

Michael Quah Keynote Plenary Session

22nd July 2016, 09:40

LT7A, Faculty of Engineering, National University of Singapore (NUS)

Remembering Professor Michael Quah

This keynote plenary session of SET2016 is dedicated to the memory of the late Professor Michael Quah at the National University of Singapore.

Professor Quah was a Professor of Practice in the NUS Department of Chemical and Biomolecular Engineering. He was also the director of the NUS Energy Office, under the Office of the Deputy President (Research & Technology). His work in NUS revolved around energy, environment, sustainability, and climate change; and he lectured extensively on these subjects. His areas of focus were at the interface of policy and technology readiness in, for example, alternative/renewable energy systems, distributed generation, and climate change (the science, mitigation and adaptation strategies, thereof). Given his past experience in industry, mainly in the US, Professor Quah enjoyed mentoring in entrepreneurship and systems dynamics challenges in the above fields. He was an advisor in NUS Enterprise, the entrepreneurial arm of the campus.

Before he started his career in Singapore since late 2009, his past work experiences were primarily in the US, where he had worked in management, business development, and R&D positions in various industries, the US Army, and in non-profit organizations (in Delaware, North Carolina, New Hampshire, California, Virginia, and Michigan.) In 1990 – 1993, Professor Quah worked in Asia (based in Singapore and Tokyo). This short spell was part of his long working career of 20 years with E.I. DuPont de Nemours & Co., Inc. in chemicals, polymers (including fluoropolymers) and energy storage systems. He had joined DuPont in 1979 in Wilmington, DE, USA just as he was finishing up his Ph.D. in Chemical Engineering at Yale University, New Haven, CT. He completed his undergraduate studies at Harvard University, Cambridge, MA, in Chemistry and Physics (magna cum laude).

His contributions and achievements in all these sectors have been unparalleled and will never be forgotten.

In remembrance and appreciation to Professor Quah's contribution in the energy sector, this session is themed "Sustainable Energy Policy and Technologies", which is one of his main areas of expertise. The panel will be moderated by Professor S.K. Chou of the NUS Department of Mechanical Engineering, who is also the Executive Director of the Energy Studies Institute, NUS. The panelists will include several academic keynote speakers from the prior sessions of the conference and a government representative, an NGO representative and a journalist from Singapore. They will share their views and thoughts at this global conference on Sustainable Energy, i.e. how each party can contribute in helping Singapore and ASEAN in issues of Sustainability, followed by an interactive Q&A session.

Session organization



Session Chair/ Moderator: Professor S.K. Chou

S.K. Chou is Professor in the Department of Mechanical Engineering, and holds a joint appointment as Executive Director of the Energy Studies Institute, National University of Singapore (NUS). He was formerly Head of the Department of Mechanical Engineering, NUS, and Executive Director of the National Science and Technology Board. He chairs the Technical Evaluation Panel, Grant for Energy Efficiency Technology (GREET), National Environment Agency, and the BCA Green Mark 2016 Envelope & Facades Taskforce. Up till March 2016, he was Chairman of the Advisory Body of the ASEAN Plan of Action on Science and Technology and is presently the national representative to the Board of Advisors, ASEAN Committee on Science and Technology.



He is a Fellow and Past President of the Institution of Engineers, Singapore, and a Fellow of the American Society of Heating, Refrigerating and Air-Conditioning Engineers. He is a Fellow of the Singapore Academy of Engineering, the ASEAN Academy of Engineering and Technology, the Energy Institute, UK, and the ASEAN Federation of Engineering Organisations. He is presently an Editor of the Elsevier journal, Applied Energy, and serves on the editorial boards of a number of energy related journals. His research interests are in energy and thermal systems, microscale combustion, micro thrusters and propulsion, energy management and policy. He is credited with the formulation of the Envelope Thermal Transfer Value (ETTV) and the Residential Envelope Transmittance Value (RETV) energy standards used in the Singapore Green Mark Incentive Scheme.

Panel members



Professor Saffa Riffat

The University of Nottingham
President of the World Society of Sustainable Energy
Technology (WSSET)

Professor Saffa Riffat holds the posts of Chair of Sustainable Energy and Head of Architecture, Energy and Environment Group at the University of Nottingham. He is also the President of the World Society of Sustainable Energy Technology and founder of SET conferences. Professor Riffat is an eminent expert in sustainable technologies and low carbon buildings. Professor Riffat has published over 600 refereed papers and is an author of the top 1% most highly cited papers (worldwide in this field). He is a distinguished expert in sustainable HVAC systems, renewable energy and energy storage and work has led to over 30 patents. It is important to note that several of his inventions have been developed into commercial products (e.g., SolaVent, CooPhase and Solar Desiccant systems). Professor Riffat has secured research grants with a total value in excess of £80 million from Research Councils, EU, Innovate UK, DECC, RAE, and industry (leading national and international companies). He has been instrumental in establishing several unique low carbon buildings such as the Creative Energy Homes and the Sustainable Research Building. Professor Riffat has obtained numerous awards including the Euro Solar Prize, Energy Globe, UK Engineering and Innovation Award, Rushlight and EU Dragon-STAR Innovation Award. Professor Riffat is Honorary Professor in 14 universities. He is the Editor-in-Chief of the International Journal of Low Carbon Technologies, the International Journal of Future Cities and Environment, Renewable Bioresources Journal and founder of the International Journal of Sustainable Cities and Society. He is also a member of editorial boards of several other international journals (e.g., Applied Thermal Engineering, Energy Research and Green Energy).



Professor Markus Kraft

Cambridge University
Co-Director, Cambridge CREATE Program

Professor Markus Kraft is a Fellow of Churchill College Cambridge and Professor in the Department of Chemical Engineering and Biotechnology. He is the director of CARES Ltd., the Singapore-Cambridge CREATE Research Centre. He is also a principal investigator of “Cambridge Centre for Carbon Reduction in Chemical Technology (C4T)”. He obtained the academic degree 'Diplom Technomathematiker' at the University of Kaiserslautern in 1992 and completed his Doctor rerum naturalium in Technical Chemistry at the same University in 1997. Subsequently, he worked at the University of Karlsruhe and the Weierstrass Institute for Applied Analysis and Stochastics in Berlin. In 1999 he became a lecturer in the

Department of Chemical Engineering, University of Cambridge. He has a strong interest in the area of computational modelling and optimisation targeted towards developing carbon abatement and emissions reduction technologies for the automotive, power and chemical industries. Together with his research students he has also contributed significantly towards the detailed modelling of combustion synthesis of organic and inorganic nanoparticles and worked on engine simulation, spray drying and the granulation of fine powders.



Professor Steffen Lehmann

Professor of Sustainable Architecture
Founding Director, s_Lab (Sydney – Berlin)
The University of Portsmouth, UK

Dr Steffen Lehmann (Dr.-Ing. TU Berlin; AA Dipl London) is a German-Australian urbanist, author, educator, researcher and curator, registered in 1993 as a chartered architect and urban designer in Berlin. Steffen has more than 25 years' experience in the fields of sustainable architecture, urban design and construction, a strong track record in research, teaching and government advisory roles, and achieved distinction at the international level.

Steffen is an internationally renowned authority on sustainable cities, a strong advocate for green buildings and a passionate educator. Over the last 13 years as full professor, he has held a range of senior leadership roles at Australian and UK universities. In 2014-15, he was Head of School in Perth, repositioning the large School of Built Environment. Prior to this, he was a tenured Chair Professor of Sustainable Design and Founding Director of two flagship research centres at the University of South Australia in Adelaide.

His research explores our complex relationships with nature, technology and place. Most of his research projects are architecture/planning/design nexus based, concerned with the integration of low-impact technologies in design and the social/behavioural and urban context.

He has made major contributions to the disciplines of Architecture/Urban Design and has served on several international expert panels, advising on sustainable development and cities' development. He is the editor of the Book Series for Sustainable Design for Routledge; his most recent book: "Low Carbon Cities. Transforming Urban Systems" (Routledge, London, 2014). Forthcoming book: "Growing Compact. Urban Form, Density and Sustainability" (2016).

Steffen was a Visiting Professor at leading universities worldwide, including UC Berkeley, TU Munich, NUS Singapore, Tongji University and KTH Stockholm.

From 2008 to 2010, based on the international significance of his work he was appointed to the UNESCO Chair in Sustainable Urban Development for Asia and the Pacific. In 1993, in pursuit of a more ethically correct practice, he founded the s_Lab (Space Laboratory for Architectural Research and Design) in Berlin.



Professor Simon Ng

Wayne State University
Associate Dean for Research and Graduate Studies

Professor Simon Ng received his BSE, MSE, and PhD in chemical engineering from the University of Michigan, Ann Arbor. He is currently the Associate Dean for Research and Graduate Studies, a Professor of Chemical Engineering and Materials Science of Wayne State University (WSU), the founding director of WSU's Graduate Programs in Alternative Energy Technology, Electric-drive Vehicle Engineering, and the director of the WSU/NextEnergy National Biofuels Energy Laboratory. He is the co-founder of NextCAT, a spin-off company from WSU to accelerate the commercialization of renewable energy technology. He also served as a Visiting Scientist with General Motors Research Center and as a Visiting Professor in the Department of Chemical and Environmental Engineering at the National University of Singapore. His research interests include energy storage systems, alternative fuels, environmental and fuel conversion catalysis, polymers, smart sensors, and biomedical devices. Professor Ng has received over \$10 M funding from the National Science Foundation, Department of Energy, 21st Century Job Fund, Michigan Life Science Corridor, NextEnergy, American Chemical Society, Engineering Foundation, Ford, GM, Exxon, among others. He has published and presented over 350 research papers. Professor Ng has also served as the President of the Michigan Catalysis Society, and received several awards including the Career Development Chair Award, a Gershenson Distinguished Faculty Fellow, and President's Award for Excellence in Teaching from WSU; and a Distinguished Faculty Award from the Michigan Association of Governing Boards of State Universities. He is a licensed Professional Engineer in the State of Michigan. Dr. Ng is a member of Council of Energy Research and Education Leaders, American Institute of Chemical Engineers, American Oil Chemists Society, North American Catalysis Society, and American Society for Testing and Materials. Recently, he served as a special advisor to the Michigan Renewable Fuel Commission, and received the 2011 Michigan Green Chemistry Governor's Award in the academic category.



Ms Leonie Lee

Director of Energy and Climate Policy, Ministry of the
Environment and Water Resources (MEWR), Singapore

Ms Leonie Lee is currently the Director of Energy and Climate Policy at the Ministry of the Environment and Water Resources. Prior to this posting, Ms Lee had served in various government sectors including the Ministry of Finance, Ministry of Education, Ministry of Trade and Industry and the Public Service Division. Ms Lee was also seconded to the World Bank in Washington D.C for a year – focussing on higher education projects in the South Asia Region.

A recipient of the prestigious Public Service Commission Overseas Merit Scholarship, Ms Lee graduated from the London School of Economics and Political Science with a Bachelor of Science in Economics. She subsequently obtained her Master of Arts in International and Development Economics from Yale University.



Dr Geh Min

Ex- Nominated Member of Parliament

Title: [NGOs: Friends or Foes?](#)

Dr Geh Min (MBBS, FRCS, FAMS) is a staunch supporter and spokesperson for the environment. She was President of the Nature Society (Singapore) from 2000 to August 2008 and was sworn in as a Nominated Member of Parliament on 29 November 2004 with serving term from 1 January 2005 to 19 April 2006. She received the 2006 President's Award for the Environment and is currently a board member of BirdLife International (Asia) and a member of The Nature Conservancy's Asia Pacific Council.



Ms Jessica Cheam

Editor, Eco-Business

Ms Jessica Cheam is the Editor of Eco-Business, an award-winning journalist and a social entrepreneur. She has a decade of experience in journalism with a particular expertise in sustainable development, and is also a columnist for [The Straits Times](#) where she was formerly the political and environment correspondent. She is an adjunct research associate for the [Centre for Liveable Cities](#), a Singapore think tank focused on creating and sharing knowledge on liveable and sustainable cities.

She studied at the University of Warwick and University of London's Goldsmith College, and has written for London-based publications such as The Independent, The Times and The Ecologist.

Jessica won a global journalism award at the Earth Journalism Awards, which was held in Copenhagen in December 2009 by Internews and the World Bank. In March 2010, she was named Young Journalist of the Year by Singapore Press Holdings. In February 2011, her stories on sustainability won her the first

Asean Green Technology Journalism Award by Siemens. She also has a merit award for the environmental leadership category from the Ten Outstanding Young Persons awards by JCI Singapore.

She founded Eco-Business in 2009 with a vision to provide a platform for the region to discuss and advance sustainability issues. Under her leadership, Eco-Business beat other media giants to clinch the Lee Foundation Excellence in Environmental Reporting by a Media Organisation Merit Award at the [Asian Environmental Journalism Awards \(AEJA\) 2013](#). In 2015, Jessica was given the AEJA's [Sustained Environmental Reporting by a Journalist Award](#) for her efforts in contributing to environmental journalism over the last decade.

She is the published author of '[Forging a Greener Tomorrow: Singapore's journey from slum to eco-city](#)', which was commissioned by Singapore's Ministry of Environment and Water Resources.

Jessica's passion is in advocating sustainability. She is frequently invited to speak at events across the globe on her areas of expertise. She is also a member of the editorial committee for [Collectively.org](#), a platform devoted to stories for Millennials that inspire change.