Keynote Speaker 1

Optical Sensing of Chemicals: The Principles & Challenges

Prof. Dato’ Dr. Musa Ahmad
Faculty of Science & Technology,
Universiti Sains Islam Malaysia (USIM), Nilai,
Negeri Sembilan, Malaysia

Abstract

Generally, any substance surrounding us in our physical world, such as liquid, solid or gas is made of chemicals. A chemical could be pure or any mixture; occurs naturally or chemically synthesised in laboratory. Both synthetic and natural chemicals can have poisonous effects. The degree of poisoning caused by a chemical is depending on several factors, include route of entry into the body, dosage, toxicity of the chemical and biological variation. Based on this ground, it is therefore essential to sense the presence of these chemicals in the surrounding, in order to quantify their concentration.

Optical chemical sensor is an analytical tool consisting of active sensing material used in close conjunction with a device which can transforms chemical information into an analytically useful signal. Optical chemical sensors have been the focus of much research attention in recent years since it has its own merit such as low cost, robust, can be applied for in situ analysis and possibility of remote sensing with the use of optical fibre. This presentation will basically highlight the development of such analytical methods and instrumentations for quantitative quantification of chemicals or analytes particularly in food industries and environmental monitoring application.

Keywords: optical chemical sensor, optical fibre.
Keynote Speaker 1 - Profile

Prof. Dato' Dr. Musa Ahmad has been the Vice-Chancellor at Universiti Sains Islam Malaysia (USIM) since August 2014. Prior to his present position Prof. Ahmad was serving as Deputy Vice Chancellor (Academic and International) at USIM since May 2010 until August 2014.

He served Universiti Kebangsaan Malaysia (UKM) for more than 20 years as an academician and administrator, the latest as Dean of Faculty of Science and Technology (December 2008 – May 2010).

Prof. Ahmad obtained his first degree in Chemistry from UKM with first class honours, and obtained his MSc (Instrumentation & Analytical Science) and PhD (Optical Chemical Sensor) degrees from the University of Manchester, England. As an academician, he has shown an excellent progress in teaching, supervision, publication, research and consultancy.

His main research interest is in the field of chemical optical sensing and optical bio-sensing. His research findings made him won more than 20 awards at R&D exhibition either at national or international levels, which include International Invention Exhibition at Geneva, Switzerland; World Exhibition of Innovation, Brussels, Belgium and INSPEX Invention in Cleaning Products/Equipment, Pittsburg, USA. Some of these products have been highlighted at local newspapers and TV stations. Today, over 200 articles of Prof. Ahmad have been published in the form of books, journal papers and conference proceedings.
Keynote Speaker 2

Towards Eco-Friendly Acoustic Absorbers

Assoc. Prof. Dr. Azma Putra
Centre for Advanced Research On Energy
Universiti Teknikal Malaysia Melaka
Malaysia

Abstract

The acoustic absorber has been widely known for its applications for noise control in industries as well as for improving acoustic quality in buildings. Sound absorption materials were first substituted by synthetic fibers in the 1970s due to public health concerns on the original asbestos-based material, which is harmful to human health. Until recent years, when global warming has became an alarming issue, studies were conducted to investigate the utilisation of sound absorber materials. According to the study on the Life Cycle Assessment (LCA) on a range of synthetic and natural absorber materials, it is found that the production of synthetic materials requires more energy and thus provide greater global warming potential. In contrast, natural plant-based material contributed less carbon footprint. In the air quality guidelines published by World Health Organisation (WHO), synthetic fibres were related to air pollutants which can potentially lead to skin and eye irritation and when inhaled can cause pulmonary diseases. The keynote talk will present the research progress on the eco-friendly natural materials as acoustic materials. The materials include the natural wasted fibres and non-fibrous type materials such as hollow structures as well as microperforated panels. The general theoretical foundation will be presented and important findings on the absorption performance of the materials will be discussed. It will be shown that the performance of the ‘new’ eco-friendly absorber is comparable with that of the synthetic materials.

Keywords: eco-friendly, acoustic, absorbers
Keynote Speaker 2 - Profile

Dr. Azma Putra received his B. Eng from Bandung Institute of Technology (ITB), Indonesia in Engineering Physics. He then continued his postgraduate studies in the United Kingdom and received his M.Sc in 2004 and Ph.D in 2008 both from the Institute of Sound and Vibration Research (ISVR), University of Southampton, UK. He continued to work as a research fellow for one year in ISVR and then joined with Universiti Teknikal Malaysia Melaka (UTeM) Malaysia as a Senior Lecturer. He is now Associate Professor in Faculty of Mechanical Engineering, UTeM.

His current research interests are engineering acoustics and noise control, vibro-acoustics and structural dynamics. He has published of more than 50 articles and over 30 conference proceedings. He was awarded the best researcher in Journal Publication Award for 2013 in UTeM. Dr. Putra is a member in International Institute of Acoustics and Vibration (IIAV) UK, International of Noise Control Engineering (INCE) USA and Society of Vibration and Acoustics Malaysia (SVAM). He is now holding a post as the coordinator in Centre for Advanced Research on Energy (CARE), UTeM. Besides research activities, he also involves in consultancies with oil and gas as well as power companies regarding rotating machinery vibration. Dr. Putra is certified as Vibration Analyst Category III by the Mobius Institute Australia.

Dr. Putra is passionate to make difference in teaching and learning using technology. He creates interactive video animations and iBooks for his lectures and applies the Flipped Learning concept for his class, Mechanical Vibration. He is acknowledged as Apple Distinguished Educator (ADE) Class 2015 by Apple Inc. and he was awarded as Best Educator with E-Learning Content for 2015 in UTeM. He is a member in Society of Engineering Education Malaysia (SEEM).