

Day 2: 5/19/2026 (Tue)

Session 1 1-1 Indoor Air Quality

11:00 - 12:30 Location: SGM 123 / Session chair: Vincenzo Gentile

| Paper Number | Author | Title |
|--------------|--|---|
| 26 | Bahadır Erman Yuce, Yunus Emre Cetin and Martin Kriegel | Comparison of Particle Deposition under Air Curtain and Mixing Ventilation in a Negative-Pressure Two-Bed Ward |
| 41 | Gerrid Brockmann and Martin Kriegel | A numerical investigation about the influence of combined exhaust positions on ventilation effectiveness |
| 134 | Chaimin Hong, Inseo Jeong, Sanghoon Park | Performance Evaluation of Window-Type Ventilation Systems: A Comprehensive Methodology and Experimental Validation |
| 427 | Saeid Chahardoli, Avijit Sarker, Mina Lesan, Yi Xiao, Andrew Z Johannsen and Arup Bhattacharya | SIMOC-Inspired Mesh Sensing and Combinatorial Bayesian Optimization of Classroom Air-Purifier Placement |
| 558 | Vincenzo Gentile and Marco Perino | Low-cost & fast response multi-tracer multi-point gas sensing network for ventilation and interzonal flows measurements |

Session 1 1-2 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon

11:00 - 12:30 Location: SGM 124 / Session chair: Huijeong Kim

| Paper Number | Author | Title |
|--------------|--|---|
| 71 | Weiyu Shih, Kyosuke Hiyama, Yuya Baba and Ryosuke Kinoshita | Energy Conservation and Performance Verification of Air-Conditioning Systems in a University Building with a Large-Scale Learning Commons |
| 72 | Wei Jing, Akihito Ozaki, Yusuke Arima, Younhee Choi and Sungjun Yoo | Evaluation of a Peak Cooling Load Estimation Model for Radiant Systems in Large Indoor Spaces: Validation with BES and Energy Saving Analysis |
| 174 | Beom-Jun Kim, Sang-Hwan Park, Ye-Weon Kim, Ye-Eun Jang, Hansol Lim and Ki-Hyung Yu | Post-Retrofit Performance Evaluation of Heat Pump Systems Using Regression-Based Benchmarking |
| 290 | Minyoung Choi, Soo-Jin Lee, Min-Geon Park, Suyeon Hong and Jae-Weon Jeong | Performance of Hybrid Ground Source Heat Pump Systems with Open and Closed-Loop under Part-Load Operation |
| 358 | Mohammad Hamid, Mohammed Assad, Walid Chakroun and Nesreen Ghaddar | Pulsating Impinging Jet Ventilation with floor cooling to improve thermal comfort at enhanced system performance |
| 537 | Deok-Oh Woo, Rocky Alazazi, Karen Ternes, Rajul Patel and Sarah Beatty | High-Intensity UVC Irradiation of Air Handling Units for Enhanced Energy Efficiency Under Varying Biofouling Risks |

Session 1 1-3 Building Technology and Performance

11:00 - 12:30 Location: SGM 101 / Session chair: Miroslav Čekon

| Paper Number | Author | Title |
|--------------|--|--|
| 45 | Rossella Cottone, Stefano Fantucci, Giorgia Autretto and Miroslav Čekon | High - Performance Phase Change Material - Integrated Systems for Summer Climate Optimization |
| 303 | Yujin Kang, Ji Hun Park, Seong Taek Kang and Sumin Kim | Exploring cross-laminated timber (CLT) applications for sustainable façade design in Korea |
| 311 | Young Uk Kim, Dongchan Jin and Sumin Kim | Effect of carbon material dispersion in PCM on thermal properties of cementitious building materials |
| 349 | Minyoung Kwon, Jubyung Lee, Yongsik Jeong, Youngjae Lee, Juseok Kim, Shinjae Lee and Sangeun Han | Plug-and-Play Cartridge Facades: Assessing Energy, Carbon, and Cost in Office Renovations |
| 355 | Yonca Yaman, Ayça Tokuç, Mehmet Akif Ezan, Gülден Köktürk, Zeliha Demirel and Irem Deniz | Bioreactive Skins: Evaluating Microalgae Façade Systems for Thermal and Daylighting Performance in Los Angeles |
| 482 | Soyeon Ahn, Minseong Kim, Taeyeon Kim, Hyokung Sung and Jae-Weon Jeong | Retrofit of Thermoelectric Module-Based Thermally Activated Insulation Panel for Apartment Buildings |

Session 1 1-4 Health, Wellbeing, and Human Behaviors in the Built Environment**11:00 - 12:30 Location: GFS 116 / Session chair: Evandro Eduardo Broday**

| Paper Number | Author | Title |
|--------------|---|---|
| 25 | Mar Hernandez and Roberto Alonso González Lezcano | Methodology for determining Indoor Environmental Quality (IEQ) in residential buildings for the elderly by monitoring key environmental parameters. |
| 98 | Koga Nakamura and Tatsuya Hayashi | Impact of Office Environmental Performance on Corporate Value: An Objective Data Analysis in Human Capital Management |
| 106 | Mateus Pedrosa Braga, Iasmin Lourenço Niza and Evandro Eduardo Broday | The Influence of Seasonality on Indoor Environmental Quality Parameters in Brazilian University Classrooms |
| 111 | Clara Peretti, Alberto Lodovico Ghiberti and Enrico Fabrizio | Analysis and monitoring of environmental conditions and well-being in remote working environments in northern Italy |
| 230 | Shunsaku Uozumi, Koga Nakamura and Tatsuya Hayashi | Wellness Offices in Japan: An Empirical Analysis Based on CASBEE-Wellness Office |
| 397 | Shundong Li and Nan Ma | Large Language Models for Investigating Co-Occurrences in Multi-Domain Indoor Environmental Quality |

Session 1 1-5 Thermal Comfort**11:00 - 12:30 Location: GFS 101 / Session chair: Ash Ragheb**

| Paper Number | Author | Title |
|--------------|---|---|
| 68 | Vincenzo Costanzo, Gianpiero Evola and Michele Torrisi | Selecting and testing Personal Comfort Systems (PCS) in office spaces in a Mediterranean climate: first insights from in-situ surveys |
| 109 | Kyoungmin Lim, Jihyun Yoo, Junseok Park, Chungyoon Chun, Sanghun Kim, Seokwon Seo and Namshin Kim | Determining Optimal Local Thermal Environment for a Vehicle Passenger Using Thermal Comfort Model |
| 128 | Wen-Hsuan Hsu and Yun-Shang Chiou | Fishbone vs. Peripheral-Ring Air-Conditioning Layouts: Spatial Thermal Variation and Occupant Comfort in Office Environments |
| 176 | Tazia Rahman, Mohamed Ouf, Joyce Kim and Kehinde Bayode | Comparative cooling efficiency of wearable and non-wearable personal comfort systems in office settings |
| 223 | Shiyong Li, Yifan Wu and Borong Lin | Thermal comfort benefits using a convective–radiative Personalized Environmental Control System for intermittent heating |
| 491 | Rosa Seo, Chul Kim and Kyu-Nam Rhee | Impact of Thermally Activated Internal Louvers on Occupants' Thermal Comfort |

Session 1 1-6 Smart Cities and Green Infrastructure**11:00 - 12:30 Location: GFS 118 / Session chair: Ryoza Ooka**

| Paper Number | Author | Title |
|--------------|---|--|
| 51 | Chao Lin, Hideki Kikumoto, Yasutomo Takakuwa and Ryoza Ooka | Optimizing Parapets for Rooftop Wind Safety Using CFD Simulations and Sensitivity Analysis |
| 91 | Hongyuan Jia, Chao Lin, Karine Sartelet and Hideki Kikumoto | Bayesian inference for sources of reactive gases in urban canyons based on the adjoint method |
| 119 | Haruka Nishiyama and Yasuyuki Ishida | ` |
| 211 | Youmin Xu, Xu Han, Shaoxiang Qin and Liangzhu Leon Wang | High Resolution Urban Microclimate Reconstruction with Generative Diffusion-Based AI |
| 275 | Yu-Cian Lin and Ying-Chieh Chan | Pareto Based Performance Framework for Urban Greening: Visualizing Trade offs between Cost, Carbon Sequestration, and Shading |
| 553 | Esra Tepeli | Towards Sustainable Building Delivery: Synergizing LEED and Lean Approaches for Energy-Efficient, Healthy Passive House Design |

Session 1 1-7 Generative AI in Sustainable Built Environment**11:00 - 12:30 Location: GFS 207 / Session chair: Dongjun Suh**

| Paper Number | Author | Title |
|--------------|--|---|
| 17 | Wooyoung Jung, Prosper Babon-Ayeng and Kahyun Jeon | Human-AI Interaction in Large Language Model-Integrated Building Energy Management Systems: User Prompt Strategy |
| 252 | Simona Semeraro, Francesca Vecchi, Roberto Stasi and Umberto Berardi | A Two-Phase Physics-informed Machine Learning Framework for Predicting Indoor Temperature and Cooling Energy in Present and Future Climates |
| 279 | Mahdi Bonyani, Maryam Soleymani and Chao Wang | Transformer-based Generative AI for HVAC Control with Fragmented Data Center Histories of IT Workload and Cooling Infrastructure |
| 473 | Giovanni Calzolari and Wei Liu | Accelerating Large Eddy Simulations of Urban Airflow with Two Generative Adversarial Networks-based Architectures |
| 506 | Xinyue Xu, Julian Wang and Xingjian Liu | ResStock-LLM: A Multi-Agent Framework for Climate-Adaptive Residential Retrofit Decisions |
| 519 | Muhammad Ihza Febriyan Pagri, Dongho Lee, Junhwa Hwang and Dongjun Suh | A Comparative Analysis of Fine-Tuning and Prompt Engineering for LLM-Based Automation of Building Energy Models for Rooftop Photovoltaics |

Session 2 2-1 Sponsored session by KD Navien: Indoor Air Quality**1:30 - 3:00 Location: SGM 123 / Session chair: Arezoo Shirazi**

| Paper Number | Author | Title |
|--------------|--|--|
| 180 * | [Sponsor Team: KD Navien] Insoo Hwang, Junwoo Kim and Hyunbae Park | A Study on Indoor Air Quality Using a Hybrid Dehumidification Ventilation Unit |
| 85 | Danbi Kwon, Donghyun Kim and Taeyeon Kim | CFD-based Surrogate Model for Predicting CO2 Concentration Distribution in Classrooms |
| 86 | Yubin Cho, Donghyun Kim, Taeyeon Kim and Sihyeon Kim | CFD-ML Approach for Predicting Breathing-Zone PM2.5 in Indoor Cooking Environments. |
| 401 | Avijit Sarker, Saeid Chahardoli, Mina Lesan and Arup Bhattacharya | Real-Time Indoor CO2 Distribution Prediction Using CFD and Physics-Regularized Kolmogorov-Arnold Network |
| 442 | Yi Xiao, Saeid Chahardoli, Mina Lesan, Avijit Sarker, Andrew Z Johanssen and Arup Bhattacharya | Optimizing Ventilation Inlet and Outlet Configurations using a UQ-Informed Robotic Sensing Platform |
| 456 | Tang Lee and Anthony Santini | Preventing the spread of airborne infectious pathogens in the next pandemic |

Session 2 2-2 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon**1:30 - 3:00 Location: SGM 124 / Session chair: Sharon Verghese**

| Paper Number | Author | Title |
|--------------|---|---|
| 36 | Yi Zhu, Junyu Chen, Junjie Fu, Kan Chen and Peng Xu | An Efficient PSO-Based Approach for Optimizing Internal Gain Schedules in Building Energy Simulation |
| 90 | Yusuke Nagaoka, Keiichiro Taniguchi and Yasunori Akashi | Preemptive HVAC setpoint scheduling enabled by large language model-based occupancy prediction: a lecture hall case study |
| 241 | Sharon Verghese and Mike Jaeger | Enhanced Deterministic Occupant Behavior Modeling Framework for Energy Efficient Conceptual Design |
| 249 | Jeongyun Hwang and Hyunwoo Lim | Improving urban building energy modeling (UBEM) accuracy through shape and energy use pattern calibration factors based on representative buildings |
| 576 | Sooyoun Cho and Gi Seok Kim | Development of Hierarchical Classification System for University Building Energy Influential Factors and Construction of Prediction Matrix |

Session 2 2-3 Building Technology and Performance**1:30 - 3:00 Location: GFS 116 / Session chair: Ying-Chieh Chan**

| Paper Number | Author | Title |
|--------------|--|--|
| 75 | Miyu Matsunobu, Kyosuke Hiyama and Yutaka Oura | Quantifying the Trade-off between Upfront and Operational Carbon in High-Performance Building Envelopes |
| 322 | Hyeonseong Yuk, Seong Taek Kang and Sumin Kim | Balancing energy efficiency and conservation in historic building retrofits |
| 357 | Max Ruffo | Why Energy per Person Is the Metric the Future Demands |
| 496 | Oi-Man Hip, Simeon N. Ingabo and Ying-Chieh Chan | Evaluating the Impact of Reflective Painting on Building HVAC Performance |
| 532 | Kisa Fujiwara | Thermal and Daylighting Performance of Representative Spatial Configurations in Contemporary Japanese Municipal Office Buildings |
| 645 | In-Hwan Lee, Beom Yeol Yun, Hyung Woo Lee, Chul-Ki Kim and Sang Joon Lee | Strategies for zero energy building certification of timber house |

Session 2 2-4 Health, Wellbeing, and Human Behaviors in the Built Environment**1:30 - 3:00 Location: GFS 118 / Session chair: Hui Zhu**

| Paper Number | Author | Title |
|--------------|--|---|
| 50 | Seonghyuk Son and Dongwoo Jason Yeom | Lighting and Spatial Proportions in Virtual Reality: Patterns of Comfort and Task Performance |
| 204 | Yanwei Jin, Yunyi Zeng, Juan Yu and Borong Lin | Health impact assessment of light and thermal environments: field research in offices with wearable monitoring |
| 226 | Quanna Liao, Duo Yang, Le Ma, Hui Zhu, Hua Su, Masanari Ukai and Songtao Hu | Cognitive performance evaluation based on physiological indicators in different sleep restrictions |
| 270 | Wan-Tai Au-Yeung, Josephine Lau, Joel Steele, Nora Mattek, Zachary Beattie, Lyndsey Anderson, Allison Lindauer, Miranda Lim and Jeffrey Kaye | Associations between night-time bedroom environmental factors and objective sleep metrics of older adults |
| 380 | Zhining Zhu, Jieun Choi, Xinbo Xu, Jiwon Park, Tobias Kramer, Hui Zhang and Stefano Schiavon | Environmental and Physiological Influences on Sleep Quality: A Randomized Controlled Trial using Heating Pads in the Bay Area |
| 571 | Eun Ji Choi and Joon-Ho Choi | Robust Occupant Activity Recognition in Buildings using AI-Based Data Generation |

Session 2 2-5 Thermal Comfort**1:30 - 3:00 Location: GFS 101 / Session chair: Yongxin Xie**

| Paper Number | Author | Title |
|--------------|---|--|
| 42 | Maha Basha and Jim Uttley | Adaptive thermal comfort and healthy home metrics among minority households in the United Kingdom. |
| 202 | Raimo Simson, Martin Kiil, Karl-Villem Võsa, Endrik Arumägi, Alo Mikola and Jarek Kurnitski | Balancing Cooling and Comfort: Lessons from Fan Coil Units in Estonia |
| 346 | Ryuichiro Yoshie | Field Measurements in a Renovated Apartment with Underfloor Air Distribution Using a Single Mini-Split Heat Pump |
| 448 | Ashraf Ragheb | Indoor Thermal Comfort Evaluation of an Office Space in the Southeastern United States. |
| 567 | Ying Jiang, Yongxin Xie and Jianlei Niu | Developing a physiological-parameter-based thermal sensation model for warm-biased outdoor settings: the dynamic part |
| 579 | Andrea Martinez Arias, Marco Morales, Valentina Gonzalez Bernal, Maria José Peña, Daniel Canto and Isaias Navarrete | Prototypes and on-field testing of eco-insulated modules for retrofitting building facades in public schools in Chile. |

Session 2 2-6 Visual (Lighting and Daylighting) Quality and Accoustic Quality**1:30 - 3:00 Location: GFS 207 / Session chair: Yun-Shang Chiou**

| Paper Number | Author | Title |
|--------------|--|--|
| 35 | Kuniaki Mihara, Daniel Jun Chung Hii, Hiroyuki Takasuna and Katsuhiko Sakata | From Simulation to Space: Impacts of Green Coverage Ratio and Spaciousness on Occupant Well-being in a Semi-outdoor Atrium |
| 153 | Haerin Yang, Minwoo Kim and Jeehwan Lee | Comparative EEG Neural Pattern Analysis of Occupant Responses to Window Configurations in Educational Environments |
| 198 | Yun-Shang Chiou and Wan-Hsin Cheng | Between ClimateStudio simulations and reality – a study of glare in complex lighting workplace environments |
| 217 | Chung-Luen Cheng and Ying-Chieh Chan | Interactive Lighting Design and Simulation Interface Based on BIM and Game Engines for Smart Indoor Environments |
| 396 | Zahra Najafi and Mehdi Ashayeri | A Framework for Designing Kinetic Fabric Shading Systems Optimizing Integrated Energy, Daylight, and View Clarity Metrics |

Session 2 2-7 Panel Discussion**1:30 - 3:00 Location: SGM 101 / Session chair: Mannider Thind**

| Paper Number | Author | Title |
|--------------|--|---|
| 601 | Maninder Thind, Rebecca Martinez, Anushka Raut, Yu Hou | Advancing Healthym Equitable Buildings: Integrating Research, Standards, and Decarbonization Practice |

Session 3 3-1 Indoor Air Quality**3:30 - 5:00 Location: SGM 123 / Session chair: Lu Li**

| Paper Number | Author | Title |
|--------------|--|---|
| 15 | Hanin Othman and Rahman Azari | Enhancing the Granularity of Spatial Sensing using a Low-Cost IoT-based Sensing Network |
| 261 | Lu Li, Jiawei Wang, and Katie E. Angarano | Long-Term Indoor Air Quality Exposure Assessment in Academic Buildings |
| 317 | Jehyun Kim and Minki Sung | Estimation of the Number of Occupants Using Carbon Dioxide Concentration and Differential Pressure Data Based Machine Learning Model |
| 324 | Arezoo Shirazi, Artur Grigorev, Payam Keshavarz Mirzamohammadi, Dikaia Xenaki, Brian Oliver and Adriana-Simona Mihaita | Indoor and Outdoor Air Quality Monitoring in a Sydney Medical Research Center Using IoT and Toxicological Assessment |
| 549 | Aaron Collins, Joseph Stam and Rob Caldwell | Evaluating and Mitigating Residential Fine and Ultrafine Particle Exposure via an Open-Source Condensation Particle Counter and Low-Cost Sensor Suite |

Session 3 3-2 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon**3:30 - 5:00 Location: SGM 124 / Session chair: Qiuhua Duan**

| Paper Number | Author | Title |
|--------------|---|--|
| 197 | Mohamed Oualid Mghazli, Zineb Zoubir, Mohamed Elmankibi and Nouzha Lamdouar | Modeling Peer-to-Peer Energy Markets: Economic Viability and Social Benefits in Contrasting Grid Contexts |
| 334 | Heon-Min Lee, Youngsub An, Jongkyu Kim, Jae-Won Jeong and Min-Hwi Kim | Experimental and Theoretical Performance Analysis of a Building-Integrated Photovoltaic and Thermal (BIPVT) System |
| 338 | Ye-Bin Shin, Jae-Won Jeong and Min-Hwi Kim | Experimental Analysis of a Building-Integrated Photovoltaic and thermal (BIPVT) Module with Detachable Phase Change Material (PCM) for Curtain Wall Applications |
| 475 | Shun Okihara, Shun Okihara, Hideki Sato and Katsunori Nagano | A study on optimal energy management with forecasting PV power generation and energy consumption for ZEB provided by GWHP and energy storage. |
| 563 | Yong You and Qiuhua Duan | Multi-objective performance assessment of rear-ventilated BIPV double facade using CFD |

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| 560 | Mohammed Nazarpour and Huijeong Kim | Challenges and Drivers of Battery Second-Use Community Energy Storage Development: Integrating Social, Techno-Economic, and Behavioral Perspectives |
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Session 3 3-3 Building Technology and Performance

3:30 - 5:00 Location: SGM 101 / Session chair: Shayan Mirzabeigi

| Paper Number | Author | Title |
|--------------|--|--|
| 129 | Sameeraa Soltanian-Zadeh, Shayan Mirzabeigi, Bess Krietemeyer and Jianshun Zhang | Integrated Evaluation of Energy Performance, Indoor Environmental Quality and Building Envelope Performance in Retrofitted Multifamily Residential Buildings |
| 178 | Yuchong Qian and Jiawei Leng | How Digital Twin Platforms Empower the Decarbonization of Built Environments: A Case Study of a Vernacular Dwelling |
| 305 | Yun-Jin Hong, Jabin Goo, Dong Hee Choi and Dong Hwa Kang | Prediction of Dehumidification Performance of a Window-Type Liquid Desiccant Ventilation System |
| 390 | Jiwon Park, Sangjoon Lee, Jiayu Li, Stefano Schiavon, Kian Wee Chen and Ipei Izuhara | A simulation study on condensation risk in radiant cooling panels with elevated air movement |
| 462 | Daisuke Ogura, Sora Nakaike, Makiko Nakajima and Masaru Abuku | Investigation of Hygrothermal Control and Architectural Measures to Reduce Mold Risk in RC Detached Houses in Hot and Humid Regions |
| 540 | Enkh-Uchral Erdenebaatar, Taro Mori, Amarbayar Adiyabat and Hisato Osawa | Field Evaluation of Winter Indoor Environmental Performance of a Passive House–Level Detached House in Mongolia |

Session 3 3-4 Health, Wellbeing, and Human Behaviors in the Built Environment

3:30 - 5:00 Location: GFS 116 / Session chair: Cristina Piselli

| Paper Number | Author | Title |
|--------------|---|--|
| 49 | Seonghyuk Son, Jae Yong Suk, Kristina Knowles and Dongwoo Jason Yeom | Light-Music Interaction: Modulating the Perception of Emotional Music Through Ambient Lighting |
| 193 | Shuja Rehman, Prabhjot Singh Chani, Rajasekar Elangovan and Omar Afroz | Thermal-Only Physiological Sensing of Stress and Boredom Detection for Occupant-Centric Control |
| 466 | Yijin Zhao, Tsz Him Ian Chiu, Nan Wang, Jeffrey Mundinger and Julian Wang | A pilot study of the interaction between heat stress and metameric white light on occupants' cognitive performance |
| 489 | Shintaro Ando, Misaki Miyazaki, Wataru Umishio and Toshiharu Ikaga | Long-Term Risk of Chronic Disease from Cold Indoor Environments: A 10-Year Cohort Study |
| 538 | Shevva Beiglary and Julian Wang | Machine Learning-Based Prediction of Circadian Lighting Exposure: A Practical Framework for Nursing Homes |

Session 3 3-5 Thermal Comfort

3:30 - 5:00 Location: GFS 101 / Session chair: Yichen Yu

| Paper Number | Author | Title |
|--------------|--|--|
| 48 | Senta Mill, Matija Cabadaj, Nicolas März, Nicholas Müller and Normen Langner | How Accurate Is Low-Cost Comfort Monitoring? Validating the ComfortCube |
| 112 | Maciej Danielak and Patrick Warzecha | Natural Convection Cooling for Indoor Thermal Regulation in Buildings |
| 272 | Yukimasa Hirano, Masahiro Katoh, Saori Yumino and Tsubasa Okaze | Validation of Turbulence Models used in CFD Analysis of Indoor Natural Convection with a Cold Window and a Thermal Manikin |
| 276 | Cheng Zhao, Yichen Yu and Jianlei Niu | Development of a dynamic heat and moisture transfer model for sweat-soaked clothing in thermal comfort assessment |
| 320 | Jihee Nam, Yujin Kang and Sumin Kim | Influence of the thermal behavior of building envelopes on urban microclimate |
| 510 | Meftah Uddin and Sanjeev Khanna | 3D Visualization and Spatiotemporal Analysis of Indoor Comfort Parameters |

Session 3 3-6 Climate Change Adaptation, Resilience, and Environmental Policy**3:30 - 5:00 Location: GFS 207 / Session chair: Mohamed Dardir**

| Paper Number | Author | Title |
|--------------|--|--|
| 136 | Yasir Ahmed | Toward a Just Energy Transition in the GCC: Integrating Policy, Sustainability, and Climate Leadership |
| 175 | Zahra Khashei and Sandeep Langar | Integrating Circular Strategies into Post-Disaster Rebuilding: Pathways to Resilient and Resource-Efficient Recovery |
| 237 | Min Zong | From the source ensuring IAQVEC meet people's new expectations for a better life |
| 344 | Ryuta Tsurumi and Takahiro Yoshida | Spatiotemporal analysis of major CO2 emission sources in the Japanese building sector |
| 546 | Caribay Godoy-Rangel, Emanuele Giorgi and Viviana Barquero | Evaluating the Thermal Resilience of PCM-Retrofitted Housing under Heat Waves and Climate Change in Mexico |

Session 3 3-7 Generative AI in Sustainable Built Environment**3:30 - 5:00 Location: GFS 118 / Session chair: Soo Jeong Jo**

| Paper Number | Author | Title |
|--------------|---|--|
| 82 | Jung Min Han | Quantum Computing for Wind Pressure Data Prediction |
| 181 | Po-Yen Lai, Xinyu Yang, Jian Cheng Wong, Derrick Low and Huizhe Liu | Agentic AI-Enabled Framework for Thermal Comfort and Building Energy Assessment in Tropical Urban Neighborhoods |
| 565 | Saba Imani and Yun Kyu Yi | GenAI for Human-Building Interaction: Consistency, Reproducibility, and Automation in Post-Occupancy Evaluation |
| 572 | Le Sun, Xinyue Xu and Julian Wang | Bridging Construction and AI: Computer Vision-Based Floor Plan Analysis for Real-Time Cost Estimation |
| 573 | Ana Graça and Xiang Zhang | Early-stage shading design evaluation for buildings: A workflow accessing energy performance on AI-generated 3D geometry |
| 574 | Soo Jeong Jo | Application of AI and Building Performance Simulations to the Early Stages of Building Design |

Session 3 3-8 Online Session**3:30 - 5:00 Location: GFS 107 / Session chair: Minyoung Kwon**

| Paper Number | Author | Title |
|--------------|--|---|
| 67 | Mahdieh Adib, Fariborz Haghighat and Fuzhan Nasiri | Continuous-Time Neural Surrogate Models for Simulation and Scheduling of Compressed Air Energy Storage Systems |
| 471 | Zeinab Deldoost Fattahi, Fariborz Haghighat and Fuzhan Nasiri | A Superposition-Based Method for Rapid Estimation of Indoor Airflow Fields Under Occupant Movement |
| 500 | Maria Isabel Rivera, Tamara Ugarte-Aviles, Patricia A. Huerta and Marcela Palma-Troncoso | The Effect of Air Purifier Use in Classrooms on the Pulmonary Function of School-Aged Children: A Pragmatic Controlled Trial in Primary Schools in Central-Southern Chile |
| 535 | Kátia Fugazza, Marcos Marques and Sylvia Meimaridou Rola | Architectural Retrofit and Multidisciplinary HVAC Modernization with BIM Methodology in Existing Hospitals: A Case Study of the Carlos Tortelly Municipal Hospital |
| 60 | Mo Zhou and Xiangfeng Li | Classroom Environments and Problem Behaviors in Children with Autism: Exploring Spatial Impacts and Underlying Mechanisms |

Day 3: 5/20/2026 (Wed)

Session 4 4-1 Sponsored Session by ERC (Engineering Research Center) at Chung-Ang University, Korea 11:00 - 12:30 Location: SGM 101 / Session chair: Michael Youngsu Kim

| Paper Number | Author | Title |
|--------------|--|--|
| 47* | Seungwon Seo, Choongwan Koo, Dajeong Choi, Yujin Choi and Seongkyun Ahn | Toward Carbon-Neutral Construction: Clustering-Based Analysis of Site Electricity and Abnormal Use |
| 101* | Hae Won Lee, Ji Young Yun and Jin Woo Moon | Development and Applicability Evaluation of an Image-Based BMI Estimation Model for Occupant-Centric Thermal Environment Control |
| 161* | Sarath Raj, Jung Da-Eun, Jeong Ji Hwan, Kanghee Lee and Geun Young Yun | Machine-Learning Based Downscaling of GK-2A Land Surface Temperature: A study of Seoul, South Korea |
| 194* | Jun Kyu Kim, Jin Chul Park and Se Hyeon Lim | Analysis of the Lifecycle Carbon Reduction Effects of Public Daycare Centers through Green Remodeling |
| 244* | Sim-Cheon Yuk, Han-Seung Lee, Seo-Yeon Jo and In-Beom Jo | Evaluation of Resistance to Chloride Attack of Concrete Repair Method Using a Combined Application of Silicone-Based Water Repellent |
| 570* | Chan Hyeok Kang, Bo Kyung Jung, Tae Kyu Lee, Young Cheol Kwon, and Chang Ho Choi | Automated IFC Generation and Machine Learning-Based λ -Correction for Embodied Carbon Estimation of Buildings |

Session 4 4-2 Indoor Air Quality 11:00 - 12:30 Location: SGM 123 / Session chair: Gerrid Brockmann

| Paper Number | Author | Title |
|--------------|---|--|
| 132* | [Sponsor team: ERC] Hye In Kim, Kang Woo Bae, Ji Yeon Hyun and Jin Woo Moon | Evaluating the Scalability of a PM2.5 Indoor Concentration Prediction Model using Transfer Learning |
| 260 | Renate Jaanus, Kristin Taru, Alo Mikola and Jarek Kurnitski | Experimental Evaluation of CO ₂ Tracer Gas Dosing Methods for Reliable Ventilation Effectiveness Measurements with a Point Source |
| 323 | Haedeun Park, Hyeonwoo Jeong, Jiyeong Byeon, Nayun Kim and Seong Jin Chang | Development of wood welding technology for jointing and pollutant emission evaluation |
| 415 | Neelima Geetha Archana Madasu, Sanand Maddipati and Elham Fini | The Role of Bio-Based Wall Insulation in Enhancing Indoor Air Quality and Human Performance |
| 521 | Yunus Emre Cetin, Zihao Wang, Gerrid Brockmann and Martin Kriegel | Ventilation Effectiveness in a Test Room: Experiments and CFD Validation |
| 528 | Zhongqing Yang and Hikaru Kobayashi | Occupant-Distribution-Based CO ₂ Measurement to Optimize Demand-Controlled Ventilation in Office Spaces |

Session 4 4-3 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon 11:00 - 12:30 Location: SGM 124 / Session chair: Qihua Duan

| Paper Number | Author | Title |
|--------------|--|---|
| 97 | Ruixiaoxiao Zhang and Minhyun Lee | Energy Management Strategies in Smart City Microgrids Considering Power Output Uncertainties and Seasonal Variation |
| 130 | Akihiro Imaizumi, Hideki Tanaka, Hideharu Komoda and Takeshi Watanabe | Cooperative control method for Distributed Energy Resources using air conditioning heat source systems in multiple buildings |
| 148 | Mao Serikawa, Seiichi Kashihara, Junta Nakano, Takashi Akimoto, Toshiharu Ikaga and Shuzo Murakami | Economic and environmental benefits of using batteries and heat pump water heaters to effectively utilize daytime electricity |

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| 222 | Junlang Zhu, Hao Tang, Xiangzhe Xi, Yang Geng and Borong Lin | Planning High-PV Penetration Park: Enhancing Local PV Utilization and Economic Efficiency through Multi-Energy Storage |
| 251 | Youssef Benmoussa, Joud Al Dakheel, Nassim Sebaibi and Mohamed El Mankibi | Enhancing Building Energy Flexibility Through Demand Response-Enabled Heating and Ventilation for Flexible IEQ Management |
| 564 | Qihua Duan and Christy Ponnann | Closed-Loop Digital Twins for Building-Integrated Photovoltaics: A Focused Review |

Session 4 **4-4 Building Technology and Performance**
11:00 - 12:30 **Location: GFS 116 / Session chair: Meng-Chieh Jeffrey Lee**

| Paper Number | Author | Title |
|--------------|--|--|
| 242* | [Sponsor Team: ERC] Jiwoo Jang and Hanseung Lee | An Experimental Study on a Paper-Based Sensor for Chloride Ion Measurement in Fresh Concrete |
| 37 | Indra Permana, Alya Penta Agharid, Fu Jen Wang, Zulvi Alfiqri Hidayatulloh and Chu-Cheng Wei | Enhancing Biotechnology Cleanroom Performance through Field Recovery Testing and CFD-based Airflow Optimization |
| 113 | Kätriin Onemar, Raimo Simson and Jarek Kurnitski | Dynamic Modeling and Experimental Validation of Floor Cooling Systems for Overheating Assessment and Condensation Risk Considerations in Residential Buildings |
| 155 | Minzhi Ye, Masashi Momota, Aoto Kumagai, Hajime Ogata and Hyo Ogawa | Post-construction evaluation of building envelope thermal performance using neural networks |
| 457 | Nasim Ildiri and Mark Hernandez | Effects of HVAC Duct Cleaning on Indoor Air Quality Parameters: A Multi Season Demonstration of Exposure Assessment in Occupied Public School Classrooms |
| 646 | Beom Yeol Yun, In-Hwan Lee, Sang-Joon Lee, Chul-Ki Kim, Hyung Woo Lee and Tae-Ik Hwang | Field Application of EMC-Based Temperature–Humidity Monitoring for Durability Risk Assessment in Timber Buildings |

Session 4 **4-5 Health, Wellbeing, and Human Behaviors in the Built Environment**
11:00 - 12:30 **Location: GFS 101 / Session chair: Enrico Fabrizio**

| Paper Number | Author | Title |
|--------------|--|--|
| 78 | Kensuke Watanabe, U Yanagi, Yoshiki Shiraishi and Koichiro Asano | Mycobiome of air purifier filters in allergic bronchopulmonary mycosis patients' homes |
| 105 | Iasmin Lourenço Niza, Mateus Pedrosa Braga and Evandro Eduardo Broday | Assessment of Indoor Environmental Quality (IEQ) in university classrooms by periods of the day through discriminant analysis |
| 139 | Toby Cheung and Eikichi Ono | Occupant Environmental Satisfaction in a Semi-Outdoor Workspace versus Air-Conditioned Offices in Singapore |
| 146 | He Wu, Hisato Osawa and Taro Mori | Investigation of Legionella Transmission Using CFD Simulation Coupled with GIS |
| 187 | Amanda Quarshie and Cristina Poleacovschi | Residential Cooking and Kitchen Ventilation Behaviors in Alaska Native Households: Foundations for Indoor Air Quality Assessment |
| 239 | Houda Er-Retby, Myriam Bahrar, Mohamed Oualid Mghazli, Mostafa Benzaazoua and Mohamed El Mankibi | Experimental Assessment of Indoor Air Quality and Thermal Comfort Performance Using Fuzzy Logic Control for Natural and Mechanical Ventilation Systems |

Session 4 **4-6 Smart Cities and Green Infrastructure**
11:00 - 12:30 **Location: GFS 207 / Session chair: Xu Han**

| Paper Number | Author | Title |
|--------------|---|--|
| 150 | Ryoma Okuda, Hideki Tanaka, Hiroaki Tanaka and Fuminori Nishiyama | Optimal control method for HVAC heat source system based on operational data utilizing machine learning |
| 163 | Doyun Lee, Young Jik Youn and Wonseok Oh | Microclimate heterogeneity and operational strategies in indoor vertical farm |
| 177 | Jeonghoon Choi, Muhammad Ihza Febriyan Pagri and Dongjun Suh | Sensor-Only Occupant-Centric Ventilation Control with LLM-Augmented Decision Support for Human–Building Interactions |
| 364 | Chanuk Lee and June Young Park | Deep reinforcement learning for citizen-centric building retrofit decision making under behavioral uncertainty of a series game scenario |

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| 431 | Hongzhi Liu, Takumi Tanabe, Bozhou Dang and Katsunori Nagano | Implementation of an Optimized Control Strategy for Energy Storage Systems in HEMS (Home Energy Management System) in Cold Climate |
| 551 | Nan Wang and Giorgia Chinazzo | An Immersive VR-Based Workflow for Evaluating Automated Shading Control and Visual Aging Effects within Smart Cities |

Session 4 **4-7 Sustainable Building Materials and Circular Economy**
11:00 - 12:30 **Location: GFS 118 / Yumna Kurdi**

| Paper Number | Author | Title |
|--------------|--|---|
| 210 | Todd Walsh, Yumna Kurdi, Tharique De Silva and Bruce Haglund | Overcoming Construction Barriers to Mass Timber Adoption in the Inland Northwest: A Case Study of the ICCU Arena |
| 299 | Dongchan Jin, Young Uk Kim and Sumin Kim | Development and performance evaluation of recycled insulation materials from waste firefighting suits for fire-resistant building pipes |
| 302 | Won Duk Suh, Jihee Nam and Sumin Kim | Aging of indoor finishing materials under long-term temperature exposure: Focus on surface degradation and chemical oxidation |
| 326 | Jae Hyuck Jung, Young Uk Kim and Sumin Kim | Thermal performance of lightweight concrete with a novel aggregate from cement-coated recycled polyurethane foam impregnated with phase change material |
| 421 | Najah Majouri, Mohamed El Mankibi and Jalila Sghaier | Sustainable Fired Clay Composites with Root Palm and Diss Fibers for Energy-Efficient and Healthy Indoor Environments |
| 536 | Tannaz Afshar Bakeshloo, Azadeh Sawyer and Joshua Lee | Life Cycle Assessment of Building Deconstruction: Insights from Ten Projects |

Session 5 **5-1 Poster Session**
1:30 - 3:00 **Location: VHE Courtyard**

| Paper Number | Author | Title |
|--------------|---|--|
| 19 | Jong-Il Bang and Minki Sung | Disinfection Effectiveness of UR-UVGI for Airborne Bacteria Based on Equivalent Air Change Rate in a Multi-bed Patient Room |
| 27 | Jaekyoung Kim, Donghyun Koo, Taeyoon Kim, Dasom Hur and Seungkwon Jung | Development and Application of a Spatiotemporal Validation Method for CFD-based Analysis of Urban Heat Island and Thermal Comfort |
| 46 | Chun Han Li | Evaluation of Membrane-Based Dehumidification Systems: Pressure Permeance of Dry Air in Commercial and Composite Membranes |
| 52 | Jaekyoung Kim, Donghyun Koo, Taeyoon Kim, Samuel Park and Soonchul Kwon | Development of a predictive Model for Urban Cooling Blue Infrastructure using Integrated CFD and U-Net CNN |
| 53 | Suji Choi and Jaehun Jo | Operational Performance Indicators Based on Temporal Energy Use Patterns for Enhancing EUI |
| 56 | Katalin Fülep, Claudia Kopic and Martin Kriegel | Balancing Infection Risk and Energy Consumption in Hospitals: A Data-Driven Ventilation Strategy |
| 57 | Ali Moazzeni Khorasgani , Ghazal Asadi Eskandar | Sustainable Mycéliums Composites for Building Construction |
| 58 | Milad Jafari and Ehsan Mousavi | Data-driven approach for studying MRI units' energy consumption |
| 77 | Chih-Hao Chen | New Ionic Liquid for Liquid Desiccant Air Conditioning system |
| 142 | Jinkyun Cho, Jongwoon Song, Wonseok Oh, Sangwoo Byun, Jihyuk Ahn and Haram Kim | Engineering resilient ventilation systems for rapid-deployment medical isolation units |
| 151 | Jyun-De Liang and Cheng-Kai Hung | Design and Study of a Vapor Compression Cycle Household Dehumidifier Using Ionic Liquid Solution |
| 200 | Yi Chun Chu, Jia Kun Chen, Yan Cheng Chiang and Tzu I Tseng | Impact of Inlet Flaps on Ammonia Distribution in a Water-Pad Layer House: A Case Study in Yunlin, Taiwan |
| 234 | Shunsuke Fujitsubo, Yasuyuki Shiraishi, Yoshiaki Ushifusa and Masayuki Watanabe | Optimization of Annual Operation of a PV-HPWH-BT Cooperative System in an All-Electric House to Achieve Maximum Electricity Self-Sufficiency |
| 253 | Seun Lee, Kyu-Nam Rhee, Chul Kim and Eun Song Shin | Evaluation of empirical HVAC system sizing methods to identify energy performance impacts on code-compliant simulations |

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| 307 | Dong Yoon Park | Individual thermal comfort prediction using ensemble transfer learning and physiological signals under different physical characteristics |
| 312 | Sung Won Cho, Ji Hyun Yoo, Seung Rim Lee, Yi Zhou Wang and Jun Seok Park | Determining the Minimum Monitoring Period for Predicting Occupant behaviors related to manual control of Windows in Residential Buildings |
| 339 | Ye-Bin Shin, Deuk-Won Kim, Wangje Lee, Jae-Won Jeong and Min-Hwi Kim | Comparative Analysis of PCM- and Water-Based Thermal Energy Storage Units in a Photovoltaic and Thermal System for Residential Applications |
| 384 | Krzysztof Grygierek and Joanna Ferdyn-Grygierek | Impact of ventilation stacks on airflow in naturally ventilated buildings: simulation vs. measurements |
| 385 | Krzysztof Grygierek, Joanna Ferdyn-Grygierek, Stanisław Kocik and Aleksandra Lipczynska | Assessment of solar radiation distribution in indoor spaces for local thermal comfort evaluation |
| 399 | Kotoha Shin, Yasuyuki Shiraishi, Yoshiaki Ushifusa and Masayuki Watanabe | Optimization of Distributed Energy System Operation in All-Electric Districts with Electricity Sharing |
| 429 | Jeongil Kim, Takashi Kurabuchi, Sihwan Lee and Hayato Kiyosuke | Experimental Evaluation of Particle-Based Tracers for Indoor Ventilation Performance Assessment |
| 494 | Yi-Pin Lin, Tzu-Ling Huang, Chi-Ming Lai and Rong-Horng Chen | Ventilation and thermal performance of monitor roofs equipped with internally mounted PV-powered fans |
| 509 | Soroush Samareh Abolhassani, Alimohammad Sedaghat, Mojtaba Parsaee, David J.Sailor and Sami G. Al-Ghamdi | Building and Census-Tract-Scale Validation of a Coupled Urban Energy–Microclimate Digital Twin (CityDigitalTwin): Mobile Traverse Observations and Utility-Billing Benchmarking |
| 511 | Namchul Seong, Daeung Kim and Kyungmo Kang | Energy Saving of HVAC System Using Integrated Machine Learning Algorithm (IMLA) |
| 550 | Zhuoying Lin, Yi Fang, Marcus Young, Qin Xia, Caleb Kwon, Catherine Banach, Haoran Zhao, Tim Tyner, Stephanie Holm, Anabelle Garza, Arlette Garcia-Ramirez, Briseida Vasquez, Debra Manzo Garcia, Jesus Rivera, Amy Dryden, John Balmes, Brett Singer and Suzanne Paulson | Measured indoor particulate matter, black carbon, and oxidative potential before and after replacing gas with induction electric cooking in homes with a child with asthma |
| 561 | Anders Bjork, Ella Tucker and Charlie Thornton | Bridging New Air Cleaner Measurement Standards and Indoor Air Quality Simulation: An In-Progress Method in CONTAM |
| 569 | Hye-Gi Kim, Hye-Ry Shin, Han-Gyeong Chu, Doo-Sung Kim and Deuk-Woo Kim | Stepwise Address Matching Methodology for National-Scale Building Energy Database Integration |
| 628 | Saemi Shin and Joung Ryeul Sohn | Measurement of Fine Particulate Matter Concentrations and Time-Series Outlier Analysis at a Korean Screen golf course |
| 629 | Joung Ryeul Sohn and Saemi Shin | Comparative Analysis of Health Risks Associated with the Operation of Ventilation Systems in a School Kitchen |
| 640 | Jieun Han, Jeong Hoon Lee, Yoonhee Lee, Minjung Kim, Dongryul Park and Hyungho Park | Real-time Personalized Comfort Control Algorithm utilizing User Location and Machine Learning-based PMV Prediction |
| 647 | Kuo-Hsiung Lin, Tzu-Jui Huang, Jyun-Hao Jhu and Hung-Lung Chiang | Assessment of Volatile Organic Compound Emissions from Liquid Cleaners and Personal Care Products |

Session 6

6-1 Indoor Air Quality

3:30 - 5:00

Location: SGM 123 / Session chair: Ayça Tokuç

| Paper Number | Author | Title |
|--------------|---|---|
| 127 | Kiriti Sahoo, E V S Kiran Kumar Donthu and Siva Rama Krishna Evani | Role of portable-mechanical air ionisers on indoor air quality in Indian office buildings |
| 159 | Elham Hasani Alavy and Clifford B. Fedler | Safety Evaluation of Air Cleaner Technologies in the Building Sector |
| 354 | Yonca Yaman, Ayça Tokuç, Seda Nur Apdik, İrem Deniz, Azize Ayol, Gizem Tuna Tuygun, Tunahan Akış and Mehmet Akif Ezan | Beyond Filters: Evaluating Biotechnological Indoor Air Purification with Microalgae Systems |
| 408 | Semi Park, Rafi Uddin and Insung Kang | A state-of-the-air review and laboratory experiments of do-it-yourself (DIY) air cleaners |

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| 424 | Wenfeng Huang, Tong Lin and Jianshun Zhang | Modeling and Simulation of Indoor Aerosol Particle Behavior under Bipolar Ionization-Based Air Cleaning |
| 649 | Kuan-Lun Pan, Pei-Yun Shih, Zhen-Shuen Choo and Jo-Chen Hsu | Removal of isopropyl alcohol (IPA) in a semiconductor facility using ozone catalytic oxidation |

Session 6 6-2 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon

3:30 - 5:00 Location: SGM 124 / Session chair: Zineb Zoubir

| Paper Number | Author | Title |
|--------------|--|--|
| 38 | Alya Penta Agharid, Indra Permana, Fujen Wang and Chu-Cheng Wei | Energy Audit and Modeling for a Bank Management Office under Hot-Humid Climate |
| 196 | Mohamed Oualid Mghazli, Zoubir Zineb, Walid Maoute and Najat Oualine | A Comparative Building Energy Management System: Two Different Climatic Conditions, France and Morocco |
| 218 | Hyun-A Ko and Jong-Won Lee | Building Energy Performance Evaluation of Public Institutions Using the Korean Green Button System |
| 288 | Kentaro Suga and Ryoza Ooka | A Study on the Comfort and Energy Effectiveness of Passive Design Method - Case Studies using Detached House Model |
| 562 | Yizhou Yang and Qihua Duan | Predictive Control of Kinetic BIPV Fins for Comfort-Efficient Building Operation |
| 578 | Wooyoung Jung | Chain-of-Thought Prompting for Human-Centered Home Energy Management |

Session 6 6-3 Building Technology and Performance

3:30 - 5:00 Location: SGM 101 / Session chair: Zheng Tan

| Paper Number | Author | Title |
|--------------|--|---|
| 145 | Shu Han Liu, Meng-Chieh Jeffrey Lee, Yi-Chun Kuo and Tien-Chun Cheng | Impact of CO2 concentration on Elderly residential by EEG& ECG |
| 258 | Jialiang Guo, Ngoc Dung Ngo Hoang and Hilde Breesch | Outdoor Microclimate Variations and Indoor Thermal Stress: Summer Field Measurements in an Elderly Care Facility |
| 499 | Mohammad Saleh Nikoopayan Tak and Yanxiao Feng | The Naturalness Effect: Open-Database Analysis of Ventilated and Mechanically Cooled Spaces |
| 502 | Tsz Him Ian Chiu, Yijin Zhao and Julian Wang | Thermal Sensitivity and Biomarkers as Predictors of Individual Heat-Stress Vulnerability in Indoor Environments |
| 525 | Guancong Ren and Zheng Tan | Evaluating Walking Thermal Comfort in Urban Spaces Using Machine Learning: The Role of Physiological and Microclimate Factors |

Session 6 6-4 Health, Wellbeing, and Human Behaviors in the Built Environment

3:30 - 5:00 Location: GFS 116 / Session chair: June Young Park

| Paper Number | Author | Title |
|--------------|---|---|
| 164 | Shaymaa Al Marzouqi, Dongwoo Jason Yeom, Kamil Kaloush and Elham Fini | Daylight Timing, Natural Scent, and Outdoor View on Cognitive Performance in Office Settings |
| 173 | Mehmet Furkan Özbey, Dolaana Khovalyg, Neşe Alkan and Cihan Turhan | Effect of Mood States on Thermal Sensation: Cultural and Gender Differences in Türkiye and Switzerland |
| 248 | Taketo Suzuki and Tatsuya Hayashi | The relationship between worker's work style and wellness in activity-based working (ABW) offices |
| 360 | Negar Salahi and June Young Park | Investigating personal thermal comfort for wheelchair users using a non-intrusive wheelchair-based sensing |
| 439 | Xin Guo, Emanuel Boutros, Bing Guo, Sameeraa Soltanian-Zadeh and Jianshun Zhang | Personal Environmental Control Systems: How Occupants Interact under Different Temperature in Office Environments |
| 534 | Neda Ghaeili Ardabili and Julian Wang | Spectral Drivers of Circadian Daylight Performance in Architectural Glazing as a Function of Gaze Direction |

Session 6
3:30 - 5:00**6-5 Thermal Comfort****Location: GFS 101 / Session chair: Ali Ghahramani**

| Paper Number | Author | Title |
|--------------|--|--|
| 33 | Anwar Ibrahim, Ahmad Freewan and Majd Momani | Exploring Factors Influencing Occupant Behavior and Thermal Perception in Apartment Buildings: Irbid/Jordan as a case study |
| 44 | Wataru Umishio, Naoki Kagi, Isao Yamada, Lisa Yumae and Tomohiro Konda | Thermal Comfort and Productivity under Air Conditioning Control Based on Metabolic Rate Estimation from Thermal Images |
| 348 | Taeyeon Kim, Seheon Kim, Yingdao Nan and Jae-Weon Jeong | Data-Driven Estimation of Occupant Thermal Preferences from Air Conditioner Control Behavior in Residential Units |
| 447 | Kai Chen and Ali Ghahramani | Demonstrating Challenges in Predicting Occupant Temperature Setpoints: A Comparative Evaluation of Traditional and Transformer-Based Machine Learning Models |
| 464 | Ryota Iihara and Kazuyo Tsuzuki | Effects of Palms Cooling on the Human Body During Sleep in Hot Environments |
| 469 | Yijin Zhao and Julian Wang | How heat stress impairs cognition: A review of cognitive performance in indoor passive hyperthermal environments |

Session 6
3:30 - 5:00**6-6 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon****Location: GFS 118 / Session chair: Jinkyun Cho**

| Paper Number | Author | Title |
|--------------|---|--|
| 88 | Keisuke Kurobe and Hideki Tanaka | Simulation Analysis of District Heat Source Water Supply System Configuration for Urban Areas in Warm Climates |
| 108 | Soowon Chae, Yeonju Kang, Hyunmoon Cho, Kwonye Kim and Yujin Nam | Study on Reinforcement Learning-Based Control for PVT-Heat Pump Integrated Thermal Storage |
| 143 | Jinkyun Cho, Joo Hyun Moon, Sangwoo Byun and Jikyum Kim | Sustainable cooling solutions for high-density data centers: A numerical analysis of liquid cooling optimization |
| 166 | Chi Ling Liu and Yaw-Shyan Tsay | Development of an Integrated Decision-Support Platform for WBLCA in Early-Design Stage |
| 267 | Mohamed Dardir and Ali Khorasgani | Integrated Phase Change Materials and Solar Energy Generation for High-Performance Buildings in Extreme Weather |
| 547 | Wanyu Rengie Chan, Bijay Sharma, Brandon Bilzman, William Delp and Brett Singer | Methane Emission Measurements and Occupant Survey of Gas Appliances in California Homes |

Session 6
3:30 - 5:00**6-7 Climate Change Adaptation, Resilience, and Environmental Policy****Location: GFS 207 / Session chair: Max Ruffo**

| Paper Number | Author | Title |
|--------------|---|--|
| 63 | Yasuyuki Ishida, Shuhei Fujita, Wang Zheng, Miguel Yamamoto, Yusuke Hiraga and Ryotaro Tahara | Development of LCZ Mapping Method Combining GIS with Machine Learning |
| 104 | Subin Lin, Jason Leong, Boo Cheong Khoo and Hee Joo Poh | Aerodynamic Response and Ventilation Enhancement in Urban Street Canyons through Building Porosity: A Comparative Numerical and Experimental Study |
| 263 | Mana Nemati Aghdam and Manish Dixit | Empirical Fragility-Based Adjustment of Embodied Carbon Using Machine-Learning-Derived Post-Hurricane Fragility Data |
| 291 | Kanxuan He and Hongshan Guo | Data-driven cross-national climate zone classification for building codes: a future-compatible framework |
| 325 | Douaa Al-Assaad, Ilaria Pigliautile, Yanghao Cui, Ongun Kazanci, Jun Shinoda, Bjarne Olesen, Joyce Kim, Joo-Ho Choi, Wooyung Jung and Mariya Bivolarova | A classification scheme for exploring the role of wearable personalized environmental control systems (PECS) in a changing climate |

Session 6
3:30 - 5:00**6-8 Online Session****Location: GFS 107 / Session chair: Yihui Li**

| Paper Number | Author | Title |
|--------------|---|---|
| 61 | Enlian Zhang, Jin-Bin Im, Lijing Xu, Seo-Young Park and Ju-Hyung Kim | The Influence of Window Characteristics on Occupant Well-Being and Perception in Indoor Environments: A Review |
| 220 | Fahad Iqbal and Shayan Mirzabeigi | Comprehensive IoT-based Monitoring of Air Quality and Thermal Comfort: An Indoor-Outdoor University Campus Case Study |
| 227 | Naja Aqilah, Sheikh Ahmad Zaki, Noor Alam and Fitri Yakub | Environmental, Physiological, and Subjective Assessments of Thermal Comfort in a School Classroom |
| 480 | Sadia Israt Anam and Fan Zhang | Heart Rate Variability as a Marker of Cognitive Workload: Influence of Temperature and Task Complexity in Office Settings |
| 527 | Kátia Fugazza, Pedro Braga and Sylvia Meimaridou Rola | Architectural Retrofit and HVAC Modernization in Existing Hospitals: A Case Study of the Municipal Hospital Carlos Tortelly |
| 651 | Shuyi Chen, Yihu Zhang, Jun Xiao, Ziliang Wei, Hao Zhou, Yang Geng and Borong Lin | Seasonal and spatial differences of building occupancy profiles: Evidence from mobile data |

Day 4: 5/21/2026 (Thu)**Session 7**
11:00 - 12:30**7-1 Sponsored session by LG: Thermal Comfort****Location: SGM 101 / Session chair: Moon Keun Kim**

| Paper Number | Author | Title |
|--------------|--|---|
| 329 * | [Sponsor Team: LG] Jae-Hee Lee, Peter Schild, Moon Keun Kim, Saikee Oh, Sanghun Lee, Donghan Kim, Beomsoo Seo, Eunjun Cho and Trygve Eikevik | Field Evaluation of Multiple R290 Air-to-Water Heat Pumps in Cascade Operation Adapted to Nordic Climates |
| 29 | Kertu Kund, Raimo Simson, Alo Mikola, Kättriin Onemar and Jarek Kurnitski | Analysis of Circuit Connections and Control Strategies for Residential Air-to-Water Heat Pump Systems |
| 64 | Lorenzo Croci, Francesco D'Oria and Maria Francesca Talamo | Hybrid Heat Pump: Enabling Efficient Decarbonization of Existing Buildings |
| 297 | Sangmin Lee and Hyunwoo Lim | Optimal Load Shift Control Strategy for CHPWH system Based on Load Separation Method |
| 335 | Yujin Lee and Dae Uk Shin | System configuration and control process of a combined convective cooling and radiant floor heating system |
| 504 | Won-Jong Choi, Jae-Won Jeong and Min-Hwi Kim | Operational optimization of fifth-generation district heating and cooling systems with thermal energy storage for energy autonomy |

Session 7
11:00 - 12:30**7-2 Indoor Air Quality****Location: SGM 123 / Session chair: Lexuan Zhong**

| Paper Number | Author | Title |
|--------------|--|--|
| 107 | Chai Yoon Um, William Delp, Rowan Blacklock, Stefano Schiavon and Brett Singer | Measured influence of supply airflow rate and supply air temperature on air mixing time in a room with overhead mixed system |
| 201 | Karl-Villem Võsa, Martin Kiil, Raimo Simson, Alo Mikola and Jarek Kurnitski | Evaluating perceived stuffy air complaints through tracer gas experiments in a modern educational building in Estonia |
| 215 | Wenhao Chen, David Moore, Rosemary Castorina, McKenna Thompson, Kyle Peerless and Kazukiyo Kumagai | Comparison of Field Approaches for Characterizing Classroom Ventilation Rates (VRs) and Equivalent VRs for PM2.5 – A Case Analysis |
| 347 | Jurgis Zemitis, Marta Zemite, Arturs Palcikovskis, Heidi Salonen and Linda Mezule | Assessment of Microbial Growth in Ventilation Ducts of a Recently Renovated University Building |

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| 402 | Aysha Siddika and Aysegul Demir Dilsiz | Linking Global IAQ and Thermal Comfort Trends in Educational Spaces to LEED and AASHE STARS Ratings |
| 513 | Yi Fang, Haoran Zhao, Tim Tyner, Stephanie M. Holm, Brett C. Singer, Marion L. Russell, Anabelle Garza, Arlette Garcia-Ramirez, Briseida Vasquez, Debra Manzo Garcia, Jesus Rivera, John R. Balmes and Amy Dryden | Measured Indoor Nitrogen Oxides in Homes with a Child with Asthma and Gas or Induction Electric Cooking |

Session 7 7-3 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon

11:00 - 12:30 Location: SGM 124 / Session chair: Weibing Gong

| Paper Number | Author | Title |
|--------------|---|---|
| 195 | Alex Nwosu and James Hunter | “Standard Retrofit First: Scalable Energy Efficiency Strategies for Legacy Row Homes” |
| 203 | Yi-Ting Lai and Yaw-Shyan Tsay | Embodied Carbon Benchmarks for Residential Buildings in Taiwan |
| 293 | Muhammad Asim, Muhammad Furqan Siddiqui and Farooq Riaz Siddiqui | Retrofit Pathways for HVAC Decarbonization: A sustainable solution for harnessing ultra-low-grade waste heat for energy efficiency and net-zero buildings |
| 389 | Fatemeh Yazdandoust, Siddhartha Sen and Kamalesh Panthi | Energy Efficiency Solutions for Baltimore Housing |
| 394 | Mohammad Hamdan, Hamed Moradi, Paria Saadatjoo and Parham Mirzaei | Microclimate Building Energy Retrofitting: Assessing Urban Morphology Impacts on Cooling Demand and Carbon Emissions |
| 446 | Min-Gyu Shin, Hye-Jin Kim, Soo-Hwan Park and Dong-Hyun Seo | Development of Detailed EUI Benchmarks for South Korea’s Residential Building Stock |

Session 7 7-4 Building Technology and Performance

11:00 - 12:30 Location: GFS 116 / Session Chair: Brett Singer

| Paper Number | Author | Title |
|--------------|--|---|
| 83 | Tatsuya Miyata, Tatsu Kishida, Hiroki Ikeda, Yasuaki Kaneko, Shohei Miyata and Yasunori Akashi | Development of a High-Resolution Dynamic Emulator for a Chiller Plant and Its Application to Control Improvement |
| 84 | Myeongwon Chae, You-Jeong Kim and Yun Kyu Yi | Data-Driven Assessment of Air-Conditioning System Sizing Using Runtime and Indoor Humidity Performance |
| 95 | Flavia Barone, Loubna Ait Lahsen, Myriam Bahrar and Mohamed El Mankibi | Hybrid control strategies for energy efficiency, thermal comfort and indoor air quality in residential compact HVAC–DHW systems |
| 254 | Joud Al Dakheel, Mohamed El Mankibi, Myriam Bahrar and Nassim Sebaibi | Mind the Gap: Experimental Analysis of Mechanical Ventilation Under Variable and Fault Scenarios |
| 461 | Darwish Darwazeh, Narges Zaeri and Farzeen Rizvi | Operational Control and Air Mixing Fault Detection and Diagnostics in Rooftop Units |
| 490 | Haruka Kitagawa, Takuji Nakamura, Ko Shigemori, Sei Ito and Daisuke Sumiyoshi | Optimum Operation of a Heat Source System considering Bidirectional Heat Interchange among Multiple Buildings |

Session 7 7-5 Health, Wellbeing, and Human Behaviors in the Built Environment

11:00 - 12:30 Location: GFS 101 / Session chair: Yumna Kurdi

| Paper Number | Author | Title |
|--------------|---|--|
| 20 | Wooyoung Jung, Prosper Babon-Ayeng, Kevin Keene, Sophia Witt and Jessica Baweja | Do Common Performance Metrics in Indoor Environmental Quality Research Represent Actual Office Work? A Survey-Based Assessment |
| 102 | Fariza Sabit, Christian Rodriguez, Eric Ravussin and Dolaana Khovalyg | Modeling the circadian dynamics of resting energy expenditure for the built environment |
| 162 | Shaymaa Al Marzouqi, Dongwoo Jason Yeom, Kamil Kaloush and Elham Fini | Daylight Timing and Natural Scent on Cognitive Performance in Office Settings without Outdoor View |

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| 412 | Hernan Rosas, Ming Hu and Edward Bernat | Advancing Pathways To Occupant Mental Wellbeing: Mapping Attention Restoration and Stress Reduction in Biophilic Design to a Validated Mental Health Framework |
| 413 | Andrew Cook and Yumna Kurdi | Applying Technology to Learning: Visualizing Environmental Data Through Augmented Reality |
| 526 | Jinmog Han and Yunjeong Mo | A design-oriented framework for smart home energy management system interfaces to support energy-saving occupant behavior |

Session 7 **7-6 Smart Cities and Green Infrastructure**
11:00 - 12:30 **Location: GFS 207 / Session chair: Soowon Chang**

| Paper Number | Author | Title |
|--------------|--|---|
| 209 | Dahyun Oh and Soowon Chang | Transportation Infrastructure Innovation through Optimal Solar PV Deployment Planning in DOT Facilities and Right-of-Way using a Geographic Information System-based Multi-Criteria Decision Making |
| 388 | Vimal Preet, Dr. P.S. Chani and Dr. Sandeep Agarwal | The Role of Urban Form and Green Cover in Residential Energy Consumption: A Pilot Study of Sector 22, Chandigarh |
| 460 | Cosimo Damiano Carpentiere, Riccardo Carnevale and Umberto Berardi | Enhancing Transparency and Sustainability in Urban Ventilation Systems through Blockchain, IoT, and AI: Case Studies from Seoul, Tokyo, Beijing, Dubai, São Paulo, and Sydney |
| 470 | Hayoung Kim and Soowon Chang | Integrated Building-Grid Modeling: A Co-Simulation Framework for Dynamic Reliability Assessment |
| 505 | Chenshun Chen, Mohammad Elmi and Julian Wang | Glazing Façade Design for Energy-Efficient Buildings, Improved Thermal Comfort and UHI Mitigation in Dense Urban Center |
| 653 | Xindan Kang, Karen M. Kensek, John Wilson, Joon-Ho Choi | Tree Shading, Solar Radiation, and GIS-Examining the effect of tree shading on sidewalk heat reduction |

Session 7 **7-7 Indoor Air Quality**
11:00 - 12:30 **Location: GFS 118 / Session chair: Insung Kang**

| Paper Number | Author | Title |
|--------------|--|--|
| 190 | Loubna Ait Lahsen, Flavia Barone, Myriam Bahrar and Mohamed El Mankibi | In-situ assessment of a multifunctional compact system (MCS) in a low energy residential test facility: A comparative study |
| 309 | Jeong-Min Oh, Ju-Hyun Lee, Seheon Kim and Jae-Weon Jeong | Application of Hollow Fiber Membrane Humidifier in Residential EHP Systems for Indoor Air Quality in Winter |
| 398 | Sudharshan Anandan, Andres Barrio-Zhang, Akshay Deolia, Tyler Hughes, Sohun Sodhi, Jae Hong Park, Ryan Wagner, Arezoo Ardekani and David Warsinger | Acoustically assisted fibrous filtration for enhanced particle capture |
| 404 | Semi Park and Insung Kang | Low- and no-cost ventilation strategies to reduce indoor cooking emissions: a case study of natural ventilation, window fans and kitchen hoods |
| 555 | Wanyu Rengie Chan, Marion Russell, Jiayu Li and Pradeep Prathibha | Measurements of Volatile Organic Compounds and Polycyclic Aromatic Hydrocarbons in 10 Commercial Kitchens |

Session 8 **8-1 Indoor Air Quality**
1:30 - 3:00 **Location: SGM 123 / Session chair: Rahman Azari**

| Paper Number | Author | Title |
|--------------|---|---|
| 117 | Kazuyo Tsuzuki and Yuki Nabeshima | Effects of humidity on skin temperature and sleep variables of young men during sleeping period |
| 206 | Rosemary Castorina, Karla Vargas, Flavia Wong, Zhong-Min Wang, Aditya Simha, Elizabeth Noth, Asa Bradman and Kazukiyo Kumagai | Residential Volatile Organic Compounds (VOC) Measurements in the San Joaquin Valley: Findings from the SPHERE Study |

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| 207 | Hemakshat Sharma, Rosemary Castorina, Charles Perrino, Tanmayi Amanchi, Kazukiyo Kumagai, Asa Bradman and Elizabeth Noth | Stockton school-aged children's exposures to polycyclic aromatic hydrocarbons (PAHs) |
| 367 | Dong Kyu Lee, Ji Hyeok Son, Sukumar Nartarjan and Woong June Chung | Analysis of the correlation between particulate matter and microplastics according to particle size |
| 495 | Shuo-Hsuan Chang, Yuto Morishita, Ji Yoon Bae, Dorit Aviv, William Braham and Jihun Kim | CALM (Clay-based Air-treating Living wall Module): Passive Cooling and VOC Removal |

Session 8 **8-2 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon**
1:30 - 3:00 **Location: SGM 124 / Session chair: Takao Katsura**

| Paper Number | Author | Title |
|--------------|---|---|
| 39 | Kiho Tanaka, Makiko Ukai and Sihwan Lee | Performance evaluation of an office-integrated cultivation room utilizing human-emitted CO2 for sustainable building-integrated agriculture |
| 92 | Arianna Peduzzi, Roberta Jacoby Cureau, Claudia Fabiani, Adriana Ciardiello, Maria Francesca Talamo, Veronica Lucia Castaldo and Anna Laura Pisello | Passive energy retrofit strategies for historic buildings: A systematic review of innovative and non-invasive solutions |
| 189 | Zahra Salehi | Agrivoltaics as a Renewable Energy and Green Infrastructure Strategy for Enhancing Thermal Comfort, Energy Efficiency, and Climate Resilience |
| 508 | Xu Liu and Julian Wang | Spectral-Selective Glazing Strategies for Energy-Efficient and Adaptive Building Envelopes |
| 517 | Takao Katsura, Erkki Hirvonen, Kanato Kimura, Takaharu Matsui, Kentaro Sekine, Kazuyoshi Harimoto, Miyuki Watanabe and Katsunori Nagano | Improvement of thermal insulation performance of transparent vacuum insulation panels and in-situ performance test |
| 544 | Mohammad Elmi, Siddharth Jayakrishnan Jayakrishnan, Adam Muhammad and Julian Wang | An Experimental Analysis of Photothermal Nanocoatings for Greenhouse Energy Efficiency |

Session 8 **8-3 Building Technology and Performance**
1:30 - 3:00 **Location: SGM 101 / Session chair: Xiang (Jason) Zhang**

| Paper Number | Author | Title |
|--------------|--|---|
| 122 | Xue Cui, Minhyun Lee, Xuange Zhang, Mohammad Nyme Uddin and Junjiang Luo | Time-series forecasting of indoor temperature: Toward sensor-free occupant-centric HVAC control |
| 179 | Jincheng Dai, Ryoza Ooka, Chao Lin, Ken Takahashi and Shintaro Ikeda | Developing a surrogate RC Model for Optimal HVAC Control Applications in Modelica-Based Building Digital Twin |
| 205 | Eunwan Kim, Jeonghoon Choi and Dongjun Suh | Camera-Only Unsupervised Visual Anomaly Detection for IEQ-Oriented Building Operations |
| 278 | Mahdi Bonyani, Maryam Soleymani and Chao Wang | A Physics-Informed Modeling of Data Center Cooling and Self-Supervised Learning-Based Autoencoder for Fault Detection and Diagnosis |
| 518 | Yihui Li, Zhexuan Yu, Jun Xiao, Hao Zhou and Borong Lin | Physics-Embedded Transfer Learning Graph Neural Network for Building Energy Prediction |

Session 8 **8-4 Health, Wellbeing, and Human Behaviors in the Built Environment**
1:30 - 3:00 **Location: GFS 207 / Session chair: Josephine Lau**

| Paper Number | Author | Title |
|--------------|--|--|
| 287 | Zhao Dong, Jian Ge, Jiaqi Wang, Kang Zhao and Isabelle Y.S. Chan | The impact of tangible and intangible factors on occupants' satisfaction with the indoor environment: A machine learning-driven analysis |
| 316 | Jongwon Lee | Does Building Retrofit Program for Low-Income Households Really Create Healthy Homes? |
| 450 | Xianzhun Zhong, Yongxin Xie and Jianlei Niu | Calibration of the sweating function in a multi-node thermoregulation model based on chamber experiment |

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| 474 | Shaofang Xu, Giovanni Calzolari, Jilong Wang, Jianlin Ren, Fei Liu, Bin Lu, Qiang Li, Wei Liu, Junjie Liu and Tengfei Zhang | Efficient reconstruction of the atmospheric boundary layer in spatially constrained wind tunnels |
| 524 | Sreelakshmi Kavuthimadathil and Satish Bk | Towards Adaptive, human-centric lighting: Limitations of Subjective Measures and a multimodal framework |
| 652 | Xindan Kang, Karen M. Kensek, John Wilson, Joon-Ho Choi | Tree Shading, Solar Radiation, and GIS-Examining the effect of tree shading on sidewalk heat reduction |

Session 8 8-5 Generative AI in Sustainable Built Environment

1:30 - 3:00 Location: GFS 101 / Session chair: Mojtaba Parsaee

| Paper Number | Author | Title |
|--------------|---|---|
| 114 | Mojtaba Parsaee, Tarlan Abazari and Soroush Samareh Abolhassani | Towards AI-driven Digital Twins and Cyber-Physical-Social Systems for Circular Disaster Management: Developing A Multi-Agent Debris Life Cycle Simulation Framework |
| 184 | Carlos Faubel, Derian Mowen, Marjan Miri, Ursula Demarquet Alban, Antonio Martinez-Molina and Miltiadis Alamaniotis | Fusing visual and sensor data with multimodal transformers for indoor environmental quality assessment in educational settings |
| 368 | Yasaman Norouzi and Manish Kumar Dixit | Forecasting the U.S. Residential Renewable Electricity Mix: A Time-Series Approach for 50-Year Building GWP Projections (1949–2080) |
| 485 | Xinyue Zhang and Weirong Zhang | Augmentation Framework for HVAC Fault Diagnosis Based on Denoising Diffusion Models |
| 503 | Wooyoung Jung and Namgyun Kim | Multi-Agent AI Learning Assistant for Human Building Interaction: System Architecture and Preliminary Performance |

Session 8 8-6 Indoor Air Quality

1:30 - 3:00 Location: GFS 118 / Session chair: Trond Thorgeir Harsem

| Paper Number | Author | Title |
|--------------|--|--|
| 116 | Emmanuel Aghimien, Ajla Aksamija and Timothy Adekunle | Indoor Environmental Quality in a Mid-Century Research Laboratory Building |
| 147 | Youngbo Won, Wenhao Chen, Zhong-Min Wang, Jeff Wagner and Kazukiyo Kumagai | How Ventilation and Air Cleaning Strategies Affect Classroom PM _{2.5} and CO ₂ under Normal and Wildfire Conditions? – A CONTAM Simulation Study |
| 158 | Shikang Wen and Qingyan Chen | Field investigation of the impact of different terminal devices on thermal comfort and ventilation uniformity |
| 353 | Trond Thorgeir Harsem, Bente Hellum, Haakon Flaarønning, Marie Heistad and Mina Andrea Torvanger | Influence of Surgical Staff Movement on Airborne Particle Concentrations in Operating Rooms with Laminar and Mixing Ventilation |
| 417 | Hassan Kotb Ali, Yunus Emre Cetin and Martin Kriegel | Air Curtain Intervention to Reduce Air Exchange Between Operating Rooms and Anterooms |

Session 8 8-7 Panel Discussion

1:30 - 3:00 Location: GFS 116 / Session chair: Dolaana Khovalyg

| Paper Number | Author | Title |
|--------------|---|---|
| 596 | Dolaana Khovalyg, Minyoung Kwon, Matteo Bilardo, Cristina Piselli | Personalized Environmental Control Systems (PECS): Multi-Dimensional Trade-Offs in New and Existing Buildings |

Session 9 9-1 Indoor Air Quality**3:30 - 5:00 Location: SGM 123 / Session chair: Ali Alexander Nour Eddine**

| Paper Number | Author | Title |
|--------------|--|---|
| 12 | Abdollah Baghaei Daemei, Zhenan Feng and Daniel Paes | Assessing the Effectiveness of Game-Based Learning Versus Video-Based Learning for Mold Prevention Education |
| 32 | Zohreh Kiani, Kátia Cordeiro Mendonça, Ali Alexander Nour Eddine and Marc Abadie | Does numerical simulation reproduce reality? A comparative assessment of indoor environmental quality in multifamily buildings |
| 240 | Soo-min Jeong, Bon Seo and Su-Gwang Jeong | Controlled sustained release of natural volatile organic compounds from phytoncide emulsion-zeolite composites via surfactant hydrophilic-lipophilic balance adjustment |
| 370 | Divine Agbobli, Yunjeong Mo and Cristina Poleacovschi | A Review of the Factors Influencing Adoption and Abandonment of Indoor Air Quality Improvement Strategies |
| 425 | Mina Lesan, Avijit Sarker, Saeid Chahardoli, Yi Xiao and Arup Bhattacharya | Adaptive Placement of Portable Air Cleaners under Changing Contaminant Sources |
| 453 | Kumar Naddunuri and Shankha Pratim Bhattacharya | Assessing the energy saving potential of personalized ventilation system |

Session 9 9-2 Energy Efficiency, Conservation, Renewable Energy, and Embodied Carbon**3:30 - 5:00 Location: SGM 124 / Session chair: Max Ruffo**

| Paper Number | Author | Title |
|--------------|---|---|
| 231 | Francesca Vecchi, Simona Semeraro, Roberto Stasi and Umberto Berardi | Modelling the Adoption of Renewable Energy Communities in Urban Districts: An Agent-Based Approach |
| 238 | Bon Seo, Soo-min Jeong and Su-Gwang Jeong | Analysis of determinants of building energy use in Seoul through clustering and regression, and proposal of tailored energy policies |
| 289 | Hisato Osawa and Taro Mori | Development of a WebGIS for Visualizing Building Energy Consumption and Renewable Energy Potential: Automated Generation of 3D Building Models Using GIS Data |
| 486 | Zhiyan Jin and Weirong Zhang | System Performances Comparative Analysis of PV-Battery Systems for Rural Buildings Between Electrochemical and Mathematical Aging Battery Models |
| 512 | Nida Batool Sheikh, Muhammad Mashhood Arif, Jelle Laverge and Marc Delghust | Residential Energy and Transport Coupling for Neighbourhood Decarbonization in Transit-Oriented Development |
| 582 | Dongwoo Kim, Tae Kon Kim, Seung Hoon Choi, Dageong Jeong, Kwangho Lee, Min Hwi Kim and Deuk Won Kim | Development and Performance Evaluation of a Thermal Energy Prosumer System Using EnergyPlus-Based Simulation During the Cooling |

Session 9 9-3 Building Technology and Performance**3:30 - 5:00 Location: SGM 101 / Session chair: Vimal Preet**

| Paper Number | Author | Title |
|--------------|---|---|
| 80 | Xianzhe Yang, Akihito Ozaki, Seonghwan Yoon, Sung-Jun Yoo, Younhee Choi and Yusuke Arima | Thermal environment prediction in a large open office space with complex air-conditioning system using dynamic coupled BES-CFD |
| 167 | Ayane Fujiwara, Hideki Tanaka, Shusaku Mizuta, Terutake Furuta and Fumiharu Oba | Operational Performance of a Small-Scale NZEB Office and Effective Utilization of Photovoltaic Surplus Power on Non-Business Days using Base Air-Conditioning |
| 386 | Chengbo Du, Bess Krietemeyer, Bing Dong, Nina Wilson, Peng Gao, Tong Lin and Jianshun Zhang | Green Design Studio: A Modular Interface for Multi-Scale Building Performance Simulation in Architectural Practice |
| 410 | Jun-Sub Kim, Seong Woo Park, Jeong Won Kim and Hyeun Jun Moon | Building Genome Analysis for Integrated Indoor Environmental Quality and Energy Performance in a Commercial Building |
| 420 | Lindsay Li Chen Hu, Sicheng Zhan and Leslie Keith Norford | Towards cost-effective energy savings: Learnings from non-invasive occupant-centric control implementation in an office building |

654 Xuewen Quan, Karen M. Kensek, Sathyanaraya Raghavachary, Haonan Wang Toward AI in AECO: Integrating BIM Facility Data with an LLM-RAG Framework

Session 9 9-4 Climate Change Adaptation, Resilience, and Environmental Policy

3:30 - 5:00 Location: GFS 207 / Session chair: Wanyu Rengjie Chan

| Paper Number | Author | Title |
|--------------|---|--|
| 208 | Quang Van Tran, Farzad Hashemi, Parisa Najafian and Esteban Ochoa Lopez | Roof Retrofit Scenarios for Thermally Vulnerable Homes: A CFD-Based Evaluation of Indoor Comfort and Air Quality in San Antonio, Texas |
| 264 | Mana Nemati Aghdam and Manish Dixit | Integrated LCA and Energy Simulation for Envelope Decisions: Climate-Dependent Results |
| 266 | Mohamed Dardir, Jeffrey Wilson and Umberto Berardi | Natural Infrastructure for Health and Environmental Risk Mitigation |
| 372 | Maryam Meshkinkiya and Farzad Hashemi | Beyond Numerical Features: Mixed-Type Clustering of Urban Building Archetypes Using Hierarchical and K-prototypes Methods |
| 414 | Maryam Abbasi Kamazani and Manish K. Dixit | AI-driven and simulation-based multi-objective building envelope optimization: strengths, limitations, and gaps |

Session 9 9-5 Visual (Lighting and Daylighting) Quality and Accustic Quality

3:30 - 5:00 Location: GFS 107 / Session chair: Azadeh Sawyer

| Paper Number | Author | Title |
|--------------|---|---|
| 152 | Haerin Yang, Minwoo Kim and Jeehwan Lee | A Multi-Layered Daylighting Assessment of LEED Certified Buildings |
| 172 | Bahereh Vojdani, Deok-Oh Woo and Andressa Martinez | Assessing Architect-Friendly Daylighting Feedback from LLaMA: A Zero- and Few-Shot Evaluation of an LLM Approach |
| 255 | Dongwoo Lee, Manal Anis, Donghyeok Choi, Hyungsub Kim and Yun Kyu Yi | Developing an Outdoor View Evaluation Method for Complex Shading Systems |
| 409 | Won Hee Ko, Luis Santos, Michael Kent, Hanwook Kim and Nehal Nagarjun | How View Content Determine Minimum Window Size and Energy Implications: Evidence from Virtual Reality Experiments |
| 531 | Niloofer Nikookar and Azadeh O. Sawyer | An AI-Driven Affective Lighting System for Stress Reduction and Satisfaction in Office Environments. |

Session 9 9-6 Indoor Air Quality

3:30 - 5:00 Location: GFS 101 / Session chair: Michael Sohn

| Paper Number | Author | Title |
|--------------|--|--|
| 34 | Jing Wu, Dahai Qi and Lexuan Zhong | Wildfire Smoke Alters Particle Size Distributions Indoors and Outdoors in an Urban Office Building |
| 319 | Michael Sohn, Ruoyu Lan, Marion Russell and David Lorenzetti | Ventilation and Filtration Tradeoffs for Increasing Building Protection from Outdoor Aerosols |
| 514 | Yi Fang, Haoran Zhao, Tim Tyner, Stephanie M. Holm, Brett C. Singer, Anabelle Garza, Arlette Garcia-Ramirez, Briseida Vasquez, Debra Manzo Garcia, Jesus Rivera, John R. Balmes and Amy Dryden | Range Hood Use and Effectiveness in Reducing Indoor Air Pollution During Gas and Induction Cooking |
| 516 | Mingyao Yao and Chenchen Shi | Health Implications of Air Pollution in Metro Stations in China |
| 580 | Elham Hasani Alavy, Mahsa Khanpoor Siahdarka, Zahra Qavidelfardi and Faeghe Rahnama | Lessons from the Post Occupancy Evaluation of the Indoor Learning Environments: A Review |

Session 9
3:30 - 5:00

9-7 Panel Discussion: IES
Location: GFS 118 / Session chair: TBD

| Paper Number | Author | Title |
|--------------|--------|-------|
| TBD | | |

Session 9
3:30 - 5:00

9-8 Special session: Elsevier
Location: GFS 116

| Paper Number | Speaker | Title |
|--------------|-----------------------|-------|
| N/A | Natalie Lee, Elsevier | |