Department of Mechanical and Biomedical Engineering

Seminar Series

Coupled Thermal-Electrical-Mechanical Measurements of TSV at Nano-scale

Dr. Pal-Jen WEI
Application Scientist, Marketing
Hysitron, Inc. (Now Bruker NI)

Date	May 16, 2018 (Wednesday)
Time	2:00pm
Venue	Room B6619 (MBE Conference Room), Yeung Kin Man Academic Building

Abstract

Main challenges of 3D integration circuit, 3D-IC technology using thin die and through-silicon-via, TSV, connections are transistor and circuit behavior affected by electrical, mechanical and thermal interactions. Although TSV-based 3D-IC shows significant electrical performance improvement compared to traditional 2D circuit, researchers have reported strong electro-migration (EM) in TSVs, which is induced by the thermal mechanical stress and the local temperature hotspot. This talk presents direct thermal-electrical-mechanical measurement techniques for specific TSV-based 3D-ICs. Several observations addressing 3D-IC's EM issue can be achieved using nano-indentation based designs coupled with electrical measurements and temperature control.

About the Speaker

EDUCATION
Ph. D., Mechanical Engineering (1998 ~ 2005)
National Cheng Kung University

Major: Nano-mechanical properties of thin solid films
Minor: Testing and analysis for thin films, Nanotechnology

M. S., Mechanical Engineering (1996 ~ 1998)
National Cheng Kung University
Major: Precision of aluminum alloy cutting

B. S., Mechanical Engineering (1992 ~ 1996)
National Cheng Kung University

PROFESSIONAL EXPERIENCE
Postdoctoral Researcher, Mechanical Engineering: November 2006 ~ July 2009
Postdoctoral Researcher, Nanotechnology and Micro-system Institute: August 2009 ~ July 2010
Assistant Professor, Nanotechnology and Micro-system Institute: August 2010 ~ Jan 2012
National Cheng Kung University

Senior Engineer, R&D Department: February 2012 ~ December 2012
Catcher Technology Co., Ltd.

Application Scientist, Marketing: January 2013 ~
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All are Welcome!

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