During Wildfire Smoke Events.....	1113
<i>Michael Breen, Vlad Isakov, Catherine Seppanen, Sarav Arunachalam</i>	
Miniaturization Options in VOC Emissions Assessments of Consumer Products: Comparison of Test Chambers and Dynamic Headspace Extraction Systems	1115
<i>Luisse Klein, Birte Poelke, Alexander Roloff</i>	
Antagonistic Effect of Copper Ions on the Toxicity of Polystyrene Nanoplastics by Transformation into Copper (II) Oxide and Copper (II) Sulfate	1117
<i>Muthuchamy Maruthupandy, Jun H. Jeon, Sung I. Yang, Wan-Seob Cho</i>	
Evaluation of High- and Low-Efficiency Kitchen Hood Performance Under Scripted Cooking Scenarios in Four Taiwanese Households	1120
<i>Hsin Chen, Wan-Chen Lee</i>	
Assessing Toxicity of PM _{2.5} from Indoor Sources and During Exposure in Private Homes	1122
<i>Aneta Wierzbicka, Jonas Enarsson, Anne T. Saber, Bo Strandberg, Joakim Pagels, Nicklas R. Jacobsen</i>	
Association of Volatile Organic Compounds Exposure with the Risk of Obstructive Sleep Apnea Among Middle-Aged Men: Data from KNHANES 2020-2021 Study Population	1124
<i>Hyunji Park, Heeseon Jang, Hyunah Son, Changsoo Kim</i>	
Newer New Jersey Public Secondary School Teachers and Potential Exposure to Chemicals in Cleaning, Disinfecting and Sanitization Product in Their Work.....	1131
<i>Derek G. Shendell, D. Env, Juhi Aggarwal, Maryanne Campbell, Midhat Rehman, Koshy Koshy</i>	

INDOOR CHEMISTRY, SOURCES, AND TRANSFORMATION

- Decaffeinated Coffee Can Emit Potentially Toxic VOCs that Increase Exponentially with Temperature.....1133
Rileigh L. Robertson, Pawel K. Misztal
- An Innovative Methodological Sensor-Based Approach for Health Risk Assessment in Urban and Industrialized Areas: CALLIOPE Project1135
A. Di Gilio, J. Palmisan, M. Nisi, L. Pastore, G. De Gennaro

POLICY, REGULATION, AND STANDARDS

- Restoring IAQ After Structural Fires.....1137
Ed Light, Cliff Zlotnik
- Influences Affecting the Achievement of Acceptable Indoor Environments: Introduction to ASHRAE Guideline10-20231143
Carl Grimes
- Advancing Indoor Air Quality Equity in Underserved Communities: A Pilot Study1145
Hongwan Li
- Characterizing Indoor Environment Quality and Energy Efficiency Improvement Opportunities in U.S. Commercial Kitchens1146
Jiayu Li, Wanyu R. Chan, Brett Singer, Stefano Schiavon, Todd Bell, Richard Young
- Finnish Guidelines for Treatment of Symptoms Associated with Indoor Air: Well-Rounded Recommendations Formulated Through Consensus Process1148
Kati Huttunen, Tuomas Sorto, Jorma Komulainen, Sirkku Pikkujämsä, Taneli Puuma-Lainen
- Making a Newly Constructed Building Ready for Occupancy.....1155
Lawrence Schoen
- Emission Test Method for Products Used Close to Humans1157
Martin Jönsson, Anna Kozyrkova, Elisabeth Dragu, Maria Skogsberg, Per-Erik Gustavsson
- Towards a Sustainable Legislation for Ventilation and Healthy Indoor Air Quality.....1159
Mikael Björling
- Indoor Exposure to Δ^9 -Tetrahydrocannabinol (THC) from the Consumption of Cannabis Products.....1168
Tunga Salthammer
- The Difference of Creating Comfortable Indoor and Outdoor Thermal Environment: The Changing Trend of Standards and Research Directions.....1170
Yongxin Xie, Jianlei Niu
- Changes of Indoor Air Quality System in Korea.....1177
Yoon S. Kim, Jo-Chun Kim, Young Sunwoo, Cheol M. Lee
- Indoor Air Quality Research Agenda Development and Implementation Plan to Improve Health in Abu Dhabi Emirates1179
Grace Kilroy, Jacqueline M. Gibson

Utilization of CO ₂ as a Tracer Gas in Laboratory, Building Science, and Engineering Applications to Determine Air Infiltration in Buildings, Vehicles, or Other Enclosures	1181
<i>Curt M. Freedman</i>	
Moving From Data Literacy to Data Fluency: A Proposed Framework for Improving Indoor Air Quality in Mixed-Use Buildings.....	1183
<i>Maureen Johnson-León</i>	
Development of Quad Thermistor for Wind Direction Measurement	1185
<i>Norise Tanabe, Takashi Kurabuchi, Toshihiro Nonaka, Jeongil Kim</i>	
K-Means Clustering Analysis to Identify Sick Building Syndrome Symptoms in Office Buildings	1192
<i>Iasmin L. Niza, Evandro E. Broday</i>	
Conceptual Processing of Natural, Complex Odours: Multisensory Effects on Behaviour and Time-Frequency EEG Data.....	1200
<i>Christine I. Hucke, Viviane Gallus, Katja Butter, Martin Ohlmeyer, Christoph Van Thriel</i>	
The Conversion of Steady-State Formaldehyde Test Chamber Concentrations to Different Climatic Conditions	1206
<i>Tunga Salthammer</i>	
Evaluating Indoor Climate Interventions: Balancing Sustainability and Health Outcomes	1208
<i>A. K. Mishra, P. Wargoeki, E. J. O'Reilly</i>	

SENSORS AND MONITORING

“Sano Aere in Corpore Sano”: How Can Air Quality Sensors Ensure the Truth of This Statement While Practicing Sports in Fitness Facilities?	1210
<i>Nathalie Redon, Marie Verrièle-Duncanu, Frédéric Thévenet, Sabine Crunaire, Sabine Vassaux, Anaïs Lostier, Marius Pascaud, Liselotte Tinel, Nadine Locoge</i>	
An Exploratory Approach for Indoor Air Temperature Estimation Remotely using Infrared Technology: A Case Study.....	1212
<i>Tingting Jiang, Fulin Hao, Xudong Yang</i>	
Ventilation Assessment in GP Surgeries During the COVID-19 Era: A Monitoring Approach.....	1214
<i>Sara Mohamed, Rod Escombe, Grainne McGill, Tim Sharpe</i>	
How CO ₂ Concentration in Classrooms Without Mechanical Ventilation System Changed Before / During COVID-19 at an Elementary School in Tokyo Based on the Measurement Between 2017 and 2023.	1216
<i>Go Iwashita, Taemi Gohara, Shin-Ichi Tanabe</i>	
A Comprehensive Investigation of the Indoor Environment Monitoring of an Art Storage Facility.....	1218
<i>Shayeeeka Alam, Oliver Wild, Liora Malki-Epshtein</i>	
A Longitudinal Evaluation of Indoor Environmental Quality in Educational and Work Environments.....	1220
<i>Adam K. Collison, Miriam A. Byrne, James A. McGrath</i>	
Mass Transfer Model in Gas Samplers: Application to VOC Capturing with Various Passive Flux Samplers	1222
<i>Akihiro Yamasaki, Miyuki Noguchi, Yoshihiro Suzuki</i>	

A Field Study on Long-Term Operations of Air Purifiers in Classrooms in Elementary Schools in Korea	1231
<i>Bangwoo Han, Kee-Jung Hong, Gunhee Lee, Dae-Hoon Park, Hak-Joon Kim, Yong-Jin Kim</i>	
Classification of Airborne Bioaerosol Concentration in Multi-Use Facilities using Cluster Analysis	1233
<i>Bo Y. Kwon, Jihyeon Kim, Hanjong Ko, Donghyun Lee, Ju H. Kim, Nalae Moon, Su J. Heo, Yoon-Hyeong Choi, Sungchul Seo</i>	
CO ₂ Concentrations in Twenty-Four Primary Schools in Switzerland	1235
<i>Bowen Du, Joan Rey, Matias Cesari, Claude-Alain Roulet, Joëlle G. Pernot, Dusan Licina</i>	
Spatiotemporal Analysis of a Large U.S. Indoor Air Quality Dataset	1237
<i>Brett Stinson, Jeff Mounts, Don Aultman, Elliott Gall</i>	
Total Volatile Organic Compounds and Formaldehyde in Various Indoor Environments on a University Campus	1239
<i>Chi-Chi Lin, Jheng F. Tsai</i>	
Screening for a University Library Indoor Air Quality (IAQ).....	1241
<i>Dadi Zhang, Ling-Tim Wong, Kwok-Wai Mui</i>	
Leveraging K-Means Clustering to Reveal Particulate Patterns and Assessing the Impact of Particle Filtration in Midwestern Elementary Classrooms in the United States	1247
<i>Daud Nosham, Josephine Lau, James A. Bovaird</i>	
Healthy School; Healthy Air Project Effectiveness Reporting	1255
<i>Elena Austin, Alicia Kusaka, Jeffry Shirai, Timothy Gould, Maria Tchong-French, Edmund Seto</i>	
Comparison of Spot Measurement and Continuous Measurements of CO ₂ Concentrations in Danish Schools	1258
<i>Geo Clausen, Emilie P. Dam-Krogh, Jørn Toftum</i>	
Studying the Efficiency of Air Cleaners at Removing Various Indoor Air Impurities in Classrooms and the Relation to Pupils' Perceived Symptoms	1260
<i>Hanna Leppänen, Miina Juntunen, Tarja Yli-Tuomi, Pekka Taimisto, Kaisa Jalkanen, Taina Siponen, Kati Huttunen, Anne Hyvärinen, Martin Täubel</i>	
Verification of Response Time of CO ₂ Concentration Sensors for Measuring Age of Air Distribution using Dynamic Steady-State Concentration	1262
<i>Jin-Ya Takeuchi, Takashi Kurabuchi, Hajime Yoshino, Yoshihiro Toriumi, Kazuki Ko-Dama</i>	
Assessing Indoor Environmental Quality in Varied Building Types with Long-Term Measurement in South Korea.....	1264
<i>Jong-Won Lee, Seung-Min Lee</i>	
Anomaly Detection of Bathroom Usage using CO ₂ Concentration and LSTM-Autoencoder in a Single-Person Household	1266
<i>Jun S. Kim, Jeong W. Kim, Sun H. Kim, Seol H. Noh, Hyeun J. Moon</i>	
Driving Action on Indoor Air Monitoring in Commercial Buildings	1268
<i>Riwayat Katia, Tobias Kramer, Larissa Oaks, Kristina Koh, Thomas Parkinson, Dusan Licina, Seema Bhangar</i>	

Indoor Environmental Quality (IEQ) Monitoring in K-12 Schools: Decision & Research Support for Operations, Climate, and Pandemic Resilience	1270
<i>M. Patricia Fabian, Koen Tieskens, Pilar Botana, Priam Vyas, Yirong Yuan, Masanao Yajima, Brenden Tong, Lauren Main, Lauren Bolton, Katherine H. Walsh</i>	
Characterization and Control of Room Air Mixing Regimes and PM Exposures in a Large Cohort of Public Elementary School Classrooms.....	1272
<i>Mark Hernandez, Kristina Petrov, Isaac Chevarria, Anna Segur, Odessa Gomez</i>	
PTR-MS as a Tool for the Determination of Formaldehyde, Ammonia and Volatile Organic Sulfur Compounds Together with VOC	1274
<i>Olaf Wilke</i>	
Pressure Differences Over the Building Envelope During the Cold Season	1276
<i>Pentti Kuuroala, Filip Fredorik, Ulla Haverinen-Shaughnessy</i>	
A Fluorescence Biosensor Based on Sulfur Quantum Dots for Highly Selective Detection of Alkaline Phosphatase.....	1278
<i>Qing Zhou, Ying Xu</i>	
Simultaneous Measurements of Indoor and Outdoor Air Quality	1281
<i>Ravi Sahu, Vipul Lal Chandani, Ruijie Tang, Mao Du, Joe Acton, Zaheer Nasar, Zongbo Shi, Christian Pfrang</i>	
Probing the Health and Thermal Comfort of the Occupants with Respect to Indoor Environmental Quality in a Shared Space.....	1283
<i>Saeid Chahardoli, Mina Lesan, Zhihong Pang, Amirhosein Jafari, Yimin Zhu, Arup Bhattacharya</i>	
What Can We Learn About Classroom Air from Low-Cost Sensors? A Study on CO ₂ and Volatile Organic Compounds in Danish Schools	1285
<i>Sara B. Sørensen, Kasper Kristensen</i>	
Indoor Air Quality of Enclosed Public Spaces: Beyond CO ₂ to Chemical and Microbial Pollutants.....	1287
<i>Sarah J. D. Nauwelaerts, Babette Muyshondt, Berdieke Goemaere, Lula Timmerman, Michel Degallier, Ann Packeu, Koen De Cremer</i>	
Ventilation Concepts in Classrooms: First Insights of a Long-Term Monitoring in Schools as Part of a Randomized Controlled Trial.....	1289
<i>Susanna Bordin, Sebastian Hummel, Jonathan Griener, Renate Weisboeck-Erdheim, Arno Dentel</i>	
A Novel Microfluidics-Based SAW Sensor for Ultrafine Particle Detection	1291
<i>Thilhara Tennakoon, Tsz-Wai Lai, Sau-Chung Fu, Ka-Chung Chan, Chili Wu, Christopher Y.-H. Chao, Chun-Ho Liu</i>	
IAQ National Survey in French Dwellings 2020-2023: Formaldehyde, Benzene and Particulate Matter Levels.....	1297
<i>Virginie Desvignes, Olivier Ramalho, Claire Dassonville, Anthony Gregoire, Sutharsini Sivanantham, Emma Lafaurie, Maria-José R. Lopez, Driss Samri</i>	
Development and Validation of a Wrist-Based Personal Monitoring Device for Environmental Exposure and Physiological Parameters (WPEM)	1299
<i>Xinjie Dai, Chunliang Wang, Kai Su, Linmin Hu, Siqing Wu, Xixian Fang, Jianbang Xiang</i>	

Measuring Spatial Features in Office Building Public Areas: Integrating Occupant Movement and IEQ Exposures.....	1301
<i>Xinting Gao, Jiazhi Ni, Weimin Zhuang</i>	
A Systematic Review of Low-Cost Sensors with the Internet of Things Application: Are They Feasible for Long-Term Indoor Air Quality Monitoring in Residential Buildings?	1304
<i>Yong Yu, Marco Gola, Gaetano Settimo, Stefano Capolongo</i>	
Monitoring Pollutants in the Indoor Air Quality of New Vehicles in Korea	1306
<i>Yong-Jun Byun, Min-Kwang Kim, Eun-Ju Lim, Hyun-Woo Lee, In-Ji Park</i>	
Next-Generation Indoor Air Quality Management: An IoT and Deep Learning Integrated Based Approach for Real-Time Monitoring and Prediction.....	1308
<i>Jamal Yousaf, Jurng-Jae Yee</i>	
Merging Thermal Comfort, Ventilation and Air Quality Measurements	1315
<i>John Saffell</i>	
Naked-Eye Detection of Pollutants Through Visible-Light Induced Polymerization.....	1317
<i>Jungkyu K. Lee</i>	
"If You Had a Sensor, You Would Know:" Unequal Exposures and Responses to Indoor Air Pollution	1319
<i>Casey Mullen, Sara E. Grineski, Manuela Herrera, Piper Christian, Jessica Cuello</i>	
Comparing Targeted and Measured Ventilation and Filtration Rates in Classrooms using Low-Cost Sensors	1323
<i>Zoe Hoskin, Bowen Du, Alexander Mendell, Ahmad Al-Musa, Rafsan Nahian, Sarah Haines, Jeffrey Siegel</i>	
The EASIER System: Alerting Elders and Trusted Social Networks Living in Environmental Justice Communities About Imminent Risks to Their Health.....	1325
<i>Bruce Tonn, Erin Rose, Allie Cardiel, Kristina Kitzinger, Bryce Bible</i>	
Assessing Airborne Microfibres and Microplastics in Indoor Environments: A Case Study on a Canadian University Campus	1327
<i>Joud Jelassi, Javad Sadeghi, Kinga Vojnits, Sophia Liao, Rita Lam, Sepideh Pakpour</i>	
How to Deploy Sensors for IEQ Monitoring in a Large Space? A Case Study of an Airport Terminal Based on the Quantitative Optimization Method	1329
<i>Mufeng Yuan, Yang Geng, Borong Lin</i>	
Economic Inequity of Measured Indoor and Outdoor Exposure to PM2.5 using Data from 14,000 Low-Cost Particle Monitors	1337
<i>Lance Wallace</i>	
Personal Exposure to PM2.5 Mass Concentrations using Consumer-Grade Personal Exposure and Outdoor Fixed Monitors in Denver, Colorado.....	1344
<i>Aniya K. Hollo, Dulce Gonzalez-Beltran, Allison Heckman, Sophie Castillo, Tim Herwig, Jonathan Aumann, Cora Morency, Sumit Sankhyan, Nicholas Clements, Shelly L. Miller</i>	
Integrated Thermal, Light and Air Quality Monitoring for Health and Efficiency.....	1346
<i>Yunyi Zeng, Juan Yu, Hao Tang, Jiayi Zhou, Borong Lin</i>	
Occupancy Estimate Based on Carbon-Dioxide and Differential Pressure Data.....	1353
<i>Jehyun Kim, Minki Sung</i>	

Ventilation in a World Post Pandemic: How Do New Zealand Buildings Measure Up?.....	1361
<i>Julie Bennett, Kate M. E. Chisholm, Caroline Halley</i>	
Smokers' Preference for Cigarettes and Heated Tobacco: A Relationship with the Chemical Constituents of Environmental Tobacco Smoke.....	1363
<i>Miyuki Noguchi, Akihiro Yamasaki, Yoshiharu Suzuki</i>	
Comparison of Low-Cost Sensors Under Real World Conditions.....	1365
<i>Erik Uhde, Nicole Schulz</i>	
Carbon Dioxide Monitoring and Artificial Intelligence Prediction for Respiratory Infection Control: A Pediatric Waiting Room Study.....	1367
<i>Jin-Young Baea, Seunghun Leea</i>	
Fragmentation and Water Clustering Complicate Interpretation of PTR-MS Measurements of Indoor Air.....	1369
<i>Michael F. Link, Dustin Poppendieck</i>	
Can Low-Cost Sensor Networks Help Indoor Air Quality?	1371
<i>Mikko Poikkimäki, Matti Leikas, Nicolas P. Winkler, Patrick P. Neumann, Arto Säämänen, Anneli Kangas</i>	
Poster: Field Evaluation of Indoor Air Quality in Residential Kitchens.....	1372
<i>Frank Johnson</i>	
Indoor Environmental Quality in Airtight Energy-Efficient Dwellings: The Efficiency of Natural Ventilation	1373
<i>Ibrahim Alhindawi, Divyanshu Sood, James O'Donnell, James A. McGrath, Miriam A. Byrne</i>	
Development of a Trigger Sampling System for Indoor and Workplace Exposure Assessment using Low-Cost TVOC Sensors.....	1375
<i>Alan Rossner, Mathew Skeels, Mahender S. Rawat</i>	
Preconcentrator Design for Sensing System Toward Indoor Low-Concentration VOC Detection	1376
<i>Yan Wang, Jinhan Mo</i>	
Daycare IAQ: Integrating Real-Time Positioning for Health Insights	1378
<i>Thuzar W. Shwe, Samy Clinchard, Pentti Kuuroola, Ulla Haverinen-Shaughnessy</i>	

VENTILATION AND HVAC

Optimizing Ventilation Systems for Improved Efficiency and Indoor Thermal-Comfort using Phase Change Materials.....	1380
<i>Jihee Nam, Sungwoong Yang, Yongjun Choi, Sumin Kim</i>	
Measurements on Velocity Distribution of Co-Flow Jet Ventilation	1382
<i>Bin Zhou, Xin Zhu, Zhe Li, Qi Min, Bin Yang, Faming Wang</i>	
Effects of Non-Uniform Wall Temperature Variations in Street Canyons on Ventilation Efficiency and Pollutant Dispersion.....	1384
<i>Haotian Zhu, Yuwei Dai, Wanli Tu, Shuang Luo, Dongmei Xu</i>	
Too Smoky, Too Smelly: A Concise Historical Review of Kitchen Ventilation Design.....	1392
<i>Juliet Landler</i>	

Development of Microenvironment Fine-Tuning Unit.....	1394
<i>Nao Yamagami, Kyogo Hayashi, Hisashi Hasebe, Akihiro Kawamura, Hiromasa Tsuzuki, Tatsuo Nobe</i>	
Comparison of the Eulerian and Lagrangian Approaches for Predicting Fate of Particle by Single-Sided Natural Ventilation.....	1396
<i>Sihwan Lee, Takashi Kurabuchi, Jeongil Kim</i>	
Inverse Design of Indoor Radiation Terminal Based on Parametric Level Set.....	1399
<i>Xingwang Zhao, Xin Chen, Yonggao Yin</i>	
Ventilation Study in Modern Scottish Homes	1407
<i>Linda Toledo</i>	
Numerical Investigation of HVAC System Impacts on Airborne Infectious Disease Transmission in Operating Rooms.....	1409
<i>Reza Daneshzarian, Rafsan Nahian, Jeffrey Siegel</i>	
Enhancing OT Infection Control: Real-Time Evaluation of HVAC Systems Through Computational Fluid Dynamics and Digital Twin Technology.....	1411
<i>Giovanna Gargiulo, Giuseppe D'Avenio, Mauro Grigioni, Marco E. Biancolini, Andrea Lopez</i>	
Numerical Study of a Novel Hybrid Ventilation System in Operating Rooms.....	1413
<i>Nan Hu, Sasan Sadrizadeh</i>	
Performance of a Sensor-Based Passive Ventilation Control System in a Temperate Climate.....	1419
<i>Gráinne McGill, Sara Mohamed, Tim Sharpe</i>	
Particle Emission and Cooking Performance of Induction Cooking Stoves.....	1421
<i>Amanda Giang, Tianyuan Li</i>	
An Innovative Smart HVAC System for Cold Climates: Achieving Sustainable Thermal Comfort	1423
<i>Amirmohammad Behzadi, Annika Gram, Sasan Sadrizadeh</i>	
Field Test of Thermal Performance of Alternating Current Heat Recovery System in Korean's Apartment Housing	1431
<i>Beungyong Park, Jung H. Nam, Suhhyun Kwon, Sihwan Lee</i>	
Improving Air Quality using Smart Thermostats: Minimizing Indoor Exposure to Wildfire-Generated Fine Particulate Matter (PM2.5).....	1433
<i>Federico Dallo, Thomas Parkinson, Carlos Duarte, Stefano Schiavon, Chai Y. Um, Mark Modera, Paul Raftery, Carlo Barbante, Brett C. Singer</i>	
Design and Experimental Study of Novel Controllable Attenuator Systems for Constant Temperature Air-Conditioning.....	1435
<i>Guo Weichen, Hong Yusong, Wang Zeng, Zhu Xuejin, Zhu Zhe, Ye Wei</i>	
Mechanical Ventilation and IAQ in Recently Constructed US Homes.....	1443
<i>Haoran Zhao, W. Rengie Chan, Chrissi Antonopoulos, Eric Martin, Paul Francisco, Iain Walker, Brett Singer</i>	
The Effectiveness of Simple Technical Methods in Infection Risk Management, an Experimental Setup.....	1450
<i>Iris Pulkkinen, Ulla Haverinen-Shaughnessy</i>	

Swamp Coolers, Air Conditioners, and Infiltration of Ambient Particle and Gas-Phase Pollutants into Homes in a Semi-Arid Climate	1452
<i>James Johnston, Hanyong Jung, Royce Harline, Tyler Peterson, Selah Willis, Taylor Christensen, Seth Van Rosendaal, Joseph West, Darrell Sonntag</i>	
Components and Operation of 100 °C Sterilizing Ultrasonic Humidifier	1454
<i>Jeonghoon Lee, Dongryul Park, Yongmin Kim, Kiwon Seo</i>	
Estimation of Air Exchange Rates in Small-Sized Multi-Use Facilities using Multiple-Formulas Method	1456
<i>Ji M. Kim, Hee W. Shin, Dong H. Kang</i>	
Effectiveness of Ventilation and Purification in VOCs Control in Chinese Home Kitchens	1458
<i>Jiaru Jiang, Junjie Liu</i>	
Analysis of an Occupancy-Based Estimation of Cross Ventilation Rates and Effective Opening Area	1466
<i>Jihyun Yoo, Jaeyun Bae, Junseok Park</i>	
Inequity of Exposure to Wildfire Smoke PM _{2.5} in the United States	1468
<i>Jing Li, Xinlei Liu, Qiao Yu, Yifang Zhu</i>	
Assessment of Indoor Air Quality Improvement Effects Through the Operation of an Integrated IAQ Management System in an Underground Shopping Mall.....	1470
<i>Jiwoong Kim, Kichul Kim, Jinhee Jeong, Yungyu Lee</i>	
Comparing Bath vs Kitchen Continuous Exhaust Ventilation on Indoor Air Contaminants in Single-Family Detached Homes using Gas Cooking	1472
<i>Jonathan Wilson, Sherry L. Dixon, Paul Francisco, Kiel Gilleade, Jill Breysse, Yigang Sun, Zachary Merrin, David E. Jacobs</i>	
A Field Intervention Study of Effects of Thermal Environment and Ventilation in the Bedroom on Sleep Quality	1474
<i>Jumpei Nakano</i>	
Measuring the Performance of a Pressurized Corridor Ventilation System in High-Rise Multi-Unit Residential Building (MURBs)	1482
<i>Justin Berquist, Marianne Touchie, William O'Brien</i>	
An Adaptive Cooling Coil for Large Load Diversity and Resilience	1484
<i>Kwok W. Tham, Xiaosong Su, Toby Cheong, David K. W. Cheong, Claire F. Yang, Kwan O. Tai, Chandra Sekhar</i>	
Generating Thermal Stratification in the Controlled Active Ventilation Environment Laboratory (CAVE).....	1487
<i>Liora Malki-Epshtein, Oliver Wild, Filipa Adzic, José L. Torero</i>	
Point Source Ventilation Effectiveness of Mixing Ventilation Solutions Used in Non-Residential Settings	1489
<i>Martin Kiil, Alo Mikola, Karl-Villem Võsa, Raimo Simson, Jarek Kurnitski</i>	
HVAC Energy Saving Through Effective Air Distribution Models Based on Occupancy Patterns, Exhaust Positioning, and Ceiling Level in a Large Office	1497
<i>Mina Lesan, Saeid Chahardoli, Arup Bhattacharya</i>	

Rational Use of an Over-Track Exhaust System Has an Enhanced Effect on the Smoke Exhaust of Fire on a Metro Platform	1499
<i>Mingyao Ma, Yumei Hou, Jun Gao</i>	
Impacts of HVAC Cleaning on Energy Consumption and Indoor Air Quality: A Multi-Climate Site Demonstration	1507
<i>Nasim Ildiri, Mark Hernandez</i>	
Open Plenums and Indoor ENvironments (OPEN): Characterizing Indoor Air Quality in Occupied and Unoccupied Office Spaces.....	1509
<i>Nehul Agarwal, Sabato Leo, Tianyuan Li, Helen Stopps, Sarah Haines</i>	
Investigating Ventilation Strategies on Public Transport Through the Long-Term Environmental Monitoring of Operational London Buses.....	1517
<i>Oliver Wild, Filipa Adzic, Liora Malki-Epshtein</i>	
Predicting Human CO ₂ Emissions for IAQ Applications	1519
<i>Oluwatobi Oke, Andrew Persily</i>	
Advanced Personalized Ventilation Strategies in Aircraft Cabins for Enhanced Protection Against Airborne Pathogens	1522
<i>Paul Danca, Florin Bode, Matei R. Georgescu, Cristiana Croitoru, Mihnea Sandu, Ilinca Nastase</i>	
Optimization of Window Opening for Ventilation of a Bedroom using the Adjoint Based Topology Method	1524
<i>Qingwen Xue, Feng Wang, Tengfei Zhang</i>	
A Control Process for Prioritizing Unused Energy for Simultaneous Heating and Cooling System with Solar Energy.....	1526
<i>Seok H. Lee, Yu J. Lee, Dae U. Shin</i>	
Effects of PM _{2.5} Filtered Fresh Air on the Nasal and Oral Microbiome of School-Aged Children: A Randomized Crossover Intervention Study in Shanghai	1528
<i>Shuang Du, Tianyi Chen, Hao Tang, Dan Norback, Xuehuan Gao, Yunfei Cai, Zhuohui Zhao`</i>	
Cost-Effective Retrofit for Optimized Ventilation and Filtration System Controls: Field Results.....	1530
<i>Theresa Pistochini, Deborah Bennett, Matthew Ellis, Christopher Cappa</i>	
Effectiveness of Reciprocating Recirculating Horizontal Air Curtain in Reducing Heat Flux Across Horizontal Temperature Stratifications.....	1533
<i>Yanlei Yu, Jun Gao</i>	
Energy-Saving Potential in Graphite Layer Enhanced Low Temperature Chilled Water Driven Ceiling Radiation Cooling Panel	1535
<i>Yifan Wang, Sau C. Fu, Ka S. Fung, Paul Y. C. Chan, M. K. Liu, Oscar K. C. Chan, Horace K. W. Mui, Christopher Y. H. Chao</i>	
Research on Building Airtightness and Planned Ventilation in Houses Equipped with Exhaust Ventilation System.....	1541
<i>Yoshihiro Toriumi</i>	
Application and Validation of a Wearable Monitor for Assessing Personal and In-Home Exposures to Particulate Matter in the California Central Valley	1543
<i>Xiaoying Li, Jessica Tryner, Bonnie N. Young, Luis H. Ramirez, Mollie Phillips, Sherry Wemott, Grace Kuiper, Nayamin Martinez, Lorena Sanpedro, Sheryl Magzamen, John Volckens</i>	

Exploring Ventilation Practices and Indoor Air Quality in Diverse Rural Older Households in Cold Regions of China: A Comparative Study.....	1545
<i>Di Yang, Rose Gilroy, Neveen Hamza</i>	
Experimental Study on Interworking Control of Energy Recovery Ventilation and Air Conditioner to Reduce Fine Dust in Residential Building	1547
<i>Young-Chull Ahn, Sang-Moo Woo, Yul-Ho Kang, Hae-Eun Song, Jin-Hyuk Shin, In-Gyu Yang</i>	
Development an Empirical Model to Predict the Capture Efficiency of Exhaust Hoods in a Confined Enclosure	1549
<i>Chuanming Chen, Dayi Lai, Qingyan Chen</i>	
Analysis of Indoor Environment and Dehumidification Schemes for Hydro-Power Station	1557
<i>Wang Guangming, Zixu Yang, Hongli Sun, Hanjie Zheng, Borong Lin, Wang Wenyuan</i>	
Indoor Thermal Environment Improvement Based on Switchable Radiation/Convection Combined Intermittent Heating.....	1559
<i>Yifan Wu, Hongli Sun, Mengfan Duan, Borong Lin</i>	
Study on Ventilation Efficiency Measurement Method of Air Purifier using Artificial Droplets.....	1566
<i>Jeongil Kim, Takashi Kurabuchi, Sihwan Lee, Toshihiro Nonaka, Tatsuya Murai, Hiko Ri</i>	
Measured and Perceived IEQ in Schools in Sweden, Slovakia and the UAE	1568
<i>Gabriel Bekö, Taher S. Eldanaf, Pavol Stefanic, Rawya Dagher, Omnia Altemnah, Sarka Langer</i>	
Natural Ventilation in Homes and Mold Levels – Exploration of Occupant Behaviours	1570
<i>Caroline Halley, Elinor Chisholm, Michael Keall, Julie Bennett</i>	
Comparing Photocatalytic and Outdoor-Air-Intake Ventilation Systems	1574
<i>Yong W. Song</i>	
Feedforward Control of HVAC System Based on Load Forecasting by Grey Box Model.....	1576
<i>Li Wang, Xiaofeng Li</i>	
Impact of Partition on Airborne Cross-Exposure Risk in Stratified Micro-Environments	1578
<i>Xue Tian, Zhang Lin</i>	
Operation and Air Stream Analyzation of Heat Pump Combined High-Polymer Desiccant Wheel System for Low Humidity Control.....	1586
<i>Shaochen Tian, Yixiang Huang, Yining Geng, Lei Huang, Shangao Li, Qinbao Wang, Xing Su</i>	
Newer New Jersey Secondary School Teachers Assessment of School Building and Classroom Ventilation, Filtration, Trainings, and Awareness of Government Resources.....	1594
<i>Derek G. Shendell, Juhi Aggarwal, Maryanne Campbell, Midhat Rehman, Koshy Koshy</i>	
DALY Engineering: And to Dust Shall You Return	1596
<i>Jelle Laverge, Merel Decleyre, Klaas De Jonge</i>	
The Impact of Opening Positions on Naturally Ventilated Indoor Environments	1598
<i>Zhen Liu, Bruño Fraga</i>	
Measurement of Age of Air in Air-Recirculating Systems using Dynamic Steady-State Concentration Theory.....	1600
<i>Tatsuya Murai, Takashi Kurabuchi, Jin-Ya Takeuchi, Hajime Yoshino, Yoshihiro Toriumi, Jeongil Kim, Toshihiro Nonaka, Hiko Ri</i>	

Assessment of Indoor Air Quality and Ventilation Rate in Residential Dorms After Net-Zero Retrofit	1608
<i>Zhipeng Deng, Pratik Pandey, Bing Dong</i>	
Inclusive Sleep Environments: Personal Exposure to PM2.5 and Obstructive Sleep Apnea in Children	1609
<i>Yalin Lu, Ignacio E. Tapia, Nan Ma</i>	
Effect of Inlet Turbulence Characteristics on the Contaminant Dispersion and Infection Risks in Train Cabins using IDDES	1611
<i>Yibin Lu, Zhang Lin, Tiantian Wang, Yaxin Zheng</i>	
Analyses of Energy Performance and Thermal Comfort Through Duty Cycling Control of HVAC Systems.....	1613
<i>Alya P. Agharid, Yaling Zhang, Indra Permana, Yihan Luo, Fujen Wang</i>	
Development and Performance Evaluation Study of Window-Mounted Pressurized Ventilation Unit	1618
<i>Sanghoon Park, Chaemin Hong, Sehui Yun, Yuna Cho</i>	
Exponent - Failure Analysis and Forensic Engineering in the Built Environment	1620
<i>Pradeep Ramasubramanian, Shannon Ramey</i>	
Ventilation Strategies for Increasing Individual Thermal Comfort in Open-Plan Offices – A Comparative Study	1621
<i>Haider Latif, Goran Hultmark, Alireza Afshari</i>	
Occupant Response to Ventilation Reduction During Simulated Demand Response Events in a Controlled Environment	1624
<i>Troye Sas-Wright</i>	
Killed by DALY? Primary and Secondary Effects of IAQ Management from an Environmental Justice Perspective.....	1625
<i>Jelle Laverge, Merel Decleyre, Klaas De Jonge</i>	
Study on the Influence of Plane Space Division on the Natural Ventilation Performance of Teaching Buildings	1627
<i>Siyi Liu</i>	
Detecting the Dispersion of Bioaerosols Generated in Negative-Pressure Isolation Rooms.....	1635
<i>Chane-Yu Lai, Tzu-Hsien Lin, Feng-Ching Lin, Jung-Chun Liu, Po-Chen Hung, Cheng-Ping Chang</i>	
Investigating the Protection Effect of Gaspers in an Aircraft Cabin with Personalized Displacement Ventilation	1639
<i>Yunge Hou, Ruoyu You</i>	
CFD Modeling to Characterize Wind-Driven Natural Ventilation in Offices.....	1641
<i>Marzieh Fallahpour, Hoorieh G. Naeini, Parham A. Mirzaei</i>	
Design and Application of Reinforced Exhaust Hoods for Rooms with Strong Buoyancy.....	1649
<i>Bingqian Chen, Sumei Liu, Junjie Liu, Nan Jiang, Qingyan Chen</i>	
Optimal Pitch Angle of Jet Fans Based on Air Age Evaluation in Urban Highway Tunnels.....	1657
<i>Jingchao Xie, Shanshan Zhao, Peng Xue, Yanyun Zhang, Nan Zhang, Jiaping Liu, Junwei Chen, Shaofeng Wang</i>	

VENTILATION STRATEGIES FOR INCREASING INDIVIDUAL THERMAL COMFORT IN OPEN-PLAN OFFICES	1659
<i>Haider Latif, Goran Hultmark, Alireza Afshari</i>	

ADDITIONAL PAPERS

Recognition Models of Cigarette Smoking Behavior by Real-Time Indoor Air Pollutants and Infrared Temperatures in Public Places	1661
<i>Jin Sun, Ling Huang, Lei Guo, Yunfei Cai, De Chen, Tao Lin, Rongliang Chen, Chenchen Xie, Jing Wang, Zhuohui Zhao</i>	
The Effect of SVF on the Efficiency of Fiber Trapping Droplets in Indoor Environment by CFD- DEM	1663
<i>Yanju Li, Jixin Cui, Yu Wang</i>	
A Random Forest Model for PM _{2.5} Personal Exposure Assessment for a Chinese Cohort.....	1665
<i>Tiantian Li</i>	
Characterization of Children’s Living Environments in Urban Area	1667
<i>Gwi-Nam Bae</i>	
Indoor Air Quality with Outdoor Haze	1669
<i>Chunshui Lin, Ru-Jin Huang</i>	

Author Index