NEWSLETTER CAART December 25, 2002

The Chinese Association for Aerosol Research in Taiwan

Features

Table of Contents

CAART Newsletter is a quarterly publication by the Chinese Association for Aerosol Research in Taiwan located in Taipei, Taiwan.

News, reader's comments, and subscription request for non-members should be sent to Shih-Chun Candice Lung, editor-in-chief, sclung@earth.sinica.edu.tw

CAART Headquarters Office:
Chinese Association for Aerosol Research in Taiwan
Department of Chemical Engineering
Yuan Ze University, Chung-Li, Taiwan 320
R.O.C., Attn.: Prof. Yu-Chen Chang
Phone: +886-3-463-8800 ext. 571
Fax: +886-3-455-9373
E-mail: caartorg@saturn.yzu.edu.tw

中華民國氣膠研究學會
CHINESE ASSOCIATION FOR AEROSOL RESEARCH

From the President

In the history of CAART the year of 2002 has witnessed remarkable progress and achievements, thanks to the collective effort and unselfish contributions from all ex-presidents, board members, staff, and many, many voluntary professionals and students who help to make the atmosphere of this Association a genuinely family one.

Among many activities this Association has done to serve the aerosol society during the past year, a few are worth particular mentioning. The 2002 Youth Camp initiative as a first try certainly was a big success to raise the enthusiasm of young scientists while inspiring their creative interest in the aerosol field. The publication of Volume 2 Aerosol and Air Quality Research journal won high praise from the international circle, confirming the competence and high standard of contributing research work in Taiwan. More importantly, the 6th International Aerosol Conference organized by CAART proved itself to be a truly productive and informative event, judging from the feedback indicated in the completed questionnaires (well above 90% responded "agree" or "strongly agree").

While all of these give us a sense of comfort in setting our future pace, it goes without saying that indeed we as a close group owe a great deal to the founder of the Association, Prof. Chiu-sen Wang. The organizational culture that he helps to cultivate and the far-sighted and able leadership that he possesses have guided us all the way to where we are now, valuing our worthiness while coping with the dynamic change of the scientific and social environment.

Having inherited these overwhelming achievements from my predecessors, the challenges lying ahead of me as the new president, needlessly to say, are tremendous. Whilst deeply appreciating the support from all members who elected me to take upon this great responsibility, I would like to share with you a few thoughts and vision that I will endeavor to implement during my two-year term:

Firstly, strengthening the cooperation between the research circle and the industrial sector. Surely,

research work at the end needs to serve its practical purpose, not only to enhance the welfare of human beings but also to invite more support from the public at large. A functional and effective mechanism therefore needs to be established, either to hold technical seminars and training courses for the interested industries, or to conduct joint research in the aerosol application, such as PM10.

Secondly, stretching the regional or international cooperation to encompass a wider participation of aerosol research in and outside of Taiwan on topics of mutual interest and benefits. One example will be to enlarge the AARQ paper sources to cover the Asia region. The other example will be carrying out carefully planned simultaneous monitoring of sandstorm across the Strait of Taiwan.

Lastly but vitally, encouraging more responsible and active participation as well as contribution from younger generation of scientific researchers and students. An organization can only be long lasting and prosperous when there is a continuous injection of fresh blood, thinking and action into a matured but perhaps aging system. The transformation of CAART Newsletter into English e-form under the new Secretariat, starting from this issue, is a typical example. We believe that the new form provides a more interactive and responsive platform among the readers, hence creating a momentum for healthy growth of the Association. The Youth Camp for the following years, on the other hand, will definitely continue to improve, with the program designed to take more inputs from and therefore suit the needs of potential participants.

All in all, good things have been said as above but nothing can really get done without your participation and contribution. I count on your continuous support to fulfill our vision. Your valuable and constructive suggestions on any subjects will surely be welcome.

In the meantime, on behalf of the Association, I wish each of you a happy and fruitful New Year of 2003.

President
Chih C. Chao

IAC 2002 SPONSERS

The sponsors of the conference are vital to the success of the 6-th IAC. We would like to thank the following sponsors for their generous support:

General Motors Incorporated
TSI Inc.
Environmental Protection Agency (Taiwan)
Council of Labor Affairs (Taiwan)
National Science Council (Taiwan)
Ministry of Education (Taiwan)
Center for Environmental, Safety and Health Technology (ITRI)
Industrial Development Bureau (Taiwan)
Mainland Affairs Council (Taiwan)
Department of Health (Taiwan)
Ministry of Foreign Affairs (Taiwan)
National Chiao Tung University
National Taiwan University
Taiwan Power Company
China Steel Corporation (Taiwan)
Eva Airways Corp.
Envimac Technology & Consultants Corp.
Newsys Environmental Technology Inc.
Excellent State Technology Co., Ltd.
All Safety Consultant
Cambridge Engineering Consultants Inc.
Chang Shin Environmental Tech. Inc.
The World & Consulting Engineers Inc.

From the Editor

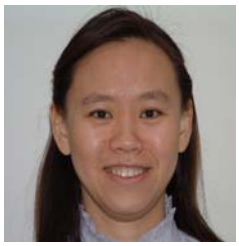
Dear Colleagues:

Season's Greetings! My name is Shih-Chun Lung. It is my pleasure to serve as the Editor-in-Chief of the CAART Newsletter for the coming two years. I am looking forward to working with the Officers of CAART to make this Newsletter a communication platform among CAART members.

Following the success of IAC2002 and the Journal (Aerosol and Air Quality Research), CAART has become a more internationally recognized scientific society. We felt that it is time to turn this Newsletter into a more accessible resource for our international members and friends. Standing on the good foundations the former Editors-in-Chief of CAART Newsletters have laid, we decided to transform this Newsletter into an all-English communication channel not only within Taiwan but also between Taiwan and the world. With the help of current Secretary General, Dr. Yu-Chen Chang, this Newsletter will also be available on web in pdf format.

To facilitate the interaction between members and stimulate new ideas in aerosol researches, several new features have established. We would like to introduce new technologies, new instrument or new theories related to any field of aerosol researches in ‘‘Aerosol Tech Update.’’ ‘‘Aerosol research in Taiwan’’ introduces aerosol laboratories, so members will know in-depth about the strength of those laboratories and perhaps think about potential collaboration between laboratories. ‘‘Aerosol Researcher Profile’’ focuses on researchers, not only new members, but also officers of CAART and well-established members. Overseas Chinese aerosol researchers are also possible candidates so international collaboration could also be cultivated through this channel. We hope this will shorten the distance among members and make members more acquainted with friends in the CAART. Introducing myself in ‘‘Researcher Profile’’ and Yu-Chen’s laboratory in ‘‘Aerosol Research’’ in this issue is our effort to provide a sample as a start.

Two-way communication is the key mission of this Newsletter. Besides announcements from officers, calendar of events and newsroom, I



encourage contributions from all CAART members. Providing your comments and suggestions regarding this Newsletter or any other matters of CAART, notifying events about any sub-field of aerosol researches, and offering your views of aerosol-related matters are highly appreciated. We will integrate those messages into upcoming issues and modifying Newsletters according to readers’ feedback. We also want to invite more members to participate in the making and cultivation of our Newsletter. If you are interested, please don’t hesitate to contact us.

Starting from this issue, Newsletters will be sent out by email. It is a way to save papers and allow more circulation in a timely matter. However, for those who have difficulty to access the Internet frequently, we will still provide the mail service. Please let us know if you prefer mail delivery than emails.

Finally, I would like to take this opportunity to thank Drs. Chiu-Sen Wang, Chuen-Jinn Tsai, Chung-Te Lee, George Lin, and those members who provided valuable comments and suggestions during the discussion of Newsletter transformation. Your kind remarks help us to re-organize the originally Chinese-based Newsletter. Full support from President Chao is also appreciated. I also want to give my deepest appreciation to our new Secretary General, Yu-Chen, for all her help to make this English Newsletter happen. Without her, this Newsletter couldn’t have finished on time in the current new format.

In this holiday season, may all our readers have a happy, healthy, and fruitful coming year!

Editor-in-Chief,

Shih-Chun Candice Lung

Newsroom

Report on the 19th Symposium on Aerosol Science and Technology

Chiu-sen Wang
Department of Public Health
National Taiwan University, Taiwan

The 19th Symposium on Aerosol Science and Technology, sponsored by the Japan Association of Aerosol Science and Technology (JAAST), took place on the Kyoto University Yoshida campus, during August 6-8, 2002. Approximately 200 aerosol scientists, most of them from Japan, attended the Symposium. Foreign participants included Professor David Y.H. Pui and Professor Sergio Guazzotti from the United States, Dr. Alfred Wiedensohler from Germany, Professor K.H. Ahn from Korea, and myself. The beautiful Kyoto University Yoshida campus, located in the northeastern corner of Japan's ancient capital Kyoto, is over 100 years old. Over the past century, the University has graduated many outstanding alumni who have made significant contributions in the fields of humanities, science and technology.

On the first day of the Symposium, there were five platform sessions held in two meeting rooms concurrently. These sessions covered topics in aerosol and global environment, creation of nanoparticles and their development into industrial applications, dynamics and deposition, air filters and dust collection, and atmospheric aerosol. The poster presentations, scheduled for the late afternoon, consisted of two parts: (1) a 2-minute platform presentation given by the presenting author of each poster and (2) individual discussions at the posters.

The second day started off with a special session, in which researchers took turn to present new research ideas. Each speaker had 5 minutes to present his or her proposal, followed by 10-minute questions and answers. At the end of the special session, the audience cast their vote for the best presentation. A Committee then took the result of popular votes into consideration in selecting the recipient of Iinoya Award. The late Professor Koichi Iinoya, who first taught at Nagoya University and then at Kyoto University, was the founding president of JAAST. Even though the 7 young researchers who participated in the special session this year presented very interesting research ideas, the Award Committee decided that none of them qualified to receive the Award.

In the early afternoon of the second day, Professor Hiroshi Matsumoto from the Kyoto University Radio Science Center for Space and Atmosphere gave a talk on "Solar Power Station for Environmental Conservation." Professor Matsumoto began his presentation by emphasizing the energy crisis that has been predicted to occur in the near future. He then went on to describe a conceptual design of solar power plants in space, an interesting idea that he has pursued for over a decade.

The Japan Association of Aerosol Science and Technology, founded in 1983 and officially named JAAST in 1986, celebrated its 20th anniversary this year. For this occasion, JAAST invited three foreign researchers to give presentations in the Commemoration Symposium held in the afternoon of the second day. The foreign speakers and their talks were: Professor David Y.H. Pui on "Fast-response nanometer aerosol size analyzer: Measurement and data inversion," Dr. Alfred Wiedensohler on "Physical properties of the urban aerosols," and myself on "Reactive oxygen species in ambient aerosols."

The 20th Anniversary Commemorative Banquet, held in the Yoshida Coop Restaurant on campus in the evening of the second day, attracted over 200 attendees. At the invitation of the master of ceremony, several foreign participants took turn to give short greetings during the Banquet. On behalf of the Chinese Association for Aerosol Research in Taiwan, I presented a silver plate to JAAST to commemorate its 20th Anniversary.

The third day again had five platform sessions held in two meeting rooms concurrently. The topics included measurement, indoor aerosol and cleanrooms, generation and fundamental properties, and atmospheric aerosol.

About ten companies joined the exhibit during the Symposium. In the morning of the second day,

Announcement

the Symposium organizer arranged a time slot for the companies to make platform presentations on their instruments.

In summary, the presentations at the Symposium were of very high quality. They covered many topics of current interest. Among a total of about 100 papers, over 20 were in the area of atmospheric aerosols. I was very impressed by the orderliness of presentations and discussions. Equally impressive was the very large number of attendees who stayed until the last paper on the third day.

Professor Chiu-sen Wang's Retirement Party

You are cordially invited to attend the retirement party for Professor Chiu-sen Wang, in Room 103, Basic Medical Science Building, National Taiwan University Medical College, Friday, January 10, 2003, 2 - 5 pm.

The party will consist of three parts: (1) talks by Professor Wang's former students on his research, (2) talks by Professor Wang's friends and associates on his involvements in various activities during his career, and (3) recollection by Professor Wang himself. Refreshments will be served after presentations. The retirement party is organized by the Chairperson of the National Taiwan University Public Health Department.

2003 CAART 2nd Aerosol Youth Camp

This year, the First Aerosol Youth Camp set out in the northern Taiwan over the hot summer. The great endeavor of many of our members including Prof. Neng-huei Lin. Secretary General at that time, and many others in academia and governmental agencies was well received by all those attended the event! It was a great idea and moreover, an idea executed well and carefully to make sure the students who attended will appreciate the time and money they or their advisors invested in.

Next year, the good tradition of CAART goes on! The Second Aerosol Youth Camp in 2003 will circle the other half of the island - starting out from Kaohsiung and ending in Hsinchu. This time, Prof. Chung-Shin Yuan of National Sun Yat-sen University, who is also our First Vice President, will host the event at the starting location, the campus of the National Sun Yat-sen University, located west to the beautiful Hsitzu Bay and the Taiwan Strait.

And again, the trip is indeed a bargain! It helps motivate students by checking out advanced aerosol research executed in other laboratories, seeing possible end applications of their research, allowing them to learn resources available in other aerosol laboratories or agencies, establishing an expert network and peer friendship within the island, etc.

Students participated last time and those who wish to check it out this time are encouraged to check into the 2003 March issue of the CAART newsletter or the CAART website for further details.

First Board Meeting in 2003

The next board meeting will be held in late February. The exact date and location will be announced via email in early February.

Major Update on the CAART Website

There will be major update on the CAART website to better showcase the active research and capabilities of the CAART members. Standard forms will be available shortly on the website.

CAART Activities

Summary Report:
6-th Internatioal Aerosol Conference

Chuen-Jinn Tsai

The 6th IAC Conference Chair

Institute of Environmental Engineering, National Chiao-Tung University
(now visiting Washington University, St. Louis, USA)

The 6-th International Aerosol Conference was held successfully in Taipei, from Sep. 8 to 13, 2002. The conference was well attended with the total number of attendees of 667 from 37 different countries (see the attached table for details). The total number of papers presented is 630 including 318 platform presentations, and 312 poster presentations, in addition to 4 plenary speeches.

The conference started with 12 tutorial lecturers on Sunday, Sep. 8 at the conference venue, Taipei International Conference Center. The courses were all very well attended by participants from around the world. Thanks to 12 outstanding lecturers and their well organized course notes and lectures. The opening ceremony on Monday, Sep. 9, 2002 was addressed by the conference chair and the deputy EPA administrator of Taiwan, Mr. Ta-Hsiung Lin. President of Taiwan (Republic of China), Mr. Shiu-Bian Chen sent a congratulatory letter to the conference secretariat which was read in the opening ceremony. For the rest of the week, the conference attendees had plenty of time to exchange their recent findings fruitfully in aerosol science and technology through platform and poster presentations. Tour programs and social programs were said to be enjoyable and impressive.

Attendees from **37** Countries; Total Attendees: **667**

Country	No. of Attendees	Country	No. of Attendees
Australia	5	Japan	93
Austria	5	Korea	62
Belarus	1	Lithuania	1
Belgium	3	New Zealand	1
Canada	5	Poland	5
China	10	Portugal	1
Czech Republic	2	Russia	11
Estonia	2	Singapore	3
Finland	30	Slovak Republic	1
France	12	Spain	14
Germany	45	Sweden	10
Hong Kong	18	Switzerland	5
Hungary	4	Taiwan	201
India	2	Thailand	2
Indonesia	1	The Netherlands	7
Iran	1	UK	11
Ireland	1	USA	85
Israel	3	Vietnam	1
Italy	3		

The technical program was arranged by the technical chair, Professor Chiu-sen Wang, and the committee members. His dedication and thoughtfulness contributed a great deal to the smooth operation of the conference program. Numbering the technical papers by connection with the week days was proved to be very useful for the attendees to identify papers. Many international aerosol scientists helped organize the special symposia in which many key aerosol scientists were invited and many important papers were presented. They are also the key to the success of technical programs of this conference.

The sponsors of the conference are vital to the success of the 6-th IAC. We would like to thanks the following sponsors for their generous support: General Motors Incorporated; TSI Inc.; Environmental Protection Agency (Taiwan); Council of Labor Affairs (Taiwan); National Science Council (Taiwan); Ministry of Education (Taiwan); Center for Environmental, Safety and Health Technology (ITRI); Industrial Development Bureau (Taiwan); Mainland Affairs Council (Taiwan); Department of Health (Taiwan); Ministry of Foreign Affairs (Taiwan); National Chiao Tung University, National Taiwan University; Taiwan Power Company; China Steel Corporation (Taiwan); Eva Airways Corp.; Envimac Technology & Consultants Corp.; Newsys

Environmental Technology Inc.; Excellent State Technology Co., Ltd.; All Safety Consultant; Cambridge Engineering Consultants Inc.; Chang Shin Environmental Tech. Inc.; The World & Consulting Engineers Inc. Twelve exhibitors displayed their latest aerosol products, instruments and publications at the conference including TSI Inc.; Dekati Ltd.; URG corp.; Le & Der; Topas GmbH; Taiwan IOSH; MSP Corp., Sunway Scientific Corp.; Taylor & Francis; Rupprecht & Patashnick; Elsevier Science. Their contribution to the conference is highly appreciated.

The personnel of Elite company (conference organizer) led by Mr. Wu, and over 25 student assistants organized by Prof. Chih-Chieh Chen offered countless and timely help to the conference. All fine details of the conference program were taken care of and numerous problems encountered by the conference attendees were solved. Their devotion will never be forgotten. In particular, the conference attendees were surprised and welcomed at the airport by assistants, and they enjoyed free access to the internet at the conference site very much.

The banquet, hosted by the incoming CAART president, Dr. Chih C. Chao was excellent. It was mingled with elegant musical program and ended with passionate aboriginal performance. Many attendees were invited to dance to sweat on the stage. Table-to-table toast to thank the honorable guests by the key local committee members was another highlight of the banquet. This is a very good Chinese custom! Prof. David Pui and Gilmore Sem announced that the next IAC will be held in St Paul, Minnesota in 2006. They welcomed everyone to mark the calendar and prepare to come to 2006 IAC.

Finally, a successful conference takes a lot of effort, especially group effort, to succeed. CAART (Chinese Association for Aerosol Research in Taiwan) has demonstrated its integrity and capability to host such an important international aerosol conference authorized by IARA (International Aerosol Research Assembly). We hope that the tradition will be carried on.

Happy New Year !!

Report on the Technical Program of the Sixth International Aerosol Conference

Chiu-sen Wang
The 6th IAC Technical Program Chair
Department of Public Health
National Taiwan University, Taipei, Taiwan

The Sixth International Aerosol Conference (IAC) took place at the Taipei International Convention Center, September 8 – 13, 2002. The Conference, sponsored by the International Aerosol Research Assembly (IARA) and hosted by the Chinese Association for Aerosol Research in Taiwan (CAART), had the objective of promoting aerosol research by providing a forum for the exchange of information among scientists from around the world. For each IAC, the IARA selects one of its member organizations to serve as the host. Traditionally, the conference sites have rotated according to the sequence of America, Europe, and Asia. The first five conferences took place, in turn, in Minneapolis (1984), Berlin (1986), Kyoto (1990), Los Angeles (1994), and Edinburgh (1998). The IARA delegates meeting held during the 6th IAC has selected the American Association for Aerosol Research (AAAR) to host the 7th IAC, to be back in Minneapolis, in 2006. The delegates meeting this year also approved the membership application from Korean Association for Particle and Aerosol Research (KAPAR), thereby bringing the number of member organizations to 12. In addition to AAAR, CAART, and KAPAR mentioned above, the other member organizations are Association Française d'Etudes et de Recherches sur les Aérosols, Finnish Association for Aerosol Research, Gesellschaft fur Aerosolforschung, Indian Aerosol Science and Technology Association, International Society for Aerosols in Medicine, Israeli Association for Aerosol Research, Japan Association of Aerosol Science and Technology, Nordic Society for Aerosol Research, and the Aerosol Society.

At the 6th IAC, the technical program consisted of 4 plenary lectures, 318 presentations in 74 platform sessions, and 312 papers in poster sessions. The presentations covered a wide range of topics. In addition to regular sessions, five special symposia focused on topics of specific and timely

interest.

The plenary lectures featured four major topics of interest to a wide audience. They were: nanoparticles in the Gas Phase as Building Blocks for Electrical Devices (given by Professor Heinz Fissan), Aerosols and Climate (Professor John H. Seinfeld), Health Effects of Ambient Air Particles (Professor Morton Lippmann), and Particle Deposition and Reentrainment (Professor Hiroaki Masuda).

The five special symposia were, respectively, Asian Dust Storm and Its Impact on Climate (with 56 papers), Advances in Inhaled Drug Delivery Beyond Traditional Asthma Treatment (18), Nanoparticles: Technology and Sustainable Development (32), PM in Asia: Current Status and Trends (45), and Respiratory Deposition of Aerosol: Theory and Experiments (19). There were nine major topics in regular sessions: Aerosol Chemistry (with 26 papers), Aerosol Physics (92), Atmospheric Aerosols (154), Bioaerosols (16), Gas Cleaning and Separation (44), Health Related Aerosols (21), Indoor Aerosols (17), Instrumentation (61), and Materials Processing (29). The presentations in the topic of atmospheric aerosols included the following areas: sampling and analysis (15), modeling (14), semi-volatiles and organics (15), visibility (6), biomass and biogenic aerosols (7), climate change (8), cloud/fog aerosol interactions (12), combustion sources and diesel soot (18), PM_{10} and $PM_{2.5}$ characterization (10), remote, rural, and marine aerosols (17), urban aerosols (16), and general subjects in atmospheric aerosols (16). The 2-page abstracts of all presentations were available in two volumes of the Book of Abstracts and also in a CD-ROM.

On Sunday, September 8, the Conference offered a full day of tutorials on fundamentals and subjects of current interest. Designed for newcomers as well as veterans who wish to update and broaden their knowledge in aerosol science and technology, these informative and inspiring courses covered the following twelve subjects: Aerosol Measurement (given by Professor Judy C. Chow), Characteristics of Ambient $PM_{2.5}$: Data and Interpretation (Professor Cliff I. Davidson), Receptor Modeling for Fine Mode Particles (Professor Philip K. Hopke), Field Sampling Study for Fine Particles and Visibility (Dr. K.C. Moon), Bioaerosols and Public Health (Dr. Janet Macher), Aerosol Deposition and Drug Delivery (Dr. Yung Sung Cheng), Biological Aspects of Fine and Ultrafine Particles (Dr. Joachim Heyder), Respiratory Dose Assessment of Inhaled Particles in Health and Disease (Dr. Chong S. Kim), Aerosol Synthesis of Nanoparticles and Nanoparticle Devices from Vapor Phase Precursors (Professor Richard C. Flagan), Catalytic Properties of Nanoscale Aerosols (Professor Gerhard Kasper), Preparation of Nanoparticles by Spray Methods in Nanotechnology (Professor Kikuo Okuyama), and Instrumentation for Nanoparticle Generation and Measurement (Professor David Y.H. Pui).

An important part of the IAC is recognition of aerosol scientists who have made outstanding contributions to the field. At the 6th IAC, Professor Alexey Lushnikov and Professor Kikuo Okuyama received the Fuchs Awards, in the Award presentation session on Wednesday, September 11, while Professor Dennis Boulaud and Professor Helmuth Horvath received the International Aerosol Fellow Awards during the Conference banquet on Thursday evening. Also during the banquet, the European Aerosol Assembly presented the Smoluchowski award this year to Professor Da-Ren Chen.

In conclusion, the success of the well-attended Conference was a result of the contributions from all participants. It is heartening to see that significant advances have been made in many frontiers of the aerosol field and that the aerosol community has become a steadily growing and well-connected global family.

Award Recipients

Fuchs Award	Alexey Lushnikov
	Kikuo Okuyama
International Aerosol Fellow Awards	
	Dennis Boulaud
	Helmuth Horvath
Smoluchowski Award	Da-Ren Chen

Congratulatory Telegram from the President of Taiwan, R.O.C.

President Shui-Bian Chen
Taiwan, Republic of China

Dear Prof. Chung-Te Lee, President of the Chinese Association for Aerosol Research in Taiwan, please forward this message to the conference attendees:

I am very pleased to hear that the 6-th International Aerosol Conference is being held in the Taipei International Conference Center from Sep. 8 to 13. I firmly believe that the conference is beneficial to the promotion of researches in aerosol science and technology, and will contribute a great deal to the development in air pollution control, industrial hygiene, and material synthesis. On this special occasion, I am writing this telegram to congratulate you on holding the conference in Taiwan. I wish a great success of the conference. May everybody be healthy and happy!!

Sealed, President Shui-Bian Chen
Sep. 9, 2002

Speech at the Opening Ceremony of the 6-th International Aerosol Conference

Mr. Ta-Hsiung Lin
Deputy Administrator, EPA
Taiwan, Republic of China

Dear Prof. Tsai, Prof. Wang, Prof. James Clark, honorable guests, ladies and gentlemen:

It is my great pleasure to welcome you to attend the sixth International Aerosol Conference held here at the Taipei International Conference Center, Taipei, Republic of China on Taiwan. There are over 600 scientists from 33 countries attending this conference. During this 5-day event, there will be 650 papers presented covering a wide range of important air pollution and aerosol problems including Asian dust storm, ACE Asia, PM in Asia, urban PM, aerosol and health, aerosol and climate change, and air pollution control technologies etc. I believe that all of you could benefit from each other by exchanging new scientific findings and sharing create ideas and most advanced information with each other. As one of the major sponsor of this conference, ROC Environmental Protection Administration is very proud to have you here to witness the rapid economic growth of Taiwan, which is exemplified in the modern city of Taipei in the past fifty years.

Rapid economic growth and heavy population in Republic of China on Taiwan also brings in air pollution and other environmental issues, which have been overlooked in the past and have to be faced today. Taiwan's environmental loading is very high compared to other well-developed countries, especially in the urban areas of Taipei and Kaohsiung city. The population density per unit square kilometer in Taiwan is the second highest, while that of the vehicle and factory is the highest in the world. The area density is 9706 people, 5,874 vehicles, and 8 factories per square kilometer in Taipei urban area, while in Kao-Hsiung urban area it is 9,593 people, 8,074 vehicles, and 12 factories. These numbers are several to several tens of times that of other developed countries. Despite the heavy environmental loading in the urban areas of Taiwan, with the determination, cooperation and endeavors from all environmental protection agencies, enterprises and people on the island, air quality in the urban areas of Taiwan is comparable to that of other countries. For example, in 1997, the annual average concentration of PM10 is 64 $\mu g/m^3$ in Taiwan area and 50 $\mu g/m^3$ in Taipei urban area. These concentrations are lower than the national air quality standard, 65 $\mu g/m^3$. Comparing to other cities in the world, these concentrations are slightly lower than those of Tokyo and Hong-Kong. But the annual average concentration in heavily industrialized KaoHsiung urban area is 82 $\mu g/m^3$, which is higher than the national air quality standard and is close to that of Brussels. In the international main cities, the lowest concentration is 14 $\mu g/m^3$ in London.

The determination to clean up the air and protect the health and welfare of the people has led the ROC EPA to setup the "Air Pollution Control Fund" starting from July, 1995. The spirit of the "Air Pollution Control Fund" is "The Polluters Pay". In the first phase of 3 years, we levied the fee based on the amount of fossil fuel used by the motorists and

factories. In the subsequent years, we have further changed the policy to levy the fee based on the amount of emission and the kind of pollutants by the factory while the policy for the motorists remains the same. This is to increase the ‘‘economic incentive’’ for the factories to install better air pollution control equipments, use cleaner fuels, improve the efficiency of equipments and reduce the emission. Since then, the ‘‘economic incentive’’ has started to take its immediate effect as is evident in the reduction of SOx by as much as 40 %, and NOx by as much as 60 % in less than 2 years from July, 1998 to March, 2000.

The air pollution fund is used in various aspects of air pollution control measures and researches. In the stationary sources, tasks that are being carried out include execution of emission permit system, factory inspection, assisting factories to reduce emissions, sulfur content reduction and fuel quality control, setting strategy of integrated emission limit, recovery of gasoline vapor from the gas stations etc. In the control of mobile sources, we have setup nation-wide stations for motorbike and diesel truck inspection, subsidize the use of electrical motorbike and buses, LPG taxies and CNG buses, and the replacement of old cars, inspection of new car models, promulgation of phase-3 emission standards for diesel trucks. The production of the notorious 2-stroke motorbikes will be phased out by the end of 2003 when the phase-4 emission standard for motorbike is enforced.

The fugitive dust sources are significant pollutant sources in Taiwan. The control measures are landscaping and afforestation of the unpaved surfaces, roads and landfills, construction of environmental parks and bicycle routes, audit and inspection of construction sites, street sweeping etc.

The ‘‘National Environmental Protection Plan’’ promulgated by the ROC government mandates that the fraction of days that the air quality is not good (or the Pollution Standard Index is greater than 100) per year be less than 3 % in the year 2001, 2 % in 2006 and 1.5 % in 2011. In the year 2000, most part of the countries have either good or fair air quality, and the fraction of bad air quality is reduced dramatically from 6.6 % in 1991 to 4.1 % in the year 2000. This indicates that the control measures that we have taken are timely and effective. In the southern Kaohsiung-Pintung air quality region where many heavy industries are located, the fraction of bad air quality is about 10.6 % in 2000 and there are still room to improve. The recently promulgated ‘‘regional integrated emission limit of pollutants’’ in that region is set to further reduce the emission of pollutants by encouraging factories to use cleaner fuels and applying best available control technologies (BACT). I am sure that in the near future, the goal set forth by the ‘‘National Environmental Protection Plans’’ will be achieved.

According to the data acquired in our air quality monitoring network, O_3 and PM_{10} are the two major index pollutants. In 2000, PM_{10} accounts for 49 % of the major index pollutant while O_3 accounts for the other 51 %. In addition to the primary emissions, the complex chemical reaction taking place in the atmosphere leads to the formation of fine particles and O_3, which are prevalent in many urban cities. By introducing vehicles that use clean fuels and implanting better transportation systems, we hope to reduce these photochemical smog problems. Another undergoing research is to investigate whether it is necessary to levy extra air pollution fee based on VOC emissions, hoping to come up more effective measures to reduce the precursors of fine particles and O_3.

Air pollution is by no means a local problem rather it is an international problem. A very good example is the famous Asian dust storms from China in spring each year, which have increased the fraction of days with bad air quality in Taiwan by nearly 1 % in 2001. Japan and Korea are even more seriously affected. I am very sure that many good papers presented in this topic will bring new insights to the understanding of the problems and eventually come up with solutions for them. Besides Asian dust storms, Taiwan EPA is sponsoring scientists to conduct researches in ACE-Asia, global changes and acid rain, many of which are international projects. In addition, in response to the 1987 Montreal protocol, we have actively participated in the international environmental affairs. In Taiwan, the use of CFC as propellants of cosmetics and as refrigerants in cars was banned in 1983 and 1994, respectively. The production and import of CFC were also prohibited starting from

1996.

To deal with air pollution calls for the determination of the government, good reaches of scientists like you, and participation by all people. Air pollution fee levied in Taiwan is the determination of the people and the government to clean up the sky and share the responsibility to reduce the global environmental problems.

Ladies and gentlemen, I wish a great success of this conference and hope everyone enjoy your stay in Taipei city and Taiwan. Let's work together for the better and cleaner tomorrow!

Statistic Report of Evaluation Forms for the 6th IAC Taipei, Taiwan, Sep. 8-13, 2002

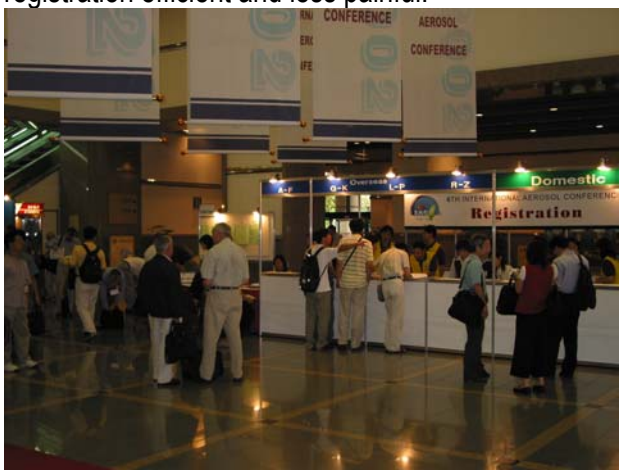
— by Conference Secretariat

Total number of forms received: 54

Statement	Strongly agree	Agree	Uncertain/ No opinion	Disagree
A. The overall technical quality of the conference was excellent.	**30** (55.56%)	**22** (40.74%)	**2** (3.7%)	**0** (0.0%)
B. The program content was relevant to my needs.	**24** (42.86%)	**28** (51.85%)	**2** (3.7%)	**0** (0.0%)
C. The overall objectives of the conference were met.	**24** (42.86%)	**28** (51.85%)	**2** (3.7%)	**0** (0.0%)
D. I learned new or worthwhile knowledge.	**27** (50.0%)	**25** (46.3%)	**2** (3.7%)	**0** (0.0%)
E. The authors presented the materials effectively.	**20** (37.04%)	**30** (55.56%)	**4** (7.41%)	**0** (0.0%)
F. Audiovisuals devices were satisfactory.	**31** (57.41%)	**23** (42.59%)	**0** (0.0%)	**0** (0.0%)
G. The meeting facilities were satisfactory.	**33** (61.11%)	**20** (37.04%)	**1** (1.85%)	**0** (0.0%)
H. The staffs were helpful.	**40** (74.07%)	**14** (25.93%)	**0** (0.0%)	**0** (0.0%)
I. Social programs were satisfactory.	**26** (48.15%)	**22** (40.74%)	**5** (9.26%)	**1** (1.85%)
J. Welcome reception, coffee break, banquet were satisfactory.	**31** (57.41%)	**19** (35.19%)	**4** (7.41%)	**0** (0.0%)
K. Registration and tutorial fees were reasonable.	**24** (44.44%)	**26** (48.15%)	**4** (7.41%)	**0** (0.0%)
L. Hotel accommodation was satisfactory.	**32** (59.26%)	**18** (33.33%)	**4** (7.41%)	**0** (0.0%)

Smiley-faced helpful student assistants made registration efficient and less painful.

Opening ceremony lecture attracts many attendants in a large lecture hall.

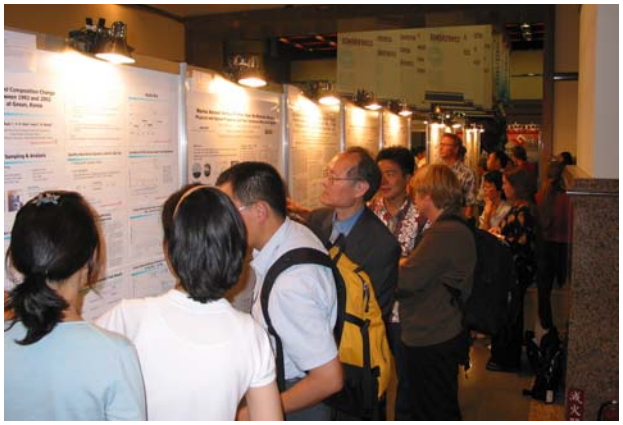


Attendants found registration desk very helpful and a good gathering place.

Cliff Davidson talked to the audience regarding the measurement results of Pittsburgh Supersite, USA.

Icebreaker reception was another well-acclaimed event early held in the conference.

Well-attended oral presentations carefully selected by Technical Program Chair Prof. Chiu-sen Wang.



Conference attendants eagerly checking out poster presentations.

Profs. Seinfeld and Flagan and many others chatting head to head in close distance.

Aerosol researchers from all over the world gathered together in the 5-day conference.

Prof. Neng-Huei Lin and guest happily meeting and talking to each other in the conference.

Prof. Fissan and others were concentrating on reading a poster.

Conference attendants enjoyed the Chinese food served throughout the conference period.

Technical program chair Prof. Wang, President Chao and honored guests in GM sponsored dinner.

Prof. Chiu-sen Wang gave his speech as the successor of the IARA chair.

Prof. Helmuth Horvath and Dr. Denis Boulaud, received the IARA international aerosol fellow award.

Prof. David Pui announced the next IAC will be held in St Paul, Minnesota in 2006.

Prof. Da-Ran Chen received Smoluchowski award from the European Aerosol Assembly.

Aerosol experts from all over the world dined together and stared at the camera together.

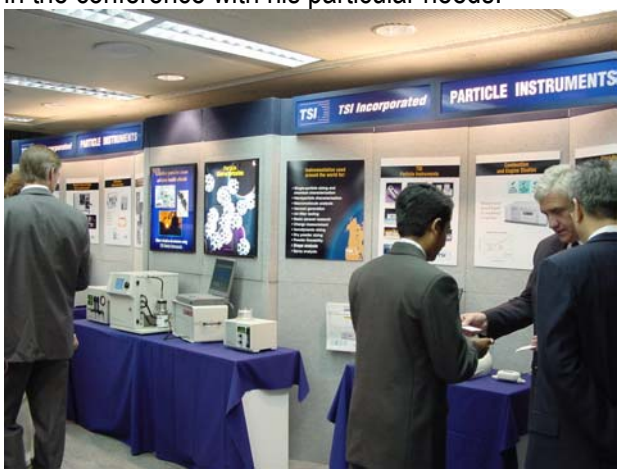
What a warm, successful and memorable moment!

Enthusiastic exhibitors were complimented for eagerness to introduce their products.

Conference chair and entertainers pose together.

Professional exhibitors from afar helping a customer in the conference with his particular needs.

Very well praised student assistants, energetic and smiley, enjoyed themselves in conference dinner.



TSI made a major effort showcasing many of their instruments in three reserved booths.

Computers, internet connection and printers were available on-site for conference attendants.

The First Cross-Strait Roundtable Meeting on Aerosol Research was held on September 12, 2002.

President Chih C. Chao hosted the meeting with Dr. Hong-Guang Luk, director of Bureau of Air Quality Protection and Noise Planning, EPA, Taiwan, Republic of China, sitting next to him.

IAC 2002 EXHIBITORS

Twelve exhibitors displayed their latest aerosol products, instruments and publications at the conference including:

TSI Inc.
Dekati Ltd.
URG corp.
Le & Der
Topas GmbH
Taiwan IOSH
MSP Corp.
Sunway Scientific Corp.
Taylor & Francis
Rupprecht & Patashnick
Elsevier Science.

Thank you!

Your contribution to the conference is highly appreciated!

Aerosol Tech Update

Latest Information Revealed on PM in Asia

Dr. Tai Chan
General Motors
USA

The special symposium on PM in Asia during IAC 2002 was well attended with over fifty papers presented in five platform sessions and a poster session. Papers were focused on current research on urban $PM_{2.5}$ or PM_{10} in Asian cities. While Prof. Lippmann's plenary lecture provided the background and scientific rationale on the history and development of the National Ambient Air Quality Standards (NAAQS) in the USA with specific reference to PM, Dr. Roger McClellan, another Clean Air Scientific Advisory Committee (CASAC) member, reviewed the latest developments and current efforts to reanalyze the published epidemiological data which led to the $PM_{2.5}$ standard. As the controversy over the new $PM_{2.5}$ standard is expected to continue for some time, Christine Loh (CEO of Civic Exchange in Hong Kong) pointed out the opportunity to collaborate and interact with stakeholders to ensure that public policy decision makers will have the best scientific input prior to establishing the national air quality standards in Asia. She cited the expected benefits from a new partnership - the Pearl River Delta project, which will integrate the joint efforts between environmental scientists and government leaders to improve the environment in that southern region of China.

Other prominent scientists who shared the platform were Drs. David Streets, Tami Bond, Yaping Shao, P.D. Hien, R. Bala and C.T. Lee. The highlights of their remarks and other speakers can be summarized as follows:

- PM in Asia is dominated by emissions from the combustion of coal and biomass. The computations by David Streets on $PM_{2.5}$ were based on source inventories with the CMAQ model (Streets, *et al*. 2001) as shown in Figure. 1.
- The long range transport of dust storms in northern China can increase PM in southern China (Shao, 2001) as shown in Figure 2.
- Monsoons in southeast China can have a cleansing effect from the rain, but the winds can influence the regional transport of PM. The PM_{10} daily concentration in Hanoi varied substantially from 10 $\mu g\ m^{-3}$ in the rainy summer months to over 300 $\mu g\ m^{-3}$ in the winter (Hien, *et al*., 2002).
- Emissions from forest fires in Indonesia can increase PM in Malaysia and other ASEAN nations (Bala, *et al*., 1999), and new data on the source profiles on emissions from Chinese coals and briquettes was presented by Dr. Tami Bond.
- Emissions from motorcycles can be a significant source of PM in Southeast Asia.
- $PM_{2.5}$ standards comparable to the US may be an ambitious goal but would not be achievable in the emerging nations in Asia in the near term.

The extended abstracts from the conference proceedings and a short list of references provide more details on these scientific findings. It is clear that PM in Asia will be the focus of two special symposia in 2003, the AAAR PM symposium in Pittsburgh in March, and the PM in China symposium in Hong Kong in July, 2003.

Hien, P.D. *et al*. (2002) *Atmos. Environ*. **36**: 3473-3484.
Streets, D.G. *et al*. (2001) . *Atmos. Environ.* **35**: 4281-4296.
Shao, Y.(2001) *J. Geophys. Res*. 106: 20239-20254.
Balasubramanian, R. *et al.* (1999). *J. of Geophys. Res.* **104**: 26881-26890.

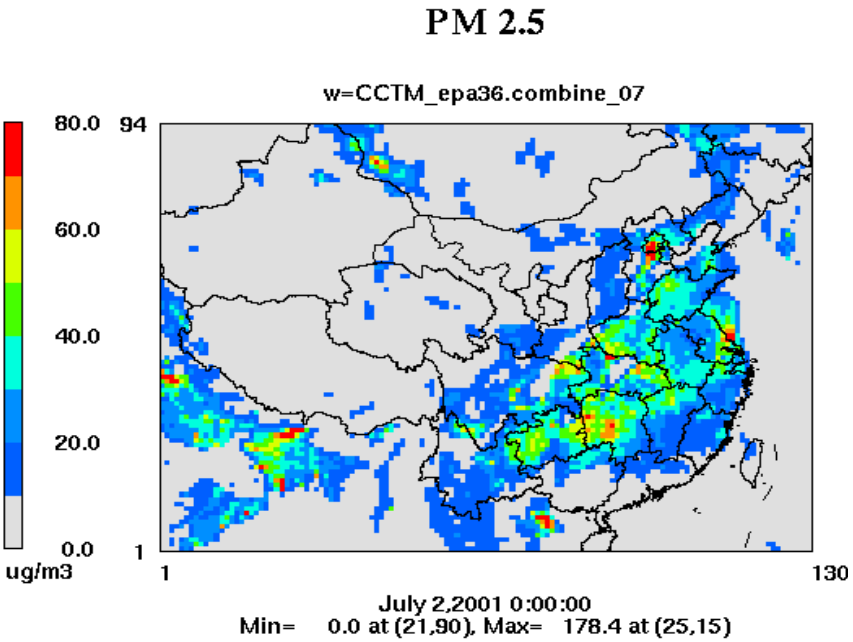


Fig 1. $PM_{2.5}$ calculated by D.G. Streets based on CMAQ model (2001)

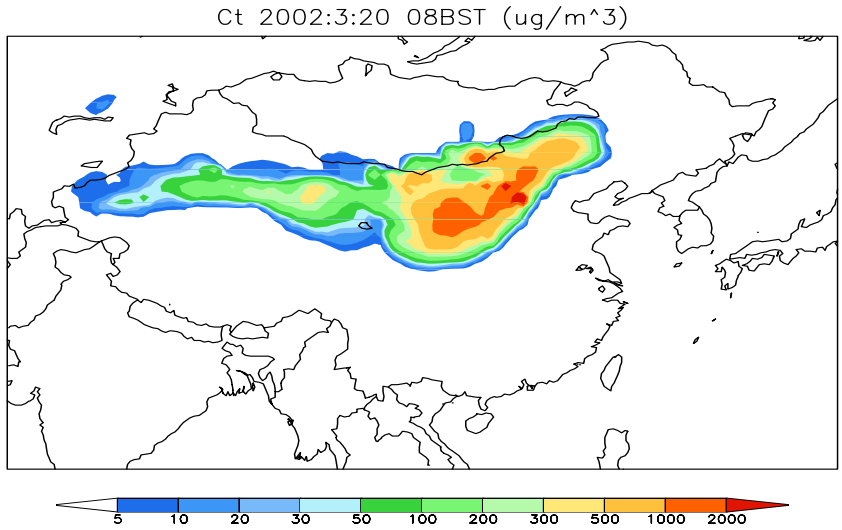


Fig. 2: 08 hr 20 March 2002 (BST) surface meteorological observations and predicted near surface dust concentration in ug/m3. (Shao, IAC 2001)

Aerosol Research in Taiwan

Ultrafine Particle - System Engineering Laboratory (UP-SEL)

Yuan Ze University

Department of Chemical Engineering

Taoyuan, Taiwan (northern Taiwan)

Supervisor: Prof. Yu-Chen Chang

Contact information:

Phone: + 886-3-463-8800 Ext. 571

Fax: + 886-03-455-9373

Email: yjchan@saturn.yzu.edu.tw

Established since: Feb. 1997

Research Direction and Interests:

The laboratory was established to conduct fundamental and applied research on ultrafine particle related topics. Professor Chang's academic training in combined aerosol science and chemical engineering has allowed her to focus on powdery material synthesis via aerosol and other colloid methods; design, development, control, optimization and automation of gas-phase and liquid-to-particle conversion aerosol reactors, as well as the design and engineering state-of-the-art semi-automatic aerosol samplers as demonstrated in the research to optimize University of Maryland high frequency slurry sampler and the original design of a University of Maryland 3-hour 5-channel sequential organic sampler in the US EPA funded Baltimore Supersite project.

Dr. Chang has a wide interest in aerosol or fine particle problems in many different areas such as development of a novel flat flame-based chemical vapor deposition (CVD) process; nanoparticle and electrochemistry combined research in fuel cell electrode and membrane electrode assembly; powder processing and slurry formulation research in nanostructured ceramic membranes for ultrafiltration, chemical sensors, solid oxide fuel cell electrolyte, photocatalyst, far-infrared materials, and research to produce ultrafine particles with tailored properties for preparing nanostructured electrodes for lithium ion battery etc.

Current Research:

1. Development and application of a novel low-pressure flat flame nanoparticle synthesis technique, or a Combustion-CVD process to synthesize size, crystal phase-, and composition-controlled, loosely agglomerated nanoparticles and nano thin films.
2. Development and application of spray pyrolysis aerosol reactors to synthesize size, shape, purity and composition-controlled ultrafine particles.
3. Development and application of sol-sprayed reactor system to synthesize nanoparticles, and thin to thick films.
4. Development and application of Computational Fluid Dynamics (CFD) simulation models using commercial CFD package FLUENT and of its flow visualization capabilities to study dynamics of a single aerosol particle or an aerosol population in non-reacting and reacting transport systems.
5. Research on all other ultrafine particle related problems and applications.

Capabilities:

- Development and engineering of aerosol-based micron-to-nanosized powder and thin- to thick-film synthesis systems,
- Development and engineering of state-of-the-art automatic sampling systems.
- Preparation of high purity, size-, crystal-phase, and composition-controlled, monodisperse, loosely agglomerated nano to micron sized monodisperse Titania (TiO_2), zirconia (ZrO_2), alumina (Al_2O_3), mixed oxides, metal alloy nano-particles and nano film.
- 3-Dimensional FLUENT-based spray pyrolysis reactor simulation modeling with aerosol thermophoresis wall-deposition suppression control designs; 3-Dimensional FLUENT-based Trap Impactor simulation modeling; 2-Dimensional FLUENT-based Flat flame simulation modeling.
- Process development and engineering component design, development, optimization and control and automation specifically for aerosol systems.

- Research in all other ultrafine particle related problems and applications.

Major Facilities:
Low Pressure Flat-Flame Chemical Vapor Deposition and Nanoparticle Synthesis System
Spray pyrolysis Aerosol Reactors
Sol-Spray Deposition Reactor
Sol Preparation Facilities
Ovens and Tube furnaces
Sintering Furnace
Ultrafiltration devices
Coulter Multisizer II
Coulter N4 Plus
Ball Mill
Mixers
Spraying chamber
Custom-designed Nozzles and Nebulizers

Funding Sources:
National Science Council (NSC)
Ministry of Education (MOE)
Ministry of Economic Affairs (MOEA)
MOEA Energy Commission (MOEAEC)
Chung-Shan Institute of Science and Technology (CSIST)
Industry Partnerships

Collaborations Sought:

UP-SEL and her members enjoy constant challenges and interdisciplinary collaboration with academia, research institutes and industries. Particularly, we enjoy active and close collaboration on innovative research topics and difficult real-world problems related to synthesis, control, and sampling of micrometer to nanometer particles. Particularly, UP-SEL will focus on nanoparticle related research, both fundamental and applied to meet the need of the future of the 21st century. If interested, please do not hesitate to contact Prof. Chang via email or by phone.

Research Crew:
Full-time Master-level Research Assistant: 1
PhD students: 3
Master students: 2
Undergrad students: 6

Well-equipped ultrafine particle research facilities in a large laboratory as shown in photo.

Graduate student analyzes particle size distribution of a powder sample via Coulter Multisizer II.

Prof. Chang (right) and UP-SEL research crew pose with Prof. James W. Gentry (third from the right).

Aerosol Researcher Profile

Name: Shih-Chun Candice Lung

Current employment status:

Assistant Research Fellow,
Environmental Change Research Project,
Institute of Earth Sciences,
Academia Sinica, Box 1-55, Nankang,
Taipei, Taiwan, 11529

Education:

Doctor of Science,
Department of Environmental Health,
Harvard School of Public Health

Work Experience:

Associate Professor and Chairman,
Department of Public Health,
Chung Shan Medical and Dental College

Research Interests:

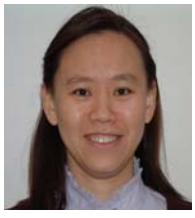
Personal PM exposure assessment
Health-related aerosols
Influence of aerosols on climate

Honor: none

Dear friends of CAART:

This is a column to introduce aerosol researchers in Taiwan, not only in a professional aspect, but also in a personal level. We would like to know your main interests and research fields in aerosol sciences, academic achievement, professional views about aerosol science development, and any other thoughts you would like to share with the members of CAART (ex. your family, your hobby, etc). Please don't be too humble. Let us get to know you better! In this issue, I will introduce myself as a start.

Contact Information:
Tel: +886-2-2783-9910, ext. 277
Fax: +886-2-2783-3584
Email: sclung@earth.sinica.edu.tw



I like to conduct researches that are close to our daily lives. That is why I chose to study in the field of exposure assessment at School of Public Health. Therefore, my research in particulate matter (PM) has begun with assessing PM exposure levels of general public (ex. residents' exposure in different communities in Taiwan). In addition, I also focused on certain sub-groups with potentially high PM exposure such as religious believers during worshipping and customers in smoking/nonsmoking divisions of restaurants. The main purposes of these researches are to identify major PM exposure factors, especially culture-related factors, and to evaluate the contribution of these factors. I believe that certain PM sources related to our daily activities such as worshipping are important exposure sources, which are overlooked with ambient monitoring alone. Since personal exposure levels rather than ambient concentrations are the crucial links to health effects, identifying important exposure sources and factors can be used in several aspects: 1) to educate people for self-protection, 2) to provide exposure information to epidemiologists for further health-outcome investigation, 3) to offer suggestions for further regulation and control. I like to conduct this kind of researches because those issues are closely related to our everyday lives.

The effects of aerosols on health depend on both their sizes and compositions. Nowadays, my research interests have shifted from PM_{10} to $PM_{2.5}$, PM_1, or even ultrafine particles. It is interesting to know the distribution of numbers of ultrafine particles close to people. In terms of compositions, I am interested in those with certain health implications such as sulfate, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs). PM and PAHs are combustion products. Especially in indoor environments, where pollutants are easily accumulated, certain combustion activities are potentially important exposure sources. Incense burning is one of them. I have conducted studies in the laboratory on different kinds of incense and assessed the generation rates and emission factors of PM and PAHs. Besides, I am interested in the temporal and spatial distributions of those health-related aerosols. I would like to study what kinds of daily activities producing those toxic

compounds at what levels and in what size ranges. Understanding the sources is the first step toward regulation and control to protect public health.

The influence of aerosols on climate has become a very important issue. The topic of climate change has always been an intriguing field to me since my major in college was meteorology. I feel happy in my current position that I can also conduct researches related to environmental change. There are a lot of unknowns. Currently, I join a PM project studying the effect of dust storms originated at mainland China on air quality of Taiwan. Dust storms have occurred more frequent in the past few years, probably a result of land development and climate change. Different compositions of aerosol can scatter or absorb radiation, which in turn affecting climate. The complicated interaction between aerosols and climate is fascinating. Nevertheless, to study this kind of big issue requires collaborations among researchers with different specialties. I felt lucky to be able to work with wonderful colleagues in our research group. Myself are also open to possible collaborations with other researchers in different fields. Let us work together to resolve part of those mysteries!

Finally, I must say that it has been fun to conduct researches in aerosol science. Its size is so small and its impact on climate and health is enormous. In addition, the understanding of aerosol properties can be applied in a lot of different fields. To be a member of CAART has the advantage of being exposed to other interesting aerosol fields. In the following CAART Newsletter issues, we will introduce researchers in different aerosol fields so readers can know more about them and their researches.

Calendar of Events

YEAR 2003

Month	Date	Name of Conference (Abstract Deadline)	Location
Feb	23-25	5th International Technion Symposium	Vienna, Austria
Mar Apr	31-4	Particulate Matter: Atmospheric Sciences, Exposure and the Fourth Colloquium on PM and Human Health	Pittsburgh, Pennsylvania, USA
Jun	14-18	14th International Society for Aerosols in Medicine (ISAM) Congress (Feb 28, 2003)	Baltimore, Maryland, USA
Jul	7-9	The 3rd Asian Aerosol Conference (Dec 31, 2002)	Hong Kong, China
Sep	1-5	European Aerosol Conference EAC03 (Feb 14, 2003)	Madrid, Spain
Sep	TBA	CAART 2003 Aerosol Conference	Kaohsiung, Taiwan
Oct	20– 24	AAAR 2003 Annual Conference	Anaheim, California, USA

TBA: To be Announced.

Membership Communication

The membership communication is a corner specifically designed for the CAART members. It serves as a quarterly communicating bridge between all members and those in the office overseeing the ongoing activities and management of the CAART as an academic organization promoting aerosol research in Taiwan.

As well stated by Dr. Jung-Pin Yu of CESH/ ITRI, "the column of Membership Communication should also encourage readers expressing their views or feedback regarding the articles of this Newsletter, CARRT operation or any emerging related matters."

Indeed, the column needs you, every member of the CAART, to provide your precious suggestions and views to make our organization and our common goals even clearer and accurately executed.

Newly Joined Member

Yu-Du Hsu, Dr.

Born in Hua-Lien in 1966, Hsu spent his childhood there and then he went into Min-Chi Institute of Technology, Taipei. After military services, Hsu worked at the department, so-called the sixth naptha cracking plants, of constructing and designing project in Formosa Chemicals and Fibres Corporation. In 1991, although he learned a lot of valuable experiences such as a trial run of machinery in a new PTA factory, Hsu attended the National Taiwan University. Under Prof. Y. P. Chen's guidance, Hsu completed his master and doctoral degrees in Thermodynamics with concentration in modeling and measurement of transport properties of liquid mixtures in 1998. More than six years of post-graduated student's period, Hsu was involved in the monotonous researcher's work and deciding to join into the rank of R&D people.

Working in his presents' hometown, Hsu is working at the section of environmental protection in ITRI for the last three years. Currently, he involves in projects about air pollutant control and trying to find the new researching direction of the department that he is belonging to. He has ever designed the abatement system, which is composed of fluidized-bed type of adsorber and moving-bed type of regenerator, of VOCs. In 2002, the metamorphic year in an unpredictable way, Hsu created a project for the abatement of gaseous air pollutants in atmosphere or flue by photocatalytic TiO_2. He also enjoyed with Dr. HungMin Chein's "The Monitoring and Management Programming for Total Emissions of Air Pollutants in Hsinchu Science-based Industrial Park (HSIP) and Chunan Site" project. Predicting or estimating the pollution level by a model and control it by a new available technology is one of his most favorite job.

After joining to Dr. Chein's group, Hsu started to study the control technology of nano-particle effluent by semiconductor and opto-electrical processes. As we know, nano-particles have high surface area and then high reactivity, so possibly they are more harmful to human. Based on the experience in Formosa Group and the research backgrounds of thermodynamics and transport properties, Hsu is trying to contribute his knowledge to improving the treatment technology of air pollutants especially in semiconductor and opto-electrical industries. The hi-tech industries are facing the nano-particle pollution problems, so Hsu caliber on his field may became the key point to solve the nano-particle pollution problems. He wants to be a professional in the nano-technology field and the field of prediction and control of hazardous air pollutants.

Newly Elected Board Members, Officers, and Committee Chairs

Officers

President

Chih C. Chao, Dr. 巢志成

Vice-President, First

Chung-Shin Yuan, Dr. 袁中新

Vice-President, Second

Hsunling Bai, Dr. 白曛綾

Secretary General

Yu-Chen Chang, Dr. 張幼珍

Treasurer

HungMin Chein, Dr. 簡弘民

Board of Directors

Hsunling Bai, Dr. 白曛綾*

HungMin Chein, Dr. 簡弘民

Shui-Jen Chen, Dr. 陳瑞仁

Charles C.-K. Chou, Dr. 周崇光

Chih C. Chao, Dr. 巢志成*

James Lee, Dr. 李經民

Shou-Nan Li, Dr. 李壽南

Chih-Shan Li, Dr. 李芝珊

Jim J. Lin, Dr. 林銳敏

Neng-Huei (George) Lin, Dr. 林能暉*

Shih-Chun Candice Lung, Dr. 龍世俊

Hsiao-Hsuan Mi, Dr. 米孝萱

Perng-Jy Tsai , Dr. 蔡朋枝

Hsi-Hsien Yang, Dr. 楊錫賢

Chung-Shin Yuan, Dr. 袁中新*

*:常務理事

Board of Comptrollers

Chih-Chieh Chen, Dr.** 陳志傑

Yu-Kang Chen, Dr. 陳友剛

Chungsying Lu, Dr. 盧重興

Shih-Yuan Lu, Dr. 呂世源

Jung-Pin Yu, Dr. 余榮彬

Committee Chairs

Awards

Chung-Te Lee, Dr. 李崇德

Bylaws

Perng-Jy Tsai, Dr. 蔡朋枝

Education

Shou-Nan Li, Dr. 李壽南

Finance

HungMin Chein, Dr. 簡弘民

Internet Communications

Yu-Chen Chang, Dr. 張幼珍

Long Range Planning

Chung-Shin Yuan, Dr. 袁中新

Membership

Jim J. Lin, Dr. 林銳敏

Newsletter

Shih-Chun Candice Lung, Dr.
Editor-in-Chief 龍世俊

AAQR Journal

Wen-Jhy Lee, Dr. 李文智

International Collaboration

Chih C. Chao, Dr. 巢志成

Industrial-Academia Partnerships

HungMin Chein, Dr. 簡弘民

**:常務監事

Advertisement