Friday, April 17

	Room A	Room B	Room C	Room D	Room E	Room F
8:30 9:15	**Keynote IV:** The Future of Computing Norishige Morimoto, IBM Japan, Ltd.					
9:15 10:00	**Keynote V:** TBD					
Break						
10:15 11:55	**17FA1: IMPACT** **17FA1-1 <Session Invited>** TBD Dr. Chien-Yung Ma, Forcera Materials Inc. **17FA1-2 <Session Invited>** TBD Prof. Yong-Hua Tzeng, NCKU. **17FA1-3 <Session Invited>** TBD Dr. Shin-Puu Jeng, Applied Materials **17FA1-4** Cross-interface grain growth in Cu-Cu Bonding Prof. Chih-Ming Chen, National Chung Hsing University	**17FB1: Printed Electronics** **17FB1-1 <Session Invited>** Printed Organic Thin-Film Transistors for Large-Area Integrated Electronics Prof. Xuying Liu, Zhengzhou University **17FB1-2 <Session Invited>** Low-temperature copper sinter-joining technology for next-generation Prof. Wanli Li, Jiangnan University **17FB1-3 <Session Invited>** Directed self-assembly for high resolution stretchable electronics Dr. Lingying Li, NIMS **17FB1-4** TBD	**17FC1: Hybrid Bonding-1** **17FC1-1 <Session Invited>** TBD **17FC1-2** Low Temperature Hybrid Bonding Process by Surface Modification using Low-Molecular-Weight Organic Material Chihiro Nakagawa[1], Yoshikage Ohmukai[1], Hosoda Kazuki[1], Yuuki Araga[2], Naoya Watanabe[2], Haruo Shimamoto[2], Kenji Takahashi[2], Takashi Namikawa[1], Katsuya Kikuchi[2], [1]Daikin Industries, Ltd., [2]National Institute of Advanced Industrial Science and Technology **17FC1-3** In-situ Analysis of SiO2 Surface Chemistry Evolution During N2 Annealing for Hybrid Bonding Applications Haibo Yang, Fei Ding, Yu Zhang, Yudong Yang, Qiushi Kang, Hongchao Zhang, Lingyun Zhang, Yihao Meng, Renxi Jin, Qidong Wang, Institute of Microelectronics, Chinese Academy of Sciences **17FC1-4** High-Resolution 3D X-Ray Imaging of Hybrid Bonding Till Dreier, Daniel Nilsson, Shiho Tanaka, Excillum AB	**17FD1: Mech simulation-2** **17FD1-1** Physical Estimation of Expoxy Flux Pattern Desing of Milti-Chip Module Packaging Kuan-Wei Chou[1], Chih-Yang Weng[1], You-Yi Zheng[1], Shen-Yu Yang[2], Chao-Chieh Chan[2], Chun-Wei Wang[2], Jui-Chang Chuang[1], Chang-Chun Lee[1], [1]National Tsing Hua University, [2]WNC Corporation **17FD1-2** Simulation of NSMD Type in CUF Parameters and Substrates on Reliability TZU CHIEH CHIEN, Yuan Hung Sun, Yu Chi Sung, Chao Lin Shih, Hui Chung Liu, Lu Ming Lai, Kuang Hsiung Chen, Advanced Semiconductor Engineering, Inc Chung-Li Branch **17FD1-3** Capillary Underfill Simulation across Die-to-Die Gap Using Hybrid EBG Modeling Leo Shen[1], Kazuki Noguchi[2], Yu-En Liang[1], Wei-Yu Lin[1], Zi-Hsuan Wei[1], Ching-Kai Chou[1], Ming-Yu Lin[1], [1]CoreTech System Co., Ltd. (Moldex3D), [2]Sanyu rec co., ltd. **17FD1-4** Numerical Simulation and Machine Learning-Based Optimization of Mass Reflow Temperature Profiles in Batch-Produced System-in-Packages Ian Hu, Xuan-Zhi Kuo, National Kaohsiung University of Science and Technology	**17FE1: High-Speed, Wireless & Components** **17FE1-1** A Compact Dual-Band AiP Integrated Beamforming IC Using Package-on-Package Technology for Mobile Devices Sheng-Chi Hsieh, Advanced Semiconductor Engineering, Inc.(ASE group) **17FE1-2** Design of millimeter-wave antenna array in package featured with bandpass impedance transformation Simin Wang[1], KuoHung Cheng[1], ShengFu Chang[1], ShihCheng Lin[1], ChenChao Wang[2], [1]National Chung Cheng University, [2] Advanced Semiconductor Engineering **17FE1-3** Fabrication tolerance analysis of multi-layers package substrate for 5G mmWave Antenna in Package/Module (AiP/AiM) Cheng Yu HO, Pingtung **17FE1-4** Development of Integrated Q-band 4x4 Phased-Array Module with High Aspect Ratio Cu-Pillar Pins and M7-Level SLP for High-Efficiency mmWave NTN Applications Li-Cheng Shen[1], Wei-Yang Chen[2], Ming-Hung Chang[1], Leo Hsu[2], Su-Wei Chang[2], [1] Universal Global Scientific Industrial Co., Ltd. (USI), [2]TMYTEK Co., Ltd.	**17FF1: Thermal Management-5** **17FF1-1** A Thermal Isolation Method Based on "Parylene-Kirigami" Structure for Silicon-Based 2.5D Heterogeneous Integration Systems Zhou Yang, Han Xu, Lang Chen, Huiquan Cao, Jianyu Du, Chi Zhang, Wei Wang, Peking University **17FF1-2** Co Integrated Cu/Sn Electrical and Fluidic I/Os for Embedded Microchannel Cooling in 3D ICs Using FOWLP Shaofeng Wang[1], Zhou Yang[1], Shangyang Shi[1], Yudong Yang[1], Wei Wang[1,2,3], Chi Zhang[1,2,3], [1]Peking University, [2]National Key Laboratory of Advanced Micro and Nano Manufacture Technology, [3]Beijing Advanced Innovation Center for Integrated Circuits **17FF1-3** chip-level silicon vapor chamber with MEMS micropillar wick for hotspot cooling and g-robust operation Jianyu Du[1], Jiale Tu[1], Haoyang Sun[2], Shangyang Shi[1], Feng Ji[2], Chi Zhang[1,3,4], Wei Wang[1,3,4], [1]Peking University, [2]Beijing Institute of Remote Sensing Equipment, [3]Beijing Advanced Innovation Center for Integrated Circuits, [4]National Key Laboratory of Advanced Micro and Nano Manufacture Technology **17FF1-4** Numerical Simulation and Analysis of Heat Transfer Characteristics of Through Silicon Vias in Backside Power Delivery Networks Shizun Hu[1], Yutong Fu[1], Huiquan Cao[1,4], Shangyang Shi[1], Chi Zhang[1,2], Wei Wang[1,2,3], [1]Peking University, [2]National Key Laboratory of Advanced Micro and Nano Manufacture Technology, [3]Beijing Advanced Innovation Center for Integrated Circuits, [4]China University of Geosciences (Beijing)
Lunch Time						
12:45 14:25	**17FA2: Glass-PKG3** **17FA2-1 <Session Invited>** Progress and Remaining Challenges for Glass Core Substrates Jan Vardaman, TechSearch **17FA2-2 <Session Invited>** Enabling Next-Generation Packagingwith Glass and Quartz Core Substrates Jonas Discher, PlanOptik **17FA2-3 <Session Invited>** TBD Glass core evaluation method TBD Prof. Ming-Yi Tsai/ T. Onishi, CGU Chang Gung U EDU TW / GJT **17FA2-4** Development of glass core multilayer build-up substrate with TGV Jun Yoshiike, Masahiro Sunohara, Gai Kadoishi, Yoko Nakabayashi, Noriyoshi Shimizu, Ryuichi Matsuki, Shinko Electric Industries co., LTD	**17FB2: ICEPT** **17FB2-1 <Session Invited>** Advancements in Ultra-High Aspect Ratio Via Interconnection Technology Enabled by Atomic Layer Deposition Daquan Yu, Xiamen Sky Semiconductor Co., Ltd., China **17FB2-2 <Session Invited>** Thermal Management of Chip Wei Wang, Peking University, China **17FB2-3 <Session Invited>** The Simulation and Testing of UCIe Power Noise Based on Chiplet Chenxi Yang, Sanechips Technology Co., Ltd., China **17FB2-4 <Session Invited>** SiC Advanced Packaging and All-Copper Solutions Huaiyu Ye, Southern University of Science and Technology	**17FC2: Hybrid Bonding-2** **17FC2-1** Development of Anti-oxidation Technology for Cu Direct Bonding via Ascorbic Acid Vapor Jeehoo Na[1,2], Eunhye Lee[1], Suin Jang[1], Dongwoo Lee[2], Tae-Ik Lee[1], [1]Korea Institute of Industrial Technology, [2]Sungkyunkwan University **17FC2-2** Electrodeposition of (111)-Oriented Cu Using Accelerator for Cu-Cu Direct Bonding Soojin Kim, Hanyang university **17FC2-3** Effect of Pressure on Grain Growth in Nanocrystalline Cu for Low-Temperature Cu-Cu Bonding Ting-Chi Chen, Chih Chen, National Yang Ming Chiao Tung University	**17FD2: Reliability-1** **17FD2-1** In-situ observation of dislocation movement, accumulation and crack propagation behaviour during tensile loading in Sn and Sn-based solder alloys Kazuhiro Nogita[1], Jiye Zhou[1], Xin Fu Tan[1], Stuart McDonald[1], Keith Sweatman[1,2], Hiroshi Maeno[3], Syo Matsumura[1,3], Kazuhiro Yasuda[3], [1]The University of Queensland, [2]Nihon Superior Co., [3]Kyushu University **17FD2-2** Microcrack-sliding Damping During Crack Propagation In Pure Sn Under Electric Current Stressing Fei Hu[1], Ming Tang[2], Wangyun Li[1,3], [1] Guilin University of Electronic Technology, [2]Chongqing SIIE Product Quality Testing Co., Ltd., [3]Southwest Jiaotong University **17FD2-3** The role of densification on deformation behavior of sintered Ag during nanoindentation creep test Seonghwan Park[1,2], Hiroaki Tatsumi[2], Hiroshi Nishikawa[2], [1]The University of Osaka, [2]The University of Osaka **17FD2-4** Defects in Cu-filled through-silicon vias (TSV) after thermal cycling Zishan Xiong[1], Shichen Xie[2], Zeyuan Li[3], Sheng Liu[3], Yuzheng Guo[3], Yingxia Liu[2], [1] City University of Hong Kong, [2] City University of Hong Kong, [3] Wuhan University	**17FE2: Material Processing** **17FE2-1** Comparison of Cu diffusion barrier properties of electroless-plated CoWB and CoMn alloy films formed on SiO2/Si shoso shingubara, tomohiro shimizu, takeshi ito, Kansai University **17FE2-2** Photon-removable Protective Molecular Nanolayers for Enhancing Cu to Cu Direct Bonding Wei-Ting Chen[1], Ting-Hsiang Hsueh[2], Chih-Ming Chen[1,3], Takafumi Fukushima[4], Jenn-Ming Song[1,2], [1]National Chung Hsing University, [2]National Chung Hsing University, [3]National Chung Hsing University, [4]Tohoku University **17FE2-3** Effect of Binder Chemistry on Dynamic Parcolation of Stretchable Printed Wires During Vacuum Foaming Rina Aida, Masahiro Inoue, Gunma Univercity **17FE2-4** Advanced Hybrid Smear Removal Process with Excimer VUV Treatment for Next-Generation Organic Substrate Packaging Taro Arimoto[1], Yukihisa Baba[1], Yuhei Kitahara[2], Tomoya Sawada[2], Takashi Katou[2], Masasumi Kusunoki[2], Tatsuya Koga[3], [1]USHIO Inc., [2]Okuno chemical industries co. ltd, [3]Shikoku chemicals corporation	**17FF2: Power Electronics-1** **17FF2-1** Development of Low-Temperature Air-Sinterable Copper Paste for Die Attach and Substrate-to-Heatsink Bonding Chuantong Chen[1], Fupeng Huo[1], Sangmin Lee[1], Takeshita Kazutaka[2], Yoshiji Yamaguchi[2], Yashima Momose[2], Katsuaki Suganuma[1], [1]The university of Osaka, [2]Yamato Scientific Co. Ltd. 17FF2-2 Room Temperature Chip Bonding of SiC And Cu Using Activated Cu Atomic Layer Ryohei Yamauchi, Jun Utsumi, Ryo Takigawa, Kyushu University **17FF2-3** X-ray Orientation Microscopy for Non-destructive Observation of Grain Boundaries in Die-attach Solder Yujiro Hayashi[1], J. Kim[1], M. Yabashi[1], H. Tatsumi[2], [1]RIKEN SPring-8 Center, [2]Osaka University
Break						
14:40 16:20	**17FA3: Glass PKG-4** **17FA3-1** Physical Estimation for Residual Stress of Glass Substrate through Photoelasticity-FEA Hybrid Model Jui-Chang Chuang[1], Chang-Chun Lee[2], Wan Chen Yang[1], Po-Yu Chen[2], Hao-Zhou Lin[1], Wei-Cheng Tsai[1], Chen-Tsai Yang[1], Man-Ning Lu[1], Po-Chi Sung[2], Wei-Chung Wang[2], [1]Industrial Technology Research Institute, [2] National Tsing Hua University **17FA3-2** Micro-crack-free Laser Singulation and meltingTGV for Glass Substrate Eunsuk Jeon, Jinpyo Kim, Duhyun Cho, Laserapps Co. Ltd. **17FA3-3** Analysis of Delamination Mechanism During the Dicing Process of Glass Substrates Chuan Chen, Institute of Microelectronics, Chinese Academy of Sciences	**17FB3: Co-packaged OPT** **17FB3-1 <Session Invited>** Optical Chiplet Using Membrane III-V Photonic Devices Surugu Yamaoka, NTT Device Innovation Center **17FB3-2 <Session Invited>** High-integration thin-film lithium niobate modulator based on heterogeneous integration technology Shuntaro Makino, FITEL Optical Components **17FB3-3 <Session Invited>** Fusion of Electric and Photonic Interconnects: An Advanced Packaging Perspective Vincent Lin, ASE Group **17FB3-4 <Session Invited>** Multi-Die Optical Chiplet Packaging for AI Scale-Up and Scale-Out Surya Bhattacharya, Agency for Science, Technology and Research (A*STAR), Institute of Microelectronics (IME)	**17FC3: Hybrid Bonding-3** **17FC3-1** Establishment of High-Yield and Reliable Cu-Cu Connections with 0.8 Micrometers Pitch Integration Hitomi Shiina, Yukako Ikegami, Ken Arano, Kan Shimizu, Yoshihisa Kagawa, Sony Semiconductor Solutions Corporation **17FC3-2** Copper oxide in TCB Cu-Cu bonding Kun-Yuan Zeng, Shih-Kang Lin, National Cheng Kung University **17FC3-3** Surface Reduction and Self-Passivation in a Single-Step Ar/CH4 Plasma treatment for Hybrid Cu Bonding Hoogwan Lee, Byeongchan Go, Sarah Kim, Seoul National University of Science and Technology **17FC3-4** Optimized Surface Treatment Strategies for Improved Cu-Cu Direct Bonding Kinga Kondracka[1], Cyrille Sebert[2], Patrick Verdonck[3], Kristof Wouters[4], Nadezda Kuznetsova[4], Patrick Merken[4], Michael Kraft[1], [1]KU Leuven, [2]KU Leuven, [3]imec, [4]Xenics	**17FD3: Reliability-2** **17FD3-1** Lifetime Prediction of Die Cracking in Heatsink-Clamped FCQFN Packages under Thermomechanical Loading Weiquan LUO[1], ke Xue[1], Lanqin Huang[2], kai chen[2], yunda wang[1], Dong Lu[1], [1]The Hong Kong University of Science and Technology (Guangzhou), [2]Guangzhou HKUST Fok Ying Tung Research Institute **17FD3-2** Thermal and Drop Reliability Performance of Low Temperature Solder in Fan-Out WLCSP Structure Nien Chun Lin, Sheng Hong Zheng, Yan Bo Lin, Chih Sheng Su, Hsin Chih Shih, Chin Li Kao, Chen Chao Wang, C.P. Hung, Advanced Semiconductor Engineering, Inc. **17FD3-3** Experimental and numerical analysis of a fan-out BGA Chip on PCB reliabilities under drop test loads jian cheng, JCET Group **17FD3-4** Deep Learning Based Reliability Prediction for BL-TCT Lifetime of Molded FCBGA Packages Tang-Yuan Chen, Chen-Chao Wang, Chin-Pin Hung, Advanced Semiconductor Engineering, Inc.	**17FE3: Measurement Method** **17FE3-1** Integrating Mechanical and Chemical Insights Into Bonding Interfaces via DCB-Based Delamination Analysis Shumpei Murakami, Yuki Yoshihara, Daiki Kobayashi, Ryuki Kusakabe, Marie Sano, Fumihiro Inoue, Yokohama National University **17FE3-2** Quantitative Assessment of Bond Strength for Hybrid Bonding Ryuki Kusakabe[1], Daiki Kobayashi[1], Yuki Yoshihara[1], Shumpei Murakami[1], Sano Marie[1], Shunsuke Teranishi[2], Yuya Matsuoka[2], Daichi Saito[2], Naoko Yamamoto[2], Fumihiro Inoue[1], [1]Yokohama National University, [2]DISCO Corporation **17FE3-3** Performance Comparison of Machine Learning Algorithms for Real-Time Temperature Measurement Using Optical-Interference Contactless Thermometry (OICT) Jiawen Yu, Hiroaki Hanafusa, Seiichiro Higashi, Hiroshima University **17FE3-4** Acoustic Emission Signal Filtering for Ultrasonic Vibration-Assisted Grinding Wheel Monitoring Using a Hydrophone Sensor YuKun Lin, Feng Chia University	**17FF3: Power Electronics-2** **17FF3-1** Near-chip 3D functionalization of direct copper bonded substrates in power electronic modules Christoph Hecht[1], Dominik Wiegand[1], Marcel Sippel[2], Joerg Franke[1], Manuela Ockel[1], [1]Friedrich-Alexander-University Erlangen-Nuremberg, [2]Siemens AG **17FF3-2** Heatsink Design and Wire Bonding Failure Analysis of an Automotive 1.2 kV SiC MOSFET Power Module in Power Cycling Tests Po-Kai Chiu, Ji-Yuan Syu, Ting-Yu Wang, Yu-Hua Wu, Kuo-Shu Kao, Tao-Chih Chang, Industrial Technology Research Institute **17FF3-3** Reliability and Thermal Resistance Characterization of Flip-Chip Interconnections in Gallium Nitride Devices Using Silver Sintering Materials Ching Kuan Lee, Ting-Yu Ke, Yan-Cheng Liu, Po-Kai Chiu, Yu-Min Lin, Industrial Technology Research Institute **17FF3-4** Junction Temperature Estimation Error of Chip-Embedded Temperature Sensor During Transient Thermal Measurement Shuhei Fukunaga, Tsuyoshi Funaki, The University of Osaka
Break						
16:35 18:15			**17FC4: TSV** **17FC4-1** Mixed-Foundry Heterogeneous Integration of Bumpless WOW and COW Processes for System-on-Wafer Norio Chujo[1], Shinji Sugatani[1], Tadashi Fukuda[2], Takayuki Ohba[1], [1]Institute of Science Tokyo, [2]Tech Extension Co., Ltd. **17FC4-2** Efficient Image Feature Extraction Via YOLO Framework for Critical Parameter Extraction from TSV SEM Imagery SHUYAN HE[1,3], Lang Chen[2,3], Yufeng Jin[1], Wei Wang[2,3], [1]Peking University, [2]Peking University, [3]Peking University **17FC4-3** Develop Three-Dimensional Infinite Element Method of Thermal Stress for Through-Silicon Via Analysis DE-SHIN LIU[1,2], WEN-HSUAN CHANG [2], TING-SHENG CHANG[2], ZHEN-WEI ZHUANG[1], YUNG-CHING CHAO[3], PEI-CHEN HUANG[1,2], [1]National Chung Cheng University, [2]National Chung Cheng University, [3]National Chiayi University	**17FD4: Reliability-3** **17FD4-1** Enhancement of Micro-DIC Technique and Deformation Measurement of Fine-Pitch Semiconductor Packages Hyunwoo Nam[1], Seongkyu Choi[1], Minjeong Sohn[1], Tae Yeob Kang[2], Tae-ik Lee[1], [1]Korea Institute of Industrial Technology, [2]University of Suwon **17FD4-2** Static Structural and Thermal Analysis of Heterogeneous 3D IC Integration With Different Interposer Materials Divyankar Jha, Sai Reddy, National Taipei University of Technology **17FD4-3** A Multiscale Simulation Study on Interfacial Crack of Dielectric in Hybrid Bonding Structure Xuanyu Ding[1], Yudong Yang[1,2], Chi Zhang[1,3], Hongchao Zhang[2], Fei Ding[2], Yu Zhang[2], Renxi Jin[2], Haibo Yang[2], Qiushi Kang[2], Lingyun Zhang[2], Qidong Wang[2], Wei Wang[1,3,4], Liqiang Cao[2], [1]School of Integrated Circuits,Peking University, [2]Institute of Microelectronics of the Chinese Academy of Sciences, [3]National Key Laboratory of Advanced Micro and Nano Manufacture Technology, [4]Beijing Advanced Innovation Centerfor Integrated Circuits **17FD4-5** Pre-heating influence on thermo-mechanical response of Ag-Au-Pd alloy fine wire during wire bonding process Pei-Chen Huang[1,2], Zhi-Lin Xie[1], Wei-Lun Kao[1], [1]National Chung Cheng University, [2]National Chung Cheng University	**17FE4: Optoelectronics** **17FE4-1** Reliability Evaluation of Copper Pin Package-on-Package Structures for Co-Packaged Optics Motoyuki Fukuhara, Tatsuaki Denda, Masaki Matsumoto, Futoshi Tsukada, Noritaka Katagiri, Shinko Electric Industries co., Ltd **17FE4-2** In-situ XPS Analysis of Hydroxyl Group Generation in Plasma Activation Technology Cheng Peng[1,2,3], Yihao Meng[1,2,3], Wenxuan Ma[1,2,3], Yetong Zhang[1,2,3], Siwei Sun[1,2], Renxi Jin[1,2,3], Qidong Wang[1,2], Liqiang Cao[1,2], [1]State Key Laboratory of Fabrication Technologies for Integrated Circuits, [2]Institute of Microelectronics of Chinese Academy of Sciences, [3]School of Integrated Circuits, the University of Chinese Academy of Sciences **17FE4-3** Thermal Analysis and Demonstration of Mirror-based Optical Redistribution Layer for Co-packaged Optics Fumi Nakamura, Satoshi Suda, Takayuki Kurosu, Akihiro Noriki, Takeru Amano, National Institute of Advanced Industrial Science and Technology(AIST) **17FE4-4** High-precision Passive Alignment for Multi-channel Optical Connections in Silicon Photonic Microtransceivers Michiyo Kubo, Shigeru Kobayashi, Koichi Takemura, Kazuhiko Kurata, AIO Core Co., Ltd.	**17FF4: Power Electronics-3** **17FF4-1** A Flip Chip Embedded PCB Power Module with Double Sided Cooling and Low Parasitic Inductance for Fine Pad Power Devices KAO CHE, Lin Han, Huang Cheng, Chiu Kai, Lin Ying, Lin Lung, Yeh Chan, Liu Hung, Ko Kuei, Industrial Technology Research Institute / Electronic and Optoelectronic System Research Laboratories **17FF4-2** Dynamic and Thermal Performance Evaluation of Three-Phase Full-Bridge Power Factor Correction Converters for On-Board Charger Applications Wen You Jhu[1], Hsien-Chie Cheng[2], Yan Cheng Liu[3], Tao Chih Chang[3], [1]Feng Chia University, [2]Feng Chia University, [3]Industrial Technology Research Institute **17FF4-3** Atmospheric Pressure Plasma Processes for Metal Oxide Reduction and Adhesion Improvement in Power Electronics Hisanori Miyoshi[1], Dhia Salem[2], Nico Coenen[2], Yaser Hamedi[2], Magnus Buske[2], Daphne Pappas[3], [1]Nihon Plasmatreat Inc., [2]Plasmatreat GmbH, [3]Plasmatreat USA **17FF4-4** A Power Semiconductor Chip Rework Technology Without Thermal and Mechanical Processes Junha Baik[1,2], Byeongchan Kim[1], Ha-Young Yu[1], Myoung-Gyu Lee[2], Dongjin Kim[1], [1]Korea Institute of industrial Technology (KITECH), [2]Seoul National University (SNU)