台灣氣膠研究學會

Taiwan Association for Aerosol Research

November, 2025.

99

CONTENTS

TAAR Newsletter is a quarterly publication by the Taiwan Association for Aerosol Research

Publisher	Shih-Chun Lung
Editors	Hsiao-Chi Chuang, Li-Te Chang, Yu-Chun Wang, Chang-Feng Ou-Yang Chih-Wei Lin, Wei-Ren Ke, Pei-Ying Cai
Date	November 14 2025
Website	https://www.taar.org.tw/
E-mail	taarasst@gmail.com

Calendar of Events

Date
1–4 December, 2025

Conferences
14th Asian Aerosol Conference (AAC 2025)

Location
Mumbai, India

Website
https://aacindia2025.in/

Date
30 August–5 September, 2026

Conferences
12th International Aerosol Conference (IAC 2026)

Location
Xi'an, China

Website
https://iac2026.csp.org.cn/?sid=3742&mid=954&v=100

Date
5-10 September, 2027

Conferences
2027 European Aerosol Conference (EAC 2027)

Location
Ljubljana, Slovenia

Website
https://eac2027.si/

In Memoriam: Otto Klemm

The Editorial Board of Aerosol and Air Quality Research (AAQR) mourns the loss of fellow board member and researcher Prof. Otto Klemm (1959-2025), who passed away recently having already contributed greatly to the scientific community, but was still active in research and eager to contribute more.

While a Professor at the University of Münster in Germany for more than 20 years, Otto contributed numerous articles across many journals, including AAQR, on aerosols, micrometeorology, climatology, urban air quality, and most characteristically fog. For nearly as long as his tenure at University of Münster, Otto had also been coming to Taiwan to either cultivate and continue research collaborations or to lead German student excursions with a focus on knowledge and culture exchange. In 2024, Otto had even begun a transition from University of Münster to National Central University in Taiwan where he had funding and was recruiting a team to continue his research. It was clear that Otto was not ready to stop forging ahead with his research.

In addition to his Editor position, Otto contributed to eight articles in AAQR, including one that was accepted just weeks before he passed away. In one article titled *Chemical Composition of Fog Water at Four Sites in Taiwan* (Simon et al., 2016; https://link.springer.com/article/10.4209/aaqr.2015.03.0154), Otto facilitated an expansive analysis of fog across sites in Taiwan and drew precise chemical distinctions of fog according to elevation and pollution exposure.

In a prescient AAQR article titled *What Causes Observed Fog Trends: Air Quality or Climate Change?* (Klemm and Lin, 2016; https://link.springer.com/article/10.4209/aaqr.2015.05.0353), Otto revealed the nonlinear – with a dependence on improving air quality – but definite impact of a warming climate to reduce fog frequency. He asked tough questions and frankly laid out the complex interplay within the answer reminding us that there are often not straight-forward trends resulting from climate change.

In his most recent article for AAQR titled *Visibility Reduction in Fog: The Role of Activation* (Klemm et al., *in press*), Otto highlighted the key role of droplet activation in fog formation and detailed the increasing role of activation as particle pollution decreases in many regions of the world. And as a parting recommendation, Otto emphasized the need to always measure droplet size distribution during field campaigns going forward to more fully understand the trends in fog formation amidst climate change and emission reductions.

It is with a heavy heart that we say goodbye to Otto Klemm, a dedicated researcher who believed in sharing science and culture across borders and between faraway places. Otto's contributions to AAQR are deeply felt with his highly value editorial guidance and his articles still widely read and cited today.

32nd International Conference on Aerosol Science and Technology (2025 ICAST)

The 32nd International Conference on Aerosol Science and Technology (ICAST 2025) was grandly held at the International Conference Hall of National Cheng Kung University (NCKU) from September 19 to 20, 2025. With the theme “TWIN AI — Aerosol Investigation and Artificial Intelligence,” the conference was co-organized by the Taiwan Association for Aerosol Research and NCKU’s Department of Environmental Engineering, under the guidance of the Ministry of Environment (MoE), the Institute of Labor, Occupational Safety and Health (ILOSH), the National Science and Technology Council (NSTC), and the Chemicals Administration. The event successfully gathered 45 scholars and experts from 12 countries, who came together to explore innovative developments in aerosol science in the era of artificial intelligence.

- **Entrance of the 2025 ICAST venue**

With the rapid advancement of AI technologies in air quality monitoring, pollution transport prediction, and health risk assessment, aerosol science is entering an unprecedented era of transformation. Centered on the integration of AI and aerosol science, ICAST 2025 fostered cross-disciplinary discussions spanning technology, policy, and applications.

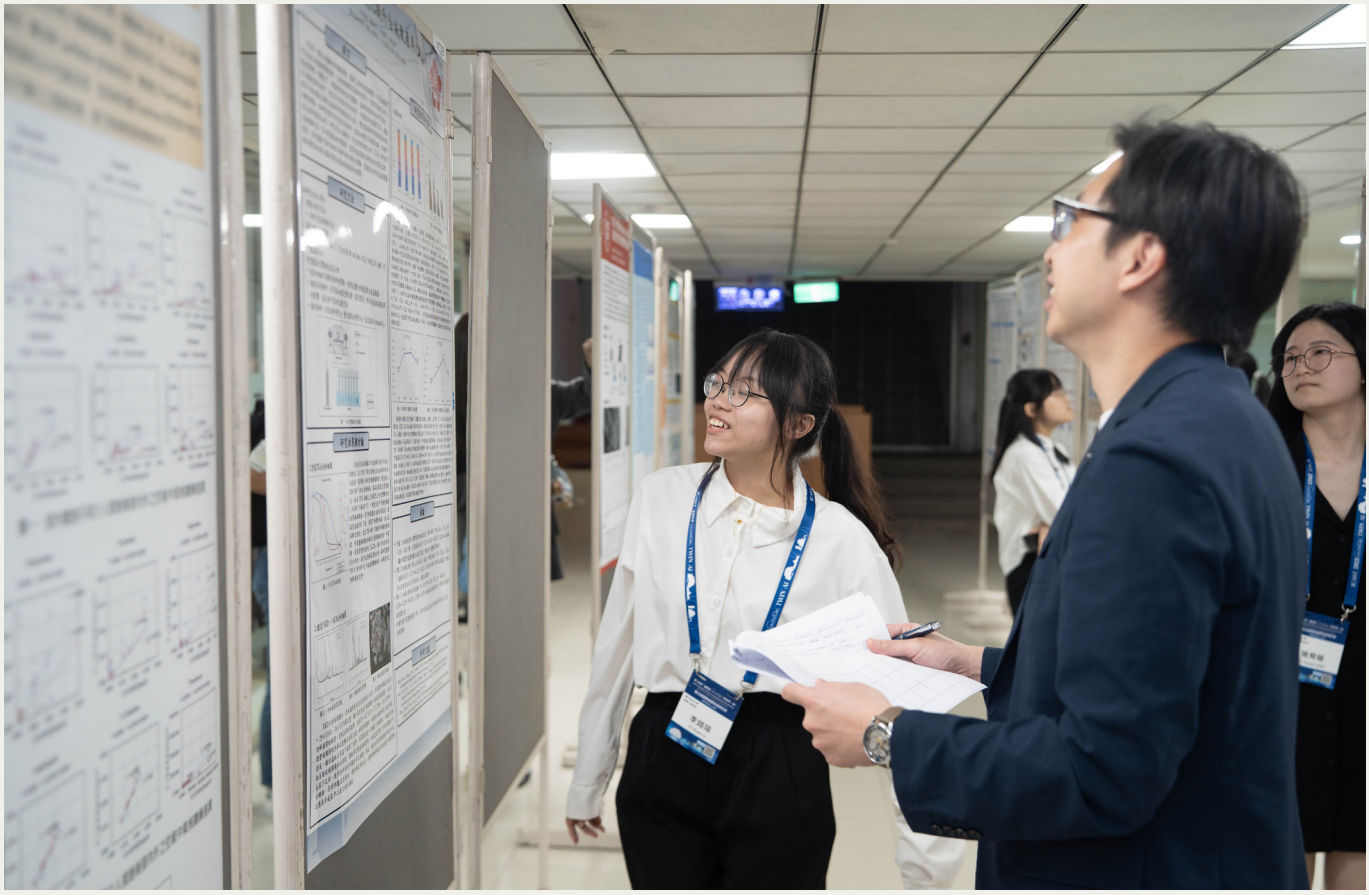
The opening ceremony featured Dr. Chi-Ming Peng, Minister of Environment, who delivered a keynote on the “White Paper on Air Quality Policy” and its implementation roadmap. A Policy and Practice Forum on Air Pollution Control was also held jointly with the Department of Air Quality Protection, bringing together representatives from central and local environmental agencies as well as industry experts to exchange insights on the progress and challenges of the nation’s Third-Phase Air Pollution Control Program.

- **Dr. Chi-Ming Peng delivering remarks and keynote speech**

The two-day conference featured a rich program, including five plenary talks, eleven thematic sessions, and three international sub-forums, covering topics such as AI-driven pollution control, chemical detection, sensor development, and environmental health monitoring. Renowned international scholars, including Prof. Zhi Ning (Hong Kong University of Science and Technology), Prof. Mizuho Kajino (University of Tsukuba, Japan), Prof. Renyi Zhang (Texas A&M University, USA), and Prof. Yoko Iwamoto (Hiroshima University, Japan), shared cutting-edge research and technological trends.

In addition, several sessions focused on the characteristics and control strategies of emerging contaminants such as PFAS, OPEs, and ECs in aerosol transport, showcasing Taiwan's growing research strength in cross-media pollution and AI-based environmental applications.

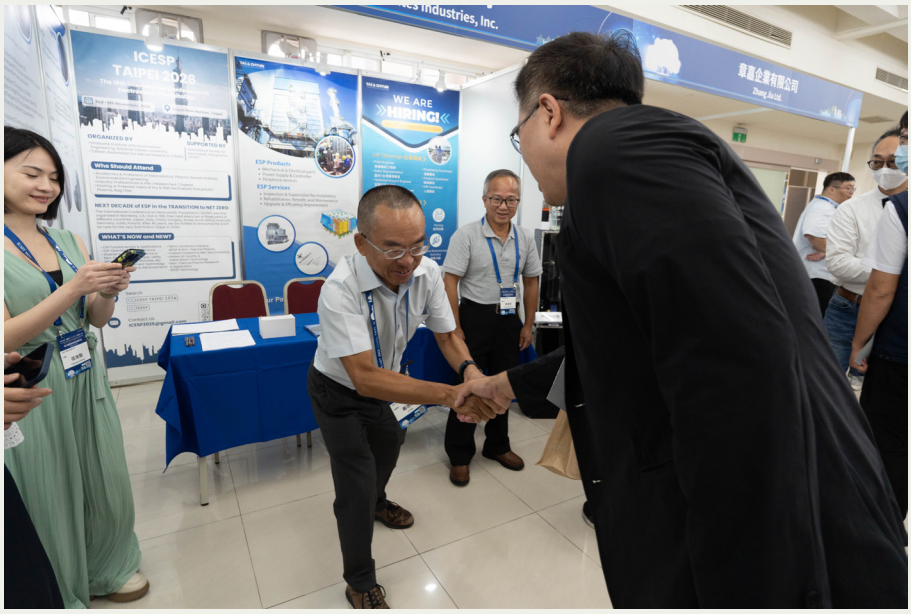
This year's ICAST received 190 academic contributions, including 123 oral presentations and 67 poster presentations, spanning diverse topics such as aerosol science, green energy, occupational health, AI modeling, and environmental monitoring. To encourage young researchers, student poster and English short-talk competitions were held, accompanied by popularity voting and an award ceremony celebrating innovation and international exchange.



- **Poster Competition**

ICAST 2025 also implemented a fully digital conference management system, introducing the ACCUPASS smart check-in platform for the first time. Participants could register via electronic passes, enabling real-time attendance tracking, improving efficiency, and reducing paper waste. All abstracts were compiled into an electronic proceedings volume available for permanent download, setting a new benchmark for “smart administration and sustainable conferencing.”

- **ACCUPASS check-in staff**



- **Distinguished guests visiting ICAST 2025 exhibition booths**

The event also featured an Aerosol Technology Exhibition Zone, where 13 research institutions and industry exhibitors showcased the latest monitoring equipment and AI-based solutions. Among them, the cross-project KPEx exhibition promoted collaboration and knowledge exchange among related research programs.

An evening networking banquet provided a valuable platform for academic–industrial interaction and included the presentation of several prestigious awards, such as the Chiu-sen Award and the Best Paper Award, honoring outstanding contributions to aerosol science and technology.

- **Banquet**

In line with the green meeting concept, ICAST 2025 provided reusable water bottles and eco-friendly souvenirs, while all conference materials and abstracts were digitized and made available online to minimize paper use. The venue's design incorporated thematic banners, visual displays, and a cohesive visual identity, creating a professional yet sustainable conference atmosphere.

- **Conference souvenirs**

Throughout the two-day event, participants from various fields and regions engaged in in-depth discussions on AI applications in aerosol monitoring, pollution control, and occupational health. ICAST 2025 not only strengthened Taiwan's position in the international aerosol science community but also offered new perspectives for integrating AI into environmental governance and health risk assessment.

As the conference concluded successfully, the organizers expressed hope that this gathering would continue to strengthen research collaboration across the Asia–Pacific region, promote the integration of aerosol science, artificial intelligence, and occupational safety, and contribute to the global pursuit of net-zero carbon emissions and sustainable development by 2050.

- **Group photo at the closing ceremony**

2025 Tour for Youth Aerosol Scientist

The “2025 Tour for Youth Aerosol Scientists” was organized by the Taiwan Association for Aerosol Research, hosted by National Cheng Kung University, and co-organized by the Aerosol Science Research Center of National Sun Yat-sen University, with guidance from the Ministry of Environment and the Ministry of Education. This program offered participants aerosol science courses, hands-on workshops, and visits to academic research units and accredited laboratories, enabling them to gain a comprehensive understanding of the applications of aerosol science and technology across various fields, while enhancing their professional knowledge and practical skills. It also fostered academic exchange and interaction among young scholars from both domestic and international institutions.

During the program, participants had the opportunity to deepen their understanding of aerosol science developments in Taiwan and abroad, explore the latest research in different aerosol-related fields, and learn about the development of aerosol-related industries, providing valuable insights for future career planning. Through interactions and exchanges among participants from various institutions, the program also helped cultivate a new generation of professionals who may pursue careers in academia, government, or industry, thereby achieving the program’s objectives.

A total of 30 participants attended, representing the National Health Research Institutes, National Taiwan University, National Cheng Kung University, National Central University, National Pingtung University of Science and Technology, National Yang Ming Chiao Tung University, and Chung Yuan Christian University. The participants included one student each from Vietnam, India, and Pakistan, highlighting the international exchange and diverse learning opportunities provided by the program.

Activity photos

- **Lecture by Prof. Hsun-Ling Bai**

- **Lecture by Prof. Chung-Sying Lu**

- **Opening Remarks by Director Chia C. Wang**

- **Remarks by Prof. Ming-Yeng Lin**

Activity photos

- **Visiting the Aerosol Science Research Center at National Sun Yat-sen University**

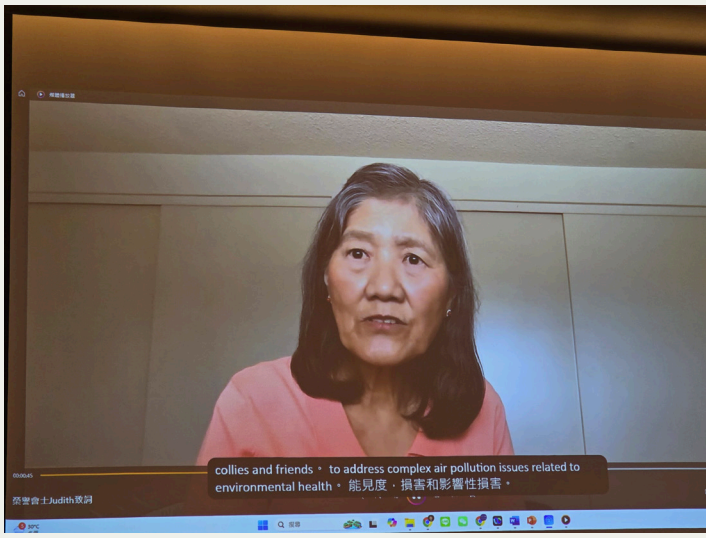
- **Visiting the 3D air quality supersite at Feng-Shan Senior High School**

Activity photos

- **Participant Reflections and Discussion**

- **Certificate of Completion Presented by the President**

TAAR Honorary Fellow



- **Prof. Ta-Chih Hsiao received the award on behalf of the recipient**

Dr. Judith Chow

Dr. Judith C. Chow is the Nazir and Mary Ansari Chair in Entrepreneurialism and a Research Professor in the Division of Atmospheric Sciences at the Desert Research Institute (DRI), Reno, Nevada. With more than 40 years of experience in atmospheric science, air-quality, and environmental-health research, she also serves on the graduate faculty at the University of Nevada, Reno.

Dr. Chow founded and leads DRI's Environmental Analysis Facility, where she and her team develop advanced analytical methods to characterize particulate matter sources and assess their effects on health, climate, and visibility. Her current research emphasizes the use of thermal and mass spectrometric analyses of archived samples, detection of brown carbon, application of microsensors for exposure assessment, and simulation of source changes via photochemical reactors.

She has led or collaborated on numerous major studies worldwide, including assessments of seaport operations in Southern California, oil-sands emissions in Canada, and air-quality monitoring network design for the World Bank. With over 590 peer-reviewed publications and 260 technical reports, her work has received 28,000+ citations (h-index 83). She was named among Stanford University's Top 2% most cited scientists and has served on the U.S. EPA Clean Air Science Advisory Committee.

TAAR Fellow

Prof. Wen-Yinn Lin

Professor Wen-Yin Lin joined the Taiwan Association for Aerosol Research (TAAR) in 1994 and served as the 14th President, also holding multiple roles as director and supervisor, actively promoting the association's academic exchange and development. Throughout his tenure and subsequent involvement, Professor Lin has received numerous prestigious awards from TAAR, including the Best Academic Paper Award (2013, 2015, 2018) and the Best Engineering Paper Award (2023), demonstrating his significant contributions to the field of aerosol science.

Professor Lin is currently a professor at the Graduate Institute of Environmental Engineering and Management, National Taipei University of Technology. His research focuses on aerosol science, nanomaterials technology, pollution control engineering, and environmental monitoring and management. His work covers atmospheric particulate matter, sources and chemical composition of nano/ultrafine particles, electrostatic precipitator design, and charged fiber filter materials, as well as applied projects on the impacts of electric vehicle promotion on air quality and health, embedded filter innovations, and NOx control in wet electrostatic precipitators. He has published over 50 SCI journal papers, establishing a strong influence in both environmental engineering practice and policy analysis.

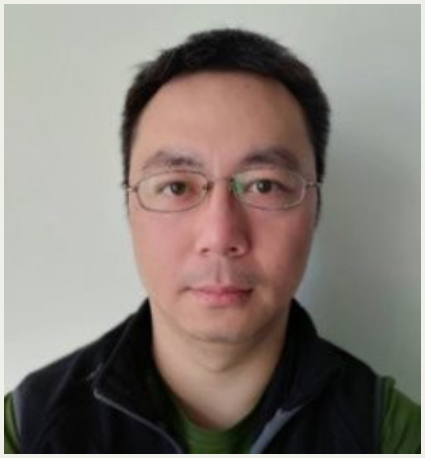
Prof. Ying-I Tsai

Professor Ying-I Tsai is currently a faculty member in the Department of Environmental Engineering and Science at Chia Nan University of Pharmacy & Science. He joined the Taiwan Association for Aerosol Research (TAAR) in 1998 and has long been dedicated to aerosol science and environmental research. He served as the 16th President of TAAR, actively promoting the association's development and international academic exchanges, making a significant contribution to its growth.

Professor Tsai's expertise spans environmental planning and management, atmospheric chemistry, aerosol science, nanotechnology and bioaerosol technology, as well as indoor and outdoor air quality monitoring and source apportionment. In recent years, he has focused on the application of artificial intelligence in aerosol monitoring and environmental quality management, leading multiple domestic and international research projects. His research covers the chemical composition of suspended particulate matter ($PM_{2.5}$ and PM_{10}), pollution source analysis, indoor air improvement, and hot spring water quality assessment. Professor Tsai has published over 80 SCI/EI papers in international journals. His findings provide valuable references for environmental policy, pollution control, and air quality management, and have significantly advanced understanding of aerosol pollution characteristics and transboundary transport mechanisms in East and Southeast Asia.

Beyond academic research, Professor Tsai holds multiple international professional certifications, including the Project Management Professional (PMP) credential from the Project Management Institute (PMI) and ISO 9001:2008 Lead Auditor certification from the International Register of Certificated Auditors (IRCA), demonstrating his interdisciplinary expertise in both management and quality systems. He has also long promoted industry–academia collaboration and practical training for students, actively nurturing the next generation of environmental science professionals, thereby contributing to sustainable environmental development in Taiwan and the Asia–Pacific region.

Novice Scholars Profile



Chih-Wei Lin

Current Position

Project Assistant Professor, Institution of Environmental and Occupational Health Sciences, National Taiwan University

Qualification

PhD, Institute of Environmental and Occupational Health Sciences, National Taiwan University

E-MAIL

Chihweilin1981@gmail.com; chihweilin@ntu.edu.tw

Recent Research Topics

Dr. Chih-Wei Lin is affiliated with the Institute of Environmental and Occupational Health Sciences at National Taiwan University (NTU). His research focuses on aerosol generation, sampling, measurement, and control. His main research areas include: (1) Evaluation of sampling techniques for particulate matter from stationary sources; (2) Research on improving the efficiency of particulate matter control devices; and (3) Performance improvement of the Beta Attenuation Method.

1. The evaluation program of stack PM measurement proficiency

Since particulate matter does not have a standard reference material, and the measurement process is easily affected by the actions and proficiency of the sampling personnel, establishing a proficiency testing method for particulate matter must take the sampling processes into account.

Dr. Lin has assisted the National Environmental Research Academy (NERA) in establishing particulate matter evaluation technology for over ten years, and has helped set up a simulation stack for testing laboratories to conduct proficiency tests. Over the years, he has continuously incorporated feedback from various sources for improvements and accumulated inter-laboratory comparison data. The comparison conditions have also been continuously modified as domestic particulate matter emission concentrations decrease.

Currently, the operation range of flue gas velocity is 3-18 m/s, and the mass concentration is 3-300 mg/Nm^3, which can accommodate the condition range of most domestic flues. By accumulating testing data, the velocity and mass concentration model was established for evaluating the proficiency of stack testing laboratories. Over two decades, 359 proficiency tests demonstrated significant Root Mean Square Error (RMSE) reductions, with flue gas velocity measurement errors decreasing from 20% to 8% and mass concentration errors from 30% to below 20%.

2. Research on Performance Enhancement of Particulate Matter Control Devices

Dr. Lin proved that electrostatic precipitators (ESPs) produce nanoparticles during the discharge process. Furthermore, under specific voltage and flow rate conditions, these nanoparticles can penetrate the ESP and cause downstream pollution. He also designed a portable electrostatic precipitator flow field visualization teaching material for educational and demonstration purposes, which clearly shows the trajectory of particles moving in the electric field.

Regarding air purifiers, by considering the fan performance curve and filter media filtration quality, he dispelled the traditional misconception that HEPA filters must be used. In fact, using filter media with lower filtration efficiency can increase air volume and consequently increase the Clean Air Delivery Rate (CADR).

Additionally, a manufacturing method for composite nanofiber filter media was developed to simultaneously produce mixed nano/micro-fiber media with varying thicknesses, packing densities, and diameters, in order to find the most optimal design conditions. The results showed that while nanofibers do effectively enhance the filtration quality of the fibers, the filtration quality of the support material is the primary factor affecting the overall filtration quality of the nanofiber filter media. Therefore, future research will prioritize developing ways to produce low packing density, single-layer, yet sufficiently strong micro-fiber support materials to create high-filtration-quality nanofiber filter media.

3. Improvement of Detection Limit for Beta Attenuation Method

The Beta Attenuation Method (BAM) is widely used for monitoring atmospheric particulate matter mass concentrations. However, in recent years, $PM_{2.5}$ concentrations have approached the detection limit of the BAM, necessitating improvements in its performance to meet future monitoring needs.

In this study, four detection units were used to replace a single detection unit. A flow divider was designed to ensure the airflow was evenly distributed across the four units while ensuring $PM_{2.5}$ loss was less than 1%. By modifying the sampling area, changing the filter material, and redesigning the geometry of the measurement unit, the study successfully reduced the BAM's detection limit from 5 $\mu g/m^3$ per hour to 2.67 $\mu g/m^3$ per hour. Future work will continue to seek methods to improve the response time, enabling the BAM to accurately report concentrations in a shorter period and provide more instantaneous data.

Expert Profile

Shu-An Lee

Current Position

Professor and Director, Department of Environmental Engineering and Science, Feng Chia University

Qualification

PhD, Department of Environmental Health, University of Cincinnati, USA

E-MAIL

salee@fcu.edu.tw

Recent Research Topics

Dr. Shu-An Lee is currently a Professor and Director of the Department of Environmental Engineering and Science at Feng Chia University. He teaches General Chemistry, Environmental and Hygienic Agents, Electromechanical Protection, Personal Protective Equipment, Fire and Explosion Prevention, and Industrial Ventilation. His research primarily focuses on bioaerosol sampling efficiency and stress, bioaerosol disinfection and protection, molecular biological analysis and extraction efficiency of bioaerosols, bioaerosol viability analysis, fungal exposure assessment, respiratory protection, nanoparticle release, PM2.5 and heavy metal exposure and health risks at e-waste recycling sites, and studies related to vapor intrusion of trichloroethylene-contaminated sites into buildings. His major research topics in recent years include:

1. Effects of bioaerosol sampler types on viability, culturability, and DNA loss percentages.
2. Respiratory protection.
3. Effects of freeze-thawing, bead-beating, ultrasonication, and commercial DNA extraction kits on fungal spore DNA extraction efficiency.

He plans to continue advancing his work in respiratory protection and bioaerosol research, particularly focusing on pathogenic bioaerosol sampling and protection, applications of molecular biological methods in bioaerosol viability analysis, and improvements in respirator efficiency and comfort.

1. Effects of bioaerosol sampler types on viability, culturability, and DNA loss percentages

Sampling stress due to impingement and filtration on bioaerosols has been previously evaluated. However, the impacts of sampling time, sampling media, and the refilling of liquid during impingement sampling on the viability, culturability, and DNA concentrations of collected airborne bacteria remain largely unknown. This information is crucial for air sampling of pathogenic bacteria and subsequent molecular analyses during microbial outbreaks in communities. In this study, *Escherichia coli* was collected for 15 to 120 minutes using filters in Button Samplers and liquid media in BioSamplers, with the collection liquid either replenished every 15 minutes or not replenished. The results indicate that changes in sampling time, media, and the replenishment of media during impingement sampling significantly influence the recovery of viable and culturable bacteria as well as DNA concentrations. It was found that using a BioSampler with a Tween mixture (TM) solution and regular replenishment led to a reaerosolization loss of 0.12% at a sampling time of 120 minutes. For filter-based sampling, both mixed cellulose ester (MCE) and polycarbonate (PC) filters imposed high stress on bacterial cells, leading to greater DNA losses. However, MCE filters were found to be more suitable for 120-minute sampling, as they produced higher bacterial viability and culturability, with a DNA loss percentage (DLP) of 61.16%. DLP was negatively correlated with viability ($r = -0.762$, $p < 0.01$) and culturability ($r = -0.638$, $p < 0.01$), indicating that cell membrane damage during filter- and impingement-based sampling resulted in significant DNA losses for microbial analysis. For sampling *E. coli* or other environmentally sensitive pathogenic bacteria, the BioSampler with TM solution is recommended. The results were published in Aerosol and Air Quality Research (2025).

2. Respiratory protection

Dr. Lee's research on respiratory protection originates from his doctoral studies and continued collaboration with his advisor's laboratory in the United States. After returning to Taiwan, with support from the National Science and Technology Council (NSTC) and the Institute of Labor, Occupational Safety and Health, he established advanced laboratory systems at Feng Chia University, including particle size–selective experimental setups for real-person respirator protection, filter penetration testing devices, and breakthrough testing systems for gas canisters against organic vapors. Using these systems, his research has explored topics such as:

1. Size-selective protection efficiency of respirators against airborne fungi and (1→3)-β-D-glucan in agricultural environments.
2. Evaluation of full facepiece elastomeric respirator protection performance.
3. Size-selective protection performance evaluation of EU-certified FFP-series respirators and surgical masks.
4. Effects of filter penetration, faceseal leakage, and breathing patterns on the overall protection efficiency of filtering facepiece respirators.
5. Influence of fit-test pass/fail status on the protection performance of N95 filtering facepiece respirators against particles of varying sizes.
6. Effects of filter and faceseal leak penetration on the protection performance of N95 filtering facepiece respirators and surgical masks during human breathing.

His 2009 publication in the Journal of Occupational and Environmental Hygiene received the John M. White Award (Best Respiratory Protection Paper of the Year) from the American Industrial Hygiene Association in 2010 and remained among the journal's top ten most-cited papers as of May 2018. His 2016 paper in the Journal of Healthcare Engineering was cited in the 2020 World Health Organization (WHO) guidance "Advice on the use of masks in the context of COVID-19." Recent respiratory protection studies include: (1) Evaluation of electrostatic filtration efficiency and antibacterial efficacy of antibacterial electret polypropylene filters; and (2) Relationship between filtration efficiency, total inward leakage (TIL), and fit factor (FF) of filtering facepiece respirators (FFRs) and elastomeric half-mask respirators (EHMRs).

(1) Evaluation of electrostatic filtration efficiency and antibacterial efficacy of antibacterial electret polypropylene filters:

In recent years, air filtration has received increased attention, particularly in response to the spread of COVID-19 and the growing interest in antibacterial filters. Electret polypropylene (PP) nonwoven fabrics possess excellent filtration efficiency but limited antibacterial effects against *Staphylococcus aureus* and *Escherichia coli*. Therefore, triclosan, a low-molecular-weight antibacterial agent, was used as an additive. Results demonstrated that triclosan effectively enhanced antibacterial performance while improving the crystallinity of PP, which simultaneously increased filtration efficiency. The findings were published in Polymers (2021).

(2) Relationship between filtration efficiency, total inward leakage (TIL), and fit factor (FF):

Recent studies have demonstrated that NIOSH-approved FFRs and EHMRs with higher filtration efficiencies showed lower TIL and higher FF. This study aimed to examine the mechanisms and practical implications of FE on TIL and FF. Three types of FFRs (EU standard FFP1, NIOSH-approved N95, and NIOSH-approved P100) and two types of EHMRs (EHMR-N95 and EHMR-P100) were evaluated. Sixteen subjects underwent fit testing using the OSHA protocol with a PortaCount. TIL measurements were then conducted according to ISO 16900-1:2014 using sodium chloride (NaCl) and corn oil aerosols. TIL (Cin/Cout) was defined as the ratio of aerosol concentration inside the respirator to that in the test chamber during ISO-specified exercises. Corn oil aerosol concentrations were measured using a light-scattering photometer, and NaCl aerosol concentrations were measured using two flame photometers. FE was determined by measuring filter penetration using a TSI 8130 Automated Filter Tester. Results showed that increased FE corresponded with decreased TIL and increased FF (Cout/Cin). A direct relationship between FF values calculated from TIL data and FE was also observed. These findings suggest that respirators with higher FE capture particles more efficiently and, potentially due to tighter face fit resulting from higher filter pressure drops, exhibit lower internal aerosol concentrations and smaller TIL, which in turn yield higher FF. This study was submitted to Annals of Work Exposures and Health (2025).

3. Effects of freeze-thawing, bead-beating, ultrasonication, and commercial DNA extraction kits on fungal spore DNA extraction efficiency

Exposure to high concentrations of pathogenic fungi can cause adverse health effects. Recently, molecular biological techniques have been increasingly applied to quantitative and community analyses of environmental fungi. However, the thick and complex structure of fungal cell walls, which resist enzymatic and chemical disruption, often results in poor DNA yield and quality. Using the commercial FavorPrep Fungi Yeast Kit (FP), this study evaluated freeze-thawing, bead-beating, ultrasonication, and DNA extraction kits to optimize fungal DNA extraction conditions. Results showed that combining the kit with freeze-thawing, ultrasonication, or bead-beating improved extraction efficiency compared to the kit alone. Ultrasonication and glass bead treatments yielded higher extraction efficiency than freeze-thawing. For samples with a fungal spore concentration of 10^6 cells/mL, the Cq value of *Aspergillus versicolor* decreased from 33.04 to 22.71, corresponding to a 1,000–10,000-fold improvement in DNA detection limits by qPCR.

New Book on Aerosols

Air Pollution and Related Health Risks

Publisher : Elsevier
Publication date : July 25, 2025
Language : English
Paperback ISBN : 9780443239656
eBook ISBN : 9780443239649
Editors : Umesh Chandra Dumka, Balram Ambade

Air Pollution and Related Health Risks: Investigating Environmental Health and Sustainability provides discussion on advanced atmospheric phenomena as they relate to health risks and environmental sustainability. Sections cover challenges, the carcinogenic effects of polycyclic aromatic hydrocarbons on the atmosphere, and reviews of microplastics and organic aerosol compositions. The book's editors also complete a micro and macro analysis of $PM_{2.5}$ and PM_{10} spatio-temporal properties in the Himalayan environment, and aerosol radiative and health impacts are also explored. Other sections cover wet deposition and scavenging of atmospheric pollutants and a risk assessment of living-non-living airborne particles to human health.

Post-graduates and early-career researchers in atmospheric sciences, geophysics, environmental science, and meteorology will find much to learn and apply in this valuable resource.

Announcements

The fifth joint meeting of the 17th Board of Directors and Supervisors was held on September 19, 2025. The following membership applications were reviewed and approved during the meeting: 1 Individual Lifetime Full Member, 1 Regular Member, and 10 Junior Members — a total of 12 new members. Welcome to join the Taiwan Association for Aerosol Research!

Lifetime Member

Si-Yu, Yu

Postdoctoral Researcher

Research Center for Environmental Changes, Academia Sinica

Regular Member

Le Tong Cat Tuong

Master Student

Chung Yuan Christian University

Junior Member

Cheng-Yu Kin

Master Student

Institute of Environmental Engineering, National Sun Yat-sen University

Sian-Si Lin

Master Student

Department of Environmental Engineering, National Cheng Kung University

Nelly Marlina

Master Student

Department of Environmental Engineering, Chung Yuan Christian University

Cheng Hao-Yu

Master Student

Graduate Institute of Environmental Engineering, National Taiwan University

Chun-Yun Hsiao

Master Student

Department of Environmental Engineering, National Cheng Kung University

Junior Member

Tzu-yu Liao

Master Student

Department of Environmental Engineering, National Cheng Kung University

Yi-Che Hsiao

Master Student

Department of Environmental Engineering, National Cheng Kung University

Ferlian Vida Satriaji

Master Student

Department of Environmental Engineering, Chung Yuan Christian University

Nur Shadrina Ghaisani

Master Student

Institute of Environmental Engineering, National Sun Yat-sen University

Tran Thi Kim Ngan

Master Student

Department of Atmospheric Sciences, National Central University