HKIE THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會

Veneree Club 睿賢學社

2023 Engineering Exposition -

Engineering Life Challenges

Saturday 18 March 2023
8:45 am - 12:45 pm

at HKIE Headquarters,
9/F, Island Beverley, Causeway Bay
Hong Kong

Contents

Acknowledgements

The HKIE Veneree Club would like to express their gratitude to the following companies for their sponsorship to the Engineering Exposition.

ATAL Engineering Group
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The Airport Authority Hong Kong
The Hongkong Electric Company Limited
Tsuen Lee Metals & Plastic Toys Company Limited

(Listed in alphabetic order)

Chairman's Message – Veneree Club

Veneree Club "睿賢學社" continues its good tradition and commitment of organising annual Engineering Exposition for young engineers. Last year, it was unavoidable that we had to hold the event online due to restrictions of Covid-19. To enable more interactive communications this year, we choose to return to physical participations, and further organise break-out sessions after the main talks, in which smaller groups of young engineers can interact more closely with each speaker.

We continue to choose "Engineering Life Challenges" as the theme to emphasise engineers needed to face and overcome challenges in our career. While it is important to equip ourselves with necessary technical knowledge to solve complex engineering problems, equally we need positive energy for further advancement.

The Engineering Exposition aims to provide a platform for distinguished engineers to share their valuable experience in how they overcome obstacles and navigate through their career path. Their sharing would certainly help broaden the horizon and exposure of the young generation. Hope all participants could benefit from the sharing.

Apart from this Engineering Exposition, Veneree Club as a society of retired engineers continues to organize monthly talks on various interesting topics so that our members could expand their knowledge as well as meet new and old friends.

On behalf of the Club, I would like to express my heartfelt gratitude to the sponsors who have provided us with much needed financial resources and enabled this meaningful activity to be carried out. I am also extremely grateful to all speakers for sharing their valuable career life experiences with young engineers. Of course, without the contribution of the organising committee members, it would not be possible to hold this event. Finally, I would like to thank all the participants for joining this event. I wish you all have a successful career.

Ir Simon CHUNG Fuk Wai
Chairman, Veneree Club
The Hong Kong Institution of Engineers
Session 2022/2023

Engineering Exposition 2023 Organizing Chairman's Message

Riding on the successes of the past eight Engineering Expositions organized since 2013 together with the positive feedback from the participants, HKIE Veneree Club has the great pleasure to continue organizing its annual signature event, the Engineering Exposition 2023, for young engineers. Through the sharing of experiences and insights by our well experienced and seasoned speakers, we believe that our young engineers would gain a lot for their personal and professional development.

This year, we have the honour to have five distinguished engineers and one HKIE Outstanding Young Engineer awardee with a total of more than 200 years of experience in different engineering fields to share with the participants their stories in their engineering career lives. Through the sharing, particularly in the breakout session, participants would understand more about the requirements of a successful professional engineer in a higher and wider perspective.

As the impact of Covid-19 is getting more under control, the economy of Hong Kong and China would start resuming their moment. This implies more opportunities in both Hong Kong and Greater Bay Area for engineers. Opportunities are only for those prepared. We trust the stories and insights shared in the event can help our participants to well prepare for the coming opportunities.

On behalf of the Organizing Committee, I would like to express my heartfelt gratitude to the sponsors, the participants and the members of the Organizing Committee for their contributions to make EngExpo 2023 a success.

Ir LO Pak Cheong
Organizing Committee Chairman
Engineering Exposition 2023

Engineering Exposition 2023 Organizing Committee

Organizing Committee Chairman:		**Ir LO Pak Cheong**
Members:	**Ir David CHENG**	**Ir Simon CHIANG King Wah**
	Ir Heinz CHIU	**Ir Simon CHUNG Fuk Wai**
	Ir Anthony KWAN Lok Fong	**Ir Philip KWONG Sze Fai**
	Ir Allan POON	**Ir Stephen LEE Ming Ching**
	Ir William LI Wai Lim	**Ir Peter TSANG Kang Ho Peter**
Advisor:	**Ir Dr CHAN Fuk Cheung**	

Past Engineering Exposition Events

The past Engineering Exposition Events are listed below:

2013 held on 11 May 2013 at Novotel Century HK Hotel
(jointly organised with HKIE Young Members Committee)
Speakers were: Ir CHEUNG Shu Wing, Ir Dr CHOI Yu Leuk, Ir Dr LAU Ching Kwong, Ir Gregory LO Chun Hung, Ir John SZE Tak Wei, Mr WONG Tak Ko, Ir Dr CHAN Fuk Cheung, Ir CHOW Che King, Ir LAM Hing Cheung, Ir Dr Wanbil LEE, Ir Ian ROBERTSON, Ir Jolly WONG CHun Kau

2014 held on 10 May 2014 at Regal Hong Kong Hotel
(jointly organised with HKIE Young Members Committee)
Speakers were: Ir Dr James LAU Chi-wang, Ir Dr Otto POON Lok-to, Ir Benny WONG Yiu-Kam, Ir Prof CHAN Ching-Chuen, Ir Dr CHENG Hon-Kwan, Ir Dr George SZE Lai-wah

2015 held on 30 May 2015 at HKPolyU Chiang Chen Studio Theatre
Speakers were: Ir Dr John LUK, Ir Victor NG, Ir Louis SZETO Ir CHOW Tang Fai, Ir HO Chi Shing, Ir MA Lee Tak

2016 held on 30 Apr 2016 at HKPolyU Chiang Chen Studio Theatre
Speakers were: Ir Prof Daniel LAI, Ir Edmund LEUNG, Ir Greg WONG Ir HO Wing Ip, Ir YING Tsie Cheong, Ir YUEN Sui See

2017 held on 8 Apr 2017 at HKPolyU Chiang Chen Studio Theatre
Speakers were: Ir Allan CHAN Sau Kit, Ir IP Pak Nin, Ir WONG Chi Kwong Ir CHAN Chi CHiu, Ir Patrick NG Ying Piu, Ir Prof Joshua SL WONG

2018 held on 21 Apr 2018 at HKPolyU Chiang Chen Studio Theatre
Speakers were: Ir John SV CHAI, Ir Raymond LIN Kam Siu, Ir WONG Wai Ho Ir LEE Wan Lik, Ir Dr Michael YH Li, Ir Stanley SIU Hiu Fai

2019 held on 13 Apr 2019 at HKPolyU Chiang Chen Studio Theatre
Speakers were: Ir Dr CHAN Chun Leung, Ir Regis CHEE Lap Gee, Ir HON Chi Keung Ir Howard LOK Tat Hong, Ir TAI Tak Him, Ir Peter WONG Kwok Keung

(Due to COVID-19, no Engineering Exposition Events for 2020 and 2021 were held.)

2022 held on 19 Mar 2022 via Zoom
Speakers were: Ir Harry LAI Hon Chung, Ir Ivy LEUNG Yick Laam, Ir Timothy SUEN Ir Dr HO Pui Tak, Ir Duncan WONG, Ir Arthur YUNG

Ir Dr Alex CHAN Siu Kun

BSc (Eng), Mech Eng, PhD
FHKEng, FHKIE, FHKIOA

Discipline: Building Services, Mechanical, Fire

A veteran engineer who is versatile in theory and practice, Ir Dr Chan has made many pioneering endeavours over the last 45 years, such as building the seawater cooling system for killer whales in Ocean Park and introducing environmental impact assessment as well as noise and air impact surveys in Hong Kong. He has participated in the development of many mass transit systems, mainline railways, road tunnels and infrastructural projects in Hong Kong, mainland China and other cities around the world. Ir Dr Chan also helped to promote the installation of platform screen doors in underground railway stations and the establishment of comprehensive environmental requirements inside road tunnels.

He has also taken up professional and public services including:
-President of HKIE 2003-04
-Chairman of Sydney Accord 2007-2011, International Engineering Agreement 2014-2017 and Hong Kong Council for Accreditation of Academic and Vocational Qualifications, 2015-2021.

Motto
Assessment and taking control of likely situations have been a major part of my life including my career and services to the community.

Case 1
As an undergraduate with no practicing experience, I won my first design and build project "Seawater cooling system of the Ocean Park for the accommodation of the Killer Whale" in 1977.

Without any knowledge and experience about anything, I first went to the site and try to understand the requirements. I talked to the operating staff and learned about the "Ocean Theatre" with dolphins and sea gulls.

From my conversations and observations, I note that there were lots of evaporation of the pool water due to solar load also the pool was built next to a hill side. I studied the operation and site situation, and assessed the cooling effects of the evaporation and ground heat transfer. With these factors, the overall cooling load was substantially reduced to 1/3 of total heat rejection required to meet the tender specification on "paper". I won the job and implemented with great success.

Case 2
In 1988, I was invited to support the extension of Teito Line 7 of Tokyo with platform screen doors (PSD) at the new stations. The assignment was later extended to retrofitting existing stations of the same line with platform screen doors.

Knowing the advantages of PSD to mass transit railway operation, I promoted this feature to the Government and MTRC for consideration in the Lantau and Airport Railway (LAR) project and it was accepted.

Later I recommended PSD to the MTRC Operating Railway team. The key issues on technical and time constraints of an operating railway were studied and later resolved during a trail at the Choi Hung Station. The station PSD conversion was finally executed to all underground stations and became the world's first in converting all underground stations with platform screen doors WITHOUT stopping the service. This project leading to energy saving and most importantly safety enhancement to the patrons.

Engineering Life Challenges

The topics below is not confined to Engineering but life in general.

I suggest the following should be included in the life plan of the younger generation.

a. Understand the problems
Most problems have things in common. They are mainly related to 1st People, 2nd Money, 3rd Time. You may find most problems in life are related to 1st and 2nd.

b. Life Priorities / Balance
Self, Family, Work and Entertainment / Sports.

c. Key Attributes
Health, Ability to Communicate, Understand and Resolve issues, Decision making.

Ir Stephen CHIK Wai Keung

B Engineering- Civil, Cert. of Management, McGill University, Canada. FHKIE, MIStruE , RPE (Civil & Stru), P.Eng (Ont.), C Eng.

Disciplines: Civil, Structural, Logistics and Transportation

Ir Chik is interested in Infrastructure projects involving multi-engineering disciplines and other professions. His expertise is in the area of railway network planning and associated property development projects.

After graduation in 1982, Ir Chik worked for engineering consultants for about 10 years in Hong Kong and Montreal, Canada. He joined KCRC as Planning Engineer in 1992 and was promoted to the position of General Manager -Capital Works Planning in 1999. After the merger of MTR and KCR in 2007, he became Chief Civil Engineer of Projects Division, then promoted to the position of Head of Project Engineering. With the establishment of the Engineering Division, he was retitled as General Manager-Planning and Civil Engineering.

Ir Chik had been involved in government railway development studies and the implementation of new railway projects since 1998. Among the various railway projects, extending East Rail across the harbour and linking West Rail and Ma On Shan Railway to become the Tuen Ma Line are the major transport achievements for the communities. For enhancing land use, the redevelopment of Ho Tung Lau depot for residential developments presented major engineering challenges in an operating railway environment.

Motto

Stephen was one of the seven helpers to the Apostles. Ir Chik shares his role and has the same Christian name.
His motto: "What can I do to serve better and bring joy to others".

Case 1
Winning the Shatin to Central Link (SCL) bid

Unlike other new railway lines in the second railway development study which the future operator had been identified as natural extensions, KCR and MTR were asked to bid for this new railway link. As I was new to my position, it was a major challenge to lead this bidding for the preparation of the technical and financial proposals.

Before receiving the tender documents, we started to anticipate the likely bidding parameters and assessment process. We also considered the possible perceptions of our strengths and weaknesses as well as our internal process for submissions to the relevant committees and the Managing Board, such that the evaluations and bid documents could be completed in about 6 months.

To meet the tight schedule, three consultancy packages (the East Kowloon section, cross-harbor section, and Hung Hum hub) were prepared to develop the engineering schemes. The in-house team would be responsible for the patronage forecasts and operating revenue and expenditure projections. Moreover, simplified operating cost models were developed to streamline the estimations and evaluations for various scenarios.

For the bidding strategy, technical/ financial at 50/50 was anticipated. If we were able to demonstrate our capabilities through new railway construction works and the support of our engineering consultants then there would not be a significant gap in the technical score. The additional revenue from the new catchments would provide the margin for the financial score.
The announcement of the results of the bids was generally in line with the anticipated bidding strategy.

Case 2
Not meeting the projected patronage for West Rail opening

The West Rail Line was scheduled to open in 2003, it provided a railway corridor from Tuen Mun to Nam Cheong. The projected daily patronage was revised in line with the updated planning assumptions to about 200,000. The Day One patronage was about 120,000 and stayed at a similar level in the initial period. The low West Rail patronage attracted many media

reports. Concerns were raised for its overestimation and associated financial implications.

As my department was responsible for the patronage forecasts of new railway lines. I had the feeling of helplessness, there was not much I could do and there were no positive signs of improving the situation.

We then accepted the situation and started to find further means to minimize the implications. Many NWNT passengers would require two interchanges to complete their trips to the urban area, an LR or minibus feeder to the WR stations and then another interchange for MTR lines or buses. There were not sufficient incentives for the NWNT residents to use the WRL. The marketing team sought to expand the intermodal discounts with minibus operators and the operating teams to identify cost/energy-saving initiatives.

To enhance our patronage projections, we undertook to review the models and assumptions then we noted the penalty assigned to the usual interchange time could be underestimated for its effect on the WRL passengers against an average passenger in the validation of the transport models. A higher penalty was then assigned for the second interchange. Moreover, the need to enhance the connectivity by extending the WRL to Tsim Sha Tsui /Hung Hum (Kowloon Southern Link) was fully supported, which was completed in 2009, some 6 years later, since then the overcrowding of the WRL attracted media reports.

Engineering Life Challenges

As a young engineer who graduated in 1982 during the economic downturn, the first challenge was to keep my first job, which I secured during my summer internship. Unfortunately, it only lasted for about a year, I was laid off after the suspension of a major project, in which I was proud to be involved. Finding another engineering job was not easy in the next few months. I was thinking about changing to another career. Neverthless, this was a good experience. It helps me to treasure every opportunity to learn from each position as I may not have another chance to acquire the knowledge from a similar position.

With about 10 years of experience, there were more opportunities available that I could choose my own career. The challenge became identifying what I would like to pursue for the next 10 years or more. Knowing that I am not an ambitious person, I would be satisfied with a stable job, then a career that would allow me to serve the communities appear to be more attractive and rewarding. Water and transportation sectors then became my preferred choices, then I joined KCR for railway works.

Changing business environments and circumstances are unavoidable in today's career development. After working with KCR for some 15 years, there was a proposed merger of the two rail corporations, which was effected in Dec 2007. Out of my comfort zone, I needed to learn about the new organization and more importantly build trust with new colleagues and senior management. Firstly, I reviewed the vision, mission, and core values for guidance. As expected they were quite similar except the new organization is a listed company with additional international business. Again, I continue to treasure every opportunity to serve and build my competencies, bring joy to my colleagues and counterparts and enjoy the rewards from my works.

Ir CHOI Chun Ming

BSc Eng (Civil)
CEng, FHKIE, MICE

Discipline: Civil, Environmental

After graduation in 1981, Ir CHOI worked in a consulting firm for 8 years, responsible for the implementation of infrastructural projects for new town development. Joining DSD well in the early nineties, he has been contributing his expertise and competences in delivery of projects as well as management and maintenance of drainage and sewerage assets in DSD.

Ir CHOI is enthusiastic and keen to take part in services to the community, engineering profession and fellow engineers with a view to enhancing the image and status of engineers in the society. He served as EOM of HKIE Council for 8 years, Executive Member of HKIE in 2010/11, Elected Member of 2011 Election Committee Engineering Subsector, Director of Engineering Forum, Engineers Registration Board Member, Chairman of HKSAR Government Civil Engineers Association and Council Member of Hong Kong Senior Government Officers Association. He is currently Deputy Chairman of HKIE JEC, Honorary President of HKSAR Government Civil Engineers Association and Co-opted Member of Hong Kong Senior Government Officers Association.

Motto
Quantum potes tantum aude (Latin)
As much as you are able, that you should dare to do.

Case 1
From 2017 to 2019, I was the Head of Consultants Management Division of DSD. One of the works contracts under my jurisdiction was for the expansion of Sha Tau Kok Sewage Treatment Works (STKSTW), which was selected as one of the pilot projects of Construction 2.0. Other than the reconstruction of the STKSTW, the Contract also comprises the provision of a temporary

sewage treatment facilities and a submarine outfall for discharging the treated effluent.

Modular Integrated Construction (MiC) was adopted in the construction of joint site office of the Contract. MiC is considered as an innovative construction method which can raise the productivity, shorten the construction time and enhance performance in workmanship as well as site safety and environmental compliances.

Digital Site Management (DSM) by the application of BIM, automated instrumental monitoring and mobile technologies, such as Centralised Management Platform, AI Site Monitoring System, Real-time Confined Space Works Monitoring System and underwater were implemented in the Contract to facilitate site supervision, safety inspection, quality control, surveying, meeting and documentation.

Case 2

Currently, I am the Head of Special Duty Division of DSD. In one of my projects for the construction of San Shek Wan Sewage Treatment Works and Pui O village sewerage, we adopt a distinctive two-way Horizontal Directional Drilling (HDD) for the construction of submarine outfall to tackle engineering challenges and provide multi-dimensional benefits spanning across elements including cost saving, time saving, safety, and conservation of pristine environments. This innovative technology replaces traditional method to eliminate substantial dredging extent and achieve time saving by fast-track drilling operation, leading to reduced disturbance to susceptible environmental sensitive receivers.

As the twin outfall pipes are built by parallel reaming underneath an existing water tunnel with strict monitoring requirements, I encourage the team to push the limits on innovative application during monitoring of the HDD operation. This includes real time IoT monitoring infrastructure, novel under-water robot for inspections and 24-hour live solar-powered cameras for supervision, contributing to more robust environmental monitoring and control. The drilling works are expected to be completed timely without compromising the site safety and environment.

Engineering Life Challenges

No doubt facing adversity and challenges is an inherent part of life. Career life of an engineer is of no exception.

As a Riccian (being former resident of Ricci Hall in HKU), the above-quoted motto "Quantum potes tantum aude" (in Latin), which can aptly be expressed by two Chinese words "搏盡", has long been deeply embedded in my subconscious mind and has always been influencing my life and work attitude. Some people think that doing less and making fewer mistakes is the survival rule in large institutions, but in the past decades of my career life, I would not mind proactively taking extra steps in dealing with professional challenges and believe that I should always try my best and strive to succeed with no regrets.

Proactive attitude, open and honest communication with team members, willingness to adopt innovative ideas and strong networking with stakeholders are key factors which facilitate me to prevail in those harsh and bumpy situations. For example, from 2011 to 2016, I oversaw the asset management of stormwater drainage and sewerage systems in the Tuen Mun district. I led the team to review the aging problem of those sewer pipes, box culverts and rising main in Tuen Mun, identify the need of their rehabilitation and set priority afterwards. I succeeded in bringing in new resources and technologies for pipe rehabilitation and inspection through tactful negotiation with the term contractor. Coupled with active participations of his highly energetic and motivated team, the team succeeded in implementing GRP lining works at the most dilapidated section of the single-cell sewer box culvert at Tin Hau Road, spiral wound lining works for the badly deteriorated twin-cell stormwater box culvert at Tsing Yin Street, UV CIPP lining works for the two sewer inverted siphon pipes crossing Tuen Mun River Channel, etc. The completion of all those rehabilitation works had eased worries of possible high consequences of failure of those trunk sewers and stormwater drains. It is particularly worthwhile to mention that the GRP lining works at Tin Hau Road was carried out under very difficult condition with high sewer flow situation at all times.

Ir Alfred SIT Wing Hang

Master Degree in Business Administration, Associateship in Electrical Engineering, FHKIE, Honorary Professor and Adjunct Professor

Discipline: Electrical, Building Services, Biomedical

Ir Alfred Sit joined the Government in 1984 and was Director of Electrical and Mechanical Services and General Manager of Electrical and Mechanical Services Trading Fund since October 2017. On 22 April 2020, Ir Sit was appointed Secretary for Innovation and Technology. He is now a Senior Advisor to the President and Vice -Chancellor, Advisor of the Institute for Innovation and, Translation and Policy Research and Honorary Professor in the Faculty of Social Science of Hong Kong Baptist University. He is also an Adjunct Professor at Hong Kong Polytechnic University.

Ir Sit is an electrical engineer by profession and has over 30 years' experience in public administration. He is a fellow member of the Hong Kong Institution of Engineers. He was the President of the Hong Kong Institution of Facility Management and Chairman of the Biomedical Division of the Hong Kong Institution of Engineers.

Ir Sit is recognized by the Hong Kong Polytechnic University as its Outstanding Alumni. Ir Sit also holds a Master Degree in Business Administration from the Chinese University of Hong Kong and has studied at the Renmin University of China for its PhD degree with focus on international relationship. Ir Sit has also studied at the Newcastle University of Australia for its Doctor degree of Business Administration and is a graduate of the Harvard Business School of its General Management Programme.

Motto

To make a difference for the betterment of the community.

Case 1
Establishment of Electrical and Mechanical Services Trading Fund

As one of the initiatives under the civil service reform programme of the then Government of Hong Kong in 1990's, the Electrical and Mechanical Services Department (EMSD) was put under trading fund operation in 1996. Under the trading fund operation, the government bureaus and departments which originally receive services from EMSD are given the freedom and flexibility to choose the services providers from private sector in lieu of EMSD. EMSD then went through a series of reforms including changes in service delivery modes, organizational and cultural changes so as to transformed EMSD from a traditional government department to a more client focused, innovative and competitive organization. Since the establishment of the Electrical and Mechanical Services Trading Fund, the revenue of EMSD has increased by more than threefold, and the customer satisfaction rating has also been much improved. This showcased that every organization must continuously enhance itself for survival in this competitive world.

Case 2
Setting up Inno-portal and Innovation Lab

In the journey to develop Hong Kong as a Global Innovation and Technology Hub, one of the essential elements / critical tasks is to support our scientists and technology startups to offer them opportunity to put their innovative products for trial. The Government launched the Inno-Portal (through EMSD) and Innovation Lab (through Office of the Government Chief Information Officer (OGCIO)) which list the service wishes of various government departments, public organizations and the trades, and then invites the I&T sector, including the start-ups and universities to propose some relevant I&T solutions for matching. For those successfully matched I&T wishes and solutions, the Government (through EMSD and OGCIO) , will carry out field trials in a bid to drive and promote the research & development and the application of innovative technologies. The new initiative received tremendous support and currently more than 1,000 I & T solutions have been provided by I & T sector to support Government's operation and to improve its services and at the same time, given opportunity for the start-ups to implement their innovative ideas and put their products into practice. The case demonstrate the significance of utilizing an innovative means to connect various stakeholders together and to achieve a win-win situation.

Engineering Life Challenges

Since 2010's, the safety performance of lift and escalators in Hong Kong has been deteriorating due to various reasons, e.g., ageing in assets, changes in market situation, ineffective and lagging behind regulatory regime, etc. The occurrence of several severe lift and escalator incidents has aroused great public concern and controversy. Being the government department responsible for regulating lift and escalator safety, EMSD was under heavy pressure. It planned and implemented a series of improvement initiatives with the trade and other major stakeholders in order to improve the lift and escalator safety in Hong Kong and restore public confidence. Some of the initiatives were totally unconventional and touched on social and political issues.

With the tremendous and rapid technological advancement, social and geopolitical changes transformation, the world is getting more complex, and we need to look for the solutions in a more creative and innovative manner so that we can effectively manage and tackle the problems being faced by our community. Our young engineers must continuously keep abreast of new knowledge and be open minded to embrace the new developments.

Ir TANG Whai Tak

MEng(Hons), ACGI, MPA
MHKIE, MICE, CEng, FHKIHT

Disciplines: Civil

Ir Tang has worked in various works departments in the Hong Kong Government for over 13 years on a range of infrastructure projects. He is currently an Assistant Secretary in the Development Bureau involved with works policies and legislative work. To cater the stakeholders' needs, he has practical experience in effective civic engagement for smooth project implementations.

Ir Tang also takes up numerous roles to serve the HKIE and society at large. He is committed to making meaningful impact with focus on the affairs of young engineers and students, and fostering international relationships. He is currently an Elected Council Member and was the Young Members Committee Chairman (2018/19) of HKIE. His exemplary achievements have merited him the winner of the HKIE Young Engineer of Year 2022.

Motto Step Out • Step Up
Step Out – of comfort zone / of the box / to explore
Step Up – the game / to the challenge / to lead the change

Case 1 Innovation

As an engineer and a client, we constantly look for ways to lead improvement in the way we work. When I was the Project Manager in the Chinese Temples Committee, I was desperate in future-proofing our 24 historic temples. I found that the older the trade, the more urgent we need to digitalise as there are more benefits to reap. We set to tackle disappearing workmanship, shortage of experienced craftsman, increasing maintenance fee and knowledge gap in building behaviour.

Although it was a steep learning curve in understanding historic architecture, having been kept abreast through past experience and CPD of the latest technology, such as BIM, 3D-printing and IoT, enabled me to apply my knowledge into the digital transformation of these historic temples.

Naturally, people resist change. I was conscious to have intermediate deliverables in demonstrating how the workflow is streamlined, productivity is improved, as well as fun interactive 3D visualisation on this road from preventive to predictive maintenance.

Case 2 Care

Good engineering requires good communication. After all, our solutions aim to improve the society and people's quality of living. This requires good understanding of what people want and multi-lateral collaboration.

When I worked on the Greening Master Plan, I was responsible for the design and implementation of thematic planting in the western New Territories, covering 5 districts. This meant that the public engagement involved around 150 District Councilors among a wide spectrum of stakeholders from residents, road users, professionals, maintenance agents, to green groups.

Besides the vast liaison work, we need to communicate the technical know-how with the stakeholders for consensus building in order to plant "Right Tree at the Right Place". The process indeed takes time, requires decisive striking of balance and sometimes needs good emotional quotient to pacify people when outcomes may not match completely as they desire.

Engineering Life Challenges

Commitment

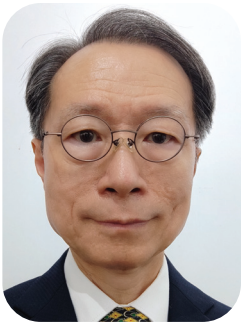
We live in a fast changing world and a generation of slashers. On one hand, society has high expectations on our skillsets – we are constantly learning an array of new subjects like technical, contract management, sustainability and soft skills. On the other hand, we seem unsatisfied to just stick with one title as we are attracted to trying different things that the many opportunities have to offer. Above all, we have to compete against time.

To be successful, I do not think there is a single way with which we should adapt and conform to. Instead, we should lead and create, whether it is our own path or to drive the industry.

Before we are able to do so, we need a good foundation. For the early part of my professional life, I stayed focused on developing skills for my work and I associated mainly with one young professional group. All investments mature with time. Good preparation allows one to seize opportunity at the right moment. After working for a decade, I started developing my multiple roles as an engineer / the youngest elected HKIE Council Member / part-time lecturer / committee member of international organisations / serving advisory boards / officer of the Hong Kong Road Safety Patrol / etc. The more people I meet, the more opportunities I get introduced to and also help me to perform better at these different roles. Staying committed in what you do and the slashes will continue.

Ir Dr Herman TSUI Yik Wai

B.Sc., PhD, FHKIE, FEI, MIET, CEng



Disciplines: Information

Ir Prof. Herman Y. W. Tsui is a qualified professional in nuclear energy, environmental engineering, electronics, and information technology with work experience covering R&D, technology commercialization, engineering, technical consulting and tertiary education. He is currently an Adjunct Associated Professor of The Hong Kong University of Science and Technology.

He worked on small/medium sized commercial research projects as well as large-scale fusion energy research projects for the United Kingdom Atomic Energy Authority in UK and the Fusion Research Centre in USA. His R&D works covered projects at the two extreme ends between consumer electronic products and complex dynamic system. He successfully applied fusion plasma research know-how to the practical development of plasma technology for air and surface disinfection.

Motto

Passion in innovation, Persistence in curiosity, Proactive in learning
To think out-of-the-box and innovate, it takes bold assumptions and careful analysis. 大膽假設，細心分析

Case 1

The engineering team was designing a wall dimmer switch for lighting, which had a micro-switch to physically break the electrical circuit. The team decided to use a lever to actuate a button on the micro-switch, using the end of the lever to press against the button. The switch unit was to be installed inside a standard electrical box. There were variations in the position of the electrical box from the wall plate which translated to variations in the separation distance between the end of the lever and the switch button. The design was then focused on making the lever snap-

breakable to vary the length to cater for the separation variations. When I joined the team, I asked them why not use the edge of the lever to press against the button of a 90-degree mounted micro-switch, thereby eliminated the need to match the separation distance.

As a new comer to the team, I was able to look at the problem from afresh and 'think out of the box' to find a better solution. The ability of looking at issues from different angles or directions is essential to derive an out-of-the-box idea.

Case 2

When I was working on my doctoral research in the early 1980, I needed to draw graphs to analyze data. Personal computer was just becoming readily available but most without high-resolution graphics capability. Electronics and software were my hobby. The idea of developing the hardware and software for a high-resolution graphics display system really interested me. A home-made system was born after 2 weeks' intensive development work. The graphic system became a valuable tool to support data analysis for my research. One day, it occurred to me that there ought to be a market for high-resolution graphics display system. I called up some computer peripheral manufacturers and got one of them interested to acquire my design to produce the system for sale. This marked the beginning of my entrepreneur journey.

The best motivation for innovation is driven by needs and fun.

Engineering Life Challenges

Ever since I was a kid, I was curious about how things work and enjoyed finding answers. Soon, I developed a hobby in electronics and my interest gradually extended to embrace information technology. The energy crisis in 1970s alerted me to the limited supply of fossil fuel. After some literature search, I was fascinated by the promise of nuclear power. With my passion in innovation and desire to solve the energy problem, I decided to dedicate my career to energy R&D. While pursuing energy research, I worked as a freelancer to develop personal computer peripherals and micro-processors based intelligent home devices.

The 2003 SARS epidemic caught Hong Kong by surprise and turned the busy city into a ghost town overnight: no one wanted to go out, restaurants were empty, and shops did not want to open. Why did this happen? Why hadn't anyone been prepared? After some literature search, I was surprised to discover that there was no real proactive solution, particularly against

pathogens continually mutating. Another finding from the search was that plasma technology could provide a solution.

Armed with some 20 years in nuclear fusion research concerning plasma generation and control together with the many years engineering practices in electronics and information technology, I decided to devote myself to develop a new technology to prevent the epidemic from happening again. With funds from the Hong Kong government and a dedicated R&D team, a revolutionary sterilization technology was born after 3 years of intensive R&D.

The innovation is named Plascide, which stands for plasma to kill. It works with intense micro-lightning ionized gas field that sterilizes pathogenic microbes such as COVID-19, MRSA and neutralizes toxic chemicals like formaldehyde. Its sanitization effect is based on physical electrocution which eliminates virus/bacteria, mutated or not.

The story reflects that innovation is a combination of curiosity and passion, driven by proactive and persistent actions. To think out-of-the-box and innovate, it is more than talking or dreaming – it demands know-how on the relevant subject matters.

HKIE Veneree Club 2022 Activities

The following is a list of activities that Veneree Club organised during Feb 2022 to Feb 2023. In the third Wednesday morning of each month, Monthly Talk by guest speakers giving interesting topics is normally held.

Monthly Talks

16 Feb 2022	香港本地旅遊勝景介紹
16 Mar 2022	How to see a doctor?
18 May 2022	Recent Advances in Radiotherapy for the Treatment for Liver Cancer
15 Jun 2022	Painful Orthopaedic problems for the middle aged and above
20 Jul 2022	漫遊香港街道看故事
17 Aug 2022	如何幫助癌症病者「走過驚濤駭浪」
20 Aug 2022	Seminar : Applying Engineering Principles to a "Bridge - Perfect Window" Bidding System (Jointly organised with Electrical Div)
21 Sep 2022	如何拍攝精彩的香江美景
19 Oct 2022	Knowing More About Metaverse 認識元宇宙
16 Nov 2022	家庭醫生與您同行健康之路
21 Dec 2022	Achieving Healthy Ageing
18 Jan 2023	牙齒健康如何影響身體健康?
15 Feb 2023	I have taken Nothing and I have added Nothing

HKIE THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會

Veneree Club 睿賢學社

睿賢學社

This is to certify that

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attended the

Engineering Exposition 2023

on

18 March 2023

from 08:45 - 12:45

at

The Hong Kong Institution of Engineers
9/F Island Beverley, No 1 Great George Street
Causeway Bay, Hong Kong

* 1. Name of participant to be written by the attendee.
2. Attendee should seek certification of his/her attendance by having the stamp of the organizer immediately after the event.
3. This certificate serves the purpose to record participation of an attendee only. The duration of the activity indicated above does not automatically grant the equivalent CPD days, but is entirely up to the discretion of the 'Engineering Supervisor' for pre-Corporate Membership.
4. Please contact your 'Engineering Supervisor' for further advice for recognition of CPD activities.

Engineering Exposition 2023 Programme

08:45 – 09:00	Registration
09:00 – 09:05	Opening by Oganising Committee Chairman: Ir PC LO
09:05 – 10:30	First Session (Speaker presentation and Panel Discussion)
10:30 – 10:40	Session Break for 10 minutes
10:40 – 12:05	Second Session (Speaker presentation and Panel Discussion)
12:05 – 12:10	Remark by Veneree Club Chairman: Ir Simon CHUNG
12:10 – 12:15	Moving to Breakout Room
12:15 – 12:45	Breakout Session (with one Speaker in a Breakout Room)

First Session Speakers:
Ir Dr Alex CHAN
Ir Stephen CHIK
Ir CM CHOI

Second Session Speakers:
Ir Alfred SIT
Ir TANG Whai Tak
Ir Dr Herman TSUI

Arrangement at Breakout Session:

Speaker	Breakout Room
Ir Dr Alex CHAN	9/F, ATAL Room
Ir Stephen CHIK	10/F, Paul Y Room
Ir CM CHOI	9/F, Dragages Room
Ir Alfred SIT	10/F, Chun Wo+ Hsin Chong Room
Ir TANG Whai Tak	9/F, Sophie Chan Room
Ir Dr Herman TSUI	9/F, James Chiu Room