WORKSHOP **11**

A half-day workshop in Healthcare Electronics and Opto-electronics

Date : 8 July 2016 (Friday)
Time : 9:30 a.m. – 1:00 p.m.
Venue : Conference Hall 1-2, G/F, Core Building 1, Phase 1, Hong Kong Science Park, Shatin, Hong Kong

Topic 1 : **Healthcare Electronics**
Speaker : **Dr Wei-Mong Tsang**, Senior Technical Manager of Opto-Electronics Technology Division, ASTRI

Topic 2 : **High Density Interconnect Substrate Technologies**
Speaker : **Dr Yaofeng Sun**, Principal Engineer of Electronics Components Technology Division, ASTRI

Abstract

Topic 1: **Healthcare Electronics**

Ageing population has been a worldwide problem. By 2031, nearly one-third of Hong Kong's population will be over the age of 65 which brings challenges not only to the overall healthcare system but also long-term care services. In the first part of this presentation, Dr Tsang is going to share with us state-of-the-art non-invasive medical/healthcare devices/sensors including pulse oximeters, cuffless blood pressure, non-invasive blood glucose, etc., for preventive healthcare and enhancing life quality and functional capacities of the elderly. In the second part, he will share us his experience in the development of MEMS neural probe which was originally designed for insect-based micro-air-vehicle but has found an application in the implantable neural devices later.

Topic 2: **High Density Interconnect Substrate Technologies**

The explosive growth of portable communication devices has resulted in an overwhelming demand for finer line/space pattern formation of high density interconnect (HDI) substrates, which has lead the way away from the conventional subtractive circuit formation to semi-additive process (SAP), and modified semi-additive process (MSAP) technologies. The advancement of these technologies provides many challenges to overcome in production. This seminar will address the processes, materials and applications for manufacturing HDI substrates. Focusing on two of the challenging process steps in MSAP technologies, i.e. copper electrodepostion process for signal line formation, blind microvia an sd through hole filling, and the flash etching process for the final circuit formation, the seminar will highlight the key material developments of the two processes in ASTRI which are relevant to advancing HDI technology.

Biographies

Dr Wei-Mong Tsang is a senior technical manager of Opto-Electronic Technology Division in ASTRI and has over 10 years R&D experience in the areas of optical system, MEMS, vacuum electronics, biomedical and material science. He received the B.Eng (First Class Honours). and M.Phil. in electronic engineering from the Chinese University of Hong Kong, in 2000 and 2002 respectively, and the Ph.D. in electrical and electronic Engineering from the University of Surrey, UK in 2006. Thereafter, he has postdoctoral training at the Massachusetts Institute of Technology, USA from 2007-2011. Before joining ASTRI, he was worked at Institute of Microelectronics, Singapore as project principle investigator for developing implantable neural prosthetics system. He has more than 50 journal & conference publications and 1 book chapter. He has received E.W. Müller "Outstanding Young Scientist Award" from the International Field Emission Society in 2006 and the Croucher Foundation scholarship for his overseas study.

Dr Yaofeng Sun is a Principal Engineer of Electronics Components, ASTRI. He received his B.Eng in Chemical Engineering from Zhengzhou University in 1998, M.Eng in Solid Mechanics from Beijing University of Technology in 2001. Upon Master degree graduation, he joined SIMTech, Singapore and worked on deformation characterization technologies and reliability evaluation methodologies for microelectronics packaging interconnects. He proceeded to study on electronics packaging in Nanyang Technological University, Singapore and received his Ph.D. in 2007. After the completion of his postdoctoral research in University of Rhode Island, USA, Dr SUN joined ASTRI in 2010 and led the R&D team focusing on the development of high density interconnect substrate technologies. His team's endevaors have been practical and multiple technologies have been licensed to the industry for mass production, e.g. tons of developed electrodeposition materials shipped to ASTRI's customers for HDI fabrication.