



Hong Kong Institute of Occupational and Environmental Hygiene

香港職業及環境衛生學會

A member of IOHA and HKFMS

P.O. Box 9645, General Post Office, Central, Hong Kong

Website: [www.hkioeh.org.hk](http://www.hkioeh.org.hk) e-mail: [hkioeh@netvigator.com](mailto:hkioeh@netvigator.com)

***Programme of HKIOEH Annual Technical Conference &  
Annual General Meeting 2022***

The Annual Technical Conference and Annual General Meeting of the HKIOEH will be held virtually on September 17, 2022

Health, Safety and Environment Office (HSEO) of The Hong Kong University of Science and Technology, Health and Safety Office (HSO) of The Hong Kong Polytechnic University (PolyU), and Center for Occupational and Environmental Health Studies (COEHS), Jockey Club School of Public Health and Primary Care of The Chinese University of Hong Kong are the supporting organizations.

**Date:** 17 September 2022 (Saturday)

**Registration and payment:** A Zoom link for attending the ATC/AGM2022 will be sent individually to the members who have successfully registered the ATC/AGM and paid the membership fee for 2021-22.

**Organizing committee:** all Executive Council members including

|                  |               |                 |
|------------------|---------------|-----------------|
| CHEUNG Chi Yeung | TSIN Tai Wa   | CHAN Keng Kwong |
| TSE Chun Kuen    | TSE Lap Ah    | WONG Ming Hei   |
| YU Hoi Yan       | HO Lok Yin    | LO Shuk Yee     |
| LIM Ka Ling      | LOUIE Man Wai | LAI Tai Ming    |

**Chair:** President Alex CHEUNG

**Scientific Review Committee:**

Prof. Samuel Yu, HSEO Director and HSEO colleagues of HKUST

## **Programme rundown:**

### **AGM session**

|                                    |  |
|------------------------------------|--|
| 8:45AM – 9:00AM                    | Admission - AGM  |
| 9:00AM – 9:05AM<br>9:05AM – 9:25AM | Opening addressing<br>Annual report by President (2021/2022) – Mr. Alex Cheung<br>Financial report by Treasurer (2021/2022) – Miss. Tammy Lo |
| 9:25AM – 9:40AM<br>9:40AM – 9:45AM | Election of council members and auditors (2022-2023)<br>AOB  |
| 9:45AM – 10:00AM                   | Break  |

### **ATC session**

|                           |   |
|---------------------------|---|
| 9:45AM – 10:00AM          | Admission - ATC   |
| Moderator:<br>Alex CHEUNG | Keynote speeches  |
| 10:00AM – 10:40AM         | <i>Keynote Speaker 1:</i> Ir Prof. Albert CHAN<br><i>Topic:</i> Designing anti-heat stress uniforms for construction workers      |
| 10:40AM – 10:50AM         | Q&A   |
| 10:50AM – 11:30AM         | <i>Keynote Speaker 2:</i> Ir Prof, Horace MUI<br><i>Topic:</i> Indoor Bioaerosols and Health – A Novel Wireless Tracer Gas System |
| 11:30AM – 11:40AM         | Q&A   |

|                         |  |
|-------------------------|--|
| Moderator:<br>Kitty LIM | Technical speeches   |
| 11:40AM – 12:00PM       | <i>Speaker 1:</i> Mr. TSIN Tai Wa<br><i>Topic:</i> Role of Occupational Hygienists in Chemical Safety – Hazard Information for Actions!  |
| 12:00AM – 12:20PM       | <i>Speaker 2:</i> Mr. Nevin Ng<br><i>Topic:</i> Sharing on gas cylinder safety   |
| 12:20PM – 12:40PM       | <i>Speaker 3:</i> Mr. Bruce WONG<br><i>Topic:</i> Health & Hygiene Management for International Humanitarian Assistance Missions         |
| 12:40PM – 13:00PM       | <i>Speaker 4:</i> Mr. Gengze LIAO<br><i>Topic:</i> Neurological health and internal exposure from e-waste recycling: a systematic review |
| 13:00PM – 13:20PM       | Q&A  |
| 13:00PM – 13:30PM       | Wrap up  |

## **Keynote speech (1)**

Ir Prof. Albert P.C. CHAN  
Dean of Students, Associate  
Director of Research Institute  
for Sustainable Urban  
Development,  
Able Professor in  
Construction Health and  
Safety  
Chair Professor of  
Construction Engineering and  
Management  
The Hong Kong Polytechnic  
University



### **Topic:**

Designing anti-heat stress uniforms for construction workers

### **Abstract:**

Summer time in Hong Kong is hot and humid. Construction workers have to undertake physically demanding activities in these hot and humid conditions which pose a significant challenge to their health. Safety workwear is worn by construction workers to protect them from many potential hazards inherent on the job, but workers often dislike wearing safety workwear because it can be hot, cumbersome, and slow down work progress. Safety workwear should make workers feel cool, dry and comfortable, and more importantly, able to protect them against the damaging UV rays from the sun. Obviously, workwear for construction during summer time warrants special attention. The aim of the study is to address this pressing need of the industry by bringing a scientific approach to assessing the effects of heat stress on construction workers and to design of proper workwear for construction workers accordingly.

This paper firstly reports on the common health risks of working in hot and humid conditions. Qualitative and quantitative research methods applied in conducting the research are discussed. Although this study applies specifically to the construction industry of Hong Kong, the same methodology could be extended to other industries and to other countries.

### **Short bio:**

A Chartered Construction Manager, Engineer, Project Manager, and Surveyor by profession, Ir Prof. Chan has worked in a number of tertiary institutions both in Hong Kong and overseas. He was a Senior Lecturer and Deputy Head of the School of Building and Planning at the University of South Australia. Ir Prof. Chan joined the Department of Building and Real Estate of the Hong Kong Polytechnic University in 1996 and was Associate Head (Teaching) from 2005 to 2011; Associate Dean and Interim Dean of the Faculty of Construction and Environment from 2011 to 2013, and from 2013 to 2014 respectively. He was Head of Department of Building and Real Estate from 2015 to 2021 and is currently Dean of Students, Associate Director of Research Institute for Sustainable Urban Development, Able Endowed Professor in Construction Health and Safety, Chair Professor of Construction Engineering and Management, and Chief Warden of PolyU Students Halls of

Residence. Ir Prof. Chan's research interests include project management and project success, construction procurement and relational contracting, public private partnerships, and construction health and safety. Ir Prof. Chan's research has had a real and significant impact on the construction industry resulting in changes in policy decisions. His recommendations have been incorporated in the Construction Industry Council Guidelines on "Site Safety Measures for Working in Hot Weather" since April 2013. He has produced over 1,000 research outputs in refereed journal papers, international refereed conference papers, consultancy reports, and other articles. He has won numerous prestigious research paper and innovation awards since 1995. Ir Prof. Chan served as an expert member in the Built Environment Panel of FORMAS, Swedish Research Grants Council. He was also an expert member to assess the research performance of the Faculty of Architectural and the Built Environment, TU Delft, the Netherlands in 2016. Ir Prof. Chan served as an expert member of the Engineering Panel of the Research Grants Council, HKSAR from 2015 to 2021. Ir Prof. Chan holds a MSc in Construction Management and Economics from the University of Aston in Birmingham, and a PhD in Project Management from the University of South Australia. He has been Adjunct Professor in a number of universities. Ir Prof. Chan was also a Founding Director of Construction Industry Institute, Hong Kong, which was a joint research institution developed by industry and the academia.

## **Keynote speech (2)**

Ir Prof, Horace MUI  
BEng(Hons), PhD,  
FHKIE, MCIBSE, MASHRAE,  
CEng, RPE



### **Topic:**

Indoor Bioaerosols and Health – A Novel Wireless Tracer Gas System

### **Abstract:**

In the field of indoor bioaerosols and health, the development of a generalized bioaerosols distributions is important for environmental risk prediction and control. Most of our recent effort in technology/knowledge transfer has been paid on the transmission of pathogen within an environment. With the support from the University and industry, a novel wireless tracer gas system was developed that can help operators to identify high-risk areas for virus transmission or pollutants. The system assesses hazards in a given space and allows people to monitor the conditions remotely through internet. It also has “airborne pathogen tracing / dispersion” facility to simulate how a virus would spread and help to locate high-risk areas. The system can locate dangerous areas and enhance ventilation, which is five or six times faster than traditional sample-collecting and analyzing work. It requires less manpower as all measurement data is uploaded online for analysis automatically. The data acquired can be further used to enhance the Indoor Air Quality (IAQ) control of the property in an intelligent way and its power consumption at the same time. The system could also help to trace intermittent unwanted infiltration of contaminants for emergency control purposes.

This design has been adopted in real projects and has created hot discussions in town, such as the cases of i) On stage tracer gas air flow analysis for risk assessment of potential pathogen dispersion profile in association with Hong Kong Philharmonic Orchestra and ii) Enhancement of ventilation system in catering facilities. Besides, this system is applicable to special situation, for instance during a pandemic, to conduct monitoring in wet market, elderly center and restaurants where transmissions are observed, even clean-up has been done. Once the equipment is set-up, the system will release and track the tracer gas remotely without the presence of technician. Besides, no personnel is required to be on-site and the data will be automatically transmitted to server for analysis. Compared to traditional method which takes about half a day to collect and analysis the data, this new approach takes only 2 hours to report the pathogenic bioaerosol dispersion pathway. To conclude, much less manpower and time are needed. Positive responses were received from different parties and industries upon the successful press conference. In these

days of difficulty, PolyU and BEEE will stand strong and fight against the virus together, to help improve the situation are always crucial and highly valued.

**Short bio:**

MUI Kwok Wai, Horace is the Associate Head and Professor of Department of Building Environment and Energy Engineering (BEEE) at The Hong Kong Polytechnic University (PolyU). He studies building and environmental engineering covering the areas of indoor environmental quality, indoor air quality, built environment, and energy efficient building technology. His work covers bioaerosol transportation in indoor environments, thermal comfort, building ventilation and drainage system, etc. He has an excellent track record in securing external research grants from both the Government and the Industry. Prof. Mui has published more than 140 journal and archival papers and about 150 conference papers and technical reports. He obtained over 40 grants including CRF (as PC), GRF, ECF, PPR and competitive funds, and the total funding sought was over HK\$20 million (exclude PolyU studentship and large equipment fund).

On behalf of the University, he has performed presentations in local secondary schools and shared his research findings in public media, newspapers, journals, conferences, forums and invited workshops all over the world. He has also offered community services to organizations serving the underprivileged. Prof. Mui's research experiences have led him to a number of high-level consultancy projects in relation to IAQ investigation and assessment, air-conditioning system and deodorizer systems performance evaluation, review of IAQ standards in Hong Kong, drainage designs for housing estates and energy benchmarking in Hong Kong, etc.

## **Technical speech (1)**

*TSIN Tai Wa, (錢棣華)*  
Medal of Honour (MH),  
BSc, MSc, CChem MRSC,  
CIH, FHKIOEH, RPH,  
RSO, RSA.



### **Topic:**

**Role of Occupational Hygienists in Chemical Safety – Hazard Information for Actions!**

### **Abstract:**

In March 2022, the amendment of the Dangerous goods Regulations has finally been announced. It is going to align with the international standards (basically the IMDG code) for classification in transport and storage purposes, etc. As regards to the use of hazardous chemicals, the regulations on dangerous substances (enacted in 1988) are still in place. In view of the current situations, the role of occupational hygienists should remain vigilant to advice the management and the frontline operatives about the knowledge on the use, handling, transport and storage of hazardous chemicals. There are many different sources and various forms of hazard information. The implementation of the Globally Harmonised System (GHS) for chemical classification has an important impact in the field of occupational hygiene practice. It changes the mind set for chemical risk assessment for workplaces. Yet, expertise in occupational hygiene is necessary to conduct risk assessment and develop a risk management programme.

This presentation is going to share experience and discuss about the usage of convenient sources of information available to the users: how we could make best use of them for the protection of workers; such as the information on symbols, labels, safety data sheets and other suitable references. The key issues are to alert management on providing appropriate preventive measures, increasing the awareness and changing the behaviour of frontlines to respect chemicals in use.

### **Short bio:**

TW is one of the founding members of HKIOEH. He has been working in the field of occupational health and safety for over 40 years. He was retired from the Labour Department as senior occupational hygienist but still involved in teaching and research activities at present. He has been appointed by the School of Public Health (CUHK) as an adjunct assistant professor since 2000, and the Department of Real Estates and Construction as an adjunct associate professor as well as the honorary research associate of the School of Public Health (HKU), since 2010. On the other hand, he has been acting as an asbestos laboratory technical assessor for over 30 years. TW's major interests are about chemical and physical health hazards in workplaces and a number

of papers on toxic gas, solvent and dust hazard exposures have been published. Also, he is keen on the application of hazard information for chemical use under the new approach proposed in the GHS scheme for chemical classification and health risk assessment.



## **Technical speech (2)**

Nevin Ng  
Special Product Sales  
Engineer  
Linde HKO

### **Topic:**

Sharing on gas cylinder safety in Hong Kong

### **Abstract:**

Compressed gas cylinders are commonly used in different industries in Hong Kong. Improper storage, conveyance, usage, or disposal of compressed gas cylinders may result in unexpected chemical exposure, fire, or even explosions.

The speaker would share the experience and common practices on compressed gas cylinder safety in Hong Kong. The sharing would include the physical and chemical properties of commonly used gases, and the understanding of gas cylinders, liquified gas cylinders, and gas regulators. The potential risks associated with compressed gas cylinders and the practices on safety and emergency handling of compressed gas cylinders would also be included.

### **Short bio:**

Nevin Ng is the Special Product Sales Engineer at Linde HKO. Linde HKO is under Linde group which is a global leader in the international industrial gases market.

### **Technical speech (3)**

Mr. Bruce WONG Siu Fung  
BSc (Hons), MSc, FICPEM,  
FIIRSM, CMIOSH, RSO.



#### **Topic:**

Health & Hygiene Management for International Humanitarian Assistance Missions

#### **Abstract:**

Throughout the history, the rescuers always the challenges of health and hygiene in the international humanitarian assistance mission. It is because some infrastructures, such as water supply, sewers and electrical grids, are damaged after disasters. Therefore, the international relief teams need to be able to be entirely self-sufficient for the duration of deployment without becoming a burden on the affected country or other international response organizations. It includes food, drink, sanitation and hygiene for performing lifesaving activities and other relief missions professionally and safely.

Over the years, Bruce built his credentials in international urban search and rescue (USAR) and incident safety management, and actively participated various international humanitarian assistance activities, such as capacity building programmes for USAR teams and their classifications. During the presentation, he will share the health & hygiene measures which recommended by the United Nations and some common practices implemented by the recognized USAR teams.

#### **Short bio:**

Bruce is a Registered Safety Officer and holds a Bachelor's Degree in Occupational Safety, Health and Environment and Master's Degree in Safety, Occupational Health and Environmental Management. In addition he attained fellow memberships from the Institute of Civil Protection & Emergency Management and the International Institute of Risk & Safety Management. He has been appointed as Ambassador to Asia Pacific at the Institute of Civil Protection & Emergency Management and Country Representative of the International Association of Emergency Managers.

## **Technical speech (4)**

Mr. Gengze LIAO  
Ph.D. student at the  
JC school of public health,  
CUHK.



### **Topic:**

Neurological health and internal exposure from e-waste recycling: a systematic review

### **Abstract:**

**Background:** The health impacts of electronic waste (e-waste) are attracting attention worldwide. In this study, we focused on the effects of internal exposure from e-waste recycling on neurological health.

**Methods:** This study was conducted following the PRISMA checklist. English journal articles reporting internal exposure from e-waste recycling and neurological health outcomes were retrieved from five databases and the reference list of the e-waste reviews.

**Results:** We retrieved 4,117 articles and included 23 studies in this review. Most studies focused on the young generation from China, who had elevated internal exposure levels and poor neurological health. Almost all the children's blood lead levels exceeded 5 µg/dL. While adults in recycling areas were likelier to have hearing-impaired and neurodegenerative, children tended to suffer poor outcomes in neurodevelopment, cognition, sensory function, and neurobehavior.

**Conclusion:** This study suggested that elevated internal exposure from e-waste, especially blood lead levels, is linked with poor neurological health across the life span.

### **Short bio:**

Gengze Liao, who graduated from Southern Medical University, is currently a Ph.D. student at the JC school of public health, CUHK. He is responsible for the "Exposure prevention behavior, chemical burden and neurobehavioral alterations among e-waste recycling workers in Hong Kong" project, funded by the Research Grants Council - General Research Fund. He is also interested in studying the health effects of environmental exposure, sleep, and circadian rhythm on other occupational populations.

**Thanks for your support to HKIOEH.**