台灣氣膠研究學會

Taiwan Association for Aerosol Research

August, 2025.

98

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 August 18 2025
Website https://www.taar.org.tw/
E-mail taarasst@gmail.com

Calendar of Events

Date
24–29 August, 2025

Conferences
22nd International Conference on Nucleation and Atmospheric Aerosols (ICNAA)

Location
Vienna, Austria

Website
https://icnaa2025.univie.ac.at/home/

Date
31 August–5 September, 2025

Conferences
2025 European Aerosol Conference (EAC 2025)

Location
Lecce, Italy

Website
https://eac2025.iasaerosol.it/

Date
19–20 September, 2025

Conferences
2025 International Conference on Aerosol Science and Technology-Aerosol Research and Twin AI (2025 ICAST-TWIN AI)

Location
Tainan, Taiwan

Website
https://2025-icast.taar.org.tw/

Calendar of Events

Date
13–17 October, 2025

Conferences
American Association for Aerosol Research (AAAR) 43rd Annual Conference

Location
Buffalo, New York

Website
https://web.cvent.com/event/a1cd83f0-8f31-4f7c-8bb0-74f7bc802b12/summary

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

2025 T&T TFOSE

The conference was held on April 25, 2025, at National Cheng Kung University, featuring an opening ceremony, invited lectures, poster presentations and competition awards, sponsor speeches, and a job fair, followed by a banquet at the Shangri-La's Far Eastern Plaza Hotel. A total of 93 professionals and scholars from Indonesia, Myanmar, Pakistan, Sri Lanka, Thailand, Vietnam, Malaysia, and Taiwan attended, achieving an attendance rate of 113%. The event not only fostered international academic exchange but also served as a vital platform for cross-disciplinary collaboration and talent development.

- **Organizers, Attendees and Forum Team**

2025 T&T TFOSE

- **Group Photo**

- **Invited Speech**

Consensus Camp

The Taiwan Association for Aerosol Research (TAAR) held its 17th Consensus Camp and 4th Joint Meeting of the Board of Directors and Supervisors from June 27 to 28, 2025, at National Cheng Kung University. The event aimed to review organizational development, financial operations, and long-term strategies, while engaging in in-depth discussions on attracting young scholars, expanding international influence, and fostering industry–academia collaboration. Key outcomes included revisions to the association's bylaws and committee establishment regulations, as well as the formulation of a structured nomination system for representatives to the International Aerosol Research Assembly (IARA) and the Asian Aerosol Research Assembly (AARA), featuring a senior–junior mentorship rotation model. This meeting strengthened consensus among board members and committees, laying a robust institutional and strategic foundation for TAAR's future contributions to aerosol science at both national and international levels.

- **Group Photo (June 27, 2025)**

Consensus Camp

- **Opening Remarks by President Shih-Chun Lung**

- **2025 ICAST Venue Scouting**

2025 TAAR AI × Air Pollution Online Seminar

On July 10, 2025, the Taiwan Association for Aerosol Research organized the online seminar “AI × Air Pollution,” focusing on the applications and advancements of artificial intelligence in air pollution monitoring and health risk assessment. The event featured Professor Jing Wang from ETH Zürich, who presented the latest international developments in smart sensing technologies and multi-layered health risk assessment approaches, including high-resolution monitoring, intelligent data analytics, and cross-disciplinary applications. This seminar enhanced knowledge exchange among researchers and practitioners, strengthening the scientific foundation for future air pollution control and public health decision-making.

When Artificial Intelligence Meets Aerosol Technology — Practical Training on AI-Integrated Sensor Applications

Course Highlights

The “Practical Training Course on AI-Integrated Aerosol Sensing” was held at Tunghai University from July 19 to 20, 2025, aiming to enhance participants’ expertise in the integration of micro-sensor and AIoT technologies. The curriculum covered technical concepts of micro-sensor IoT, laboratory validation, and field applications, including dynamic data partition calibration, sensor network clustering analysis, AI-based inspection and recognition, and performance verification. Advanced topics addressed challenges and opportunities in improving accuracy and fostering innovation through next-generation AI applications. The course concluded with intensive hands-on AI practice to bridge theoretical knowledge with real-world implementation. The program attracted professionals from academia, industry, and research institutes, fostering cross-disciplinary exchange and technological advancement.

- **Course Opening by President Shih-Chun Lung**

When Artificial Intelligence Meets Aerosol Technology — Practical Training on AI-Integrated Sensor Applications

- **Prof. Hsun-Ling Bai**
- Technical Concepts of Micro-Sensors Integrated with AIoT
- Laboratory Validation of Micro-Sensors Integrated with AIoT

- **Prof. Chung-Sying Lu**
- Field Applications of Micro-Sensors Integrated with AIoT

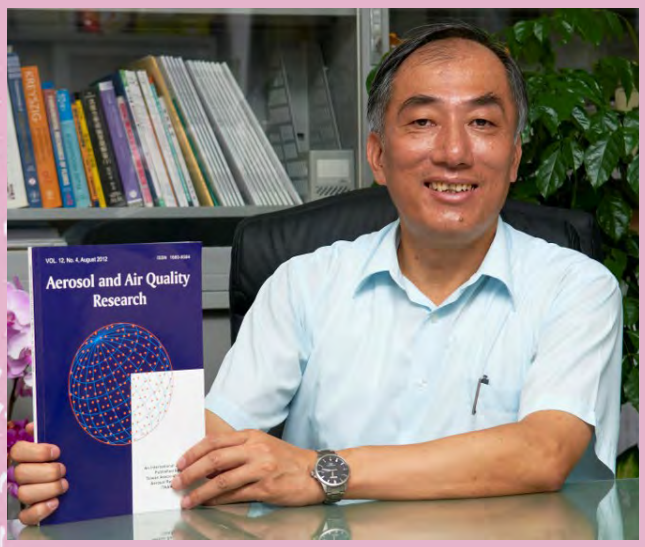
- **Prof. Ho-Wen Chen**
- From Data to Knowledge: The Future and Challenges of Artificial Intelligence

When Artificial Intelligence Meets Aerosol Technology — Practical Training on AI-Integrated Sensor Applications

- **Dr. Yen-Hsun Chuang**
- Application of AI in Practice

- **Dr. Gung-Hwa Hong**
- Next-Generation AI Applications: Challenges and Opportunities in Enhancing Accuracy and Innovation

The 2025 Distinguished Aerosol Scholars Lecture Series



Prof. Wen Jhy Lee

Department of Environmental Engineering, National Cheng Kung University

On June 28, 2025, the Taiwan Association for Aerosol Research hosted a session of the “Distinguished Aerosol Scholars: Research Journey” lecture series, featuring Professor Wen-Jhy Lee from the Department of Environmental Engineering, National Cheng Kung University. Delivered in Mandarin, the lecture provided insights into Professor Lee’s academic journey and research philosophy. An internationally renowned expert in air toxics and green energy technologies, Professor Lee is a Fellow of the Asian Aerosol Research Assembly and ranked among the top environmental scientists by Research.com. He previously served as Editor-in-Chief of Aerosol and Air Quality Research (AAQR) and as President of TAAR. His research spans low-carbon fuels, persistent pollutants, aerosol science, plasma technology, and resource recycling, with over 197 publications, more than 11,946 citations, and an h-index of 65. The lecture facilitated knowledge transfer and intergenerational dialogue within the aerosol research community.

The 2025 Distinguished Aerosol Scholars Lecture Series

- **Group Photo**

- **Prof. Wen-Jhy Lee**

Novice Scholars Profile

Yu-Jung Liu

Current Position

Assistant Professor, School of Public Health, Taipei Medical University

Qualification

PhD, Graduate Institute of Environmental Engineering, National Taiwan University

E-MAIL

yjliu@tmu.edu.tw

Recent Research Topics

Dr. Yu-Jung Liu is currently an Assistant Professor at the School of Public Health, Taipei Medical University. She previously held postdoctoral research positions at the Graduate Institute of Environmental Engineering at National Taiwan University and the Department of Civil and Environmental Engineering at Stanford University. Her research interests and expertise focus on the development of electrochemical technologies, analysis of emerging and persistent organic pollutants (POPs), and environmental toxicology. Dr. Liu's main research areas include: (1) electrochemical treatment of organic pollutants in water; (2) mechanistic studies of the degradation pathways of emerging and persistent contaminants; and (3) the development of low-toxicity and sustainable water treatment technologies.

Dr. Liu's research integrates molecular structure analysis of organic contaminants, mechanistic degradation pathways, and their associated biological effects. She employs quantum chemical modeling to predict potential transformation pathways of contaminants and combines gas/liquid chromatography–mass spectrometry (GC-MS/LC-MS) to identify intermediate products. Her team is establishing a structural database of reaction byproducts for common emerging pollutants (e.g., PPCPs) and POPs (e.g., PBDEs, PFAS). In parallel, Dr. Liu’s lab is dedicated to developing low-energy, low-toxicity wastewater treatment strategies, and employs in vitro bioassays to evaluate the biological risks of treated effluents, thereby enhancing both environmental safety and the practical applicability of treatment technologies. Moving forward, her work aims to expand the integrated database of contaminant transformation and toxicity, and to collaborate with aerosol and environmental scientists to advance nature-based solutions for sustainable water management.

1. Development of Electrochemical Dehalogenation and Defluorination Technologies

In 2022, Dr. Liu was awarded a prestigious fellowship from Taiwan's National Science and Technology Council (NSTC) and conducted postdoctoral research at Stanford University. Her work focused on electrochemical reduction for the removal of persistent organic pollutants (POPs) in water. By leveraging cathodic reduction mechanisms and the sorptive properties of activated and biochar materials, she demonstrated the effective debromination of brominated aromatic compounds, converting them into bromides. Using quantum chemical calculations and bond dissociation energy (BDE) analysis, she developed quantitative structure–activity relationship (QSAR) models to predict reactive sites on bromobenzenes and their emerging alternatives, elucidating their degradation mechanisms.

This technology was also applied to the treatment of per- and polyfluorinated alkyl substances (PFAS) and pharmaceuticals in wastewater containing heterocyclic aromatic compounds and aromatic organics. Target pollutants included fluoroquinolone antibiotics (FQs) and non-steroidal anti-inflammatory drugs (NSAIDs). By combining GC-MS and LC-MS analysis with fluorine mass balance and quantum chemical simulation, her team reconstructed the degradation pathways and defluorination mechanisms. This integrative approach significantly improves the predictability of electrochemical treatment processes for structurally diverse pollutants.

2. Development of PFAS Separation, Recovery, and Treatment Technologies

During her postdoctoral research at National Taiwan University, Dr. Liu focused on the removal of PFAS from wastewater through high-efficiency and low-energy technologies. Based on electrochemical methods, she designed an innovative treatment system integrating electrocoagulation–flotation with surfactant-enhanced separation. This system improves PFAS removal efficiency by enhancing bubble generation and capture, allowing simultaneous coagulation, sedimentation, and flotation.

Her team further developed processes to purify and recover concentrated PFAS, and coupled the system with electrochemical oxidation–reduction for defluorination, exploring C–F bond cleavage mechanisms and transformation product profiles. This work not only advances PFAS removal efficiency but also provides mechanistic insights for optimizing future treatment materials and system designs.

3. Toxicity Assessment of Treated Water Samples

Advanced oxidation processes (AOPs) are widely used for the treatment of emerging and persistent contaminants; however, incomplete mineralization during oxidation often leads to the formation of unknown or potentially toxic byproducts. These byproducts may vary in stability and toxicity depending on the oxidant type and matrix composition, and in some cases, may pose greater biological risks than the parent compounds.

Dr. Liu's research focuses on the toxicity evolution of water samples after redox-based treatment, especially the formation of disinfection byproducts (DBPs) in chlorinated systems. Her team investigates the correlation between transformation product structures and observed toxicity responses using in vitro bioassays with cellular models. This approach enables qualitative screening of acute toxicity in treated effluents.

The long-term objective is to establish a comprehensive toxicity database of treated water samples across various treatment technologies, supporting future water quality risk assessments and guiding the optimization of sustainable water treatment practices.

Expert Profile

Dr. Yu-Chun Wang

Affiliation

Professor, Department of Environmental Engineering, Chung Yuan Christian University

Education

Ph.D., Department of Environmental Health, National Taiwan University

E-MAIL

ycwang@cycu.edu.tw

Website

https://bee.cycu.edu.tw/portfolio-item/%E7%8E%8B%E7%8E%89%E7%B4%94%E6%95%99%E6%8E%88/#toggle-id-5

Recent Research Topics

Dr. Yu-Chun Wang graduated from the Department of Environmental Health at National Taiwan University. She is currently a Professor in the Department of Environmental Engineering and also serves as the Dean of the Department of Institutional Research and Sustainability Development at Chung Yuan Christian University. Dr. Wang has long been dedicated to research in the field of environmental health, with a particular focus on the impact of air pollution and climate change on public health. Over the years, she has accumulated extensive research achievements, publishing numerous papers in internationally renowned journals and collaborating with research teams from various countries to deepen our understanding of how air pollutants affect human health.

Dr. Wang's research primarily investigates the correlations between environmental pollutants, climate change, and health outcomes. She focuses on examining how concentrations of air pollutants (such as particulate matter (PM), ozone (O_3), and hazardous air pollutants) and changes in atmospheric temperature affect the number of healthcare visits in Taiwan (including outpatient, emergency room visits, hospitalization, ambulance calls, and mortality). Using statistical modeling, Dr. Wang aims to elucidate how environmental exposures impact human health, providing a scientific basis for relevant policies and interventions for public health.

In recent years, Dr. Wang's research achievements in atmospheric environment and public health can be primarily categorized into three main themes: atmospheric fine particulate matter and the health risks, temperature-related health risks, and future health loss estimations in Taiwan, and sustainable health strategies for fine particulate matter control in the built environment in Southern Taiwan. Here's a summary of the research outcomes for each theme:

Theme 1: Atmospheric Fine Particulate Matter and Health Risks

Dr. Wang is dedicated to utilizing Taiwan's health databases to investigate the correlations between air pollutant concentrations and health risks for the Taiwanese population. Given the completeness of Taiwan's national health data, after obtaining nationwide data on cause-specific mortality, outpatient and emergency room visits, and ambulance services (number of calls for help) for various cities and counties, her research team has analyzed the impact of extreme temperatures and air pollutants on public health at both daily and hourly time scales.

In the daily data correlation analysis, $PM_{2.5}$ concentrations showed a high positive correlation with respiratory-related diseases. In central and southern Taiwan, an increase in environmental $PM_{2.5}$ concentrations led to an increased number of calls for respiratory problems (shortness of breath/difficulty breathing), while in areas north of central Taiwan, increased $PM_{2.5}$ concentrations correlated with a rise in emergency room visits for respiratory system diseases. In an integrated analysis, when $PM_{2.5}$ concentrations exceeded 40 μg/m³, the relative risk of ambulance calls for respiratory problems (shortness of breath/difficulty breathing) and emergency room visits for circulatory system diseases increased. When $PM_{2.5}$ concentrations exceeded 80 μg/m³, the relative risk of chest pain/tightness, headache/dizziness/fainting/syncope, pre-hospital cardiac arrest (non-traumatic), and emergency room visits for respiratory system diseases increased, indicating that different types of cases have different concentration thresholds.

Furthermore, in the hourly data analysis, in addition to a positive correlation between ambulance calls for respiratory problems (shortness of breath/difficulty breathing) and $PM_{2.5}$ concentrations, chest pain/tightness, and collapses were also positively correlated. However, no significant regional differences in health risk could be observed. In the correlation analysis between the number of ambulance calls and $PM_{2.5}$ component mass concentrations, it was found that when sulfate concentrations exceeded 17 μg/m³, the risk of ambulance calls for chest pain/tightness and pre-hospital cardiac arrest (non-traumatic) increased. When nitrate concentrations exceeded 15 μg/m³, the risk of ambulance calls for respiratory problems (shortness of breath/difficulty breathing) increased. When organic carbon exceeded 15 μg/m³, the risk of ambulance calls for respiratory problems (shortness of breath/difficulty breathing), chest pain/tightness, headache/dizziness/fainting/syncope, and collapses increased. These findings show that the components of $PM_{2.5}$ influence the number of different types of ambulance service cases.

Theme 2: Atmospheric Temperature and Health Risks in Taiwan with Future Temperature-Related Health Loss Estimations

Dr. Wang's research team utilized Taiwan's health databases to analyze the correlations between extreme ambient temperatures and the mortality from and morbidity of risks of all causes, cardiovascular, and respiratory diseases across six major metropolises in Taiwan. They further incorporated historical temperature-related health risks, the projected number of extreme temperature days from future climate scenarios (AR5), and the future aging population ratio by the National Development Council to estimate the future number and changes in all-cause, cardiovascular, and respiratory disease deaths due to extremely high and low temperatures. This research provides insights into potential health losses for the Taiwanese population under future high-temperature and aging population scenarios.

Theme 3: Sustainable Health Strategies for Fine Particulate Matter Control in the Built Environment in Southern Taiwan

Dr. Wang's research team systematically analyzed the impact of $PM_{2.5}$ exposure on respiratory and cardiovascular-related diseases in different age groups in Taiwan, covering mortality, outpatient and emergency room visits, and the risk of ambulance calls. The results show that the elderly population is particularly susceptible to $PM_{2.5}$, with a higher risk for cardiovascular diseases and all-cause mortality. Emergency room visits in Tainan and Kaohsiung also significantly increased with rising $PM_{2.5}$ concentrations, and the demand for medical care for chronic diseases among younger and middle-aged subpopulations also increased.

Furthermore, Dr. Wang's research team also incorporated socioeconomic factors into their models to investigate the influence on the associations between $PM_{2.5}$ concentrations and public health. The results indicated that the degree of population aging and vehicle density were associated with an increased risk of mortality, while social welfare expenditures, green space area, and medical resources were associated with lower health risks, demonstrating the moderating effect of environmental and social policies on health risks.

Dr. Wang's research team also conducted a health economics evaluation of $PM_{2.5}$ intervention measures and assessed cost-effectiveness at the regional level. This study showed that using protective window screens and air purifiers could reduce mortality risk, with varying effects observed across age groups. The health benefits in Tainan ranged from $5,079 to $62,867, with higher benefits for individuals aged 40 to 64 years.

Through the analysis of micro-sensor data from Tainan and Kaohsiung, Dr. Wang's research team found that the hourly data of the micro-sensor did not meet USEPA application levels, and only a portion of the daily data for specific stations met the application (education) levels. This suggests that micro-sensor data is not yet suitable for studying the association between air pollution and human health at the current stage.

Industry Experts Profile

Yung-Chen Yao

Affiliation

Promotions Manager/Principal Engineering, Environmental and Safety Technology Division,
Green Energy and Environment Research Laboratories, Industrial Technology Research Institute

Professional Activities

Manager, Green Energy and Environment Research Laboratories, Industrial Technology Research Institute
Adjunct Assistant Professor, Department of Chemistry, Chung Yuan Christian University
Visiting Scholar, Department of Civil and Environmental Engineering, University of Tennessee

Education

Ph.D., Department of Environmental Engineering, National Cheng Kung University

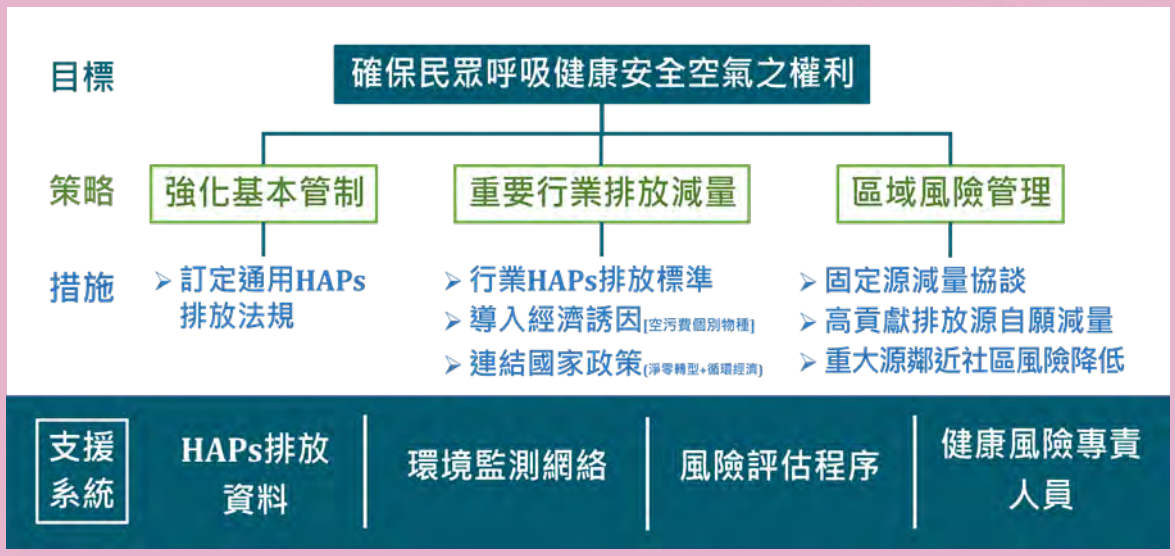
E-MAIL

ycyao@itri.org.tw/ ycyao1205@hotmail.com

Recent Research Topics

Dr. Yung-Chen Yao earned her Ph.D. in Environmental Engineering from National Cheng Kung University in December 2009. Shortly thereafter, in February 2010, she joined the Environmental and Safety Technology Division of the Green Energy and Environment Research Laboratories (GEL) at the Industrial Technology Research Institute (ITRI). With over 15 years of experience in the field of air quality, Dr. Yao possesses extensive expertise in air quality management strategies, air pollution control technologies, and issues related to hazardous air pollutants (HAPs). In recent years, Dr. Yao has led several major projects commissioned by the Department of Atmospheric Environment, Ministry of Environment (formerly the Air Quality Protection and Noise Control Division, Environmental Protection Administration, Executive Yuan). These projects have focused on air quality and air pollution control planning, including the regulation of hazardous air pollutants from stationary sources and the development of air quality management strategies.

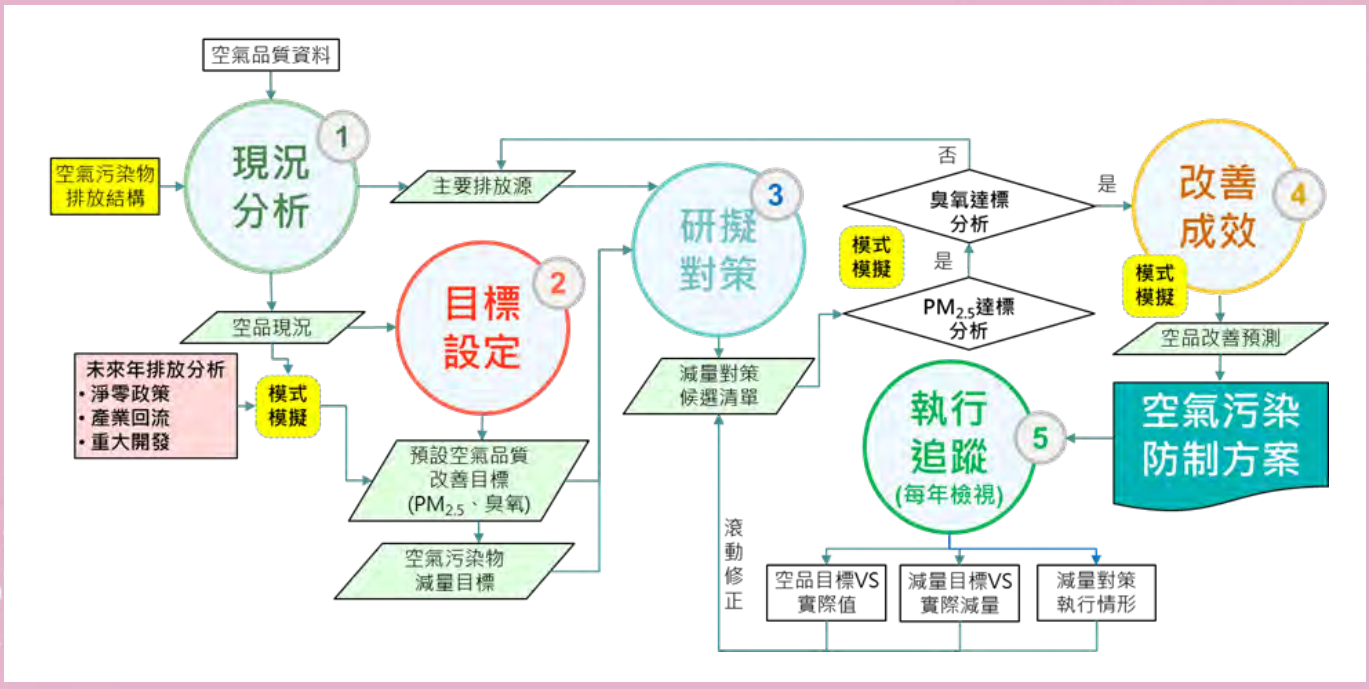
In Taiwan, industrial parks have played a critical role in driving economic growth and creating employment opportunities, yet they also pose significant challenges to air quality. Emissions of HAPs from factories have raised growing concerns among nearby communities, leading to frequent public protests and elevating the issue to a matter of substantial societal attention. Striking a balance between industrial development and public health has long been a critical challenge for the Ministry of Environment. In response, beginning in 2013, Dr. Yao has spearheaded national-level planning efforts for the control of HAPs from stationary sources, under the commission of the Ministry of Environment. Departing from the traditional regulatory framework centered on emission scale, she has proposed an innovative strategy that incorporates both technology-based standards and health risk-based criteria. The comprehensive approach integrates source control (pollution prevention at emission points), environmental monitoring (protection at receptor sites), and health risk assessment and management (focusing emission reductions in high-risk areas). Through the development and refinement of regulatory frameworks and supporting tools, Dr. Yao's work aims to significantly mitigate health risks posed by hazardous air pollutants to the general public.



Dr. Yao emphasizes that the issue of HAPs extends beyond emission control technologies—it also requires the integration of scientific methods in risk assessment to prioritize reduction efforts in pollution hotspot areas. Traditionally, air pollution management has focused primarily on setting emission limits based on stack discharge intensity, often neglecting the actual exposure levels experienced by nearby communities. She contends that environmental policies must go beyond mere numerical thresholds, urging for a deeper understanding of pollutant transport mechanisms, exposure pathways, and associated health risks. With scientific data as a foundation, Dr. Yao advocates for the design of more flexible and effective regulatory frameworks. Following this strategic blueprint, Dr. Yao and her team have supported the Ministry of Environment in formulating a series of HAP-related regulations for stationary sources. These efforts have led to the establishment of emission standards and limits that both public and private sectors are required to follow, thereby clarifying regulatory boundaries and deterring illegal discharges. For key industries known for high HAP emissions—such as vinyl chloride manufacturing—stricter operational guidelines and emission standards have been proposed to ensure that mitigation efforts are appropriately targeted rather than uniformly applied. Through these tailored strategies, the government not only upholds the public's fundamental right to health but also reinforces industrial accountability, resulting in tangible emission reductions and air quality improvements.

Beyond regulatory systems and legislation, Dr. Yao and her team have also developed a range of supporting measures. These include standardized methodologies for health risk assessment of HAPs from stationary sources, simulation systems, emission reporting platforms, and the establishment of a nationwide ambient HAPs monitoring network. Leveraging monitoring data, the team has facilitated tripartite collaboration among central and local governments and industry stakeholders. This collaboration led to the launch of a six-year reduction program (2020–2025) targeting high-risk pollution areas, assisting local industries in drafting and implementing phased "risk reduction plans." As of now, this initiative has achieved a 13% to 58% reduction in HAP-related health risks across three major petrochemical industrial parks in Taiwan, lowering risk levels to below the 10^{-4} threshold.

In addition to HAPs, Taiwan has long faced challenges from conventional air pollutants such as $PM_{2.5}$ and ozone, particularly during winter months when long-range transport and local emissions interact to degrade air quality. Improving $PM_{2.5}$ and ozone concentrations remains a central focus of the Ministry of Environment's air quality management efforts. To support these goals, Dr. Yao and her team have applied air quality modeling to scientifically analyze pollutant species and emission structures in Taiwan, identifying the relative contributions of various sources. They have developed targeted mitigation strategies for major emission sources—including stationary, mobile, and fugitive sources—and have assisted the Ministry in drafting national-level governance plans and defining the core directions of Taiwan’s four-year air pollution policy, with the aim of achieving continued air quality improvements.



This initiative supported the Ministry of Environment in successfully implementing the first phase of the "Air Pollution Control Program (2020–2023)," achieving a $PM_{2.5}$ air quality attainment rate of 97.68%. The national annual average $PM_{2.5}$ concentration reached 13.7 μg/m³, meeting the World Health Organization's Interim Target-3 and aligning with the air quality standards of countries such as Japan and South Korea. In the meantime, Dr. Yao's team also assisted in the planning of the second phase of the "Air Pollution Control Program (2024–2027)," which was officially approved by the Executive Yuan in December 2023. The second-phase policy framework focuses on three main pillars: continuously improving air quality, targeting region- and season-specific pollution with precision strategies, and aligning pollution control efforts with net-zero emission goals. The program sets ambitious targets for 2027, including lowering the national annual average $PM_{2.5}$ concentration to 13 μg/m³ and reducing the number of red alert ozone days (8-hour average) by 80% compared to 2019 levels. A total of 37 strategies across eight major domains have been laid out to advance air pollution management and promote cross-sector and cross-ministerial collaboration toward cleaner air.

Overall, Dr. Yao and her team have dedicated their efforts to hazardous air pollutants and air quality management policy, contributing significantly to the Ministry's development of national-level air governance strategies. For the HAPs initiative, their approach integrates technology-based controls, health risk management, and regional emission reductions, promoting a collaborative model among central and local governments and industry stakeholders. This inclusive strategy—favoring cooperation over confrontation—has steadily advanced the regulation of HAPs. In terms of air quality policy, the team has established methodologies for formulating national-level air pollution control plans. Using air quality modeling, they have clarified pollutant sources, species, and emission profiles, enabling the development of targeted strategies for major emission sources. These scientific foundations inform the formulation of overarching national air pollution control policies and guide priority-setting for future interventions.

Looking ahead, the transition to net-zero emissions represents the most critical mission for both Taiwan and the global community. Air pollution control must increasingly align with climate goals, integrating emission reduction (pollution control) with decarbonization strategies. By leveraging scientific tools to provide evidence-based support for policymaking and strengthening cross-sectoral collaboration, further breakthroughs in air quality improvement can be achieved. When pollution and carbon reduction measures are effectively integrated—and when governments, industries, and the public work in concert—a sustainable future that safeguards the environment, public health, and economic vitality becomes possible, ensuring cleaner air for all.

New Book on Aerosols

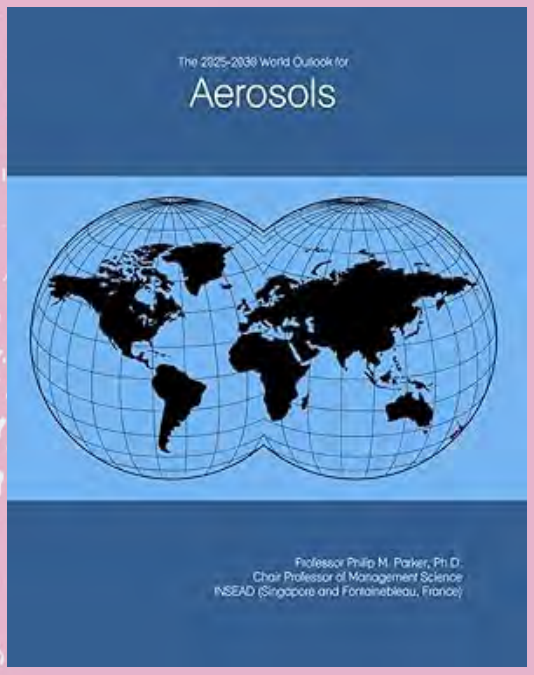
Recent Advances in Aerosol Research

Publisher : **Oxford, England : Pergamon Press Limited**
Publication date : **1964**
Language : **English**
ISBN : **9780080105758**
Author : **C.N. DAVIES**

Recent Advances in Aerosol Research: A Bibliographical Review presents a bibliographic review of advances in aerosol research covering the period from the beginning of 1957 to the end of 1962. Topics covered include chemical reactions, combustion, coagulation and diffusion, and adhesion of particles. References on filtration, evaporation and condensation, nucleation and growth, and laminar flow and impingement are also included. This volume is comprised of 19 chapters and begins by citing research on acoustic, ultrasonic, and shock wave effects, along with adhesion of particles, chemical reactions, combustion, coagulation and diffusion, and filtration. The following chapters deal with evaporation and condensation, nucleation and growth, laminar flow and impingement, generators, photophoresis, and the optics of aerosols. Other chapters focus on radioactivity, sampling instruments, sedimentation and fluid resistance, thermophoresis, and diffusiophoresis. The last chapter highlights turbulent flow and deposition of aerosols. This monograph will be a valuable resource for researchers and practitioners interested in aerosols.

New Book on Aerosols

The 2025-2030 World Outlook for Aerosols

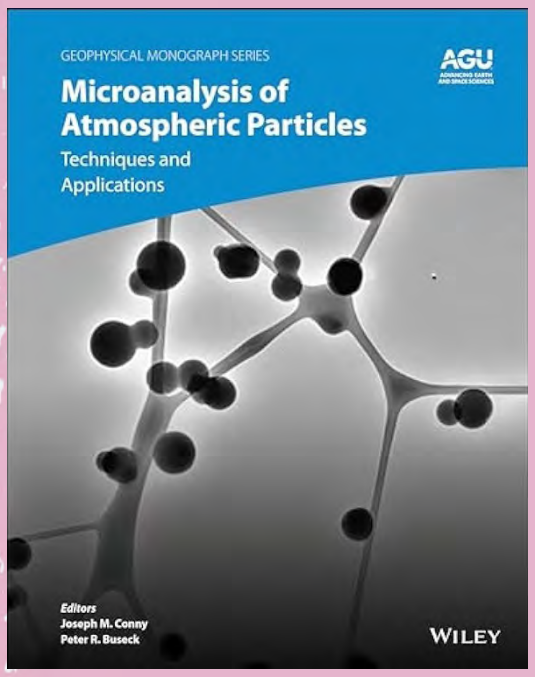


Publisher : **ICON Group International, Inc.**
Publication date : **March 3, 2024**
Language : **English**
Print length : **287 pages**
Author : **Prof Philip M. Parker Ph.D.**

This study covers the world outlook for aerosols across more than 190 countries. For each year reported, estimates are given for the latent demand, or potential industry earnings (P.I.E.), for the country in question (in millions of U.S. dollars), the percent share the country is of the region, and of the globe. These comparative benchmarks allow the reader to quickly gauge a country vis-à-vis others. Using econometric models which project fundamental economic dynamics within each country and across countries, latent demand estimates are created. This report does not discuss the specific players in the market serving the latent demand, nor specific details at the product level. The study also does not consider short-term cyclicalities that might affect realized sales. The study, therefore, is strategic in nature, taking an aggregate and long-run view, irrespective of the players or products involved.

New Book on Aerosols

Microanalysis of Atmospheric Particles: Techniques and Applications



Publisher : American Geophysical Union
Publication date : December 13, 2024
Language : English
Print length : 288 pages
ISBN : 9781119554349
Editor : Joseph M. Conny , Peter R. Buseck

Microanalysis of Atmospheric Particles: Techniques and Applications presents different microscopic techniques for studying aerosols and explores a range of applications in climate studies and air quality studies.

Volume highlights include:

- Overview of different techniques and applications
- In-depth descriptions of scanning electron microscopy, transmission electron microscopy, electron energy loss spectroscopy, Raman microspectroscopy, and atomic force microscopy
- Techniques for studying physical characteristics and chemical composition
- Methods to examine particle transformation
- Examples including soot, organic aerosols, ice crystals, and sea spray
- Applications for global and regional climate change and urban air quality

Announcements

The fourth joint meeting of the 17th Board of Directors and Supervisors has been held on June 28, 2025. The following membership applications were reviewed and approved during the meeting: 2 Individual Lifetime Full Members, 1 Regular Member, and 10 Junior Members — a total of 13 new members. Welcome to join Taiwan Association for Aerosol Research!

Lifetime Member

Wen-Cheng Wang

Assistant Professor

National Formosa University

Ching-Lung Chen

Associate Professor

Department of Safety, Health and Environmental Engineering, Ming Chi University of Technology

Regular Member

Thia Prahesti

Student

Department of Geomatics, National Cheng Kung University

Announcements

Junior Member

Shin-Fang Hsu

Master Student

Institute of Environmental Engineering, National Sun Yat-sen University

---

Ching Ching Hsu

Master Student

Institute of Environmental Engineering, National Sun Yat-sen University

---

Jia-Yi Zhao

Master Student

Institute of Environmental Engineering, National Sun Yat-sen University

---

Tien-Tien Cheng

PhD Student

Institute of Environmental and Occupational Health Sciences, National Yang Ming Chiao Tung University

---

Shahzada Amani Room

Master Student

Institute of Environmental and Occupational Health Sciences, National Yang Ming Chiao Tung University

Announcements

Junior Member

Wen Tzu Huang

PhD Student

Institute of Environmental and Occupational Health Sciences, National Yang Ming Chiao Tung University

---

Bao-Yuan Huang

Master Student

Institute of Environmental Engineering, National Sun Yat-sen University

---

Bhosale Pranali Tanaji

PhD Student

Institute of Environmental Engineering, National Sun Yat-sen University

---

Revati Dnyaneshwar Supekar

PhD Student

Institute of Environmental Engineering, National Sun Yat-sen University

---

Nguyen Pham Mai Thi

Master Student

Institute of Environmental and Occupational Health Sciences, National Yang Ming Chiao Tung University