2021 IEEE 71st Electronic Components and Technology Conference

Technical Program

(ECTC)
ECTC 2021

Session 1: 2D and 3D Chiplets Interconnects in FO-WLP/PLP
Committee: Packaging Technologies

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1. Die Embedding Challenges for EMIB Advanced Packaging Technology
Gang Duan - Intel Corporation
Yosuke Kanaoka - Intel Corporation
Robin McRee - Intel Corporation
Bai Nie - Intel Corporation
Rahul Manepalli - Intel Corporation

2. Advanced HDFO Packaging Solutions for Chiplets Integration in HPC Application
Lihong Cao - Advanced Semiconductor Engineering, Inc.
Teck Lee - Advanced Semiconductor Engineering, Inc.
Yungshun Chang - Advanced Semiconductor Engineering, Inc.
SimonYL Huang - Advanced Semiconductor Engineering, Inc.
JY On - Advanced Semiconductor Engineering, Inc.
Emmal Lin - Advanced Semiconductor Engineering, Inc.
Owen Yang - Advanced Semiconductor Engineering, Inc.

3. Reliability of 3D-Opto-MID Packages for Asymmetricc Optical Bus Couplers
Lukas Lorenz - Technische Universität Dresden
Florian Hanesch - Technische Universität Dresden
Krzysztof Nieweglowski - Technische Universität Dresden
Mohd-Khairulamzari Hamjah - FAU Erlangen-Nürnberg
Jörg Franke - FAU Erlangen-Nürnberg
Gerd-Albert Hoffmann - Leibniz Universität Hannover
Ludger Overmeyer - Leibniz Universität Hannover
Karlheinz Bock - Technische Universität Dresden

4. Package Design Optimization of the Fan-out Interposer System
Sang Kyu Kim - Samsung Electronics Company, Ltd.
Sangwook Park - Samsung Electronics Company, Ltd.
Seung Yong Cha Sang Nam Jung - Samsung Electronics Company, Ltd.
Gyoungbum Kim - Samsung Electronics Company, Ltd.
Dan(Kyung Suk) Oh - Samsung Electronics Company, Ltd.
Joonsung Kim - Samsung Electronics Company, Ltd.
Sang-Uk Kim - Samsung Electronics Company, Ltd.
Seok Won Lee - Samsung Electronics Company, Ltd.

5. SoIS- An Ultra Large Size Integrated Substrate Technology Platform for HPC Applications
Jiun Yi Wu - Taiwan Semiconductor Manufacturing Company, Ltd.
Chien-Hsun Chen - Taiwan Semiconductor Manufacturing Company, Ltd.
Chien-Hsun Lee - Taiwan Semiconductor Manufacturing Company, Ltd.
Chung-Shi Liu - Taiwan Semiconductor Manufacturing Company, Ltd.
Douglas C. H. Yu - Taiwan Semiconductor Manufacturing Company, Ltd.

6. FOWLP-Based Flexible Hybrid Electronics with 3D-IC Chiplets for Smart Skin Display
Yuki Susumago - Tohoku University
Tomo Odashima - Tohoku University
Masatsugu Ichikawa - Tohoku University
Hiroki Hanaoka - Tohoku University
Hisashi Kino - Tohoku University
Tetsu Tanaka - Tohoku University
Takafumi Fukushima - Tohoku University

7. Enabling D2W / D2D Hybrid Bonding on Manufacturing Equipment Based on Simulated Process Parameters
Catharina Rudolph - Fraunhofer IZM-ASSID
Anke Hanisch - Fraunhofer IZM-ASSID
Martin Voigtländer - Fraunhofer IZM-ASSID
Peter Gansauer - Fraunhofer IZM-ASSID
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Thomas Werner - Fraunhofer IZM-ASSID
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Session 2: Wafer/Panel Level System Integration and Process Advances
Committee: Packaging Technologies

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1. Deca & Cadence Breakthrough Heterogeneous Integration Barriers with Adaptive Patterning (TM)
Edward Hudson - Deca Technologies
Dan Baldwin - Cadence
Tim Olson - Deca Technologies
Craig Bishop - Deca Technologies
Jan Kellar - Deca Technologies
Robin Gabriel - Deca Technologies

2. nSiP(System in Package) Platform for Various Module Packaging Applications
Lewis(In Soo) Kang - NEPES Corporation
Jay Kim - NEPES Corporation
JK Lee - NEPES Corporation
WS Shin - NEPES Corporation
NamChul Kim - NEPES Corporation
SY Park - NEPES Corporation

3. Chip-Last HDFO (High Density Fan-Out) Interposer PoP
JaeYoon Kim - Amkor Technology
KyeRyung Kim - Amkor Technology
EunYoung Lee - Amkor Technology
SeHwan Hong - Amkor Technology
JiHyun Kim - Amkor Technology
JiYeon Ryu - Amkor Technology
JiHun Lee - Amkor Technology
David Hiner - Amkor Technology
WonChul Do - Amkor Technology
JinYoung Khim - Amkor Technology

4. The Influence of Layer Thicknesses on Crackstops' Mechanical Strength and Robustness
Nicholas Polomoff - GLOBALFOUNDRIES
Mohamed Rabie - GLOBALFOUNDRIES

5. Advanced Outlier Die Control Technology in Fan-Out Panel Level Packaging Using Feedforward Lithography
John Chang - Onto Innovation
Jian Lu - Onto Innovation
Burhan Ali - Onto Innovation

6. A High Performance Package with Fine-Pitch RDL Quality Management
Jen-Kuang Fang - Advanced Semiconductor Engineering, Inc.
Cher-Min Fong - National Sun Yat-sen University
Jhao-Cheng Chen - Advanced Semiconductor Engineering, Inc.
Huang-Hsieh Chang - Advanced Semiconductor Engineering, Inc.
Peng Yang - Advanced Semiconductor Engineering, Inc.
Wen-Long Lu - Advanced Semiconductor Engineering, Inc.
Hung-Jung Tu - Advanced Semiconductor Engineering, Inc.
Min-Lung Huang - Advanced Semiconductor Engineering, Inc.

7. Reliability Considerations for Wafer Scale Systems
Niloofar Shakoorzadeh - University of California, Los Angeles
Randall Irwin - University of California, Los Angeles
Yu-Tao Yang - University of California, Los Angeles
Haoxiang Ren - University of California, Los Angeles
Subramanian S. Iyer - University of California, Los Angeles

Session 3: Advanced Heterogenous Chiplet and Integration for HPC

Committee: Packaging Technologies

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1. Analysis on Distortion of Fan-Out Panel Level Packages (FOPLP)

Yongjin Park - Samsung Electronics Company, Ltd.
Bongsoo Kim - Samsung Electronics Company, Ltd.
Tae-Ho Ko - Samsung Electronics Company, Ltd.
Sung-Hoan Kim Seok-Won Lee Tae-Je Cho

2. S-Connect Technology: Multi-chip, Fan-Out Interposer for Next-Generation, Heterogeneous Integration

Jihun Lee - Amkor Technology
Gamhan Yong - Amkor Technology
MinSu Jeong - Amkor Technology
JongHyun Jeon - Amkor Technology
DongHoon Han - Amkor Technology
WonChul Do - Amkor Technology
JinYong Khim - Amkor Technology
MinKeon Lee - Amkor Technology
Mike Kelly - Amkor Technology
Dave Hiner - Amkor Technology
TEunSook Sohn - Amkor Technology

3. Wafer Level System Integration of the Fifth Generation CoWoS-S with High Performance Si Interposer at 2500 mm2

Ping Kang Huang - Taiwan Semiconductor Manufacturing Company, Ltd.
Chung Yu Lu - Taiwan Semiconductor Manufacturing Company, Ltd.
Vincent Wei - Taiwan Semiconductor Manufacturing Company, Ltd.
Christine Chiu - Taiwan Semiconductor Manufacturing Company, Ltd.
K.C. Ting - Taiwan Semiconductor Manufacturing Company, Ltd.
Clark Hu - Taiwan Semiconductor Manufacturing Company, Ltd.
Chung Hao Tsai - Taiwan Semiconductor Manufacturing Company, Ltd.
Shang Y. Hou - Taiwan Semiconductor Manufacturing Company, Ltd.
Wen Chih Chiou - Taiwan Semiconductor Manufacturing Company, Ltd.
Chuei Tang Wang - Taiwan Semiconductor Manufacturing Company, Ltd.
Douglas C. H. Yu - Taiwan Semiconductor Manufacturing Company, Ltd.

4. Advanced System Integration for High Performance Computing with Liquid Cooling

Jeng-Nan Hung - Taiwan Semiconductor Manufacturing Company, Ltd.
Hung-Chi Li - Taiwan Semiconductor Manufacturing Company, Ltd.
Po-Fan Lin - Taiwan Semiconductor Manufacturing Company, Ltd.
Terry Ku - Taiwan Semiconductor Manufacturing Company, Ltd.
C. H. Yu - Taiwan Semiconductor Manufacturing Company, Ltd.
KC Yee - Taiwan Semiconductor Manufacturing Company, Ltd.
Douglas C. H. Yu - Taiwan Semiconductor Manufacturing Company, Ltd.

5. A New Semiconductor Package Design Flow and Platform Applied on High Density Fan-out Chip
Chen-Chao Wang - Advanced Semiconductor Engineering, Inc.
Chih-Yi Huang - Advanced Semiconductor Engineering, Inc.
Keng-Tuan Chang - Advanced Semiconductor Engineering, Inc.
Youle Lin - Advanced Semiconductor Engineering, Inc.

6. Development of a Novel Lead Frame Based Double Side Liquid Cooling High Performance SiC Power Module
Gongyue Tang - Institute of Microelectronics, A*STAR
Leong Ching Wai - Institute of Microelectronics, A*STAR
Siak Boon Lim - Institute of Microelectronics, A*STAR
Yong Liang Ye - Institute of Microelectronics, A*STAR
Boon Long Lau - Institute of Microelectronics, A*STAR
Kazunori Yamamoto - Institute of Microelectronics, A*STAR
Xiaowu Zhang - Institute of Microelectronics, A*STAR

7. Scaling M-Series™ for Chiplets
Clifford Sandstrom - Deca Technologies
Benedict San Jose - Deca Technologies
Tim Olson - Deca Technologies
Craig Bishop - Deca Technologies

Session 4: Heterogeneous Integration Using 2.xD/3D Packaging Technologies

Committee: Packaging Technologies

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1. InFO_oS (Integrated Fan-Out on Substrate) Technology for Advanced Chiplet Integration
Yung-Ping Chiang - Taiwan Semiconductor Manufacturing Company, Ltd
Shih-Peng Tai - Taiwan Semiconductor Manufacturing Company, Ltd
Wei-Cheng Wu - Taiwan Semiconductor Manufacturing Company, Ltd
John Yeh - Taiwan Semiconductor Manufacturing Company, Ltd
Chuei-Tang Wang - Taiwan Semiconductor Manufacturing Company, Ltd
Douglas C. H. Yu - Taiwan Semiconductor Manufacturing Company, Ltd

2. Direct Bonded Heterogeneous Integration (DBHi) Si Bridge
Kamal Sikka - IBM Corporation
Ravi Bonam - IBM Corporation
Yang Liu - IBM Corporation
Paul Andry - IBM Corporation
Dishit Parekh - IBM Corporation
Aakrati Jain - IBM Corporation
Marc Bergendahl - IBM Corporation
Rama Divakaruni - IBM Corporation
Maryse Cournoyer - IBM Corporation
Pascale Gagnon - IBM Corporation
Catherine Dufort - IBM Corporation

3. Fan-Out (RDL-First) Panel-Level Hybrid Substrate for Heterogeneous Integration
John Lau - Unimicron Technology
Gary Chen - Unimicron Technology
Jones Huang - Unimicron Technology
Ricky Chou - Unimicron Technology
Channing Cheng-Lin Yang - Unimicron Technology
Hsing-Ning Liu - Unimicron Technology
TJ Tseng - Unimicron Technology

4. 2.2D Die last Integrated Substrate for High Performance Applications
Dyi Chung Hu - SiPlus Co.
Er Hao Chen - SiPlus Co.
Jeffrey ChangBing Lee - iST-Integrated Service Technology Inc.
Chia Peng Sun - CoreTech System Co.
Chih Chung Hsu - CoreTech System Co.

5. Novel High-Power Delivery Architecture for Heterogenous Integration Systems
Kannan Kalappurakal Thankappan - University of California, Los Angeles
Subramanian S. Iyer - University of California, Los Angeles

6. TSV-Last Integration to Replace ASIC Wire Bonds in the Assembly of X-ray Detector Arrays
Jennifer Ovental Hicks - Micross
Dean Malta - Micross
David Bordelon - Micross
Daniel Richter - Micross
Jaesub Hong - Harvard University
Jonathan Grindlay - Harvard University
Branden Allen - Harvard University
Daniel Violette - Harvard University
Hiromasa Miyasaka - California Institute of Technology

7. Chiplets in Wafers (CiW) – Process Design Kit and Demonstration of High-Frequency Circuits with GaN Chiplets in Silicon Interposers
Florian Herrault - HRL Laboratories, LLC
Joel Wong - HRL Laboratories, LLC
Ignacio Ramos - HRL Laboratories, LLC
Haw Tai - HRL Laboratories, LLC
Matthew King - HRL Laboratories, LLC

Session 5: Technologies for Advanced Substrates and Flip-Chip Bonding
Committee: Packaging Technologies

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1. Miniaturized 3D Functional Interposer Using Bumpless Chip-on-Wafer (COW) Integration with Capacitors
Tatsuya Funaki - Tokyo Institute of Technology
Yoshiaki Satake - Murata Manufacturing Co., Ltd.
Kyosuke Kobinata - Tokyo Institute of Technology
Chih-Cheng Hsiao - Industrial Technology Research Institute
Hitoshi Matsuno - Murata Manufacturing Co., Ltd.

Shunsuke Abe - Murata Manufacturing Co., Ltd.
Youngsuk Kim - Tokyo Institute of Technology
Takayuki Ohba - Tokyo Institute of Technology

2. Multi-frequency Miniaturized RF Components Using Hybrid Substrates
Saikat Mondal - Michigan State University
Saranraj Karuppuswami Deepak Kumar Premjeet Chahal

3. Next Generation of Adhesion Enhancement System for High Speed Substrate Manufacturing
Thomas Thomas - Atotech
Patrick Brooks - Atotech
Fabian Michalik - Atotech
Wonjin Cho - Atotech

4. Two-Step Fabrication Process for Die-to-Die and Die-to-Wafer Cu-Cu Bonds
Jia Juen Ong - National Chiao Tung University
Kai-Cheng Shie - National Chiao Tung University
King-Ning Tu - National Chiao Tung University
Chih Chen - National Chiao Tung University

5. Cu Pillar Bump Design Parameters for Flip Chip Integration
Shengmin Wen - Synaptics
Jason Goodelle - Synaptics Inc
VanDee Moua - Synaptics Inc
Kenny Huang - Synaptics Inc
Christine Xiao - Synaptics Inc

6. Design, Materials, Process, Fabrication, and Reliability of Mini-LED RGB Display by Fan-Out Panel-Level Packaging
John Lau - Unimicron Technology
CT Ko - Unimicron Technology
Curry Lin - Unimicron Technology
TJ Tseng - Unimicron Technology
Henry Yang - Unimicron Technology
Tim Xia - Unimicron Technology
Bruce Lin - Unimicron Technology
Tony Peng - Unimicron Technology
Eagle Lin - Unimicron Technology
Leo Chang - Unimicron Technology
Ning Liu - Unimicron Technology

7. Self-assembly and Mass Reflow of Copper Bumps for Flip-Chip Hybridization in Photonic Applications
Thierry Mourier - CEA-LETI
J. Auffret - CEA-LETI
Laura Boutafa - CEA-LETI
Nadia Miloud-Ali - CEA-LETI
Laurent Mendizabal - CEA-LETI
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Session 6: Advanced Optoelectronics Packaging
Committee: Photonics

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1. High Density Multi-Chip Module for Photonic Reservoir Computing
Jean Benoit Heroux - IBM Corporation
Toshiyuki Yamane - IBM Corporation
Hidetoshi Numata - IBM Corporation
Daiju Nakano - IBM Corporation

2. Integrated Laser Attach Technology on a Monolithic Silicon Photonics Platform
Yusheng Bian - GLOBALFOUNDRIES
Koushik Ramachandran - GLOBALFOUNDRIES
Bo Peng - GLOBALFOUNDRIES
Brittany Hedrick - GLOBALFOUNDRIES
Keith Donegan - GLOBALFOUNDRIES
Jorge Lubguban - GLOBALFOUNDRIES
Benjamin Fasano - GLOBALFOUNDRIES
Armand Rundquist - Neophotonics
Asli Sahin - GLOBALFOUNDRIES
Ajey Jacob - GLOBALFOUNDRIES

3. Packaging High-power Photodiodes for Microwave Photonic Applications
Peng Yao - Phase Sensitive Innovations
Matthew Konkol - Phase Sensitive Innovations
Victoria Carey - Phase Sensitive Innovations
Jesse Buchan - Phase Sensitive Innovations
Jeffery Whitson Kevin Shreve - Phase Sensitive Innovations
Fuquan Wang - Phase Sensitive Innovations
Dennis Prather - Phase Sensitive Innovations

4. FOWLP and Si Interposer for High Speed Photonic Packaging
Teck Lim - Institute of Microelectronics
Eva Wai Leong Ching - Institute of Microelectronics
Jong Ming Ching - Institute of Microelectronics
Loh Woon Leng - Institute of Microelectronics
David Soon Wee Ho - Institute of Microelectronics
Surya Bhattacharya - Institute of Microelectronics

5. Low ESL High voltage Si-IPD as enabler for 140W LD output and less 1ns FWHM LiDAR Module
Mohamed Mehdi Jatlaoui - Murata Integrated Passive Solutions
Yves Aubry - Murata Integrated Passive Solutions
Stephane Longuet - Murata Integrated Passive Solutions
Sophie Gaborieau - Murata Integrated Passive Solutions
Laurent Dubos - Murata Integrated Passive Solutions
Hiroyuki Nakano - Murata
Takahiro Matsuoka - Murata
Takahito Kushima - Murata
Tatsuya Ohara - Murata

Shota Ando - Murata

6. Heterogeneous Integration of a Compact Universal Photonic Engine for Silicon Photonics Applications in HPC
Hsing-Kuo Hsia - Taiwan Semiconductor Manufacturing Company, Ltd.
C.H. Tsai - Taiwan Semiconductor Manufacturing Company, Ltd.
K.C. Ting - Taiwan Semiconductor Manufacturing Company, Ltd.
F.W. Kuo - Taiwan Semiconductor Manufacturing Company, Ltd.
C.C. Lin - Taiwan Semiconductor Manufacturing Company, Ltd.
C.T. Wang - Taiwan Semiconductor Manufacturing Company, Ltd.
S.Y. Hou - Taiwan Semiconductor Manufacturing Company, Ltd.
W.C. Chiou - Taiwan Semiconductor Manufacturing Company, Ltd.
Douglas Yu - Taiwan Semiconductor Manufacturing Company, Ltd.

7. Integrated Connector for Silicon Photonic Co-Package Optics with Strain Relief Accommodation Through Fiber Bending
Alexander Janta-Polczynski - IBM Corporation
Martin Robitaille - LXsim

Session 7: 3D TSV and Interposer
Committee: Interconnections

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1. Heterogenous Integration of Silicon Ion Trap and Glass Interposer for Scalable Quantum Computing Enabled by TSV, Micro-bumps, and RDL
Peng Zhao - 1IME,Singapore. 2NTU, Singapore
Hong Yu Li - Institute of Microelectronics, Singapore
Jing Tao - Nanyang Technological University, Singapore
Yu Dian Lim - Nanyang Technological University, Singapore
Wen Wei Seit - Institute of Microelectronics, Singapore
Luca Guidoni - Laboratoire Matériaux et Phénomènes Quantiques
Chuan Seng Tan - Nanyang Technological University, Singapore

2. Pre-bond Qualification of Through-Silicon Via for the Application of 3-D Chip Stacking
Luke Hu - United Microelectronics Corporation
Chun-Hung Chen - United Microelectronics Corporation
M. J. Lin - United Microelectronics Corporation
C. F. Lin - United Microelectronics Corporation
C. T. Yeh - United Microelectronics Corporation
C. H. Kuo - United Microelectronics Corporation
Tony Lin - United Microelectronics Corporation
Steven Hsu - United Microelectronics Corporation

3. 3D Die-Stack on Substrate (3D-DSS) Packaging Technology and FEM Analysis for 55um-75um Mixed Pitch Interconnections on High Density Laminate
Katsuyuki Sakuma - IBM Corporation
Mukta Farooq - IBM Corporation
Paul Andry - IBM Corporation
Cyril Cabral - IBM Corporation

Sankeerth Rajalingam - IBM Corporation
Dale McHerron - IBM Corporation
Shidong Li - IBM Corporation
Russell Kastberg - IBM Corporation
Tom Wassick - IBM Corporation

4. I/O Architecture, Substrate Design, and Bonding Process for a Heterogeneous Dielet-Assembly based Waferscale Processor
Saptadeep Pal - University of California, Los Angeles
Krutikesh Sahoo - University of California, Los Angeles
Irina Alam - University of California, Los Angeles
Haris Suhail - University of California, Los Angeles
Rakesh Kumar - University of Illinois at Urbana Champaign
Sudhakar Pamarti - University of California, Los Angeles
Puneet Gupta - University of California, Los Angeles
Subramanian S. Iyer - University of California, Los Angeles

5. Monitoring of the Effect of Thermal Shock on Crack Growth in Copper Through-Glass Via Substrates
Chukwudi Okoro - Corning Incorporated
Shrisudersan Jayaraman - Corning Incorporated
Scott Pollard - Corning Incorporated

6. Cost Effective 2.3D Packaging Solution by Using Fanout Panel Level RDL
Joonsung Kim - Samsung Electronics Company, Ltd.
Jae-Hoon Choi - Samsung Electronics Company, Ltd.
San-Uk Kim - Samsung Electronics Company, Ltd.
Jooyoung Choi - Samsung Electronics Company, Ltd.
Yongjin Park - Samsung Electronics Company, Ltd.
Gyoungbum Kim - Samsung Electronics Company, Ltd.
Sang Kyu Kim - Samsung Electronics Company, Ltd.
Sangwook Park - Samsung Electronics Company, Ltd.
Hwasub Oh - Samsung Electronics Company, Ltd.
Seok-Won Lee - Samsung Electronics Company, Ltd.
Tae-Je Cho - Samsung Electronics Company, Ltd.

7. A TSV-Last Approach for 3D-IC Integration and Packaging using WNi Platable Barrier Layer
Murugesan Mariappan - Tohoku University
K. Mori - T-Micro
M. Koyanangi - Tohoku University
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Session 8: Chiplet Integration and Fan-Out Interconnections
Committee: Interconnections

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1. A Novel Wafer-level Packaging Technology : A Key Enabler for New-era High-performance Computing
Min Jung Kim - Samsung Electronics Company, Ltd.
Seok Hyun Lee - Samsung Electronics Company, Ltd.

Kyoung Lim Suk - Samsung Electronics Company, Ltd.
Jae Gwon Jang - Samsung Electronics Company, Ltd.
Gwang-Jae Jeon - Samsung Electronics Company, Ltd.
Won Kyoung Choi - Samsung Electronics Company, Ltd.

2. The Dynamic Behavior of Electromigration in a Novel Cu Tall Pillar/Cu Via Interconnect for Fan-Out Packaging
Chien-Lung Liang - National Cheng Kung University
Min-Yan Tsai - Advanced Semiconductor Engineering, Inc.
Yung-Sheng Lin - Advanced Semiconductor Engineering, Inc.
I-Ting Lin - Advanced Semiconductor Engineering, Inc.
Sheng-Wen Yang - Advanced Semiconductor Engineering, Inc.
Min-Lung Huang - Advanced Semiconductor Engineering, Inc.
Jen-Kuang Fang - Advanced Semiconductor Engineering, Inc.
Kwang-Lung Lin - National Cheng Kung University

3. Electrical Design Challenges in High Bandwidth Memory and Advanced Interface Bus Interfaces on HD-FOWLP Technology
Mihai Rotaru - Institute of Microelectronics, A*STAR
Li Kangrong - Institute of Microelectronics, A*STAR

4. Advances in Photosensitive Polymer Based Damascene RDL Processes: Toward Submicrometer Pitches with More Metal Layers
Emmanuel Chery - IMEC
John Slabbekoorn - IMEC
Nelson Pinho - IMEC
Andy Miller - IMEC
Eric Beyne - IMEC

5. Ultra-High Strength Cu-Cu Bonding under Low Thermal Budget for Chiplet Heterogeneous Applications
Zhong-Jie Hong - National Chiao Tung University
Demin Liu - National Chiao Tung University
Han-Wen Hu - National Chiao Tung University
Ming-Chang Lin - Innolux Corporation
Tsau-Hua Hsieh - Innolux Corporation
Kuan-Neng Chen - National Chiao Tung University

6. Effectiveness of Inorganic Dielectric Layer on Submicron-scale Cu Traces against Thermal Oxidative Stress
Hiroshi Kudo - Dai Nippon Printing Co., Ltd.
Takamasa Takano - Dai Nippon Printing Co., Ltd.
Kouji Sakamoto - Dai Nippon Printing Co., Ltd.
Daisuke Kitayama - Dai Nippon Printing Co., Ltd.
Haruo Iida - Dai Nippon Printing Co., Ltd.
Masaya Tanaka - Dai Nippon Printing Co., Ltd.
Takahiro Tai - Dai Nippon Printing Co., Ltd.
Yumi Okazaki - Dai Nippon Printing Co., Ltd.
Jyunya Suzuki - Dai Nippon Printing Co., Ltd.
Shingi Maekawa - Dai Nippon Printing Co., Ltd.

7. Reliability of Chip-Last Fan-Out Panel-Level Packaging for Heterogeneous Integration
John Lau - Unimicron Technology
CT Ko - Unimicron Technology
Tony Peng - Unimicron Technology
Henry Yang - Unimicron Technology
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Session 9: Advances in Cu Bonding

Committee: Interconnections

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1. Low Temperature Wafer-to-Wafer Hybrid Bonding by Nanotwinned Copper
Wei-Lan Chiu - Industrial Technology Research Institute
Ou-Hsiang Lee - Industrial Technology Research Institute
Chia-Wen Chiang - Industrial Technology Research Institute
Hsiang-Hung Chang - Industrial Technology Research Institute

2. Room Temperature KlettWelding Interconnect Technology for High Performance CMOS Logic
Farough Roustaie - NanoWired GmbH
Sebastian Quednau - NanoWired GmbH
Florian Weissenborn - NanoWired GmbH
Olav Birlem - NanoWired GmbH
David Riehl - TU Darmstadt
Xiang Ding - TU Darmstadt
Andreas Kramer - TU Darmstadt
Klaus Hofmann - TU Darmstadt

3. Low Temperature Cu-Cu Bonding with Electroless Deposited Metal Passivation for Fine-Pitch 3D Packaging
Yuan-Chiu Huang - National Chiao Tung University
Demin Liu - National Chiao Tung University
Kuma Hsiung - National Chiao Tung University
Tzu-Chieh Chou - National Chiao Tung University
Han-Wen Hu - National Chiao Tung University
Arvind Sundarrajan - National Chiao Tung University
Hsin Chi Chang - National Chiao Tung University
Yi-Yu Pan - National Chiao Tung University
Ming-Wei Weng - National Chiao Tung University
Kuan-Neng Chen - National Chiao Tung University

4. Low Temperature Hybrid Bonding for Die to Wafer Stacking Applications
Guilian Gao - Xperi Corporation
Gill Fountain - Xperi Corporation
Dominik Suwito - Xperi Corporation
Jeremy Theil - Xperi Corporation
Thomas Workman - Xperi Corporation
Cyprian Uzoh - Xperi Corporation
Gabe Guevara - Xperi Corporation
Bongsub Lee - Xperi Corporation
Laura Mirkarimi - Xperi Corporation

Michael Huyhn - Xperi Corporation
Pawel Mrozek - Xperi Corporation

5. Low-Temperature All-Cu Interconnections Formed by Pressure-Less Sintering of Cu Pillars with Nanoporous-Cu Caps
Ramon Sosa - Georgia Institute of Technology
Kashyap Mohan - Texas Instruments, Inc.
Antonia Antoniou - Georgia Institute of Technology
Vanessa Smet - Georgia Institute of Technology
Denise Thienpont - On Semiconductor Corp
YY Tan - On Semiconductor Corp

6. Key Elements for Hybridization Technology Development of 2000x2000 Pixels Infrared Focal Plane Arrays
Julien Roumegoux - Lynred
Yannick Loquet - Lynred
Bastien Brosse - Lynred
Eric Micoud - Lynred
H. Leininger - Lynred

7. Numerical Investigation on Microfluidic Electroless Deposition for Uniform Copper Pillar Microbumps Interconnection
Yonglin Zhang - Hong Kong University of Science and Technology
Haibin Chen - Hong Kong University of Science and Technology
Haibo Fan - Nexperia
Jinglei Yang - Hong Kong University of Science and Technology
Jingshen Wu - Southern University of Science and Technology

Session 10: Surface Preparation for Cu Bonding

Committee: Interconnections

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1. Plasma Activated Low-temperature Die-level Direct Bonding with Advanced Wafer Dicing Technologies for 3D Heterogeneous Integration
Katsuyuki Sakuma - IBM Corporation
Dishit Parekh - IBM Corporation
Michael Belyansky - IBM Corporation
Juan-Manuel Gomez - IBM Corporation
Spyridon Skordas - IBM Corporation
Dale McHerron - IBM Corporation
Isabel De Sousa - IBM Systems
Marc Phaneuf - IBM Systems
Martin M. Desrochers - IBM Systems
Ming Li - ASMPT
Yiu Ming Cheung - ASMPT

2. Multi-stack Wafer Bonding Demonstration utilizing Cu to Cu Hybrid Bonding and TSV Enabling Diverse 3D Integration
TaeSeong Kim - Samsung Electronics Company, Ltd.

Sohye Cho - Samsung Electronics Company, Ltd.
SeonKwan Hwang - Samsung Electronics Company, Ltd.
Kyuha Lee - Samsung Electronics Company, Ltd.
YiKoan Hong - Samsung Electronics Company, Ltd.
HakSeung Lee - Samsung Electronics Company, Ltd.
Hyokyung Cho - Samsung Electronics Company, Ltd.
KwangJin Moon - Samsung Electronics Company, Ltd.
HoonJoo Na - Samsung Electronics Company, Ltd.
KiHyun Hwang - Samsung Electronics Company, Ltd.

3. In-Depth Parametric Study of Ar or N2 Plasma Activated Cu Surfaces for Cu-Cu Direct Bonding
Liangxing Hu - Nanyang Technological University
Simon Chun Kiat Goh - Nanyang Technological University
Jing Tao - Nanyang Technological University
Yu Dian Lim - Nanyang Technological University
Peng Zhao - Nanyang Technological University
Michael Joo Zhong Lim - Nanyang Technological University
Chuan Seng Tan - Nanyang Technological University

4. Dielectric Materials Characterization for Hybrid Bonding
Vivek Chidambaram - Institute of Microelectronics, A*STAR
Prayudi Lianto - Asia Product Development Center (APDC), Applied Materials
Xiang Yu Wang - Institute of Microelectronics, A*STAR
Gilbert See - Asia Product Development Center (APDC), Applied Materials
Nicholas Wiswell - Applied Materials, Inc.
Masaya Kawano - Institute of Microelectronics, A*STAR

5. Hybrid Bonding of Nanotwinned Copper/Organic Dielectrics with Low Thermal Budget
Kai-Cheng Shie - National Chiao Tung University
Pin-Syuan He - National Chiao Tung University
Yu-Hao Kuo - National Chiao Tung University
Jia Juen Ong - National Chiao Tung University
K.N. Tu - National Chiao Tung University
Benson Tzu-Hung Lin - MediaTek Inc
Chia-Cheng Chang - MediaTek Inc
Chih Chen - National Chiao Tung University

6. Comprehensive Study on Chip to Wafer Hybrid Bonding Process for Fine Pitch High Density Heterogeneous Applications
Sharon PeiSiang Lim - Institute of Microelectronics
Ser Choong Chong - Institute of Microelectronics
Vivek Chidambaram Nachiappan - Institute of Microelectronics

7. Feasibility Study of Nanotwinned Copper and Adhesive Hybrid Bonding for Heterogeneous Integration
Chih-Cheng Hsiao - Industrial Technology Research Institute
Huan-Chun Fu - Industrial Technology Research Institute
Chia-Wen Chiang - Industrial Technology Research Institute
Ou-Hsiang Lee - Industrial Technology Research Institute
Tsung-Yu Ou Yang - Industrial Technology Research Institute
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Session 11: Advanced Chip to Chip/Package Interconnections for 3D and Heterogeneous Integration

Committee: Interconnections

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1. Scaling Solder Micro-Bump Interconnect Down to 10 µm Pitch for Advanced 3D IC Packages

Zhaozhi George Li - Intel Corporation
Yoshihiro Tomita - Intel Corporation
Adel Elsherbini - Intel Corporation
Pilin Liu - Intel Corporation
Holly Sawyer - Intel Corporation
Johanna M. Swan - Intel Corporation
Shawna Liff - Intel Corporation

2. Fluxless Bonding of Large Area (≥ 900 mm2) Dies - Opportunities and Challenges.

Adeel Bajwa - Kulicke & Soffa Industries Inc.
Tom Colosimo - Kulicke & Soffa Industries Inc.
Tim Grant - Kulicke & Soffa Industries Inc.
Bob Chylak - Kulicke & Soffa Industries Inc.

3. Laser Assisted Transfer of Solder material from a Solid-state Solder Layer for Mask-less Formation of Micro Solder Depots on Cu-pillars and ENIG Pad Structures

Matthias Fettke - Pac Tech – Packaging Technologies GmbH
Rojhat Baba - Pac Tech – Packaging Technologies GmbH
Timo Kubsch - Pac Tech – Packaging Technologies GmbH
Georg Friedrich - Pac Tech – Packaging Technologies GmbH
Robert Thalmann - Pac Tech – Packaging Technologies GmbH
Vinith Bejugam - Pac Tech – Packaging Technologies GmbH
Kim Hoey Yeoh - Pac Tech – Packaging Technologies GmbH
Thorsten Teutsch - Pac Tech – Packaging Technologies GmbH

4. Towards 5µm Interconnection Pitch with Die-to-Wafer Direct Hybrid Bonding

Emilie Bourjot - CEA-LETI
Clément Castan - CEA-LETI
Noura Nadi - CEA-LETI
Alice Bond - CEA-LETI
Nicolas Bresson - CEA-LETI
Loic Sanchez - CEA-LETI
Frank Fournel - CEA-LETI
Nicolas Raynaud - SET Corporation
Pascal Metzger - SET Corporation
Severine Cheramy - CEA-LETI

5. Development of Hybrid Bonding Process for Embedded Bump Structure with Cu-Sn/BCB Structure

Huang Chen - Tsinghua University
Xiuyu Shi - Tsinghua University
Jin Wang - Tsinghua University
Yang Hu - Tsinghua University
Qian Wang - Tsinghua University

Jian Cai - Tsinghua University

6. Comparison of 3D Packages with 20µm Bump Pitch Using Reflow Soldering and Thermal Compression Bonding
Mu Hsuan Chan - Siliconware Precision Industries Co., Ltd.
Chris Chuang - Siliconware Precision Industries Co., Ltd.
Wei Jhen Chen - Siliconware Precision Industries Co., Ltd.
Don Son Jiang - Siliconware Precision Industries Co., Ltd.
C.M. Huang - Siliconware Precision Industries Co., Ltd.
C. Key Chung - Siliconware Precision Industries Co., Ltd.

7. Copper to Gold Thermal Compression Bonding in Heterogenous Wafer-Scale Systems
Krutikesh Sahoo - University of California, Los Angeles
Saptadeep Pal - University of California, Los Angeles
Niloofar Shakoorzadeh - University of California, Los Angeles
Yu-Tao Yang - University of California, Los Angeles
Subramanian Iyer - University of California, Los Angeles

Session 12: Flexible Interconnects and Low-Temperature Sintering
Committee: Interconnections

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1. Wafer-Level Flexible 3D Corrugated Interconnect Formation for Scalable In-Mold Electronics with Embedded Chiplets
Tomo Odashima - Tohoku University
Yuki Susumago - Tohoku University
Shuta Nagata - Tohoku University
Hisashi Kino - Tohoku University
Tetsu Tanaka - Tohoku University
Takafumi Fukushima - Tohoku University

2. Printed Stretchable Conductors for Smart Clothing: The Effect of Conductor Geometry and Substrate Properties on Electromechanical Behaviors
Udara Somarathna - Binghamton University
Gurvinder Khinda - Binghamton University
Behnam Garakani - Binghamton University
El Mehdi Abbara - Binghamton University
Nancy Stoffel - GE Global Research
Peter Borgesen - Binghamton University
Mark Poliks - Binghamton University

3. Flexible Connectors and PCB Segmentation for Signaling and Power Delivery in Wafer-Scale Systems
Randall Irwin - University of California, Los Angeles
Krutikesh Sahoo - University of California, Los Angeles
Saptadeep Pal - University of California, Los Angeles
Subramanian Iyer - University of California, Los Angeles

4. Novel Connector Mechanism Using Anisotropic Conductive Rubber for Trillion-Node Engine as an IoT Edge Platform
Kenichi Agawa - Toshiba Electronic Devices & Storage Corporation
Tokihiko Mori - The University of Tokyo
Ryoji Ninomiya - Toshiba Electronic Devices & Storage Corporation
Minoru Takizawa - Toshiba Electronic Devices & Storage Corporation
Takayasu Sakurai - The University of Tokyo

5. The Reliability of ENIG Joint Bonded by In-coated Cu Sheet
Hiroshi Nishikawa - Osaka University
Jianhao Wang - Nanjing University of Aeronautics and Astronautics
Kento Kariya - ROHM Co., Ltd.
Noriyuki Masago - ROHM Co., Ltd.

6. Low temperature and Low Pressure Die-Attach Bonding of High Power Light Emitting Diodes with Self Reducing Copper Complex Paste
Sri Krishna Bhogaraju - IIMo, Technsiche Hochschule Ingolstadt
Maximilian Schmid - IIMo, Technsiche Hochschule Ingolstadt
Elias Hufnagel - IIMo, Technische Hoschshule Ingolstadt
Fosca Conti - Department of Chemical Sciences, University of Padova
Hiren R Kotadia - Warwick Manufacturing Group, Warwick University
Gordon Elger - Fraunhofer IVI, Applied Research Center "Connected Mobility and Infrastructure

7. Low-Temperature MOD Assisted Sintering of Ag Nanoparticles for Power Device Die-Attach
Xun Liu - Shenzhen Institutes of Advanced Technology
Junjie Li - Shenzhen Institutes of Advanced Technology
Li Liu - Wuhan University of Technology
Pengli Zhu - Shenzhen Institutes of Advanced Technology
Tao Zhao - Shenzhen Institutes of Advanced Technology
Rong Sun - Shenzhen Institutes of Advanced Technology

Session 13: Dielectric Materials for High-Speed Wireless Communications
Committee: Materials & Processing

Session Co-Chairs:

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1. Material Design and High Frequency Characterization of Novel Ultra-Low Loss Dielectric Material for 5G and 6G Applications
Takenori Kakutani - TAIYO INK MFG. CO., LTD.
Yuya Suzuki - TAIYO INK MFG. CO., LTD.
Shoya Sekiguchi - TAIYO HOLDINGS CO., LTD.
Satoko Matsumura - TAIYO HOLDINGS CO., LTD.
Kota Oki - TAIYO HOLDINGS CO., LTD.
Shoko Mishima - TAIYO HOLDINGS CO., LTD.
Nobuhiro Ishikawa - TAIYO HOLDINGS CO., LTD.
Toshiyuki Ogata - TAIYO HOLDINGS CO., LTD.
Serhat Erdogan - Georgia Institute of Technology
Muhammad Ali - Georgia Institute of Technology
Mohanalingam Kathaperumal - Georgia Institute of Technology

2. Advanced Low-Loss Photoimageable Dielectric Material for RF/Millimeter-Wave Applications and Demonstration of High Density Interconnect
Kimiyuki Kanno - JSR Corporation
Hirokazu Ito - JSR Corporation
Taku Ogawa - JSR Corporation
Ryoji Tatara - JSR Corporation
Koichi Hasegawa - JSR Corporation
Atom Watanabe - Georgia Institute of Technology
Lakshmi Narasimha Vijay Kumar - Georgia Institute of Technology
Madhavan Swaminathan - Georgia Institute of Technology

3. Low Temperature Curable Low Dk & Df Polyimide for Millimeter-Wave Device
Hitoshi Araki - Toray Industries, Inc.
Akira Shimada - Toray Industries, Inc.
Hisashi Ogasawara - Toray Industries, Inc.
Masaya Jukei - Toray Industries, Inc.
Takenori Fujiwara - Toray Industries, Inc.
Masao Tomikawa - Toray Industries, Inc.

4. Progression in a Novel Low Loss Photo-Patternable Dielectric for Wafer Level Packaging (WLP)
Katie Han - Kayaku Advanced Materials
Yasumasa Akatsuka - Nippon Kayaku
Daniel Nawrocki - Kayaku Advanced Materials
Jenna Cordero - Kayaku Advanced Materials

5. Extraction of Complex Permittivity of Dielectrics on Package from W-Band to D-Band
Yi-Ting Lin - National Taiwan University
Hung-Chun Kuo - Advanced Semiconductor Engineering, Inc.
Po-I Wu - Advanced Semiconductor Engineering, Inc.
Ming-Fong Jhong - Advanced Semiconductor Engineering, Inc.
Po-Chih Pan - Advanced Semiconductor Engineering, Inc.
Chen-Chao Wang - Advanced Semiconductor Engineering, Inc.
Tzong-Lin Wu - National Taiwan University

6. Development of Highly Reliable Crack Resistive Build-up Dielectric Material with Low Df Characteristic for Next-Gen 2.5D Packages
Tatsushi Hayashi - Sekisui Chemical Co., Ltd.
Po Yu Lin - Sekisui Chemical Co., Ltd.
Ryoichi Watanabe - Sekisui Products, LLC.
Seiko Ichikawa - Sekisui Chemical Co., Ltd.

7. Sensitivity of Dielectric Substrate Property Discrepancy and Metal Microstrip Roughness to the Electronic Characteristics of Antenna-in-Packaging for 5G Applications at Millimeter Wave Frequencies
Kuan-Hsun Wu - National Taiwan University
Zhao-He Lin - National Taiwan University
Hsi-Tseng Chou - National Taiwan University
Pin-Zhong Shen - National Taiwan University of Science and Technology
Ding-Bing Lin - National Taiwan University of Science and Technology
Chao-Shun Yang - Powertech Technology Inc.
Chieh-Wei Chou - Powertech Technology Inc.
Chi-Liang Pan - Powertech Technology Inc.
Ji-Cheng Lin - Powertech Technology Inc.
Li-Chih Fang - Powertech Technology Inc.

Session 14: Enhancements in Sintering Technology and Power Applications

Committee: Materials & Processing

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1. Shear Stress and Reliability of the Sintered Ag Joints Bonding Ag SiC die on Bare Cu and/or Au Finish DBC and AMB Substrates Sintered in Nitrogen and Air Atmosphere

Guangyu Fan - Indium Corporation
Christine Labarbera - Indium Corporation
Ning-Cheng Lee - Indium Corporation
Evan Willspaugh - Rochester Institute of Technology
Lance Malone - Rochester Institute of Technology
Adam Morgan - SUNY POLY, Albany
Woongje Sung - SUNY POLY, Albany

2. Extraordinarily Enhanced Sintering Performance of Pressureless Sinterable Cu Nanoparticle Paste for Achieving Robust Die-Attach Bonding by Using Reducing Hybrid Solvent

Hai-Jun Huang - South China University of Technology
Min-Bo Zhou - South China University of Technology
Xin-Ping Zhang - South China University of Technology

3. Effect of Sintering Density on Thermal Reliability by Non-pressure Sintering Die-Attach

Takamichi Mori - OSAKA SODA CO., LTD.
Masatoshi Okuda - OSAKA SODA CO., LTD.
Ryo Katou - OSAKA SODA CO., LTD.
Suguru Hashidate - OSAKA SODA CO., LTD.
Junichirou Minami - OSAKA SODA CO., LTD.
Tetsuo Sakurai - OSAKA SODA CO., LTD.
Taro Fukui - OSAKA SODA CO., LTD.

4. Study of the adhesion of a sintered Ag joint on a Cu substrate using laser shocks. Influence of aging

Xavier Milhet - Institut Pprime - CNRS
Thibaut De Resseguier - Insititut Pprime - CNRS
Loic Signor - Insititut Pprime - CNRS
Etienne Barraud - Insititut Pprime - CNRS
Kokouvi Happy N'Tsouaglo - Insititut Pprime - CNRS
Hadi Bassoum - Insititut Pprime - CNRS
Jacques Baillargeat - Insititut Pprime - CNRS

5. Rapid Enhancement of Thermal Conductivity by Incorporating Oxide-Free Copper Nanoparticle Clusters for Highly Conductive Liquid Metal-Based Thermal Interface Materials

Seokkan Ki - Kyung Hee University
Jaehwan Shim - Kyung Hee University
Seungtae Oh - Kyung Hee University
Seunggeol Ryu - Samsung Electronics Co., Ltd.
Jaechoon Kim - Samsung Electronics Co., Ltd.
Youngsuk Nam - Kyung Hee University

6. Large-Scale and Low-Cost Production of Graphene Nanosheets-Based Epoxy Nanocomposites with Latent Catalyst to Enhance Thermal Conductivity for Electronic Encapsulation

Zhijian Sun - Georgia Institute of Technology
Jiaxiong Li - Georgia Institute of Technology
Mingyue Zhang - Georgia Institute of Technology
Michael Yu - Georgia Institute of Technology
Kyoung-Sik J Moon - Georgia Institute of Technology
Ching-ping Wong - Georgia Institute of Technology

7. Metal Thermal Interface Material for the Next Generation FCBGA

YunAh Kim - Amkor Technology
HyunHye Jung - Amkor Technology
JoHyun Bae - Amkor Technology
MiKyoung Choi - Amkor Technology
YoungDo Kweon - Amkor Technology
DongSu Ryu - Amkor Technology
DongJoo Park - Amkor Technology
JinYoung Khim - Amkor Technology

Session 15: Material and Process Advancements for Interconnects and Metallurgy Reliability

Committee: Materials & Processing

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1. The Study of Packaging Substrate Effect in FCBGA by Laser Assisted Bonding

Yu Lung Huang – SPIL Taiwan
Joe Huang - SPIL Taiwan
C. M. Huang - SPIL Taiwan
Kuo Haw Yu - SPIL Taiwan
Tank Luo - SPIL Taiwan
Wilson Hong - SPIL Taiwan
Taishin Ren - SPIL Taiwan

2. Au-Less, Ni-Less & Roughness-Less PCB Cu Surface Treatment Using All-in-One Al2O3 Passivation

Soojae Park - Samsung Electronics Company, Ltd.
Geonwoo Kim - Simmtech Co., Ltd.
Chanmi Oh - Simmtech Co., Ltd.
Munsang Yoo - Simmtech Co., Ltd.
Kyujin Lee - Simmtech Co., Ltd.
Ken Lee - Simmtech Co., Ltd.

3. Challenges and Key Learnings in Enabling Low Temperature Solder (LTS)Technology at Packaging Components Supply Base

Anna Prakash - Intel Corporation
Shereen Elhalawaty - Intel Corporation
Srinivasu Erukula - Intel Corporation
Rob Schum - Intel Corporation
Jason Lim - Intel Corporation
Kevin Byrd - Intel Corporation
Rajen Sidhu - Intel Corporation

Nilesh Badwe - Intel Corporation

4. A Novel Bi-Free Low Temperature Solder Paste with Outstanding Drop-Shock Resistance
Hongwen Zhang - Indium Corporation
Sam Lytwynec - Indium Corporation
Huaguang Wang - Indium Corporation
Jie Geng - Indium Corporation
Francis Mutuku - Indium Corporation
Ning-Cheng Lee - Indium Corporation

5. Process Developments in Transient Liquid Phase Bonding of Bi-Ni for High-Temperature Pb-Free Solder Alternatives
Hamid Fallahdoost - Binghamton University
Junghyun Cho - Binghamton University

6. Electromigration Effect on the Pd Coated Cu Wirebond
Mohsen Tajedini - University of Texas at Arlington
Allison Osmanson - University of Texas at Arlington
Yi Ram Kim - University of Texas at Arlington
Hossein Madanipour - University of Texas at Arlington
Choong-un Kim - University of Texas at Arlington
Bradley Glasscock - Texas Instruments, Inc., Dallas, TX 75243
Mohammad Khan - Texas Instruments, Inc., Dallas, TX 75243

7. Effects of Aging on Microstructure and Mechanical Properties of Sn-Ag-Cu-Bi Solder Alloys
Vishnu Shukla - University of Central Florida
Omar Ahmed - Juniper Networks
Golareh Jalilvand - University of South Carolina
Abhishek Mehta - University of Central Florida
Peng Su - Juniper Networks
Tengfei Jiang - University of Central Florida

Session 16: Innovation on Bonding and Hybrid Bonding Materials and Processing

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1. One-Step TSV Process Development for 4-Layer Wafer Stacked DRAM
Masaya Kawano - Institute of Microelectronics, A*STAR
Xiang-Yu Wang - Institute of Microelectronics, A*STAR
Qin Ren - Institute of Microelectronics, A*STAR
Woon-Leng Loh - Institute of Microelectronics, A*STAR
B.S.S. Chandra Rao - Institute of Microelectronics, A*STAR
King-Jien Chui - Institute of Microelectronics, A*STAR

2. A Novel Photosensitive Polyimide Adhesive Material for Hybrid Bonding Processing
Satoshi Yoneda - HD Microsystems, Ltd.
Kenya Adach - HD Microsystems, Ltd.
Kaori Kobayashi - HD Microsystems, Ltd.
Daisaku Matsukawa - HD Microsystems, Ltd.

Mamoru Sasaki - HD Microsystems, Ltd.
Toshiaki Itabashi - HD Microsystems, Ltd.
Toshiaki Shirasaka - Showa Denko Materials Co., Ltd.
Tomoaki Shibata - Showa Denko Materials Co., Ltd.

3. Development of Simultaneous Transferring and Bonding (SITRAB) Process for µLED Arrays using Anisotropic Solder Paste (ASP) and Laser-Assisted Bonding (LAB) Technology
Jiho Joo - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Chanmi Lee - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
In-seok Kye - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Yong-Sung Eom - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Ki-seok Jang - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Gwang-Mun Choi - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Seok Hwan Moon - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Ho-Gyeong Yun - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
Kwang-Seong Choi - ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE

4. Development of a Temporary Bonding Tape Having over 300 degC Thermal Resistance for Cu-Cu Direct Bonding
Izumi Daido - Sekisui Chemical Co., Ltd.
Ryoichi Watanabe - Sekisui Chemical Co., Ltd.
Toshio Takahashi - Sekisui Chemical Co., Ltd.
Munehiro Hatai - Sekisui Chemical Co., Ltd.

5. Investigation of Wet Pretreatment to Improve Cu-Cu Bonding for Hybrid Bonding Applications
Tzu-Heng Hung - National Chiao Tung University
Ting-Cih Kang - NANYA Technology Corporation
Shan-Yu Mao - National Chiao Tung University
Tzu-Chieh Chou - National Chiao Tung University
Han-Wen Hu - National Chiao Tung University
Hsih-Yang Chiu - NANYA Technology Corporation
Chiang-Lin Shih - NANYA Technology Corporation
Kuan-Neng Chen - National Chiao Tung University

6. Non Conductive Film Analysis Using Cure Kinetics and Rheokinetics for Gang Bonding Process for 3DIC TSV Packaging
Ji Young Moon - Samsung Electronics Company, Ltd.
Yong Chul Shin - Samsung Electronics Company, Ltd.
Sumin Kim - Samsung Electronics Company, Ltd.
Seung Ho Hahn - Samsung Electronics Company, Ltd.
Kyeongbin Lim - Samsung Electronics Company, Ltd.
Jung Woo Jung - Samsung Electronics Company, Ltd.
Chaemook Lim - Samsung Electronics Company, Ltd.
Youngbum Kim - Samsung Electronics Company, Ltd.
Jihwan Hwang - Samsung Electronics Company, Ltd.
Minwoo Daniel Rhee - Samsung Electronics Company, Ltd.

7. A Single Layer Mechanical Debonding Adhesive for Advanced Wafer Level Packaging
Xiao Liu - Brewer Science, Inc.
Yubao Wang - Brewer Science, Inc.
Debbie Blumenshine - Brewer Science, Inc.
Mei Dong - Brewer Science, Inc.
Rama Puligadda - Brewer Science, Inc.

Session 17: Latest Trends in Fan-Out Packaging and Substrate Technology

Committee: Materials & Processing

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1. Fine RDL Patterning Technology for Heterogeneous Packages in Fan-Out Panel Level Packaging

Changbo Lee - Samsung Electronics Company, Ltd.
Sangyun Lee - Samsung Electronics Company, Ltd.
Yoon Young Jeon - Samsung Electronics Company, Ltd.
Hyun-Dong Lee - Samsung Electronics Company, Ltd.
Young Min Kim - Samsung Electronics Company, Ltd.
Byung-Lyul Park - Samsung Electronics Company, Ltd.

2. Reliability Performance of Advanced Organic Interposer (CoWoS®-R) Packages

Po-Yao Lin - Taiwan Semiconductor Manufacturing Company, Ltd.
Ming-Chih Yew Shu-Shen Yeh Suo-Mao Chen Chia-Hsiang Lin Chien-Shen Chen Cheng Chi Hsieh Yi-Hang Lin Yung Jean Lu Si-Guei Cheng Shin-Puu Jeng

3. Novel Insulation Materials Suitable for FOWLP and FOPLP

Shu Ikehira - Ajinomoto Co., Inc.

4. Versatile Laser Release Material Development for Chip-First and Chip-Last Fan-Out Wafer Level Packaging

Chia-Hsin Lee - Brewer Science, Inc.
Baron Huang - Brewer Science, Inc.
Jennifer See - Brewer Science, Inc.
Xiao Liu - Brewer Science, Inc.
Yu-Min Lin - Electronics and Optoelectronics Research Laboratories, Industrial Technology Research Institute
Wei-Lan Chiu - Electronics and Optoelectronics Research Laboratories, Industrial Technology Research Institute
Chao-Jung Chen - National Chiao Tung University
Ou-Hsiang Lee - National Chiao Tung University
Hsiang-En Ding - National Chiao Tung University
Ren-Shin Cheng - National Chiao Tung University
Ang-Ying Lin - National Chiao Tung University

5. Flexible Two-Layered Photo-Imageable Dielectric and Its Application to Thin Form-Factor and High-Density FPC (Flexible Printed Circuit) Using SAP (Semi-Additive Processes)

Shuhei Takashima - Taiyo Ink Mfg. Co., Ltd.
Yuto Odagiri - Taiyo Ink Mfg. Co., Ltd.
Kazuyoshi Yoneda - Taiyo Ink Mfg. Co., Ltd.
Tadahiko Hanada - Taiyo Ink Mfg. Co., Ltd.

6. Investigation of Novel Substrate Core Material Designed to Reduce Package Warpage and Improve Assembly-Level Reliability

Fumito Suzuki - Panasonic Corporation of North America
Masafumi Honma - Panasonic Corporation Industrial Solutions Company
Hirofumi Midorikawa - Panasonic Corporation Industrial Solutions Company
Ryuji Takahashi - Panasonic Corporation Industrial Solutions Company
Tom Shin - Panasonic Corporation of North America
Andy Behr - Panasonic Corporation of North America

7. Laser Releasable Temporary Bonding Film for Fan-Out Process with Large Panel
Kyosung Hwang - 3M
Ki-sun Kim - 3M
Robin Gorrell - 3M
Keon-woo Kim - 3M
Yongsuk Yang - 3M
Wei Zou - 3M

Session 18: Emerging Technology Advancements in Applications and Processing

Committee: Materials & Processing

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1. Electromechanical Characterization of a Highly Stretchable Liquid Metal Conductor for Wearable Electronics
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Gurvinder Singh Khinda - Binghamton University
Rajesh Sharma Sivasubramony - Binghamton University
El Mehdi Abbara - Binghamton University
Mark D. Poliks - Binghamton University
Sai Srinivas - Liquid Wire
Chuck Kinzel - Liquid Wire
Andrea Olvera-Gonzalez - Liquid Wire
Michael Wallans - Liquid Wire
Daniel d'Almeida - Liquid Wire

2. 1 μm Diameter High Aspect Ratio Via Formation on RDL Dielectric by Imprinting Technology
Shinya Kawashita - Showa Denko Materials Co., Ltd.
Kazutaka Honda - Showa Denko Materials Co., Ltd.
Masataka Nishida - Showa Denko Materials Co., Ltd.
Tatsuya Makino - Showa Denko Materials Co., Ltd.
Naoya Suzuki - Showa Denko Materials Co., Ltd.

3. Selective Thinning Technology of Solder Resist for Ultra-Thin and High-Density Packaging
Yuya Suzuki - Taiyo America
Yuji Toyoda - Mitsubishi Paper Mills Limited

4. Novel Silicone Hotmelt Solutions for Electronic Components
Ryosuke Yamazaki - Dow Toray Co., Ltd.
Kouichi Ozaki - Dow Toray Co., Ltd.
Toru Imaizumi - Dow Toray Co., Ltd.
Hidenori Matsushima - Dow Toray Co., Ltd.
Masayuki Hayashi - Dow Toray Co., Ltd.
Shinichi Yamamoto - Dow Toray Co., Ltd.
Yoshito Ushio - Dow Toray Co., Ltd.

5. Extreme Thin Peltier Modules Fabricated by the Printed Electronics Method
Yuta Seki - LINTEC Corporation
Toshiya Yamasaki - LINTEC Corporation
Masaya Todaka - LINTEC Corporation
Wataru Morita - LINTEC Corporation
Kunihisa Kato - LINTEC Corporation
Tsuyoshi Muto - LINTEC Corporation

6. A Novel Integration Scheme for Wafer Singulation and Selective Processing Using Temporary Dry Film Resist
Alexandre La Grappe - IMEC
Evert Visker - IMEC
Augusto Redolfi - IMEC
Lan Peng - IMEC
Karthik Muga - IMEC
David Huls - IMEC
Serge Vanhaelemeersch - IMEC
Anne Lauwers - IMEC
Jan Ackaert - IMEC

7. Study on EMI Shielding at the PCB Strip Level with Conformal Spray Coating Process
Sang Won Park - Ntrium Inc.
Jin-Ho Yoon - Ntrium Incorporation
Byoung Woong Moon - Ntrium Incorporation
Ho Yeong Jeong - Ntrium Incorporation
Se Young Jeong - Ntrium Incorporation
Seung Jae Lee - Ntrium Incorporation
Kisu Joo - Ntrium Incorporation

Session 19: Enhanced Reliability Characterization and Methodologies
Committee: Applied Reliability

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1. Magnetically Actuated Test Method for Interfacial Fracture Reliability Assessment
Rui Chen - Georgia Institute of Technology
Nicholas Ginga - Georgia Institute of Technology
Suresh Sitaraman - Georgia Institute of Technology

2. Evaluation of Low-k Integration Integrity Using Shear Testing on Sub-30 Micron Micro-Cu Pillars
Tae-Kyu Lee - Portland State University
Greg Baty - Portland State University
Omar Ahmed - Juniper Networks
Peng Su - Juniper Networks
Bernard Glasauer - Juniper Networks

3. A Fracture Mechanics Evaluation of the Cu-Polyimide Interface in Fan-Out Redistribution Interconnect

Wei-Te Liu - National Cheng Kung University
Chia-Ming Yang - National Cheng Kung University
Tz-Cheng Chiu - National Cheng Kung University
Dao-Long Chen - Advanced Semiconductor Engineering, Inc.
Ching-Lin Hsiao - Advanced Semiconductor Engineering, Inc.
David Tarng - Advanced Semiconductor Engineering, Inc.

4. Novel in-situ Button Shear Methodology for Efficient Assessment of Mold Compound Encapsulation

David Guillon - Hitachi ABB Power Grids
Andris Avots - Hitachi ABB Power Grids
Katrin Schlegel - Hitachi ABB Power Grids

5. Low-Temperature High Strain Rate Constitutive Behavior of Doped and Undoped SnAgCu Solder Alloys after Prolonged Storage at High Temperature

Pradeep Lall - Auburn University
Vikas Yadav - Auburn University
Vishal Mehta - Auburn University
Jeff Suhling - Auburn University
David Locker - US Army Combat Capabilities Development

6. Automated Void Detection in TSVs from 2D X-Ray Scans using Supervised Learning with 3D X-Ray Scans

Ramanpreet Pahwa - Institute for Infocomm Research
Saisubramaniam Gopalakrishnan - Institute for Infocomm Research
Huang Su - Institute for Infocomm Research
Ee Ping Ong - Institute for Infocomm Research
Haiwen Dai - Carl Zeiss SMT Inc.
David Ho Soon Wee - Institute of Microelectronics
Ren Qin - Institute of Microelectronics
Vempati Srinivasa Rao - Institute of Microelectronics

7. Case Studies of Accurate Fault Localization in Advanced Packages

Sajay Bhuvanendran Nair Gourikutty - Institute of Microelectronics, A*STAR
Jesse Alton - TeraView Limited
Desmond Yeo - Xilinx, Inc.
Kok Keng Chua - Xilinx, Inc.
Sharon Lim Seow Huang - Institute of Microelectronics, A*STAR
Surya Bhattacharya - Institute of Microelectronics, A*STAR

Session 20: Reliability of Automotive Electrification and Autonomous Electronic Components

Committee: Applied Reliability

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Papers:

1. Hardware Reliability in Robo-Taxi
Hualiang Shi - Lyft
Hannah Talisse - Lyft
Steven Khau - Lyft
Marco Marroquín - Lyft

2. Mechanical Property and Microstructure Evolution in SAC and SAC+X Lead Free Solders Exposed to Various Thermal Cycling Profiles
SM Kamrul Hasan - Auburn University
Mohammad Al Ahsan - Auburn University
Abdullah Fahim - Auburn University
Jeffrey C. Suhling - Auburn University
Pradeep Lall - Auburn University

3. Deep Learning Assisted Quantitative Assessment of the Porosity in Ag-Sinter Joints Based on Non-destructive Acoustic Inspection
Sebastian Brand - Fraunhofer IMWS
Michael Kögel - Fraunhofer IMWS
Linh Bach - Fraunhofer IISB
Frank Altmann - Fraunhofer IMWS

4. Reliability of 6-Side Molded Panel-Level Chip-Scale Packages (PLCSPs)
John Lau - Unimicron Technology
CT Ko - Unimicron Technology
Tony Peng - Unimicron Technology
TJ Tseng - Unimicron Technology
Henry Yang - Unimicron Technology
Tim Xia - Unimicron Technology
Bruce Lin - Unimicron Technology
Eagle Lin - Unimicron Technology
Leo Chang - Unimicron Technology
Hsing Ning Liu - Unimicron Technology
Curry Lin - Unimicron Technology

5. In Situ Degradation Monitoring Methods During Lifetime Testing of Power Electronic Modules
Alexander Schiffmacher - IMTEK-University of Freiburg
David Strahringer - IMTEK-University of Freiburg
Shreyas Malasani - IMTEK-University of Freiburg
Carsten Kempiak - Otto-von Guericke-University Magdeburg, IESY
Andreas Lindemann - Otto-von Guericke-University Magdeburg, IESY
Juergen Wilde - IMTEK-University of Freiburg

6. Data-Driven Remaining Useful Life Prediction of QFN Packages on Board Level with On-Chip Stress Sensors
Daniel Riegel - Robert Bosch GmbH
Przemyslaw Jakub Gromala - Robert Bosch GmbH
Bongtae Han - University of Maryland
Sven Rzepka - Fraunhofer Institute for Electronic Nano Systems

7. Board Level Temperature Cycling Reliability of mmWave Modules on Hybrid Substrates
Laura Wambera - TU Dresden
Karsten Meier - TU Dresden
Karlheinz Bock - TU Dresden
Christian Götze - GLOBALFOUNDRIES
Marcel Wieland – GLOBALFOUNDRIES

Session 21: Advances in Interconnect Reliability

Committee: Applied Reliability

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1. Electromigration Mechanisms of Solder Joints with Limited Sn Volume in Advanced Electronic Packaging
Pilin Liu - Intel Corporation
Alan Overson - Intel Corporation
Deepak Goyal - Intel Corporation

2. Non-Destructive Observation of Void Formation due to Electromigration in Solder Microbump by 3D X-Ray
Kai-Cheng Shie - National Chiao Tung University
Tzu-Wen Lin - National Chiao Tung University
K.N. Tu - National Chiao Tung University
Chih Chen - National Chiao Tung University

3. Study of Metallurgical Reaction and Electromigration Mechanism in Microbump with Embedded Cu Ball
Hossein Madanipour - University of Texas at Arlington
Yiram Kim - University of Texas at Arlington
Allison T Osmanson - University of Texas at Arlington
Mohsen Tajedini - University of Texas at Arlington
Choong-Un Kim - University of Texas at Arlington
Dibyajat Mishra - Texas Instruments
Patrick Thompson - Texas Instruments

4. Mechanical Behavior and Reliability of SAC+Bi Lead Free Solders with Various Levels of Bismuth
KM Rafidh Hassan - Auburn University
Jing Wu - Auburn University
Mohammad S. Alam - Auburn University
Jeffrey C. Suhling - Auburn University
Pradeep Lall - Auburn University

5. Modeling Flexible Electronics Under Biaxial Strain
Benjamin Stewart - Georgia Institute of Technology
Suresh Sitaraman - Georgia Institute of Technology

6. Resolving Thermo-Mechanically Induced Circumferential Crack Formation in Copper Through-Glass Via Substrate
Chukwudi Okoro - Corning Incorporated
Tammie Allowatt - Corning Incorporated
Scott Pollard - Corning Incorporated

7. The Comparative Study of High and Low Temperature Cured Polyimide For Wafer Level Package with Ultra-Thick Re-Distribution Copper Layer (Thickness 15 μm)
Kuei Hsiao Kuo - SPILSiliconware Precision Industries Co., Ltd
Ting-En Lin - Siliconware Precision Industries Co., Ltd
Joey Lin - Siliconware Precision Industries Co., Ltd
Yu Sheng Lin - Siliconware Precision Industries Co., Ltd
Stan Chen - Siliconware Precision Industries Co., Ltd
Feng Lung Chien - Siliconware Precision Industries Co., Ltd

Session 22: Advanced Package Modeling and Reliability

Committee: Applied Reliability
joint with Thermal/Mechanical Simulation & Characterization

Session Co-Chairs:

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1. Fracture Modeling and Characterization of Underfill/Polymer Interfacial Adhesion in RDL Interposer Package
Shu-Shen Yeh - Taiwan Semiconductor Manufacturing Company, Ltd.
P. Y. Lin - Taiwan Semiconductor Manufacturing Company, Ltd.
C. K. Hsu - Taiwan Semiconductor Manufacturing Company, Ltd.
Y. S. Lin - Taiwan Semiconductor Manufacturing Company, Ltd.
J. H. Wang - Taiwan Semiconductor Manufacturing Company, Ltd.
P. C. Lai - Taiwan Semiconductor Manufacturing Company, Ltd.
C. H. Chen - Taiwan Semiconductor Manufacturing Company, Ltd.
Y. C. Lee - Taiwan Semiconductor Manufacturing Company, Ltd.
M. C. Yew - Taiwan Semiconductor Manufacturing Company, Ltd.
S. K. Cheng - Taiwan Semiconductor Manufacturing Company, Ltd.
Shin-Puu Jeng - Taiwan Semiconductor Manufacturing Company, Ltd.

2. Evolution of Viscoelastic Properties and Interface-Fracture Toughness Under Sustained High Temperature Operation Typical of Automotive Underhood for up to 1-year
Pradeep Lall - Auburn University
Yunli Zhang - Auburn University
Madhu Kasturi - Auburn University
Padmanava Choudhury - Auburn University
Haotian Wu - Auburn University
Jeff Suhling - Auburn University
Ed Davis - Auburn University

3. Reliability Modeling of Micro-vias in High-Density Redistribution Layers
Pratik Nimbalkar - Georgia Institute of Technology
Mohanalingam Kathaperumal - Georgia Institute of Technology
Fuhan Liu - Georgia Institute of Technology
Madhavan Swaminathan - Georgia Institute of Technology
Rao Tummala - Georgia Institute of Technology

4. Simulation of Moisture-Induced Plasticization in Transfer-Molded Optical Sensor Packages Using a Time – Temperature – Moisture Concentration Superposition
Fabian Huber - ams AG
Harald Etschmaier - ams AG
Peter Hadley - Graz University of Technology

5. Electromigration and Temperature Cycling Tests of Cu-Cu Joints Fabricated by Instant Copper Direct Bonding
Kai-Cheng Shie - National Chiao Tung University
Po-Ning Hsu - National Chiao Tung University
Yu-Jin Li - National Chiao Tung University
K.N. Tu - National Chiao Tung University
Benson Tzu-Hung Lin - MediaTek Inc
Chia-Cheng Chang - MediaTek Inc
Chih Chen - National Chiao Tung University

6. Effects of Heatsink Pressure and PCB Design Variations on BGA Solder Joint Reliability
Omar Ahmed - Juniper Networks
Leif Hutchinson - Juniper Networks
Peng Su - Juniper Networks
Tengfei Jiang - University of Central Florida

7. A Systematic Study and Lifetime Modeling on the Board Level Reliability of SSD after Temperature Cycling Test
Choongpyo Jeon - Samsung Electronics Company, Ltd.
Youngsung Choi - Samsung Electronics Company, Ltd.
Keunho Rhew - Samsung Electronics Company, Ltd.
Jinsoo Bae - Samsung Electronics Company, Ltd.
Yeungjung Cho - Hanyang University
Sangwoo Pae - Samsung Electronics Company, Ltd.

Session 23: Heterogeneous Integration Processes and Manufacturing
Committee: Assembly & Manufacturing Technology

Session Co-Chairs:

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1. Hybrid Bonding Interconnect for Advanced Heterogeneously Integrated Processors
Adel Elsherbini - Intel Corporation
Shawna Liff - Intel Corporation
Johanna Swan - Intel Corporation
Kimin Jun - Intel Corporation
Sathya Tiagaraj - Intel Corporation
Gerald Pasdast - Intel Corporation

2. Advanced 2.5D Heterogeneous Integrated Platform Using Flexible Biocompatible Substrate for Biomedical Sensing System
Shu-Yun Ku - National Chiao Tung University
Tzu-Chieh Chou - National Chiao Tung University
Yi-Chieh Tsai - National Chiao Tung University
Tzu-Chieh Chou - National Chiao Tung University
Han-Wen Hu - National Chiao Tung University
Yu-Ren Fang - National Chiao Tung University
Yu-Ju Lin - National Chiao Tung University
Po-Tsang Huang - National Chiao Tung University
Jin-Chern Chiou - National Chiao Tung University
Kuan-Neng Chen - National Chiao Tung University

3. Improving FC Process for Large 2.5D Molded Interposer
Dongwon Lee - Samsung Electronics Company, Ltd.
Soomin Yoon - Samsung Electronics Company, Ltd.
Joonho Jun - Samsung Electronics Company, Ltd.
Jinwoo Park - Samsung Electronics Company, Ltd.
Teakhoon Lee - Samsung Electronics Company, Ltd.
Un-Byoung Kang - Samsung Electronics Company, Ltd.
Jongho Lee - Samsung Electronics Company, Ltd.

4. High-speed, High-density, and Highly manufacturable Cu-filled Through-Glass-Via Channel (Cu bridge) for Multi-chiplet Modules
Hiroshi Kudo - Dai Nippon Printing Co., Ltd.
Takamasa Takano - Dai Nippon Printing Co., Ltd.
Miyuki Akazawa - Dai Nippon Printing Co., Ltd.
Shouhei Yamada - Dai Nippon Printing Co., Ltd.
Kouji Sakamoto - Dai Nippon Printing Co., Ltd.
Daisuke Kitayama - Dai Nippon Printing Co., Ltd.
Haruo Iida - Dai Nippon Printing Co., Ltd.
Masaya Tanaka - Dai Nippon Printing Co., Ltd.
Takahiro Tai - Dai Nippon Printing Co., Ltd.

5. Heterogeneous Integration of Double Side SiP for IoT and 5G Application
Mike Tsai - Siliconware Precision Industries Co., Ltd
Ryan Chiu - Siliconware Precision Industries Co., Ltd
Ming-Fan Tsai - Siliconware Precision Industries Co., Ltd
Eric He - Siliconware Precision Industries Co., Ltd
Erico Yang - Siliconware Precision Industries Co., Ltd.
Tim Chang - Siliconware Precision Industries Co., Ltd
Frank Chu - Siliconware Precision Industries Co., Ltd
J. Y. Chen - Siliconware Precision Industries Co., Ltd

6. Simulation and Experiment on Warpage of Heterogeneous Integrated Fan-Out Panel Level Package
Guoliang Xu - Wuhan University
Chao Sun - Wuhan University
Jiaqi Ding - Wuhan University
Sheng Liu - Wuhan University
Ziliang Kuang - Guangdong University of Technology,
Li Liu - Wuhan University of Technology
Zhiwen Chen - Wuhan University of Technology

7. CFD Simulation Analysis and Experimental Study of Capillary Underfill Flow in Heterogeneous Integration
Risa Miyazawa - IBM Corporation
Chinami Marushima - IBM Corporation
Toyohiro Aoki - IBM Corporation
Akihiro Horibe - IBM Corporation
Takashi Hisada - IBM Corporation

Session 24: Fan-Out Wafer Level Packaging Developments and Applications
Committee: Assembly & Manufacturing Technology

Session Co-Chairs:

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1. Multi-Tier N=4 Binary Stacking, Combining Face-to-Face and Back-to-Back Hybrid Wafer-to-Wafer Bonding Technology
Stefaan Van Huylenbroeck - IMEC
Joeri De Vos - IMEC
Lieve Teugels - IMEC
Serena Iacovo - IMEC
Ferenc Fodor - IMEC
Andy Miller - IMEC
Geert Van der Plas - IMEC
Gerald Beyer - IMEC
Eric Beyne - IMEC

2. 600mm FOPLP as a Scale Up Alternative to 300mm FOWLP With 6-Sided Die Protection
Jacinta Aman Lim - nepes Corporation
Yun-Mook Park - nepes Corporation
Edil De Vera - nepes Corporation
Byung-Cheol Kim - nepes Corporation
Brett Dunlap - nepes Corporation

3. Demonstration of Fine Pitch RDL in Fan-Out Panel Level Packaging
Dowan Kim - Samsung Electronics Company, Ltd.
Seokbong Park - Samsung Electronics Company, Ltd.
Mina Heo - Samsung Electronics Company, Ltd.
Daeyeon Choi - Samsung Electronics Company, Ltd.

4. A Novel Multi-chip Stacking Technology Development Using a Flip-Chip Embedded Interposer Carrier Integrated in Fan-Out Wafer-Level Packaging
Yu-Min Lin - Industrial Technology Research Institute
Wei-Lan Chiu - Industrial Technology Research Institute
Chao-Jung Chen - Industrial Technology Research Institute
Hsiang-En Ding - Industrial Technology Research Institute
Ou-Hsiang Lee - Industrial Technology Research Institute
Ang-Ying Lin - Industrial Technology Research Institute
Ren-Shin Cheng - Industrial Technology Research Institute
Sheng-Tsai Wu - Industrial Technology Research Institute
Tao-Chih Chang - Industrial Technology Research Institute
Hsiang-Hung Chang - Industrial Technology Research Institute

Wei-Chung Lo - Industrial Technology Research Institute

5. Comprehensive Study of Thermal Impact on Warpage Behaviour of FOWLP with Different Die to Mold Ratio
Ser Choong Chong - Institute of Microelectronics
Siak Boon Lim - Institute of Microelectronics
Wen Wei Seit - Institute of Microelectronics
Tai Chong Chai - Institute of Microelectronics
Debbie Claire Sanchez - ERS electronic GmbH

6. A Novel Chip Placement Technology for Fan-Out WLP using Self-Assembly Technique with Porous Chuck Table
Tadatomo Yamada - LINTEC Corporation
Ken Takano - LINTEC Corportaion
Toshiaki Menjo - LINTEC Corporation
Shinya Takyu - LINTEC Corporation

7. Extremely Large Exposure Field with Fine Resolution Lithography Technology to Enable Next Generation Panel Level Advanced Packaging
John Chang - Onto Innovation
Timothy Chang - Onto Innovation
Casey Donaher - Onto Innovation
Perry Banks - Onto Innovation
Keith Best - Onto Innovation
Aries Peng - Onto Innovation

Session 25: Advances in Assembly Methods

Committee: Assembly & Manufacturing Technology

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1. Highly Thermal Dissipation for Large HPC Package Using Liquid Metal Materials
Yu Lung Huang - Siliconware Precision Industries Co., Ltd
Key Chung - Siliconware Precision Industries Co., Ltd
Chang Fu Lin - Siliconware Precision Industries Co., Ltd
Kuo Haw Yu - Siliconware Precision Industries Co., Ltd
Rung Jeng Lin - Siliconware Precision Industries Co., Ltd
Wilson Hong - Siliconware Precision Industries Co., Ltd

2. Cold Spray: A Disruptive Technology for Enabling Novel Packaging Thermomechanical Solutions
Feras Eid - Intel Corporation
Aastha Uppal - Intel Corporation
Johanna Swan - Intel Corporation

3. CoW Package Solution for Improving Thermal Characteristic of 3D TSV-SiP for AI-Inference
Sun-Kyoung Seo - Samsung Electronics Company, Ltd.
Chajea Jo - Samsung Electronics Company, Ltd.
Mina Choi - Samsung Electronics Company, Ltd.
Taehwan Kim - Samsung Electronics Company, Ltd.
Hyo-eun Kim - Samsung Electronics Company, Ltd.

4. A Study on IMC Morphology and Integration Flow for Low Temperature and High Throughput TCB down to 10um Pitch Microbumps
Jaber Derakhshandeh - IMEC
Carine Gerets - IMEC
Fumihiro Inoue - IMEC
Giovanni Capuz - IMEC
Vladimir Cherman - IMEC
Melina Lofrano - IMEC
Lin Hou - IMEC
Tom Cochet - IMEC
Inge De Preter - IMEC
Tomas Webers - IMEC
Pieter Bex - IMEC

5. Laser vs. Blade Dicing for Direct Bonded Heterogeneous Integration (DBHi) Si Bridge
Aakrati Jain - IBM Corporation
Kamal Sikka - IBM Corporation
Juan-Manuel Gomez - IBM Corporation
Dishit Parekh - IBM Corporation
Marc Bergendahl - IBM Corporation
Jeroen van Borkulo - ASM Laser Separation International B.V.
Kees Biesheuvel - ASM Laser Separation International B.V.
Roman Doll - ASM Laser Separation International B.V.
Mark Mueller - ASM Laser Separation International B.V.

6. Ultra-Thinning of 20-nm Node DRAMs down to 3 µm for Wafer-on-Wafer (WOW) Applications
Zhiwen Chen - Tokyo Institute of Technology
Naoko Araki - Tokyo Institute of Technology
Youngsuk Kim - Tokyo Institute of Technology
Tadashi Fukuda - Tokyo Institute of Technology
Koji Sakui - Tokyo Institute of Technology
Tomoji Nakamura - Tokyo Institute of Technology
Tatsuji Kobayashi - Micron Memory Japan
Takashi Obara - Micron Memory Japan
Takayuki Ohba - Tokyo Institute of Technology

7. Fully Additive Manufacturing of Passive Circuit Elements using Aerosol Jet Printing
Emuobosan Enakerakpo - Binghamton University
Mohammed Alhendi - Binghamton University
Gurvinder Singh Khinda - Binghamton University
Behnam Garakani - Binghamton University
K. Udara Sandekelum Somarathna - Binghamton University
Mark Poliks - Binghamton University
Stephen Gonya - Lockheed Martin Corporation
Venugopala Basava - Lockheed Martin Corporation

Session 26: Antenna-in-Package for 5G/6G and Radar Systems
Committee: RF, High-Speed Components & Systems

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1. Novel Phased Array Antenna-in-Package Development and Active Module Demonstration for 5G Millimeter-Wave Wireless Communication
Xiaoxiong Gu - IBM Corporation
Duixian Liu - IBM Corporation
Yuki Suto - Fujikura Ltd.
Yujiro Tojo - Fujikura Ltd.
Yuta Hasegawa - Fujikura Ltd.
Christian Baks - Fujikura Ltd.
Ning Guan - Fujikura Ltd.
Arun Paidimarri - IBM Corporation
Bodhisatwa Sadhu - IBM Corporation
Alberto Valdes-Garcia - IBM Corporation

2. Antennas in Glass Interposer for sub-THz Applications
Kai-Qi Huang - Georgia Institute of Technology
Madhavan Swaminathan - Georgia Institute of Technology

3. FOWLP AiP Optimization for Automotive Radar Applications
Mei Sun - Institute of Microelectronics
Teck Guan Lim - Institute of Microelectronics
Tai Chong Chai - Institute of Microelectronics
Surya Bhattacharya - Institute for Infocomm Research
Ma Yu Gang - Institute for Infocomm Research, A*STAR

4. Considerations of SiP based Antenna in Package/Module (AiP/AiM) Design at Sub-Terahertz Frequencies for Potential B5G/6G Applications
Kuan-Hsun Wu - National Taiwan University
Hsi-Tseng Chou - National Taiwan University
Ding-Bing Lin - National Taiwan University of Science and Technology
Chao-Shun Yang - Powertech Technology Inc.
Chieh-Wei Chou - Powertech Technology Inc.
Chi-Liang Pan - Powertech Technology Inc.
Chun-Te Lin - Powertech Technology Inc.
Ji-Cheng Lin - Powertech Technology Inc.
Li-Chih Fang - Powertech Technology Inc.
Marianna Ivashina - Chalmers University of Technology, Sweden

5. Co-Design of Chip-Package-Antenna in Fan-out Package for Practical 77 GHz Automotive Radar
Chuanming Zhu - 38th Research Institute of China Electronic Technology Group
Yinglu Wan - 38th Research Institute of China Electronic Technology Group
Zongming Duan - 38th Research Institute of China Electronic Technology Group
Yuefei Dai - 38th Research Institute of China Electronic Technology Group

6. Low Loss Cu/Co Multilayer Metaconductor Based 28 GHz Band Pass Filter Using Through Fused Silica Via (TFV) Technology
Renuka Bowrothu - University of Florida
Hae-in Kim - University of Florida
Yong Kyu Yoon - University of Florida
Stephan Schmidt - LPKF Laser & Electronics North America
Rafael Santos - LPKF Laser & Electronics North America

7. An Evaluation of Package Integrated, Probe Coupled, Stacked Patch Antennas for 5G Applications
Selaka Bulumulla – GLOBALFOUNDRIES

Session 27: Novel High-Frequency Integrated Modules and Systems
Committee: RF, High-Speed Components & Systems

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1. Ultra-High Q-factor Through Fused-silica Via (TFV) Integrated 3D Solenoid Inductor for Millimeter Wave Applications
Hae-In Kim - University of Florida
Renuka Bowrothu - University of Florida
Yong-Kyu Yoon - University of Florida

2. Fully Inkjet Printed 60GHz Backscatter 5G RFID Modules for Sensing and Localization in Internet of Things (IoT) and Digital Twins Applications
Ajibayo Adeyeye - Georgia Institute of Technology
Charles Lynch - Georgia Institute of Technology
Xuanke He - Georgia Institute of Technology
Sanghoon Lee - Georgia Institute of Technology
John D. Cressler - Georgia Institute of Technology
Manos Tentzeris - Georgia Institute of Technology

3. Design Optimization of a 77 GHz Antenna Array Using Machine Learning
Saranraj Karuppuswami - Altair Engineering, Inc.
Saikat Mondal Premjeet Chahal
4. High-Frequency Electrical Circuit Model for Integrated Capacitors Utilizing Lossy Nanostructures
Sascha Krause - Smoltek
Rickard Andersson - Smoltek
Maria Bylund - Smoltek
Victor Marknaes - Smoltek
Amin Saleem - Smoltek
Elisa Passalacqua - Smoltek
Qi Li - Smoltek
Muhammad Shafiq Kabir - Smoltek
Vincent Desmaris - Smoltek

5. Optimizing On-Chip Decoupling Capacitors to Improve Power Supply Noise Induced Jitter and ESD Robustness
Xiaoping Liu - Intel Corporation
Wendem Beyene - Intel Corporation
Selvakumar Sivarajah - Intel Corporation

Jenny Jiang - Intel Corporation

6. Chipscale Piezo-Magnetostrictive Interfaces – A New Simplified and Microminiaturized Data Telemetry Paradigm for Medical Device Packages
Sk Yeahia Been Sayeed - Florida International University
Abdal Abdulhameed - Florida International University
Pawan Gaire - Florida International University
Sweta Gupta - Florida International University
Sepehr Soroushiani - Florida International University
Shubhendu Bhardwaj - Florida International University
John Volakis - Florida International University
Wei-Chiang Lin - Florida International University
Pulugurtha Markondeya Raj - Florida International University

7. Multiphysics System Co-Design of a High-Precision, High-Voltage (±600V) Isolated Hall-Effect Current Sensor
Rajen Murugan - Texas Instruments, Inc.
Jie Chen - Texas Instruments, Inc.
Patrick Simmons - Texas Instruments, Inc.
Steven Loveless - Texas Instruments, Inc.
Tony Tang - Texas Instruments, Inc.
Mohan Gupta - Texas Instruments, Inc.
Tommy Santoyo - Texas Instruments, Inc.
David Hatch - Texas Instruments, Inc.
Dimitar Trifonov - Texas Instruments, Inc.
Klumpp Thatcher - Texas Instruments, Inc.

Session 28: High-Speed Signal Integrity and Interconnections
Committee: RF, High-Speed Components & Systems

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1. Machine Learning Based Design Space Exploration and Applications to Signal Integrity Analysis of 112Gb SerDes Systems
Alex Manukovsky - Intel Corporation
Yuri Shlepnev - Simberian Inc.
Zurab Khasidashvili - Intel Corporation

2. Line Coupling, Ground Defect, Port Termination, and Line Parameters Extraction for Coupled Lines with Mixed-mode Stimuli
Lih-Tyng Hwang - NSYSU
Ming Yuan Huang - NSYSU
Hung-Chih Lin - NSYSU
Chien-Chang Huang - Yuan Ze University

3. Broadband Permittivity Characterization of Polymers up to 110GHz using Coplanar Waveguides
Nicolas Pantano - IMEC
John Slabbekoorn - IMEC
Fabrice Duval - IMEC
Eric Beyne - IMEC

4. Design and Development of High Density Fan-Out Wafer Level Package (HD-FOWLP) for Deep Neural Network (DNN) Chiplet Accelerators using Advanced Interface Bus (AIB)
Mihai Rotaru - Institute of Microelectronics, A*STAR
Wei Tang Dutta Rahul Zhengya Zhang

5. Signal and Power Integrity Analysis of A 0.38 pJ/bit 12Gb/s Parallel Interface for Die-to-Die Link Applications
Po-Hao Chang - MediaTek
Chih-Lun Chung - MediaTek
Ying-Yu Hsu - MediaTek
Chen-Feng Chiang - MediaTek

6. Signal Integrity(SI) Aware HBM2e/3 Interposer Design Approach Considering Y-Axis Offset Between Logic and HBM Die for HPC/AI/Network Applications
Taeyun Kim - Samsung Electronics Company, Ltd.
Chanmin Jo - Samsung Electronics Company, Ltd.
Sungwook Moon - Samsung Electronics Company, Ltd.

7. Differential DIMM OpenCAPI Memory Interface High Speed Channel Robustness and Scalability Study
Biao Cai - IBM Corporation
Kevin Mcilvain - IBM Corporation
Junyan Tang - IBM Corporation
Kyle Giesen - IBM Corporation
Zhaoqing Chen - IBM Corporation
Hongqing Zhang - IBM Corporation
Chris Steffen - IBM Corporation
Victor Mahran - Smart Modular Technologies
Zhineng Fan - Amphenol ICC
Luis Fukazawa - SMART Modular Technologies
Roc Lv – Unimicron

Session 29: 3D Power Components and Power Integrity

Committee: RF, High-Speed Components & Systems

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1. Integrated Voltage Regulator Efficiency Improvement using Coaxial Magnetic Composite Core Inductors
Krishna Bharath - Intel Corporation
Kaladhar Radhakrishnan - Intel Corporation
Michael J. Hill - Intel Corporation
Prithwish Chatterjee - Intel Corporation
Haifa Hariri - Intel Corporation
Srikrishnan Venkataraman - Intel Corporation
Huong Do - Intel Corporation
Leigh Wojewoda - Intel Corporation
Sriram Srinivasan - Intel Corporation

2. Demonstration of a High-Inductance, High-Density, and Low DC Resistance Compact Embedded Toroidal Inductor for IVR
Claudio Alvarez - Georgia Institute of Technology
Prahalad Murali - Georgia Institute of Technology
Madhavan Swaminathan - Georgia Institute of Technology
Yusuke Oishi - Panasonic Corporation, Japan
Junichi Takashiro - Panasonic Corporation, Japan
Ryo Nagatsuka - Panasonic Corporation, Japan
Naoki Watanabe - Panasonic Industrial Devices Sales Company of America, USA

3. Multi-terminal Low-ESL 3D Silicon Capacitors as Enabler for Optimized and Flat PDN Design
Mohamed Mehdi Jatlaoui - Murata Integrated Passive Solutions
Yves Aubry - Murata Integrated Passive Solutions
Charles Muller - Murata Integrated Passive Solutions
Ryo Kasai - Murata
Takashi Takeuchi - Murata

4. PI/SI Consideration for Enabling 3D IC Designs
Jungil Son - Samsung Electronics Company, Ltd.
Sungwook Moon - Samsung Electronics Company, Ltd.
Seungki Nam - Samsung Electronics Company, Ltd.
Wook Kim - Samsung Electronics Company, Ltd.

5. Package Power Distribution Current Density in Applications with Large Transient Currents
Matt Doyle - IBM Corporation
Dale Becker - IBM Corporation
Matteo Cocchini - IBM Corporation
Kyle Schoneck - IBM Corporation
Sam Connor - IBM Corporation
Layne Berge - IBM Corporation
Siqi Bai - Missouri S&T EMC Laboratory Missouri University of Science a
James Drewniak - Missouri S&T EMC Laboratory

6. 3D Integrated High Gain Rectenna in Package with Metamaterial Superstrates for High Efficiency Wireless Power Transfer Applications
Woosol Lee - University of Florida
Hae-in Kim - University of Florida
Sunghyun Hwang - University of Florida
Saeyoung Jeon - University of Florida
Hyunho Cho - University of Florida
Yong-Kyu Yoon - University of Florida

7. A PCB Packaging Platform Enabling 100+ Gbaud Optoelectronic Device Testing
Aaron Maharry - University of California, Santa Barbara
Luis Valenzuela - University of California, Santa Barbara
James Buckwalter - University of California, Santa Barbara
Clint Schow - University of California, Santa Barbara

Session 30: Package to System Level Thermo-Mechanical Reliability Modeling
Committee: Thermal/Mechanical Simulation & Characterization

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1. Testing and Modeling of Board Level Reliability of WLCSP under UHAST Conditions
Liangbiao Chen - ON
Xuejun Fan - Lamar University
Yong Liu - ON Semiconductor

2. Life Prediction of Thin Flexible Batteries under U-Flex-to-Install, Dynamic Folding, Dynamic Twisting and Battery Lamination
Pradeep Lall - Auburn University
Ved Soni - Auburn University
Jinesh Narangaparambil - Auburn University
Hyesoo Jang - Auburn University
Scott Miller - NextFlex National Manufacturing Institute

3. Board-Level Reliability Performance of Enterprise and Datacenter SSD Form Factor (EDSFF)
Chun-Sean Lau - Western Digital Corporation
Ahmad Faridzul Hilmi Shamsuddin - Western Digital Corporation
Ning Ye - Western Digital Corporation
Bo Yang - Western Digital Corporation

4. Improved Damage Modeling for Solder Joints under Combined Vibration and Temperature Cycling Loading
Robert David Johannes Hoehne - Technische Universität Dresden IAVT
Karsten Meier - University of Maryland CALCE
Abhijit Dasgupta - University of Maryland CALCE
David Leslie - Technische Universität Dresden IAVT
Karlheinz Bock - Technische Universität Dresden IAVT

5. Reliability Life Assessment and Prediction for High Density FOWLP package Using Finite Element Analysis and Statistical Approach
Lin Ji - Institute of Microelectronics, A*STAR
Tai Chong Chai - Institute of Microelectronics, A*STAR

6. New Methodologies for Evaluating Microelectronics Subject to Board-level Vibrations
Valeriy Khaldarov - ASONIKA, LLC
Dongji Xie - Nvidia Corporation
Jeffrey Lee - iST
Alexander Shalumov - ASONIKA, LLC

7. Reliability Analysis of 3D CSP MEMS and IC Under Thermal Cycle-Impact Coupled Multi-physics Loads
Shuye Zhang - Harbin Institute of Technology
Jianhao Xu - Harbin Institute of Technology
Shang Zhang - Harbin Institute of Technology
Peng He - Harbin Institute of Technology
Mingjia Sun - Harbin Institute of Technology
Jianqun Yang - Harbin Institute of Technology

Xingji Li - Harbin Institute of Technology
Kyung-Wook Paik - Harbin Institute of Technology

Session 31: Analyses on Chip Package Interaction and Thermal Management for Heterointegration

Committee: Thermal/Mechanical Simulation & Characterization

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1. Thermal Analysis of DBHi (Direct Bonded Heterogeneous Integration) Si Bridge
Keiji Matsumoto - IBM Corporation
Marc Bergendahl - IBM Corporation
Kamal Sikka - IBM Corporation
Sayuri Kohara - IBM Corporation
Hiroyuki Mori - IBM Corporation
Takashi Hisada - IBM Corporation

2. Optimizing Die Corner and Optical Groove Corner Crackstop Support Structures for Mitigating Dicing and CPI Risks
Mohamed Rabie - GLOBALFOUNDRIES
Nicholas Polomoff - GLOBALFOUNDRIES
Scott Pozder - GLOBALFOUNDRIES

3. Methods for Preparing Graphite Sheets with Piercing Treatment to Enhance Vertical Thermal Conduction
Yanfang Li - Indium Corporation
Meng Li - Indium Corporation
Fen Chen - Indium Corporation
Guangyu Fan - Indium Corporation
Ning-Cheng Lee - Indium Corporation

4. 3D Finite Element Simulation Study of Chip Stacking Structure Considering of Different Numbers of Stacked Dies and the Effects of Underfill and Intermetallic Compound Layer of Micro-joints
Bing-Xian Yang - South China University of Technology
Jiu-Bin Fei - South China University of Technology
Shui-Bao Liang - South China University of Technology
Min-Bo Zho - South China University of Technology
Wei-Lin Hu - South China University of Technology
Hai-Jun Huang - South China University of Technology
Xin-Ping Zhang - South China University of Technology

5. Aluminum Pad Plasticity-Related Bump Failure During Temperature Cycling
Wei Wang - Qualcomm Technologies, Inc
Dongming He - Qualcomm Technologies, Inc
David Rae - Qualcomm Technologies, Inc

6. Design Considerations, Demonstration, and Benchmarking of Silicon Microcold Plate and Monolithic Microfluidic Cooling for 2.5D ICs
Sreejith Kochupurackal Rajan - Georgia Institute of Technology
Ankit Kaul - Georgia Institute of Technology
Thomas Sarvey - Georgia Institute of Technology

Gary May - University of California, Davis
Muhannad Bakir - Georgia Institute of Technology

7. An Analytical Approach to Thermal Design for Manufacturing in Selective Mini Wave Soldering
Reinhardt Seidel - Institute for Factory Automation and Production Systems
Marcel Sippel - Institute for Factory Automation and Production Systems
Jörg Franke - Institute for Factory Automation and Production Systems

Session 32: Novel Approaches for Reliability and Process Modeling
Committee: Thermal/Mechanical Simulation & Characterization

Session Co-Chairs:

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1. Study on an Artificial Intelligence Based Kernel Ridge Regression Algorithm for Wafer Level Package Reliability Prediction
Sunil Panigrahy - National Tsing Hua University
K. N. Chiang - National Tsing Hua University

2. Artificial Neural Networks and Bayesian Techniques for Flip-Chip Package Thermo-Mechanical Analysis
Tuhin Sinha - IBM Corporation
Kamal Sikka - IBM Corporation
Rahul Lall - Stanford University

3. Development of Artificial Neuro Network and Topology Reconstruction Schemes for Fan-Out Wafer Warpage Analysis
Wen-Chun Wu - Advanced Semiconductor Engineering, Inc.
Kuo-Shen Chen - National Cheng Kung University
Tang-Yuan Chen - Advanced Semiconductor Engineering, Inc.
Dao-Long Chen - Advanced Semiconductor Engineering, Inc.
Yu-Chin Lee - National Cheng Kung University
Chia-Yu Chen - National Cheng Kung University
David Tarng - Advanced Semiconductor Engineering, Inc.

4. Prediction of Thermal Oxidation Damage in Polymers by Using Peridynamics
Deepak Behera - University of Arizona
Pranesh Roy - University of Arizona
Erdogan Madenci - University of Arizona
Selda Oterkus - University of Strathclyde

5. Fluid Structure Interaction Modeling for Dynamic Wire Sweep
Shenghua Huang - Western Digital Corporation
Yangming Liu - Western Digital Corporation
Ning Ye - Western Digital Corporation
Bo Yang - Western Digital Corporation

6. Phase-Field Simulation of Microstructure Changes and Crack Propagation at Cu-Al Wire Bonding Interface Under High Temperature Circumstance
Takuo Funaya - Renesas Electronics Corporation
Toshiyuki Koyama - Nagoya University

7. A Development of Finite Element Analysis Model of 3DIC TSV Package Warpage Considering Viscoelasticity with Cure-Kinetics
Minsoo Han - Samsung Electronics Company, Ltd.
Yongchul Shin - Samsung Electronics Company, Ltd.
Kyeongbin Lim - Samsung Electronics Company, Ltd.
Minwoo Rhee - Samsung Electronics Company, Ltd.

Session 33: Flexing and Warpage Characterization and Modeling
Committee: Thermal/Mechanical Simulation & Characterization

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1. Microneedle Insertion into Visco-Hyperelastic Model for Skin for Healthcare Application
Davira Widianto - Georgia Institute of Technology
Benjamin Stewart - Georgia Institute of Technology
Juan Lapaix - Georgia Institute of Technology
Richard Shafer - Georgia Institute of Technology
Andrew Burns - General Electric
Azar Alizadeh - General Electric
Mark Prausnitz - Georgia Institute of Technology
Suresh Sitaraman - Georgia Institute of Technology

2. Flexible Encapsulation Process-Property Relationships for Flexible Hybrid Electronics
Pradeep Lall - Auburn University
Padmanava Choudhury - Auburn University
Jinesh Narangaparambil - Auburn University
Scott Miller - NextFlex National Manufacturing Institute

3. Warpage Estimation of Heterogeneous Panel-Level Fan-Out Package with Fine Line RDL and Extreme Thin Laminated Substrate Considering Molding Characteristics
Chang-Chun Lee - National Tsing Hua University
Chi-Wei Wang - National Tsing Hua University
Chia-Chi Lee - National Tsing Hua University
Chin-Yi Chen - National Tsing Hua University
Yu-Hua Chen - Unimicron Technology Corporation
Hung-Chih Lee - Unimicron Technology Corporation
Tsun-Sheng Chou - Unimicron Technology Corporation

4. Why Is It Still Difficult to Make Accurate Prediction of the Warpage after Advanced Molding Processes?
Sukrut Prashant Phansalkar - University of Maryland
Changsu ,Kim - University of Maryland
Bongtae Han - University of Maryland

5. Investigation of the Factors Affecting the Warpage Prediction of Multi-chip Package
Pavan Rajmane - Qualcomm Technologies, Inc
Karthikeyan Dhandapani - Qualcomm Technologies, Inc
Mark Schwarz - Qualcomm Technologies, Inc
Ahmer Syed - Qualcomm Technologies, Inc

6. Copper Content Optimization for Warpage Minimization of Substrates with an Asymmetric Cross-Section by Genetic Algorithm
Hiroyuki Mori - IBM Corporation
Sayuri Kohara - IBM Corporation

7. Novel Method of Wafer-Level and Package-Level Process Simulation for Warpage Optimization of 2.5D TSV
Suchang Lee - Samsung Electronics Company, Ltd.
Sun woo Han - Samsung Electronics Company, Ltd.
Jong Pa Hong - Samsung Electronics Company, Ltd.
Sang kun O - Samsung Electronics Company, Ltd.
Dong Ok Kwak - Samsung Electronics Company, Ltd.
Soohyun Nam - Samsung Electronics Company, Ltd.
Yukyung Park - Samsung Electronics Company, Ltd.
Jong Ho Lee - Samsung Electronics Company, Ltd.

Session 34: Flexible Hybrid Sensors and Electronics

Committee: Emerging Technologies

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1. Nanomanufacturing of Smart and Connected Bioelectronics Through Nanomaterial Printing, Hybrid Material Integration, and Soft Packaging
Yun-Soung Kim - Georgia Institute of Technology
Young-Tae Kwon - Georgia Institute of Technology
Musa Mahmood - Georgia Institute of Technology
Woon-Hong Yeo - Georgia Institute of Technology

2. Assembly Development of a Highly Flexible and Biocompatible Optoelectronic Neural Stimulator for Implantable Retinal Prosthesis
Yu-Hsin Liu - Nanovision Biosciences, Inc.
Yi Jing Brandon Bosse - Nanovision Biosciences, Inc.
Samir Damle Abraham Akinin Sue Bauchner Hiren Thacker - Nanovision Biosciences, Inc.

3. Flexible Heterogeneously Integrated Low Form Factor Wireless Multi-channel Surface Electromyography (sEMG) Device
Arsalan Alam - University of California, Los Angeles
Michael Molter - University of California, Los Angeles
Ayush Kapoor - University of California, Los Angeles
Bilwaj Gaonkar - University of California, Los Angeles
Samatha Benedict - University of California, Los Angeles
Luke Macyszyn - University of California, Los Angeles
Michael Selvan Joseph - University of California, Los Angeles
Subramanian S. Iyer - University of California, Los Angeles

4. Wireless Photonic Sensors with Flex Fan-Out Packaged Devices and Enhanced Power Telemetry
Sepehr Soroushiani - Florida International University
Huy Nguyen - Florida International University
Carlos Riera Cercado - Florida International University
Abdal Abdulhameed - Florida International University
Christopher Bolig - Florida International University
Sk Yeahia Been Sayeed - Florida International University
Shubhendu Bhardwaj - Florida International University
Wei-Chiang Lin - Florida International University
P. Markondeya Raj - Florida International University

5. Infant Pacifiers with Passive Wireless Temperature Sensors
Yamini Devidas Kotriwar - Michigan State University
Deepak Kumar - Michigan State University
Saikat Mondal - Michigan State University
Premjeet Chahal - Michigan State University

6. Proof of Concept: Glas-Membrane Based Differential Pressure Sensor
Anatoly Glukhovskoy - Institute of Micro Production Technology
Maren S. Prediger - Institute of Micro Production Technology
Jennifer Schäfer - Institute of Micro Production Technology
Norbert Ambrosius - LPKF Laser & Electronics AG
Aaron Vogt - LPKF Laser & Electronics AG
Rafael Santos - LPKF Laser & Electronics AG
Roman Ostholt - LPKF Laser & Electronics AG
Marc Christopher Wurz - Institute of Micro Production Technology

7. High Reliable Nanofiller Reinforced Composite Based Flexible Heat Sink for Wearable Devices with Micromachining Technology
Yunna Sun - Shanghai Jiao Tong University
Chuangbei Ma Han Cai Rui Zheng Yan Wang Guifu Ding

Session 35: Emerging Quantum and Advanced Interconnects
Committee: Emerging Technologies

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1. Nb-Based Superconducting Silicon Interconnect Fabric for Cryogenic Computing Applications
Yu-Tao Yang - University of California, Los Angeles
Chaowei Hu - University of California, Los Angeles
Peng Zhang - University of California, Los Angeles
Niloofar Shakoorzadeh - University of California, Los Angeles
Haoxiang Ren - University of California, Los Angeles
Ni Ni - University of California, Los Angeles
Kang Wang - University of California, Los Angeles
Subramanian Iyer - University of California, Los Angeles

2. Quantum Fibre Optic Interconnect for Quantum Networks
Heng Loong Lee - SENKO Advanced Components (HK)
Richard Pitwon - RESOLUTE PHOTONICS

3. Numerical Study of Metal Ink Behavior on the Wettability Pattern for Conductive Line Inkjet-Printing with Lattice Boltzmann Approach
Jung Shin Lee - Samsung Electronics Company, Ltd.
Jung Woo Cho - Samsung Electronics Company, Ltd.
Sun Woo Park - Samsung Electronics Company, Ltd.
Seungdon Lee - Samsung Electronics Company, Ltd.
Hyunjin Lee - Samsung Electronics Company, Ltd.
Daniel Min Woo Rhee - Samsung Electronics Company, Ltd.

4. Lidded Electronic Package with Boiling Enhancement Features
Jimmy Chuang - Intel Microelectronics
Jin Yang - Intel Corporation
David Shia - Intel Corporation
YL Li - Intel Microelectronics

5. Extreme High Aspect Ratio RDL Patterning with Low Temperature Curable Polyimide using Double Patterning Technology
Atsushi Nakamura - Fujifilm Corporation
Takanori Koizumi - Fujifilm Corporation
Naoki Sato - Fujifilm Corporation
Michihiro Ogawa - Fujifilm Corporation
Daisuke Asakawa - Fujifilm Corporation
Toshihide Aoshima - Fujifilm Corporation
Yuki Sakamoto - Fujifilm Corporation
Hitoshi Noguchi - Fujifilm Corporation

6. Simultaneous Transfer and Bonding (SITRAB) Process for Micro-LEDs Using Laser-Assisted Bonding with Compression (LABC) Process and SITRAB Adhesive
Kwang-Seong Choi - Electronics and Telecommunications Research Institute
Jiho Joo - Electronics and Telecommunications Research Institute
Yong-Sung Eom - Electronics and Telecommunications Research Institute
Gwang-Mun Choi - Electronics and Telecommunications Research Institute
Ki-Seok Jang - Electronics and Telecommunications Research Institute
Chanmi Lee - Electronics and Telecommunications Research Institute
Seok Hwan Moon - Electronics and Telecommunications Research Institute
Ho-Gyeong Yun - Electronics and Telecommunications Research Institute
Ji-Hoon Choi - AQLASER Co., Ltd
Ji-Woong Choi - Electronics and Telecommunications Research Institute

7. Performance Analysis of Self Heated Multilayer Vertical Graphene Nanoribbon Interconnects
Bhawana Kumari - IIT Dhanbad
Rahul Kumar - Indian Institute of Technology Ropar
Manodipan Sahoo - IIT Dhanbad
Rohit Sharma - Indian Institute of Technology Ropar

Session 36: Packaging, Machine Learning, and Integration Technologies

Committee: Emerging Technologies

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1. Fabrication of Flexible Ionic-Liquid Thin Film Battery Matrix on FlexTrateTM for Powering Wearable Devices

Guangqi Ouyang - University of California, Los Angeles
Grace Whang - University of California, Los Angeles
Emily McInnis - University of California, Los Angeles
Subramanian Iyer - University of California, Los Angeles

2. Reliability, Solderability and Electrical Performance of High Density Ultra Thin Capacitors Based on Carbon Nanofibers

Victor Marknäs - Smoltek AB
Rickard Andersson - Smoltek AB
Maria Bylund - Smoltek AB
Qi Li - Smoltek AB
Elisa Passalacqua - Smoltek AB
Amin M. Saleem - Smoltek AB
Vincent Desmaris - Smoltek AB

3. Low Cost Grounding Integration for Surface Ion Trap

Hongyu Li - Institute of Microelectronics, A*STAR
Wen Wei Seit - Institute of Microelectronics, A*STAR
Gilho Hwang - Institute of Microelectronics, A*STAR
Peng Zhao - Nanyang Technological University
Jing Tao - Institute of Microelectronics, A*STAR
Chuan Seng Tan - Nanyang Technological University

4. Flexible and Ultra-Thin 30 µm Glass Substrates for RF Applications

Sridhar Sivapurapu - Georgia Institute of Technology
Rui Chen - Georgia Institute of Technology
Mutee ur Rehman - Georgia Institute of Technology
Takenori Kakutani - Taiyo America
Kimiyuki Kanno - JSR Corp
Martin Letz - Schott AG
Fuhan Liu - Georgia Institute of Technology
Suresh Sitaraman - Georgia Institute of Technology
Madhavan Swaminathan - Georgia Institute of Technology

5. Analog Synaptic Behaviors in Carbon-Based Self-Selective RRAM for In-Memory Supervised Learning

Ying-Chen Chen - Northern Arizona University
Jason K. Eshraghian - The University of Michigan
Isaiah Shipley - Northern Arizona University
Maxwell Weiss - Northern Arizona University

6. Application of Machine Learning in Recognition and Analysis of TSV Extrusion Profiles with Multiple Morphology

Golareh Jalilvand - University of South Carolina
Joseph Lindsay - University of South Carolina

Brendan Reidy - University of South Carolina
Vishnu Shukla - University of Central Florida
David Duggan - University of South Carolina
Ramtin Zand - University of Central Florida
Tengfei Jiang - University of Central Florida

7. Investigation of Copper and Glass Interaction in Through Glass Via (TGV) During Thermal Cycling
Ke Pan - Binghamton University
Jiefeng Xu - Binghamton University
Seungbae Park - Binghamton University
Chukwudi Okoro - Corning
Dhanankay Joshi - Corning
Scott Pollard – Corning

Session 37: Photonics, 5G, mm-Wave Applications & Techniques

Committee: Interactive Presentations

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1. Backside Cavities For Termal Tuning Optimization Of Silicon Ring Resonators
Pierre Tissier - CEA-LETI
Karim Hassan - CEA-LETI
Vincent Reboud - CEA-LETI
Rémi Vélard - CEA-LETI
Philippe Grosse - CEA-LETI
Stéphane Bernabé - CEA-LETI
Jean Charbonnier - CEA-LETI
Yvain Thonnart - CEA-LETI
Alexis Farcy - STMicroelectronics
Fabienne Ponthenier - CEA-LETI
Benoît Charbonnier - CEA-LETI

2. Low Temperature Hermetically Sealed, Optically Transparent Miniature Packages: From Medical to Space
Rony Jose James - CSEM SA
Guido Spinola Durante - CSEM SA
Vincent Revol - CSEM SA
Ivan Marozau - CSEM SA
Krzysztof Krasnopolski - CSEM SA
Mark Fretz - CSEM SA
Stefan Morhdiek - CSEM SA

3. Multiplexing Coupler Realized with Y-Branched GI Core Polymer Optical Waveguide for Mode Division Multiplexing in a 50-µm Multimode Fiber
Ryosuke Hatai - Keio University
Takaaki Ishigure - Keio University

4. Highly Reliable Polymer Waveguide Platform for Multi-port Photonic Chip-Packaging
Nikolaus Flöry - Vario-Optics AG
Markus Halter - Vario-Optics AG
Valentin Strässle - Vario-Optics AG

Felix Betschon - Vario-Optics AG
Theoni Alexoudi - University of Thessaloniki
Zervos Charalampos - National Technical University of Athens
Tobias Lamprecht - University of Applied Sciences Buchs OST

5. Selective Dielectric Deposition using a Dam Process for Millimeter Wave Circuit Applications
Cameron Crump - Michigan State University
Vincens Gjokaj - Michigan State University
Prem Chahal - Michigan State University

6. Characterizations for 25G/100G High Speed Fiber Optical Communication Applications with Hermetic eWLB (Embedded Wafer Level Ball Grid Array) Technology
Ming-Che Hsieh - JCET Group Co., Ltd.
Yin Yen Bong - JCET Group Co., Ltd.
Li Xia Huang - JCET Group Co., Ltd.
Ching Meng Fang - JCET Group Co., Ltd.
Tack Chee Yong - JCET Group Co., Ltd.
Bryan Bai - Wingcomm Inc.
Tony Wang - Wingcomm Inc.
Zhi Lu Yuan - Wingcomm Inc.
Yun Xia Li - Wingcomm Inc.

7. Design and Simulation of mm-Wave Diplexer on Substrate and Fan-Out Structure
Yu-Chang Hsieh - Advanced Semiconductor Engineering, Inc.
Pao-Nan Lee - Advanced Semiconductor Engineering, Inc.
Chen-Chao Wang - Advanced Semiconductor Engineering, Inc.

8. Hetrogenous Substrate and Its Charaterization for 5G mmWave Antenna in Package
Wei-Tung Chang - Advanced Semiconductor Engineering, Inc.
Shao-En Hsu - Advanced Semiconductor Engineering, Inc.
Jen Chieh Kao - Advanced Semiconductor Engineering, Inc.
Huei-Shyong Cho - Advanced Semiconductor Engineering, Inc.
Shihwen Lu - Advanced Semiconductor Engineering, Inc.
YE Yeh - Advanced Semiconductor Engineering, Inc.
Harrison Chang - Advanced Semiconductor Engineering, Inc.

9. Additively Manufactured Mobile Device Lens Case for 5G Antenna Gain
Bryson Horn - United States Naval Academy
Steven Yee - United States Naval Academy
Hatem Elbidweihy - United States Naval Academy
Deborah Mechtel - United States Naval Academy

10. Low-Profile Broadband Metasurface Antenna for 5G Antenna-in-Package Application
Weikang Wan - Institute of Microelectronics of Chinese Academy of Sciences
Yuxiang Zheng - Institute of Microelectronics of Chinese Academy of Sciences
Liqiang Cao - Institute of Microelectronics of Chinese Academy of Sciences
Tianchun Ye - Institute of Microelectronics of Chinese Academy of Sciences
Qidong Wang - Institute of Microelectronics of Chinese Academy of Sciences

11. Impact of Warpage on Signal Delivery with Large Size FC-PBGA package
Heeseok Lee - Samsung Electronics Company, Ltd.
Jisoo Hwang - Samsung Electronics Company, Ltd.
Heung-Kyu Kwon - Samsung Electronics Company, Ltd.
Junso Pak - Samsung Electronics Company, Ltd.

Session 38: Reliability Analysis of New Materials in Modern Packaging

Committee: Interactive Presentations

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1. Reliability Testing by Mechanical and Electrical Characterization of Flexible and Stretchable Interconnect Materials

Mayukh Nandy - Arizona State University
Yanze Wu - Arizona State University
Todd Houghton - Arizona State University
Hongbin Yu - Arizona State University

2. Small Feature Size, Large Impact: How Advanced Packaging will Reinvent Radar Manufacturing

Catherine Farnum - Northrop Grumman Corporation
Md Kaysar Rahim - Northrop Grumman Corporation

3. Novel Characterization Method of Chip level Hybrid Bonding Strength

Juno Kim - Samsung Electronics Company, Ltd.
Kyeongbin Lim - Samsung Electronics Company, Ltd.
Seung Ho Hahn - Samsung Electronics Company, Ltd.
Mingu Lee - Samsung Electronics Company, Ltd.
Minwoo Rhee - Samsung Electronics Company, Ltd.

4. Electrochemical Reliability of NTV Sintered Flexible Substrates

Robert Klengel - Fraunhofer IMWS
Sandy Klengel - Fraunhofer IMWS
Carola Klute - Fraunhofer IMWS
Bolko Mühs-Portius - Fraunhofer IMWS

5. In-Situ Determination of Specimen Temperature During Electromigration Testing of Solder Joint

Mostafa AbdelAziz - University of Waterloo
Michael Mayer - University of Waterloo

6. Mechanical Characterization of Benzene cyclobutene (BCB) Used in Cu/polymer Hybrid Bonding

Sukrut Prashant Phansalkar - University of Maryland
Yu-Hsiang Yang - University of Maryland
Changsu Kim - University of Maryland
Bongtae Han - University of Maryland
Young Kun Jee - Samsung Electronics Company, Ltd.
Choong Seon Lee - Samsung Electronics Company, Ltd.
Un Byung Kang - Samsung Electronics Company, Ltd.
Jong Ho Lee - Samsung Electronics Company, Ltd.
Sang Cheon Park - Samsung Electronics Company, Ltd.

7. Reliability of Fan-Out Wafer Level Packaging for III-V RF Power MMICs

Ariane Tomas - IMS, University of Bordeaux/United Monolithic Semiconductors
Laurent Marechal - United Monolithic Semiconductors
Rodrigo Almeida - United Monolithic Semiconductors
Mehdy Neffati - United Monolithic Semiconductors
Nathalie Malbert - IMS, University of Bordeaux
Hélène Fremont - IMS, University of Bordeaux

Nathalie Labat - IMS, University of Bordeaux
Arnaud Garnier - Univ. Grenoble Alpes, CEA, LETI

8. Ultrasonic Thick Wire Bonding Process Simulation and Validation for Silicon Carbide Power Devices
Pan Liu - Fudan University
Liangtao Li - Fudan University
Zejun Zeng - Fudan University
Guoqi Zhang - Delft University of Technology
Pengfei Liu - Huada Semiconductor Co., LTD
Jon Qingchun Zhang - Fudan University
Jing Zhang - Heraeus Holding

9. Reliability of Printed Microwave Electronics
Simone Neermann - Institute for Factory Automation and Production Systems
Joerg Franke - Institute for Factory Automation and Production Systems
Mark Sippel - Institute of Microwaves and Photonics
Konstantin Lomakin - Institute of Microwaves and Photonics
Klaus Helmreich - Institute of Microwaves and Photonics
Gerald Gold - Institute of Microwaves and Photonics

10. Effect of Bismuth Content on the Mechanical Cyclic Properties of SAC+Bi Lead Free Solders
Mohammad Ashraful Haq - Auburn University
Mohd Aminul Hoque - Auburn University
Jeffrey C. Suhling - Auburn University
Pradeep Lall - Auburn University

Session 39: High-Speed Channel Design, Power Delivery and Analysis
Committee: Interactive Presentations

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1. Impact of System-in-Package in Side-by-Side discrete SoC-DRAM Configurations on SI, PI and Thermal Performance
Goeun Kim - Samsung Electronics Company, Ltd.
Doohee Lim - Samsung Electronics Company, Ltd.
Jongmin Lee - Samsung Electronics Company, Ltd.
Insik Chang - Samsung Electronics Company, Ltd.
Jun So Pak - Samsung Electronics Company, Ltd.
Youngsang Cho - Samsung Electronics Company, Ltd.
Yunhyeok Im - Samsung Electronics Company, Ltd.

2. 5G Antenna in Module (AiM) Architecture to Realize a Large Active Antenna Array with Unequal Shortest Microstrip Paths to Minimize Feeding Loss by Using True-delay Line based Phase Shifters at Millimeter Wave Frequencies
Zhao-He Lin - National Taiwan University
Hsi-Tseng Chou - National Taiwan University
Pin-Zhong Shen - National Taiwan University of Science and Technology
Ding-Bing Lin - National Taiwan University of Science and Technology
Chao-Shun Yang - Powertech Technology Inc.
Chieh-Wei Chou - Powertech Technology Inc.

Chi-Liang Pan - Powertech Technology Inc.
Chun-Te Lin - Powertech Technology Inc.
Ji-Cheng Lin - Powertech Technology Inc.
Li-Chih Fang - Powertech Technology Inc.

3. Millimeter-Wave Circuits Using 3D Printed Suspended Lines Technology for Automotive Applications
Amanpreet Kaur - Oakland university
Yamini Kotriwar - Michigan State University
Yihang Chu - Michigan State University
Saranraj Karuppuswami - Altair
Prem Chahal - Michigan State University

4. Enhancing On-die PDN for Optimal Use of Package PDN with Decoupling Capacitor
Jisoo Hwang - Samsung Electronics Company, Ltd.
Jun So Pak - Samsung Electronics Company, Ltd.
Dooseok Yoon - Samsung Electronics Company, Ltd.
Heeseok Lee - Samsung Electronics Company, Ltd.
James Jeong - Samsung Electronics Company, Ltd.
Yun Heo - Samsung Electronics Company, Ltd.
Ilryong Kim - Samsung Electronics Company, Ltd.

5. Feature Selective Validation (FSV) Application to S-Parameter Models Directly
Zhaoqing Chen - IBM Corporation

6. Impact of DBI feature on Peak Distortion Analysis of LPDDR5 at 6400Mbps
Ashish Gupta - Intel Corporation
Anant Chopra - Intel Corporation

7. Chip/Package Co-Design Analysis of Advanced D2D Interface Using a Statistical Link Simulator
Sangwook Park - Samsung Electronics Company, Ltd.
Heewoo An - Samsung Electronics Company, Ltd.
Seonghwan Jeon - Samsung Electronics Company, Ltd.
Gyoungbum Kim - Samsung Electronics Company, Ltd.
Dan (Kyung Suk) Oh - Samsung Electronics Company, Ltd.

8. AiP Component and Board Level Heat Dissipation Analysis for Automotive Radar
Yong Han - Institute of Microelectronics, A*STAR
Tai Chong Chai - Institute of Microelectronics, A*STAR
Sharon Seow Huang Lim - Institute of Microelectronics, A*STAR

9. The Impact of Ageing on the Dielectric Properties of Laminates for Automotive Radar
Julia-Marie Koeszegi - Technische Universität Berlin
Marco Rossi - Fraunhofer IZM
Olaf Wittler - Fraunhofer IZM
Hans Walter - Fraunhofer IZM
Oliver Schwanitz - Fraunhofer IZM
Ivan Ndip - Fraunhofer IZM
Klaus-Dieter Lang - Fraunhofer IZM
Martin Schneider-Ramelow - Fraunhofer IZM

10. Millimeter Wave Imaging Array Using a Chip First Additive Manufacturing Process
Yihang Chu - Michigan State University
Cameron Crump - Michigan State University
Wesley Spain - Michigan State University
Premjeet Chahal - Michigan State University

Session 40: Materials and Techniques in High-Speed Interconnects
Committee: Interactive Presentations

Session Co-Chairs:

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1. Process Optimization of Micro Bump Pitch Design in 3-Dimensional Package Structure
Hyoeun Kim - Samsung Electronics Company, Ltd.
Jongpa Hong - Samsung Electronics Company, Ltd.
Ohguk Kwon - Samsung Electronics Company, Ltd.
SangSik Park - Samsung Electronics Company, Ltd.

2. Design Benefits of Hybrid Bonding for 3D Integration
Theodros Nigussie - Fibertek, Inc.
Tse-Han Pan - NC State University
Steve Lipa - NC State University
W. Shepherd Pitts - NC State University
Javi DeLaCruz - Xperi
Paul Franzon - NC State University

3. Improvement of Align-Key Recognition Precision by Development of Auto-focus Algorithm
Gwanghee Jo - Samsung Electronics Company, Ltd.
Seoungdae Seok - Samsung Electronics Company, Ltd.
Donggil Shim - Samsung Electronics Company, Ltd.
Joonyoung Kim - Samsung Electronics Company, Ltd.

4. Effect of Crystal Anisotropy and IMCs on Electro-Migration Resistivity of Low Temperature Flip Chip Interconnect
Kei Murayama - Shinko Electric Industries Co. Ltd.
Mitsuhiro Aizawa - Shinko Electric Industries Co. Ltd.
Kiyoshi Oi - Shinko Electric Industries Co. Ltd.

5. Cu-Recrystallization and the Formation of Epitaxial and Non-Epitaxial Cu/Cu/Cu Interfaces in Stacked Blind Micro Via Structures
Tobias Bernhard - Atotech
S. Dieter - Atotech
Roger Massey - Atotech
S. Kempa - Atotech
E. Steinhäuser - Atotech
Frank Bruening - Atotech

6. Development of Cu Seed Layers in Ultra-High Aspect Ratio Through-Silicon-Vias (TSVs) with Small Diameters
Ziyue Zhang - Beijing Institute of Technology
Yingtao Ding - Beijing Institute of Technology
Lei Xiao - Beijing Institute of Technology
Ziru Cai - Beijing Institute of Technology
Baoyan Yang - Beijing Institute of Technology
Zhaohu Wu - Beijing Institute of Technology
Yuwen Su - Beijing Institute of Technology
Zhiming Chen - Beijing Institute of Technology

7. Advances in Dry Etch Processing for High-Density Vertical Interconnects in Fan-Out Panel-Level Packaging and IC Substrates
Friedrich-Leonhard Schein - Technische Universität Berlin
Christian Voigt - Technische Universität Berlin
Mohamed Elghazzali - Evatec AG
Ioannis Tsigaras - Evatec AG
Hirofumi Sawamoto - Evatec AG
Ewald Strolz - Evatec AG
Roland Rettenmeier - Evatec AG
Lars Böttcher - Fraunhofer IZM

8. Laser Lift Off and Multi Dies Collective Bonding for Inorganic uLED with the Newly Developed Material
Nishida Masataka - Showa Denko Materials Co., Ltd.
Honda Kazutaka - Showa Denko Materials Co., Ltd.
Noma Hirokazu - Showa Denko Materials Co., Ltd.
Suzuki Naoya - Showa Denko Materials Co., Ltd.

9. Towards Copper-Copper Direct Bonding: Controlled Crystal Growth of Copper Deposits for Minimization of Interface Formation During Bonding
Ralf Schmidt - Atotech
Christian Schwarz - Atotech
Uwe Kirbach - Atotech
Cornelia Jäger – Atotech

Session 41: Characterization and Performance Analysis of Packaging Materials

Committee: Interactive Presentations

Session Co-Chairs:

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1. Study and Application of Nano Copper Sintering Technology in Power Electronics Packaging
Xu Liu - Delft University of Technology
Quan Zhou - The Key Laboratory of Optoelectronic Technology &Systems, Education Ministry of China, Chongqing University and College of Optoelectronic Engineering, Chongqing University
Xu Zhao - Shenzhen Institute of Advanced Technology
Wee Koh Sau - Huawei Technology
Huaiyu Ye - Southern University of Science and Technology
Guoqi Zhang - Delft University of Technology

2. Degradation of Silver Nanowire Transparent Conductors by Module-Level Weathering Under Electrical Stress
Chiao-Chi Lin - Feng Chia University
Hung-Shuo Chang - Feng Chia University

3. Multi-layered Package Substrate Manufactured by Reel to Reel Processes
Jongwoo Park - Haesung DS
Myungki Jung - Haesung DS
Yongnam Kim - Haesung DS
Soon-Chul Kwon - Haesung DS
Sangmin Lee - Haesung DS

Daewook Kim - Haesung DS
Jungsoo Byun - Haesung DS

4. Copper-Graphene Foams: A New High-Performance Material System for Advanced Package-Integrated Cooling Technologies
Ryan Wong - Georgia Institute of Technology
Antonia Antoniou - Georgia Institute of Technology
Vanessa Smet - Georgia Institute of Technology

5. Thermal and Electrical Reliability Analysis of TO-247 for Bonding Method, Substrate Structure and Heat Dissipation Bonding Material
Dong-Hwan Kim - University of Science and Technology
Ae-Sun Oh - Electronics and Telecommunications Research Institute
Eun-Young Park - Electronics and Telecommunications Research Institute
Kyung-Hyun Kim - Electronics and Telecommunications Research Institute
Sung-Jae Jeon - Korea Institute of Machinery & Materials
Hyun-Cheol Bae - University of Science and Technology

6. Effects of the Citrate-Coated Nanosized Ag Pastes on Joining Reliable Cu-Cu Joints for Current 3D ICs
Shuye Zhang - Harbin Institute of Technology
Dayin Wang - Harbin Institute of Technology
Xiaokang Duan - Harbin Institute of Technology
Shang Zhang - Harbin Institute of Technology
Zhenfeng Li - Harbin Institute of Technology
Peng He - Harbin Institute of Technology
Jiaohao Xu - Harbin Institute of Technology
Kyung-Wook Paik - KAIST

7. Study of i-Line Photosensitive Materials with a Wide Depth of Focus for Fine Pitch Redistribution Layers
Daiki Yukimori - TAIYO HOLDINGS CO., LTD.
Mei Kunito - TAIYO HOLDINGS CO., LTD.
Nobuhiro Ishikawa - TAIYO HOLDINGS CO., LTD.
Atsushi Sekiguchi - Litho Tech Japan corporation
Toshiyuki Ogata - TAIYO HOLDINGS CO., LTD.

8. Assembly Process and Application Studies of Pre-Applied Underfill - Non-Conductive Film (NCF) vs Non-Conductive Paste (NCP) for Advanced Packages
Promod Chowdhury - Henkel Corporation
Kail Shim - Henkel Corporation
Rose Guino - Henkel Corporation
Kevin Lindsey - Henkel Corporation
Jie Bai - Henkel Corporation
Gina Hoang - Henkel Corporation
Ramachandran Trichur - Henkel Corporation

9. A Comparison Study of TIM Degradation of Phase Change Material and Thermal Grease
Junbo Yang - Binghamton University
Yangyang Lai - Binghamton University
Ke Pan - Binghamton University
Jiefeng Xu - Binghamton University
Stephen Cain - Binghamton University
Travis Mikjaniec - Juniper Networks
Seungbae Park - Binghamton University

Session 42: Topics in Advanced Packaging

Committee: Interactive Presentations

Session Co-Chairs:

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1. Addressing Warpage Issue and Reliability Challenge of Fan-out Wafer-Level Packaging (FOWLP)

Xiaowu Zhang - IME
Boon Long Lau - IME
Yong Han - IME
Haoran Chen - IME
Ming Chinq Jong - IME
Sharon Pei Siang Lim - IME
Simon Siak Boon Lim - IME
Xiaobai Wang - IME
Yosephine Andriani - IME
Songlin Liu - IME

2. High Thermal Non-Electrically Conductive Automotive Grade Die Attach Paste A Study to Evaluate the Impact of Filler Technology

Xuan Hong - Henkel Corporation
Jaiek Kang - Henkel Corporation
Qizhuo Zhuo - Henkel Corporation
Juliet Sanchez - Henkel Corporation
Howard Yun - Henkel Corporation
Jihong Deng - Henkel Corporation
Raj Peddi - Henkel Corporation

3. The Extremely Large 2.5D Molded Interposer on Substrate (MIoS) Package Integration: Warpage and Reliability

Soohyun Nam - Samsung Electronics Company, Ltd.
Younglyong Kim - Samsung Electronics Company, Ltd.
Aeni Jang - Samsung Electronics Company, Ltd.
Inhyo Hwang - Samsung Electronics Company, Ltd.
Sungwoo Park - Samsung Electronics Company, Ltd.
Su-Chang Lee - Samsung Electronics Company, Ltd.
Dae-Woo Kim - Samsung Electronics Company, Ltd.

4. Comprehensive Characterization of Warpage and Fatigue Performance of Fan-out Wafer Level Package by Taking into Account the Viscoelastic Behavior of EMC and the Dielectric Layer

Wei-Lin Hu - South China University of Technology
Jiu-Bin Fei - South China University of Technology
Min-Bo Zhou - South China University of Technology
Bing-Xian Yang - South China University of Technology
Xin-Ping Zhang - South China University of Technology

5. Development of a Scalable AiP Module for mmWave 5G MIMO Applications Based on a Double Molded FOWLP Approach

Tanja Braun - Fraunhofer IZM
Thi Huyen Le - Fraunhofer IZM
Marco Rossi - Fraunhofer IZM
Ivan Ndip - Fraunhofer IZM
Ole Hölck - Fraunhofer IZM

Karl-Friedrich Becker - Fraunhofer IZM
Mathias Böttcher - Fraunhofer IZM
Michael Schiffer - Fraunhofer IZM
Rolf Aschenbrenner - Fraunhofer IZM
Friedrich Müller - Technical University Berlin
Marcus Voitel - Technical University Berlin

6. System in Package Embedding III-V Chips by Fan-Out Wafer Level Packaging for RF Applications
Arnaud Garnier - CEA-LETI
Laetitia Castagné - CEA-LETI
Florent Gréco - CEA-LETI
Thomas Guillemet - Thales DMS
Laurent Maréchal - United Monolithic Semiconductors
Mehdy Mehdy - United Monolithic Semiconductors
Rémi Franiatte - CEA-LETI
Perceval Coudrain - CEA-LETI
Stéphane Piotrowicz - III-V Lab
Gilles Simon - CEA-LETI

7. Surface Activated Bonding of Glass Wafers using Oxide Intermediate Layer
Kai Takeuchi - Meisei University
Fengwen Mu - Institute of Microelectronics Chinese Academy
Yoshiie Matsumoto - LAN TECHNICAL SERVICE CO., LTD.
Tadatomo Suga - Meisei University

8. Electrical Performances of Fan-Out Embedded Bridge
JinWei You - Siliconware Precision Industries Co., Ltd
David Ho - Siliconware Precision Industries Co., Ltd
Jackson Li - Siliconware Precision Industries Co., Ltd
Ming Han Zhuang - Siliconware Precision Industries Co., Ltd.
David Lai - Siliconware Precision Industries Co., Ltd.
C. Key Chung - Siliconware Precision Industries Co., Ltd.
Yu-Po Wang - Siliconware Precision Industries Co., Ltd.

9. Fine Pitch Line/Space Lithography for Large Area Package with Multi-Field Stitching
David Ho - Institute of Microelectronics, A*STAR
Norman Yen - Institute of Microelectronics, A*STAR
Cliff McCold - Veeco Instruments
Robert Hsieh - Veeco Instruments
Ha-Ai Nguyen - Veeco Instruments
Hank Hsu - Veeco Instruments

10. Lamination of Dry Film Epoxy Molding Compounds for 3D Packaging: Advances and Challenges
Maxime Argoud - CEA-LETI
Raphaël Elequet - CEA-LETI
Jérôme Dechamp - CEA-LETI
Nacima Allouti - CEA-LETI
Laurent Pain - CEA-LETI
Raluca Tiron - CEA-LETI
Daisuke Mori - Nagase ChemteX Corporation
Masahiro Asahara - Nagase ChemteX Corporation
Yosuke OI - Nagase ChemteX Corporation
Katsushi Kan - Nagase ChemteX Corporation

11. The AFO Packaging Technology
Chung Ho - Unimicron Technology

Session 43: Manufacturing Techniques for Emerging Packaging Requirements

Committee: Interactive Presentations

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1. High-Density Small Form-Factor Package with Polygon-Shaped Capacitor Based on Silicon Technology

JungHwa Kim - Samsung Electronics Company, Ltd.
James Jeong - Samsung Electronics Company, Ltd.
HeeJung Choi - Samsung Electronics Company, Ltd.
Jisoo Hwang - Samsung Electronics Company, Ltd.
Jun So Pak - Samsung Electronics Company, Ltd.
Heeseok Lee - Samsung Electronics Company, Ltd.

2. Demonstration of a Collective Hybrid Die-to-Wafer Integration Using Glass Carrier

Samuel Suhard - IMEC
Koen Kennes - IMEC
Pieter Bex - IMEC
Anne Jourdain - IMEC
Lieve Teugels - IMEC
Edward Walsby - IMEC
Chris Bolton - IMEC
Jash Patel - IMEC
Huma Ashraf - IMEC
Richard Barnett - IMEC
Ferenc Fodor - IMEC

3. Die to Wafer Hybrid Bonding and Fine Pitch Considerations

Thomas Workman - Xperi Corporation
Laura Mirkarimi - Xperi Corporation
Jeremy Theil - Xperi Corporation
Gill Fountain - Xperi Corporation
K.M. Bang - Xperi Corporation
Bongsub Lee - Xperi Corporation
Cyprian Uzoh - Xperi Corporation
Dominik Suwito - Xperi Corporation
Guilian Gao - Xperi Corporation
Pawel Mrozek - Xperi Corporation

4. Method for Improving Chip Crack and Warpage in Stacked 3D TSV Packaging Structure

Namhoon Kim - Samsung Electronics Company, Ltd.
Sanguk Han Yeongkwon Ko Yonghoe Cho Seunghoon Yeon Sunwoo Han

5. Development of Combined Cooler with Additively Manufactured Planar Magnetics

He Yun - University of Maryland
Clifton Buxbaum - University of Maryland
Sevket Yuruker - University of Maryland
Raphael Mandel - University of Maryland
Patrick McCluskey - University of Maryland
Miguel Hinojosa - U.S. Army Research Laboratory

6. A study about 3D Stacking of Passive SMD elements for Advanced SMT Packaging Using Laser Assisted Bonding

Matthias Fettke - Pac Tech – Packaging Technologies GmbH
Timo Kubsch - Pac Tech – Packaging Technologies GmbH
Alexander Frick - Pac Tech – Packaging Technologies GmbH
Vinith Bejugam - Pac Tech – Packaging Technologies GmbH
Georg Friedrich - Pac Tech – Packaging Technologies GmbH
Thorsten Teutsch - Pac Tech – Packaging Technologies GmbH

7. Characterization of Bonding Activation Sequences to Enable Ultra-Low Cu/SiCN Wafer Level Hybrid Bonding

Serena Iacovo - IMEC
Lan Peng - IMEC
Fuya Nagano - EVG
Thomas Uhrmann - IMEC
Jürgen Burggraf - imec
Andreas Fehkührer - IMEC
Thierry Conard - IMEC
Fumihiro Inoue - IMEC
Soon-Wook Kim - IMEC
Joeri De Vos - IMEC
Alain Phommahaxay - IMEC

8. Study of Submicron Panel-Level Packaging in Mass-Production

Ken-ichiro Shinoda - Canon Inc.
Douglas Shelton - Canon Inc.
Hiromi Suda - Canon Inc.
Yoshio Goto - Canon Inc.
Kosuke Urushihara - Canon Inc.
Ken-Ichiro Mori - Canon Inc.

9. Investigation of Low Stress and Low Temperature SiN and SiCN PVD Films for Advanced Packaging Applications

Xavier Brun - Intel Corporation
Patrick Carazzetti - Evatec AG
Ewald Strolz - Evatec AG

10. Effect of Pneumatic Curing on Cycle Time Reduction and Void Suppression of Polyimide Wafer Coating

Huan-Ping Su - Ableprint Technology Co. Ltd.
Cheng-Che Tsou - Winstek Semiconductor Technology Co. Ltd
Auger Horng - Ableprint Technology Co. Ltd.

11. Acoustic Modulation During Laser Debonding of Collective Hybrid Bonded Dies

Koen Kennes - IMEC
Alain Phommahaxay - IMEC
Alice Guerrero - Brewer Science, Inc.
Dennis Bumueller - SUSS MicroTec
Samuel Suhard - IMEC
Pieter Bex - IMEC
Sebastian Tussing - SUSS MicroTec
Xiao Liu - Brewer Science, Inc.
Gerald Beyer - IMEC
Eric Beyne - IMEC

Session 44: Thermo-Mechanical Analysis for Reliability in Packaging Technology

Committee: Interactive Presentations

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1. Warpage of Compression Molded SiP Strips
Eric Ouyang - JCET Global
Yonghyuk Jeong - JCET Global
JaeMyong Kim - JCET Global
JaePil Kim - JCET Global
OhYoung Kwon - JCET Global
Michael Liu - JCET Global
Susan Lin - CoreTech System (Moldex3D)
Jenn An Wang - CoreTech System (Moldex3D)
Anthony Yang - CoreTech System (Moldex3D)
Eric Yang - CoreTech System (Moldex3D)

2. High Performance FCBGA Package Evaluation and Characterization for the Networking Application
Vito Lin - Siliconware Precision Industries Co., Ltd
Nicholas Kao - Siliconware Precision Industries Co., Ltd
David Lai - Siliconware Precision Industries Co., Ltd
Yu-Po Wang - Siliconware Precision Industries Co., Ltd

3. Shipping Container Design Optimization for Drop/Shock Impact
Pengcheng Yin - Binghamton University
Seungbae Park - Binghamton University
Ganesh Pandiarajan - SMART Modular Technologies

4. Multi-Objectives Design Optimization Based on Multi-Objectives Gaussian Processes for System-in-Package
Weijing Dai - Southern University of Science and Technology
Zhenkun Wang - Southern University of Science and Technology
Ke Xue - Southern University of Science and Technology

5. Effect of Latching Force on Socketed BGA Packages with Ni-Au Coated Solder Spheres
Omkar Gupte - Georgia Institute of Technology
Gregorio Murtagian - Intel Corporation
Rao Tummala - Georgia Institute of Technology
Vanessa Smet - Georgia Institute of Technology

6. Process Dependent Material Characterization for Warpage Control of Fan-Out Wafer Level Packaging
Olaf Wittler - Fraunhofer IZM
Marius van Dijk - Fraunhofer IZM
Saskia Huber - Fraunhofer IZM
Hans Walter - Fraunhofer IZM
Martin Schneider-Ramelow - TU Berlin

7. Multiscale Modeling on the Enhanced Heat Transfer Behavior of Thermal Interface Materials Based on Graphene
Yu Wang - Sensata Technologies

8. Evaluation on Bonding Characteristics of Thermal Compression Bonded Solder Joints Via Nanoindentation Test
Hungsuk You - Sungkyunkwan University
Kyung Deuk Min - Sungkyunkwan University
Choong-Jae Lee - Sungkyunkwan University
Jun Ho Jang - Sungkyunkwan University
Dong Gil Kang - Sungkyunkwan University
Seung-Boo Jung - Sungkyunkwan University

9. Characterization of Pressure-less Ag Sinter using Innovative Sample Preparation Approach
Murali Sarangapani - Heraeus Materials Singapore Pte Ltd
Evonne Lim Yee Weon - Heraeus Materials Singapore Pte Ltd
Yu Yuan Chieng - Heraeus Materials Singapore Pte Ltd
Miew Wan Lo - Heraeus Materials Singapore Pte Ltd
Sungsig SS Kang - Heraeus Materials Singapore Pte Ltd
Dennis Ang Kwang Leong - Heraeus Materials Singapore Pte Ltd

Session 45: Heterogeneous Integration, Flex and Emerging Technologies
Committee: Interactive Presentations

Session Co-Chairs:

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1. 3D Heterogeneous Integration for Physically Flexible CMOS Electronic Systems
Sohail Faizan Shaikh - King Abdullah University of Science and Technology (KAU
Nazek El-Atab - KAUST, UC Berkeley
Muhammad Mustafa Hussain - KAUST, UC Berkeley

2. Automated Attribute Measurements of Buried Package Features in 3D X-ray Images using Deep Learning
Ramanpreet Pahwa - Institute for Infocomm Research
Tin Lay Nwe - Institute for Infocomm Research
Richard Chang - Institute for Infocomm Research
Oo Zaw Min - Institute for Infocomm Research
Jie Wang - Institute of Microelectronics (IME)
Saisubramaniam Gopalakrishnan - Institute of Microelectronics (IME)
David Ho Soon Wee - Institute of Microelectronics (IME)
Ren Qin - Institute of Microelectronics (IME), A*STAR
Vempati Srinivasa Rao - Institute of Microelectronics (IME), A*STAR
Haiwen Dai - Carl Zeiss SMT GmbH
Jens Timo Neumann - Carl Zeiss SMT GmbH

3. An Automated Optical Inspection System for PIP Solder Joint Classification Using Convolutional Neural Networks
Konstantin Schmidt - Friedrich-Alexander-University
D. Rauchensteiner - Siemens AG
Christian Voigt - Friedrich-Alexander-University
Nils Thielen - Friedrich-Alexander-University

Jochen Boenig - Siemens AG
Gunter Beitinger - Siemens AG
Joerg Franke - Friedrich-Alexander-University

4. A Passive Water Transfer/Retention System for Long Term Functionality of an On-Site Sensing Device
Yu Chen - Institute of Microelectronics, A*STAR
Weiguo Chen - Institute of Microelectronics, A*STAR
Ruiqi Lim - Institute of Microelectronics, A*STAR
Ming-Yuan Cheng - Institute of Institute of Microelectronics, A*STAR,A-STAR

5. Heteroeneous Integration with Embedded Fine Interconnect
Tai Chong Chai - Institute of Microelectronics, A*STAR
Teck Guan Lim - Institute of Microelectronics, A*STAR
David Ho - Institute of Microelectronics, A*STAR
Ser Choong Chong - Institute of Microelectronics, A*STAR
Yong Han - Institute of Microelectronics, A*STAR
Sharon Lim PS - Institute of Microelectronics, A*STAR
Surya Bhattacharya - Institute of Microelectronics, A*STAR

6. Enabling Low Loss Thin Glass Solutions for 5G/mmWave Applications
David Levy - Mosaic Microsystems
Shelby Nelson - Mosaic Microsystems
Aric Shorey - Mosaic Microsystems
Paul Ballentine - Mosaic Microsystems

7. Flip Chip Interconnects Based on Carbon Nanofibers-Solder Composites
Elisa Passalacqua - Smoltek
Capucine Laprais - Smoltek
Maria Bylund - Smoltek
Qi Li - Smoltek
Victor Marknäs - Smoltek
Rickard Andersson - Smoltek
Amin M Saleem - Smoltek
Vincent Desmaris - Smoltek

8. Terahertz and Machine Learning Approach to Integrated Circuit Package Assurance
John True - Florida Institute for Cyber Security Research
Chengjie Xi - Florida Institute for Cyber Security Research
Nathan Jessurun - Florida Institute for Cyber Security Research
Kiarash Ahi - University of Connecticut
Mark Tehranipoor - Florida Institute for Cyber Security Research
Navid Asadi - Florida Institute for Cyber Security Research

9. Novel Approach to Highly Robust Fine Pitch RDL Process
Jeongi Jin - Samsung Electronics Company, Ltd.
Gyuho Kang - Samsung Electronics Company, Ltd.
Hyunsu Hwang - Samsung Electronics Company, Ltd.
Byungchan Kim - Samsung Electronics Company, Ltd.
Jumyong Park - Samsung Electronics Company, Ltd.
Taehwa Jeong - Samsung Electronics Company, Ltd.
Chungsun Lee - Samsung Electronics Company, Ltd.
Unbyoung Kang - Samsung Electronics Company, Ltd.
Jongho Lee - Samsung Electronics Company, Ltd.

10. Solving Power Integrity Challenges for Smart Computing Era
Manho Lee - Samsung Electronics Company, Ltd.
Eunseok Song - Samsung Electronics Company, Ltd.
Eonsoo Jang - Samsung Electronics Company, Ltd.
Gyoungbum Kim - Samsung Electronics Company, Ltd.
Dan Oh - Samsung Electronics Company, Ltd.

Session 46: Student Session

Committee: Interactive Presentations

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1. A Novel Degradation Model for LED Reliability Assessment with Accelerated Stress and Self-Heating Consideration
Minh-Tuan Truong - CEA-LETI
Laurent Mendizabal - CEA-LETI
Phuc Do - University of Lorraine
Benoit Iung - University of Lorraine

2. A Flexible Power Module for Wearable Medical Devices with Wireless Recharging using Corrugated Flexible Coils
Guangqi Ouyang - University of California, Los Angeles
Goutham Ezhilarasu - University of California, Los Angeles
Henry Sun - University of California, Los Angeles
Haoxiang Ren - University of California, Los Angeles
Yu-Tao Yang - University of California, Los Angeles
Subramanian Iyer - University of California, Los Angeles

3. Transmission Lines on Alumina Ribbon Ceramic (ARC) Substrate Material for 30 to 170 GHz Wireless Applications
Nahid Aslani Amoli - Georgia Institute of Technology
Mutee Ur Rehman - Georgia Institute of Technology
Sridhar Sivapurapu - Georgia Institute of Technology
Fuhan Liu - Georgia Institute of Technology
Madhavan Swaminathan - Georgia Institute of Technology
Cheng-Gang Zhuang - Corning
Nikolay Zhelev - Corning
Seong-ho Seok - Corning
Cheolbok Kim - Corning

4. 3D Silicon Photonic Interconnects and Integrated Circuits Based on Phase Matching
Yusheng Bian - GLOBALFOUNDRIES
Ajey Jacob - GLOBALFOUNDRIES
Michal Rakowski - GLOBALFOUNDRIES
Ryan Sporer - GLOBALFOUNDRIES
Takako Hirokawa - GLOBALFOUNDRIES
Won Suk Lee - GLOBALFOUNDRIES
Asif Chowdhury - GLOBALFOUNDRIES
Abu Thomas - GLOBALFOUNDRIES
Bo Peng - GLOBALFOUNDRIES
Abdelsalam Aboketaf - GLOBALFOUNDRIES

Javier Ayala - GLOBALFOUNDRIES

5. Screen-Printed Water-Soluble Resistors for Wearable Electronics: An Analysis of the Fabrication Process
Udara Somarathna - Binghamton University
Behnam Garakani - Binghamton University
Darshana Weerawarne - Binghamton University
Gurvinder Khinda - Binghamton University
Andrew Burns - GE Global Research
Azar Alizadeh - GE Global Research
Mark Poliks - Binghamton University

6. Early Microstructural Indicators of Crack Initiation in Lead-Free Solder Joints Under Thermomechanical Test
Emna Ben Romdhane - IRT Saint Exupery
Pierre Roumanille - IMS Laboratory Bordeaux
Alexandrine Guédon-Gracia - IRT Saint Exupery
Samuel Pin - IRT Saint Exupery
Patrick Nguyen - ELEMCA
Helene Fremont - IMS Laboratory Bordeaux

7. Prognostic Detection of Electromigration Void Failure in Buried Metal Interconnect using Piezorestive Sensors
Ari Laor - University of Waterloo
David Nairn - University of Waterloo

8. Aerosol Jet 3D-Printed Compact EBG-Based Resonators
Xenofon Konstantinou - Michigan State University
Michael Thomas Craton - Michigan State University
John D. Albrecht - Michigan State University
John Papapolymerou - Michigan State University

9. Microstructure Evolution and Mechanical Properties of SAC305 With the Intense Pulsed Light Soldering Process Under High Temperature Storage Test
Jun Ho Jang - Sungkyunkwan University
Choong-Jae Lee - Sungkyunkwan University
Byeong-Uk Hwang - Sungkyunkwan University
Kyung Deuk Min - Sungkyunkwan University
Jae-Ha Kim - Sungkyunkwan University
Seung-Boo Jung - Sungkyunkwan University

10. Comparison of Global Optimization Algorithms for Inverse Design of Substrate Metal Density for Low Warpage Design in Ultra-Thin Packages
Cheryl Selvanayagam - Singapore University of Technology and Design
Pham Luu Trung Duong - Singapore University of Technology and Design
Brett Wilkerson - Advanced Micro Devices
Nagarajan Raghavan - Singapore University of Technology and Design

11. Characterization of Chip-to-Package Interconnects for Glass Panel Embedding (GPE) for Sub-THz Wireless Communications
Serhat Erdogan - Georgia Institute of Technology
Siddharth Ravichandran - Georgia Institute of Technology
Xiaofan Jia - Georgia Institute of Technology
Madhavan Swaminathan - Georgia Institute of Technology

12. Relationship Between the Grain Orientation and the Electromigration Reliability of Electronic Packaging Interconnects

Yi Ram Kim - University of Texas at Arlington
Allison Osmanson - University of Texas at Arlington
Hossein Madanipour - University of Texas at Arlington
Mohsen Tajedini - University of Texas at Arlington
Choong-Un Kim - University of Texas at Arlington
Patrick Thompson - Texas Instruments, Inc.
Qiao Chen - Texas Instruments, Inc.

13. Mechanical Behavior and Microstructure Evolution in Lead Free Solders Subjected to Mechanical Cycling at Elevated Temperatures

Mohd Aminul Hoque - Auburn University
Mohammad Ashraful Haq - Auburn University
Jeffrey C. Suhling - Auburn University
Pradeep Lall - Auburn University

14. Investigation of Aromatic Voltage Stabilizers for Enhancing High Voltage Stability of Epoxy in Power Electronics

Jiaxiong Li - Georgia Institute of Technology
Kathaperumal Mohanalingam - Georgia Institute of Technology
Omkar Gupte - Georgia Institute of Technology
Zhijian Sun - Georgia Institute of Technology
Kyoung-sik Moon - Georgia Institute of Technology
Ching-ping Wong - Georgia Institute of Technology