



ORGANISED BY MATERIAL ENGINEERING TECHNICAL DIVISION (MATD)

AN INVESTIGATION ON THERMAL AND MECHANICAL PROPERTIES:

DEVELOPMENT OF LOW TEMPERATURE LEAD FREE TIN (SN)-BISMUTH (BI) SOLDER ALLOY FOR ELECTRONIC PACKAGING APPLICATION

BEM APPROVED CPD HOURS: 2.0
REF. NO: IEM21/HQ/369/T (w)



**18 OCTOBER 2021
MONDAY
5:00PM - 7:00PM**

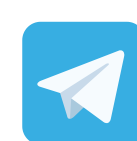
by Ir. Professor. Dr. Rajkumar Durairaj
(BEng, PhD, PEPC, MIEM)

REGISTRATION FEE:

IEM Member: RM 15 (Online)

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SYNOPSIS

The electronic industry has seen a rapid growth in various sectors of the market e.g., the computer, telecommunications, automotive and consumer sectors. Some of the key drivers for this growth include the customers demand for portability, flexibility, and better performance of the final product. As a result, this imposes tight requirements in terms of size reduction, performance increase, higher reliability, and lower cost. As the current product miniaturisation trend is set to continue for hand-held consumer products, area array type package solutions (such as chip scale packages and flip chip) are now being designed into products.

Lead-free solders are widely used as a principal bonding medium in the electronic industry. Tin (Sn)-Bismuth (Bi) lead free solder system can potentially replace the traditional Tin (Sn)-Lead (Pb) solder as the medium of interconnection between chips and substrates in the semiconductor industry. Eutectic SnBi solder alloy possesses melting temperature ranging 138 – 140 °C, enabling the solder to operate at lower soldering temperature while protecting other electronic devices from thermal damages. Both thermal and mechanical properties are important to the reliability of SnBi solder. This talk will discuss the experimental results of thermal and mechanical properties of eutectic SnBi solder alloy.

BIODATA OF SPEAKER

Ir. Professor Dr. Rajkumar Durairaj is currently the Dean (Academic Quality Assurance), Division of Quality Assurance and Associate Director (Material and Manufacturing), Engineering Accreditation Department, Board of Engineers Malaysia (BEM). He currently the lead-auditor of MyRA for Universiti Tunku Abdul Rahman (UTAR). He has held various academic leadership positions including Head of Department (2013 – 2019), Deputy Dean (2011) and Chairman of Accreditation Committee (2018-2019).

He started his academic career in 2006 at Universiti Tunku Abdul Rahman (UTAR). He holds a BEng honours degree in Manufacturing Engineering from the University of Salford, UK (1999), and an PhD in Electronics Manufacturing from University of Greenwich, UK (2006). Prior to his appointment at UTAR, he was appointed as the research assistant at University of Greenwich, UK from 2001 till 2003 in the project 'Microsystems Assembly Technology for the 21st century'. The project received a funding from the Engineering Physical Science Research Council (EPSRC), UK.

The focus of the research work is to identify, explore and develop suitable assembly and packaging technologies both to meet the challenges of miniaturisation facing the electronics industry and to support the development of new and low-cost electronic products.

Professor Rajkumar has published more than 80 research articles in peer-reviewed journals and conference proceedings. He was awarded UTAR Research Excellence Award in 2018. And Young Members Award by the Institution of Mechanical Engineers, UK in 2011. Prof. Rajkumar was awarded the Wighton Titular Fellowship of Engineering in 2010 by the Association of Commonwealth of Universities, United Kingdom.

He is a Professional Engineer with Practising Certificate (PEPC) registered with the Board of Engineers Malaysia, Corporate Member of Institution of Engineers Malaysia (IEM) and was recently elected as Associate Fellow of ASEAN Academy of Engineering and Technology (AAET).