

# ICEP-IAAC 2018 Advance Program

## April 17 Tuesday

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|       | A                                                                                                                                                            |
| 13:30 | Global Business Council<br>“ <b>New Era of Automotive Electronics</b> ”                                                                                      |
|       | 1. <b>Automotive Design Based on Sensibility Study of Brain Activity [Provisional ]</b><br>Kazuo Nishikawa, Mazda Motor                                      |
|       | 2. <b>Automotive Electronics Evolves Automobile!?</b><br>Nobuaki Kawahara, DENSO                                                                             |
| 15:00 | 3. <b>SiC solutions for eMobility</b><br>Akifumi Enomoto, ROHM Semiconductor                                                                                 |
|       | Break                                                                                                                                                        |
| 15:15 | 4. <b>Integrated Intelligent Transportation &amp; Key Enablers</b><br>Dwight Howard, Delphi Automotive Systems                                               |
|       | 5. <b>Artificial Intelligence and Automotive Manufacturing</b><br>Bill Cardoso, Creative Electron                                                            |
|       | 6. <b>Automotive Electronics are Driving Innovation<br/>in Electronic Materials, Processes and Packaging Technologies</b><br>Rozalia Beica, The Dow Chemical |
| 17:15 | 7. <b>What 2D and 3D (CT) X-Ray Inspection Now Provides<br/>for Electronics in Automotive Environments</b><br>David Bernard, David Bernard Consultancy       |
| 17:45 | Party                                                                                                                                                        |
| 19:15 |                                                                                                                                                              |

## April 18 Wednesday

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|       | A                                                                                                                                       |
| 10:00 | Opening                                                                                                                                 |
| 10:20 |                                                                                                                                         |
| 10:20 | Keynote Lecture<br><b>Future Prospect for Semiconductor Technologies Supporting Automotive<br/>“Intelligence” and “Electrification”</b> |
| 11:20 | Kiminori Hamada, Toyota Motor                                                                                                           |
| 11:20 | Keynote Lecture<br><b>Challenges and Opportunities in Gen3 Embedded Cooling with High Quality Microgap Flow</b>                         |
| 12:20 | Avram Bar-Cohen, Raytheon                                                                                                               |
| 12:20 | Lunch Time                                                                                                                              |
| 13:30 |                                                                                                                                         |
| 13:30 | Greeting                                                                                                                                |
| 13:35 |                                                                                                                                         |
| 13:35 | Ceremony                                                                                                                                |
| 14:10 |                                                                                                                                         |
| 14:10 | Keynote Lecture<br><b>A New Neurofeedback Based Cognitive Training with Ultra-small NIRs System</b>                                     |
| 15:10 | Ryuta Kawashima, Tohoku University                                                                                                      |
| 15:10 | Poster Session / Break                                                                                                                  |
| 16:10 |                                                                                                                                         |
| 16:10 | Keynote Lecture<br><b>Magnetism and Superconductivity</b>                                                                               |
| 17:10 | Kazuyoshi Yoshimura, Kyoto University                                                                                                   |
| 17:10 |                                                                                                                                         |

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|       | <div> <div>Keynote Lecture</div> <div> <div>Current Status and Trends of IC Packaging in China</div> <div>Tianchun Ye, Institute of Microelectronics of Chinese Academy of Sciences</div> </div> </div> |
| 18:10 |                                                                                                                                                                                                         |
| 18:10 | <div> <div>Introduction of Future Events</div> </div>                                                                                                                                                   |
| 18:20 |                                                                                                                                                                                                         |
| 18:30 | <div> <div>Welcome Reception</div> <div>Hotel Hanamizuki</div> </div>                                                                                                                                   |
| 20:30 |                                                                                                                                                                                                         |

## April 19 Thursday

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| 9:00  | <div> <div>TA1: Korea Session-1</div> <div>TA1-1 &lt;Session Invited&gt;</div> <div>Multiple Plasma System for Panel Level Package</div> <div>Gusung Kim, Kangnam University / Korea</div> </div> <div> <div>TA1-2 &lt;Session Invited&gt;</div> <div>PCB Material Property Effects on PBGA Reliability</div> <div>Yeong K. Kim<sup>1</sup>, Dong Yeong Kim<sup>1</sup>, Hyun Soo Park<sup>1</sup>, Do Soon Hwang<sup>2</sup>, Young Sik Boo<sup>3</sup>, <sup>1</sup>Inha University, <sup>2</sup>Korea Aerospace Research Institute, <sup>3</sup>Korea Aerospace Industries / Korea</div> </div> <div> <div>TA1-3 &lt;Session Invited&gt;</div> <div>Intermetallic Compound Formation and Mechanical Property of Sn-Cu-xCr/Cu Lead-free Solder Join</div> <div>Junghwan Bang<sup>1</sup>, Dong-Yurl Yu<sup>1</sup>, Yong-Ho Ko<sup>1</sup>, Sehoon Yoo<sup>1</sup>, Hiroshi Nishikawa<sup>2</sup>, Chang-Woo Lee<sup>1</sup>, <sup>1</sup>Institute of Industrial Technology / Korea, <sup>2</sup>Osaka University / Japan</div> </div> <div> <div>TA1-4 &lt;Session Invited&gt;</div> <div>Electrochemical Etching Behavior of Copper and Invar for Metal Core PCB Application</div> <div>Jae-Ho Lee, Yongsu Lee, Hongik University</div> </div> | <div> <div>TB1: Advanced Packaging-1</div> <div>TB1-1 &lt;Session Invited&gt;</div> <div>3D IPD</div> <div>Teck Lee, ASE Group / Taiwan</div> </div> <div> <div>TB1-2</div> <div>Development of the Integrated Passive Device using Through-Glass-Via substrate</div> <div>Jun Onohara<sup>1</sup>, Fusao Takagi<sup>1</sup>, Takashi Kizu<sup>1</sup>, Koji Imayoshi<sup>1</sup>, Hironori Nomura<sup>1</sup>, Hobie Yun<sup>2</sup>, <sup>1</sup>Toppa Printing / Japan, <sup>2</sup>Qualcomm Technologies / USA</div> </div> <div> <div>TB1-3</div> <div>Wafer Level 3D Stacked Technology Solution for Future IoT Devices.</div> <div>Takahide Murayama, Toshiyuki Sakuishi, Akiyoshi Suzuki, Yasuhiro Morikawa, ULVAC / Japan</div> </div> <div> <div>TB1-4</div> <div>Application-oriented Wear-leveling Optimization of 3D TSV-integrated Storage Class Memory-based Solid State Drives</div> <div>Masaru Nakanishi, Yutaka Adachi, Chihiro Matsui, Yusuke Sugiyama, Ken Takeuchi, Chuo University / Japan</div> </div> | <div> <div>TC1: Materials and Processes: plating tech</div> <div>TC1-1</div> <div>Effects of Plating Conditions on Electroless Ni-P Plating in the Microchannel</div> <div>Ching-Yun Yang, Han-Tang Hung, C. Robert Kao, National Taiwan Unicersity / Taiwan</div> </div> <div> <div>TC1-2</div> <div>Effect on Film Properties by Phosphorus and Sulfur Content Rate in Electroless Ni-P Plating Films</div> <div>Norihiko Hasegawa, Kei Hashizume, Junichi Katayama, Okuno Chemical Industries / Japan</div> </div> <div> <div>TC1-3</div> <div>Insulation Reliability of Electric Circuit Fabricated with Nano-Silver Plating Catalyst</div> <div>Norimasa Fukazawa, Wataru Fujikawa, Yoshinari Santou, Jun Shirakami, DIC / Japan</div> </div> <div> <div>TC1-4</div> <div>Bonding of Copper Pillars using Electroless Au Plating</div> <div>I-An Weng, Han-Tang Hung, Sean Yang, Ying-Hsuan Chen, C. Robert Kao, National TaiwanUniversity / Taiwan</div> </div> | <div> <div>TD1: Medical &amp; Healthcare-1</div> <div>TD1-1 &lt;Session Invited&gt;</div> <div>Wearables and Implantables : How technology transforms health care--and how health care transforms the technology business</div> <div>Matthew K. Hudes, bdlBilologx / USA</div> </div> <div> <div>TD1-2 &lt;Session Invited&gt;</div> <div>Non-invasive Biosensing Devices for Preemptive Medicine</div> <div>Kohji Mitsubayashi, Tokyo Medical and Dental University / Japan</div> </div> <div> <div>TD1-3</div> <div>Practical Realization of Enfold Connecting System of Artificial Blood Vessel for Simplifying Maintenance Surgery</div> <div>Evaluation of Thrombus Formation and Blood Coagulation Capasity</div> <div>Ai Watanabe<sup>1</sup>, Takashi Ota<sup>1</sup>, Y. Kanno<sup>2</sup>, Norihisa Miki<sup>1</sup>, <sup>1</sup>Keio university, <sup>2</sup>Tokyo Medical University / Japan</div> </div> <div> <div>TD1-4</div> <div>Development of Multi-lead ECG Measurement Wear using Electrostatic Flocking Technology</div> <div>Toshihiro Takeshita<sup>1</sup>, Manabu Yoshida<sup>1</sup>, Atsushi Ouchi<sup>1</sup>, Akinari Hinoki<sup>2</sup>, Hiroo Uchida<sup>2</sup>, Takeshi Kobayashi<sup>1</sup>, <sup>1</sup>National Institute of Advanced Industrial Science and Technology, <sup>2</sup>Nagoya University / Japan</div> </div> | <div> <div>TE1: Design, Process and Reliability-1</div> <div>TE1-1</div> <div>Evaluation of the Effect of Cu Metalized on Raman Spectroscopy</div> <div>Kiyoshi Hiraoka, Y. Miyazaki<sup>1</sup>, Y. Iwakiri<sup>2</sup>, <sup>1</sup>National Institute of Advanced Industrial Science and Technology, Japan</div> </div> <div> <div>TE1-2</div> <div>Electric Current Induced Deformation of Cu Interconnects</div> <div>Yu-chen Liu, S. Kung University / Taiwan</div> </div> <div> <div>TE1-3</div> <div>High Spatial-Resolution Imaging by Pixelated Solder</div> <div>Sho Miyao, Takashi Fujioka, Izumi Haruhito Kodama, Shigeta, Toray</div> </div> <div> <div>TE1-4</div> <div>Investigation of Accelerated Life Testing</div> <div>Raphael Pihet, Yuichi Aoki, E</div> </div> |
| 10:40 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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|        | Break                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                              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| >10:50 | <div> <div>TA2: Korea Session-2</div> <div>TA2-1 &lt;Session Invited&gt;</div> <div>Fabrication of Ag Nano Composite Paste and Its Characteristics</div> <div>Seung-Boo Jung<sup>1</sup>, Bum-Geun Park<sup>1</sup>, Kwang-Seok Kim<sup>2</sup>, Daeup Kim<sup>2</sup>, <sup>1</sup>Sungkyunkwan University, <sup>2</sup>Korea Institute of Industrial Technology / Korea</div> </div> <div> <div>TA2-2 &lt;Session Invited&gt;</div> <div>Aerogels for Interlayer Low Dielectric of Semiconductor Devices</div> <div>Hyung-Ho Park, Kyu-Yeon Lee, Tae-Hee Kim, Haryeong Choi, Yonsei University / Korea</div> </div> <div> <div>TA2-3 &lt;Session Invited&gt;</div> <div>Strategies for Improving Mechanically Reliability of Thin-Film Flexible Electronics</div> <div>Taek-Soo Kim, Korea Advanced Institute of Science and Technology / Korea</div> </div> | <div> <div>TB2:Advanced Packaging-2</div> <div>TB2-1</div> <div>Study on Silicon Device of Microrobot System for Heterogeneous Integration</div> <div>Ken Saito<sup>1,2</sup>, Daniel S. Contreras<sup>2</sup>, Yudai Takeshiro<sup>3</sup>, Yuki Okamoto<sup>3</sup>, Yuya Nakata<sup>1</sup>, Taisuke Tanaka<sup>1</sup>, Satoshi Kawamura<sup>1</sup>, Taisuke Tanaka<sup>1</sup>, Minami Kaneko<sup>1</sup>, Fumio Uchikoba<sup>1</sup>, Yoshio Mita<sup>3</sup>, Kristofer S. J. Pister<sup>2</sup>, <sup>1</sup>Nihon University / Japan, <sup>2</sup>University of California / USA, <sup>3</sup>The University of Tokyo / Japan</div> </div> <div> <div>TB2-2</div> <div>Ultra-Slim Package Design for Millimeter Wave Application</div> <div>Ming-Fong Jhong<sup>1</sup>, Chung-Hsiung Ho<sup>2</sup>, Wen-Hsuan Lin<sup>2</sup>, Chih-Yi Huang<sup>1</sup>, Po-Chih Pan<sup>1</sup>, Chen-Chao Wang<sup>1</sup>, <sup>1</sup>Advanced Semiconductor Engineering, <sup>2</sup>NXP Semiconductors / Taiwan</div> </div> <div> <div>TB2-3</div> <div>Novel Plating Photoresist Development for Advanced Packaging</div> <div>Rui Li, Tomoyuki Matsumoto, Takuhiro Taniguchi, Naoki Nishiguchi, Akito Hiro, Hirokazu Sakakibara, Koichi Hasegawa, JSR / Japan</div> </div> <div> <div>TB2-4</div> <div>Laser Micro-machining of LPM Compound Material for Panel and IC Packaging</div> </div> | <div> <div>TC2: Materials and Processes: solder materials</div> <div>TC2-1</div> <div>Considerations on Selection of Alloying Elements for Designing Sn-based Solder Alloys by the Molecular Orbital Method</div> <div>Wataru Takahara, Osaka University / Japan</div> </div> <div> <div>TC2-2</div> <div>Effect of Reflow Conditions on the Intermetallic Layer in Solder Joints</div> <div>Kazuhiro Nogita<sup>1</sup>, Flora Somidin<sup>1,2</sup>, Arif Salleh<sup>1,2</sup>, Keith Sweatman<sup>3</sup>, Tetsuro Nishimura<sup>3</sup>, Stuart McDonald<sup>1</sup>, Hiroshi Maeno<sup>4</sup>, Syo Matsumura<sup>4</sup>, <sup>1</sup>The University of Queensland / Australia, <sup>2</sup>Universiti Malaysia Perlis / Malaysia, <sup>3</sup>Nihon Superior, <sup>4</sup>Kyushu University / Japan</div> </div> <div> <div>TC2-3</div> <div>Investigation of the Interfacial Reactions and Mechanical Strength in the Sn-Ag-Cu (SAC)/ Cu-Be Alloy (Alloy25) Couple</div> <div>Jing-Shiun Chang, Yee-Wen Yen, National Taiwan University of Science and Technology / Taiwan</div> </div> <div> <div>TC2-4</div> <div>Solder Electromigration Failure Time as a Function of the Angle Between the c-axis of Sn Crystals and Direction of Electron Flow</div> <div>Tsubasa Sakai, Eishi Watanabe, Tsubasa Sei, Kimihiro Yamanaka, Chukyo University / Japan</div> </div> | <div> <div>TD2: Emerging Technologies-1</div> <div>TD2-1 &lt;Session Invited&gt;</div> <div>On-demand Full Additive Manufacturing of Electoronic Devices applying Inkjet Technology</div> <div>Ryojiro Tominaga, Takeshi Sato, Kenji Tsukada, Akihiro Kawajiri, Katsuaki Makihara, Yoshitaka Hashimoto, Shigeyoshi Inagaki, FUJI Machine Mfg. / Japan</div> </div> <div> <div>TD2-2&lt;Session Invited&gt;</div> <div>Advanced FPGA Technology Trend based on Patent Analysis with Link Mining</div> <div>Masashi Shibata, Yuichi Ohtsuka, Masakazu Takahashi, Kazuya Okamoto, Yamaguchi University / Japan</div> </div> <div> <div>TD2-3</div> <div>Deep Learning Consideration with Novel Approach: look-up-table based processing conjugated memory</div> <div>Kanji Otsuka, Yoichi Sato, Meisei University / Japan</div> </div> <div> <div>TD2-4</div> <div>A Study on Application of Artificial Intelligence (AI) for Cosmetics: Quantum computer is necessary for Beauty-field analysis</div> <div>Yasuo Kato, SHISEIDO / Japan</div> </div> | <div> <div>TE2: Design, Process and Reliability-1</div> <div>TE2-1</div> <div>Optimization of 0.7Cu-xNi-yB Interconnects</div> <div>Sergey Belyakov, Tetsuya Akaishi, Nogita<sup>3</sup>, Christopher College London, Japan, <sup>3</sup>Univer</div> </div> <div> <div>TE2-2</div> <div>Analysis of the Initiation in S LEDs</div> <div>Ping Xu<sup>1</sup>, Ron Michael Kalou<sup>1</sup>University of Deutschland, <sup>2</sup>Aschaffenburg</div> </div> <div> <div>TE2-3</div> <div>Creep Mechanism Orientation of Nanoindentation</div> <div>Po-Jung Chian, C. Robert Kao, Taiwan</div> </div> <div> <div>TE2-4</div> <div>The Failure Mechanism of Ag-Cu Solder Tests</div> <div>Ting Chun Lin</div> </div> |

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| 12:30 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Wen-Fei Lin <sup>1</sup> , Shih-Jeh Wu <sup>1</sup> , Hsiang-Chen Hsu <sup>1,2</sup> , Boen Houng <sup>1</sup> , Min-Shuo Chen <sup>1</sup> , <sup>1</sup> I-Shou University, <sup>2</sup> St. John’s University / Taiwan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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                                                                                     | Lee <sup>1</sup> , Ming H Kwang Lung M Engineering, <sup>2</sup> University / Ta                                                                                                                                                                                                                                                                                                                                                          |
|       | Lunch Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 13:30 | <p>TA3: Taiwan Session</p> <p>TA3-1 <b>&lt;Session Invited&gt;</b></p> <p><b>Sintered Silver-Indium Bonding with Anti-oxidation Property for High Temperature Applications</b></p> <p>C Robert Kao, C A Yang, National Taiwan University / Taiwan</p> <p>TA3-2 <b>&lt;Session Invited&gt;</b></p> <p><b>Thermal Strategy for 2.5D IC High Power Application</b></p> <p>Tang-Yuan Chen, Jin-Feng Yang, Meng-Kai, Shih, David Tarng, Chih-Pin Huang, Advanced Semiconductor Engineering / Taiwan</p> <p>TA3-3 <b>&lt;Session Invited&gt;</b></p> <p><b>Low Temperature Bonding Technology for 3D Integration and Advanced Packaging</b></p> <p>Kuan-Neng Chen, National Chiao Tung University / Taiwan</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>TB3: Advanced Packaging-3</p> <p>TB3-1</p> <p><b>Effect of Substrate Surface Finish on Bonding Strength of Pressure-less Sintered Silver Die-attach</b></p> <p>Meiyu Wang<sup>1,2</sup>, Yunhui Mei<sup>1</sup>, Rolando Burgos<sup>2</sup>, Dushan Boroyevich<sup>2</sup>, Guo-Quan Lu<sup>1,2</sup>, <sup>1</sup>Tianjin University / China, <sup>2</sup>Virginia Tech / USA</p> <p>TB3-2</p> <p><b>Ag Joint Bonding Technology for Bare Copper Substrate in Low Temperature, Pressureless and Air Condition</b></p> <p>Zheng Zhang, Chuantong Chen, Hao Zhang, Shijo Nagao, Katsuaki Suganuma, Osaka University / Japan</p> <p>TB3-3</p> <p><b>Interfacial Reactions between Sn and Au-xCu Alloys</b></p> <p>Chih-Hung Lin, Chia-Yi Yeh, Yee-Wen Yen, National Taiwan University of Science and Technology / Taiwan</p>                                                                                                                                                                                                                               | <p>TC3: Materials and Processes: micro / nano silver relating tech</p> <p>TC3-1</p> <p><b>Sprayable Silver Paste with Good Shielding Characteristics in the High Frequency Band</b></p> <p>Takashi Sakamoto, Daisuke Hashimoto, Namics / Japan</p> <p>TC3-2</p> <p><b>Ultra-fine Patterning Technology by Utilizing Nano-silver Catalysts in MSAP</b></p> <p>Yuhei Kitahara, Joonhaeng Kang, Okuno Chemical Industries / Japan</p> <p>TC3-3</p> <p><b>Effect of Pre-annealing of Au Metallization Structure on the Bonding Performance with Low Temperature Pressureless Sintering Ag</b></p> <p>Chuantong Chen<sup>1</sup>, Zheng Zhang<sup>1</sup>, Shijo Nagao<sup>1</sup>, Katsuaki Suganuma<sup>1</sup>, Tomohito Iwashige<sup>2</sup>, Kazuhiko Sugiura<sup>2</sup>, Kazuhiro Tsuruta<sup>2</sup>, <sup>1</sup>Osaka University, <sup>2</sup>Denso / Japan</p> <p>TC3-4</p> <p><b>Sintering Mechanism of Micron/submicron-size Silver Particles</b></p> <p>Jeyun Yeom, Cai-Fu Li, Katsuaki Suganuma, Osaka University/ Japan</p>                                                                                                                                                                                                                                            | <p>TD3: High-Speed, Wireless &amp; Components-1</p> <p>TD3-1 <b>&lt;Session Invited&gt;</b> (50min.)</p> <p><b>High Speed Vertical Interconnect Analysis for Dense Pin Assignment Optimization using Electromagnetic Multiple Scattering Techniques</b></p> <p>Boping Wu, Huawei Technologies / China</p> <p>TD3-2</p> <p><b>43 % Reduced Program Time, 23 % Energy Efficient ReRAM Boost Converter with PMOS Switching Transistor and Boosted Buffer Circuit for ReRAM and NAND Flash Hybrid SSDs</b></p> <p>Kenta Suzuki, Masahiro Tanaka, Kota Tsurumi, Ken Takeuchi, Chuo University / Japan</p> <p>TD3-3</p> <p><b>Design of Transmission Line with Impedance Resonator for Negative Group Delay and Slope Characteristics by Preference Set-based Design Method</b></p> <p>Yoshiki Kayano, Yoshio Kami, Haruo Ishikawa, Fengchao Xiao, Hiroshi Inoue, The University of Electro-Communications / Japan</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>TE3: Battery M</p> <p>TE3-1</p> <p><b>Multilayer Co Battery</b></p> <p>Tomohiko Kor Japan</p> <p>TE3-2</p> <p><b>Synthesize of 3D Nano-stru for Sodium Io</b></p> <p>Naoki Okamoto Morita, Takey University / Ja</p> <p>TE3-3</p> <p><b>Handling of C Substrates fo</b></p> <p>Messaoud Bec Poulet, Nicola Université Gre</p> <p>TE3-4</p> <p><b>Evaluating M Electrolyte M</b></p> <p>Akira Ueno, T Takakura, Gue University / Ja</p> |
|       | Poster Session / Break                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| 16:10 | <p>TA4: iNEMI Session</p> <p>TA4-1 <b>&lt;Session Invited&gt;</b></p> <p><b>iNEMI Project Overview: characterize and quantify the production inspection capability of AXI for HiP defects</b></p> <p>Ayman Fayed, Intel / USA</p> <p>TA4-2</p> <p><b>SiP Module Mold Flowability Experiment Result and Simulation Study</b></p> <p>Yonghyuk Jeong<sup>1</sup>, Billy Ahn<sup>1</sup>, Jim Hsu<sup>2</sup>, Anthony Yang<sup>2</sup>, Tetsuya Koyama<sup>3</sup>, Kiyoshi Oi<sup>3</sup>, Jeffrey Lee<sup>4</sup>, Takahiro Horie<sup>5</sup>, Masahiro Tsuriya<sup>6</sup>, <sup>1</sup>STATSChipPAC / Korea, <sup>2</sup>CoreTech System (Moldex3D) / Taiwan, <sup>3</sup>Shinko Electric Industries / Japan, <sup>4</sup>Integrated Service Technology / Taiwan, <sup>5</sup>Hitachi Chemical, <sup>6</sup>iNEMI / Japan</p> <p>TA4-3</p> <p><b>SiP Module Warpage Characterization and Simulation Study</b></p> <p>Jim Hsu<sup>1</sup>, Anthony Yang<sup>1</sup>, Yonghyuk Jeong<sup>2</sup>, Billy Ahn<sup>2</sup>, Tetsuya Koyama<sup>3</sup>, Kiyoshi Oi<sup>3</sup>, Jeffrey Lee<sup>4</sup>, Takahiro Horie<sup>5</sup>, Masahiro Tsuriya<sup>7</sup>, <sup>1</sup>CoreTech System (Moldex3D) / Taiwan, <sup>2</sup>STATSChipPAC / Korea, <sup>3</sup>Shinko Electric Industries / Japan, <sup>4</sup>Integrated Service Technology / Taiwan, <sup>5</sup>Hitachi Chemical, <sup>6</sup>iNEMI / Japan</p> <p>TA4-4</p> <p><b>iNEMI Project on Process Development of BiSn-Based Low Temperature Solder Pastes - Part III: mechanical shock tests on PoP BGA assemblies</b></p> <p>Haley Fu<sup>1</sup>, Jagadeesh Radhakrishnan<sup>2</sup>, Morgana Ribas<sup>3</sup>, Raiyo Aspandiar<sup>2</sup>, Kevin Byrd<sup>2</sup>, Jimmy Chen<sup>4</sup>, Shunfeng Cheng<sup>2</sup>, Qin Chen<sup>5</sup>, Richard Coyle<sup>6</sup>, Sophia Feng<sup>7</sup>, Mark Krmpotich<sup>8</sup>, Scott Mokler<sup>2</sup>, Brook Sandy-Smith<sup>9</sup>, Kok Kwan Tang<sup>10</sup>, Greg Wu<sup>11</sup>, Anny Zhang<sup>9</sup>, Wilson Zhen<sup>12</sup></p> <p><sup>1</sup>iNEMI / China, <sup>2</sup>Intel / USA, <sup>3</sup>Alpha Assembly Solutions / India, <sup>4</sup>Flex / China, <sup>5</sup>Eunow / China, <sup>6</sup>Nokia / US, <sup>7</sup>Celestica / China, <sup>8</sup>Microsoft / USA, <sup>9</sup>Indium / USA,</p> | <p>TB4: Materials for Organic Semiconductor Devices</p> <p>TB4-1</p> <p><b>Printable Electronic Circuits Based on Metal Nanoparticles and Organic Semiconductors</b></p> <p>Takeo Minari<sup>1</sup>, Xuying Liu<sup>1</sup>, Masayuki Kanehara<sup>2</sup>, <sup>1</sup>NIMS, <sup>2</sup>C-INK / Japan</p> <p>TB4-2 <b>&lt;Session Invited&gt;</b></p> <p><b>Key Factor of Conductive Nanoink Design for High Performance Printed Devices</b></p> <p>Masayuki Kanehara, C-INK / Japan</p> <p>TB4-3 <b>&lt;Session Invited&gt;</b></p> <p><b>High-yield Flexible Organic Complementary Circuits Integrated with Sensors</b></p> <p>Mayumi Uno, Osaka Research Institute of Science and Technology / Japan</p> <p>TB4-4</p> <p><b>Design and Fabrication of Photo-sensitive Thin-film Transistors with IGZO and Organic Photo-absorber</b></p> <p>Zhaogui Wang<sup>1</sup>, Yongfeng Zheng<sup>1</sup>, Xuhong Cao<sup>1</sup>, Hang Zhou<sup>2</sup>, Chuan Liu<sup>1</sup>, <sup>1</sup>Sun Yat-sen University, <sup>2</sup>Peking University / China</p> | <p>TC4: Materials and Processes: thermal solution</p> <p>TC4-1</p> <p><b>Extreme Low Interfacial Thermal Resistance Heat Conductive Sheet</b></p> <p>Masao Tomikawa, Akira Shimada, Toray Industries / Japan</p> <p>TC4-2</p> <p><b>Development of Low Temperature Solder Alloys for Advanced Electronic Packaging - assessment of In-Bi alloys on Cu substrates</b></p> <p>Albert T. Wu<sup>1</sup>, Chih-Hao Chen<sup>1</sup>, Jyun-Jhe Huang<sup>1</sup>, Jeng-Yu Chiang<sup>1</sup>, Chang-Meng Wang<sup>2</sup>, <sup>1</sup>National Central University, <sup>2</sup>SHENMAO Technology / Taiwan</p> <p>TC4-3</p> <p><b>Measurement of Thermal and Electrical Contact Resistance Between Conductive Materials</b></p> <p>Yoshiki Hyodo<sup>1</sup>, Tomoyuki Hatakeyama<sup>1</sup>, Risako Kibushi<sup>2</sup>, Masaru Ishizuka<sup>1</sup>, <sup>1</sup>Toyama Prefectural University, <sup>2</sup>Tokyo University of Science Yamaguchi / Japan</p> <p>TC4-4</p> <p><b>Process Evaluation of Pyramidal and Cone-shaped Nanoparticle Deposition (NPD) Bumps using a Thermally Resistant Resist</b></p> <p>Ying Ying Lim, Masaru Hashino, Hiroshi Nakagawa, Masahiro Aoyagi, Katsuya Kikuchi, National Institute of Advanced Industrial Science and Technology / Japan</p> | <p>TD4: High-Speed, Wireless &amp; Components-2</p> <p>TD4-1</p> <p><b>Antenna on Glass for 60GHz WiGig Application</b></p> <p>Ching Kuan Lee<sup>1</sup>,Yung Jean (Rachel) Lu<sup>2</sup>, Hsiang-Hung Chang<sup>1</sup>, Li-Chi Chang<sup>1</sup>, Chang-Sheng Chen<sup>1</sup>, <sup>1</sup>Industrial Technology Research Institute, <sup>2</sup>Corning / Taiwan</p> <p>TD4-2</p> <p><b>Design and Demonstration of Ultra-thin 3D Glass-based 5G Modules with Low-loss Interconnections</b></p> <p>Atom O. Watanabe<sup>1</sup>, Tong-Hong Lin<sup>1</sup>, Tomonori Ogawa<sup>2</sup>, P. Markondeya Raj<sup>1</sup>, Venkatesh Sundaram<sup>1</sup>, Manos M. Tentzeris<sup>1</sup>, Rao R. Tummala<sup>1</sup>, <sup>1</sup>Georgia Institute of Technology / USA, <sup>2</sup>Asahi Glass / Japan</p> <p>TD4-3</p> <p><b>Experimental Study of Through Glass Via Effects on High Frequency Electrical Characteristics</b></p> <p>Masaya Tanaka<sup>1</sup>, Yumi Okazaki<sup>1</sup>, Junichi Suyama<sup>1</sup>, Satoru Kuramochi<sup>1</sup>, Youggun Han<sup>2</sup>, Osamu Horiuchi<sup>2</sup>, Yoshihisa Kato<sup>2</sup>, <sup>1</sup>Dai Nippon Printing, <sup>2</sup>Fukuoka University / Japan</p> <p>TD4-4</p> <p><b>Experimental Investigation of Wireless Energy Harvesting with a Bluetooth Low Energy Sensing Unit</b></p> <p>Mohamed M. Mansour<sup>1,4</sup>, Osamu Takiguchi<sup>2</sup>, Takayuki Inoi<sup>3</sup>, Haruichi Kanaya<sup>1</sup>, <sup>1</sup>Kyushu University, <sup>2</sup>ALSENSE, <sup>3</sup>Yamagata University / Japan, <sup>4</sup>Electronics Research Institute / Egypt</p> | <p>TE4: Tomoka</p> <p>TE4-1 <b>&lt;Sessio</b></p> <p><b>Updated Stat Packaging &amp;</b></p> <p>Tanja Braun, F Germany</p> <p>TE4-2 <b>&lt;Sessio</b></p> <p><b>Printing in th</b></p> <p>Charles E. Ba</p> <p>TE4-3 <b>&lt;Sessio</b></p> <p><b>Updated R&amp;I Technology in</b></p> <p>Yoshihisa Kat</p> <p>TE4-4 <b>&lt;Sessio</b></p> <p><b>Future Activi Technology in</b></p> <p>Hisao Kasuga, Research ASSO</p>                   |

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|       | <sup>10</sup> Intel / Malaysia, <sup>11</sup> Wistron / Taiwan, <sup>12</sup> Lenovo / China |  |  |  |  |
| 17:50 |                                                                                              |  |  |  |  |

April 20 Friday

|       | A                                                                                                                                                                                                                                                                                                                                                                                                    | B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| 9:00  | FA1: Yole Development Session<br>FA1-1 <b>&lt;Session Invited&gt;</b> (50min.)<br><b>Advanced Packaging : a very dynamic ecosystem</b><br>Santosh Kumar, Yole Developpement / France<br><br>FA1-2 <b>&lt;Session Invited&gt;</b> (50min.)<br><b>Fan-out Packaging : technologies &amp; market trend</b><br>Jerome Azemar, Yole Developpement / France                                                | FB1: Emerging Technologies-2<br>FB1-1<br><b>Surface Activated Bonding of Au/Ta Layers after Degas Annealing for MEMS Packaging</b><br>Takashi Matsumae, Yuichi Kurashima, Eiji Higurashi, Hideki Takagi, National Institute of Advanced Industrial Science and Technology / Japan<br><br>FB1-2<br><b>Direct Metallic Bonding Assisted by Electromagnetic Irradiations</b><br>Yi-You Yu <sup>1</sup> , Sin-Yong Liang <sup>1</sup> , Jenn-Ming Song <sup>1</sup> , Shang-Kun Huang <sup>2</sup> , Ying-Ta Chiu <sup>2</sup> , David Tarn <sup>2</sup> , Chih-Pin Hung <sup>2</sup> , <sup>1</sup> National Chung Hsing University, <sup>2</sup> Advanced Semiconductor Engineering / Taiwan<br><br>FB1-3<br><b>Study on 3D Self-aligned Assembly Using Chips with Etched Edge and SAM for Liquid Confinement</b><br>Yong Liu <sup>1,2,3</sup> , Jaber Derakhshandeh <sup>1</sup> , Yao Gao <sup>3</sup> , Kenneth June Rebibis <sup>1</sup> , Ingrid De Wolf <sup>1,3</sup> , Pei Li <sup>2</sup> , <sup>1</sup> IMEC / Belgium, <sup>2</sup> East China Research Institute of Electronic Engineering / China, <sup>3</sup> KULeuven / Belgium | FC1: Materials and Processes: emerging technology<br>FC1-1<br><b>Optimum Rotation Angle for Mitigating Differential Skew Induced by Glass Cloth in PCB</b><br>Chenyu Wang, Kengo Iokibe, Yoshitaka Toyota, Okayama University / Japan<br><br>FC1-2<br><b>Highly Sensitive Wearable Strain Sensors Using Copper Nanowires and Elastomers</b><br>Chunrui Liu, Songjia Han, Zunming Du, Yiqun Liu, Chuan Liu, Sun Yat-sen University / China<br><br>FC1-3<br><b>A Study on Mechanical Properties of Thinned Single Crystal Silicon Wafer: effect of size and direction</b><br>Sangmin Lee <sup>1</sup> , Jae-Han Kim <sup>2</sup> , Takyuki Ohba <sup>3</sup> , Young Suk Kim <sup>3,4</sup> , Taek-Soo Kim <sup>1</sup> , <sup>1</sup> Korea Advanced Institute of Science and Technology, <sup>2</sup> Korea Atomic Energy Research Institute / Korea, <sup>3</sup> Tokyo Institute of Technology, <sup>4</sup> DISCO / Japan<br><br>FC1-4<br><b>Bonded Strength and Reliability under High Temperature and Humid Environment for Silver Alloy Bonding Wire</b><br>Jun Cao <sup>1,2</sup> , Han Hua <sup>1</sup> , <sup>1</sup> HeNan Polytechnic University, <sup>2</sup> HeNan YOUK Electronic Material / China | FD1: Interconnection<br>FD1-1<br><b>Ga-based Submicron Particle and Applications</b><br>Hseng-ming Liao, Che-yu Yeh, Shih-kang Lin, National Cheng Kung University / Taiwan<br><br>FD1-2<br><b>Introduction of Sub-2-micron Cu Traces to EnCoRe Enhanced Copper Redistribution Layers for Heterogeneous Chip Integration</b><br>Hiroshi Kudo, Yuuki Aritsuka, Tanaka Masaya, Ryohei Kasai, Jyunichi Suyama, Mitsuhiro Takeda, Yumi Okazaki, Haruo Iida, Daisuke Kitayama, Kouji Sakamoto, Takamasa Takano, Miyuki Akazawa, Hiroaki Sato, Shouhei Yamada, Satoru Kuramochi, DNP / Japan<br><br>FD1-3<br><b>Photonic-sintering of Submicron/nano Silver Particles with Low Density Irradiations</b><br>Po-Hsiang Chiu, Guo-Lun Huang, Jenn-Ming Song, National Chung Hsing University / Taiwan<br><br>FD1-4<br><b>Mechanical Properties of Sn-Bi-In-Ga Low Melting Temperature Solder Alloys</b><br>Chih-han Yang <sup>1</sup> , Shiqi Zhou <sup>2</sup> , Hiroshi Nishikawa <sup>2</sup> , Shih-kang Lin <sup>1</sup> , <sup>1</sup> National Cheng Kung University / Taiwan, <sup>2</sup> Osaka University / Japan | FE1: Thermal<br>FE1-1<br><b>Study on Moving Heat Fronts for Efficient Cooling of Electronics</b><br>Omar Lamini, Jiao Tong University / China<br><br>FE1-2<br><b>Advanced Bonding Technology for High Power Using a Composite Die</b><br>Noriyuki Unno, Kibushi <sup>1</sup> , Kohei Ueda <sup>1</sup> , of Science and Technology / Japan<br><br>FE1-3<br><b>Conjugate Heat Transfer in Liquid Cooling Software</b><br>Thomas Schiavone, Iida <sup>1</sup> , Miho Sekine, Shinji Nakagawa, University of Japan / France<br><br>FE1-4<br><b>Relationship between Thermal and Cooling Performance of Thin Enclosures</b><br>Shun Yonezuka, Kikuchi <sup>1</sup> , Kouji Wang <sup>1</sup> , Wakanishi, Chiaki Sakaki, Japan                                    |
| 10:40 |                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|       | <b>Break</b>                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 10:50 | FA2: Fan-Out Packaging Technology-1<br>FA2-1 <b>&lt;Session Invited&gt;</b> (50min.)<br><b>Markets and Applications for FO-WLP</b><br>Jan Vardaman, TechSearch International / USA<br><br>FA2-2 <b>&lt;Session Invited&gt;</b><br><b>Panel RDL Substrate for Next Generation Substrate Manufacturing</b><br>Yu-Hua Chen, Cheng-Ta Ko, Puru Bruce Lin, Tzzy-Jang Tseng, Unimicron Technology / Taiwan | FB2: Emerging Technologies-3<br>FB2-1<br><b>Fabrication of Microchannel-TEM Grid for in situ Liquid Observation of Interfacial Chemical Reaction</b><br>Keito Miwa, Hiroyuki Kuwae, Kosuke Sakamoto, Shuichi Shoji, Jun Mizuno, Waseda University / Japan<br><br>FB2-2<br><b>High Density Flex-Cable and Interconnection Technologies for Large Silicon Detector Modules</b><br>Thomas Blank <sup>1</sup> , P. Pfistner <sup>1</sup> , B. Leyrer <sup>1</sup> , M. Caselle <sup>1</sup> , C. Simons <sup>2</sup> , C.J. Schmidt <sup>2</sup> , M. Weber <sup>2</sup> , <sup>1</sup> Karlsruhe Institute of Technology, <sup>2</sup> Gesellschaft für Schwerionenforschung / Germany<br><br>FB2-3<br><b>Development of Mountable Electromagnetic Induction Type MEMS Generator</b><br>Minami Kaneko, Kaito Mishima, Kazuya Kudo, Kazuki Ebisawa, Ken Saito, Fumio Uchikoba, Nihon University / Japan<br><br>FB2-4<br><b>An Evaluation and Comparison of Cross-Sensitivities of Various Different Types of Screen Printed Ag/AgCl Reference Electrodes</b><br>John Karl Atkinson, University of Southampton / UK                                | FC2: Materials and Processes: polymer materials<br>FC2-1<br><b>TSV Liner Dielectric Technology with Spin-on Low-k Polymer</b><br>Sungho Lee, Yohei Sugawara, Masato Ito, Hisashi Kino, Tak Fukushima, Tetsu Tanaka, Tohoku University / Japan<br><br>FC2-2<br><b>Solderability Evaluation of Printed Silver Solder Pad for Wafer-Level Packaging</b><br>Mian Tao <sup>1</sup> , Jeffery C. C. Lo <sup>1</sup> , Ying-Hong Liou <sup>2</sup> , Peter Chiu <sup>2</sup> , S. W. Ricky Lee <sup>1</sup> , <sup>1</sup> Hong Kong University of Science & Technology, <sup>2</sup> DETEKT Technology / Hong Kong<br><br>FC2-3<br><b>Gang-bonding CoC Assembly by NCF-TCB Using Newly Developed Bonding Force Leveling Film</b><br>Yuta Koseki, Kazutaka Honda, Tomonori Minegishi, Tsuyoshi Ogawa, Hitachi Chemical / Japan<br><br>FC2-4<br><b>Underfill Fatigue Life Enhancement by Means of Rubber and Elastomer Additives</b><br>Hiroshi Yamaguchi, Toshiaki Enomoto, Toshiyuki Sato, Namics / Japan                                                                                                                                                                                                              | FD2: Materials and Processes: bonding technology<br>FD2-1<br><b>Development of Nanocomposite Pastes for Low-Temperature Low-Pressure Bonding</b><br>Ting-Jui Wu, Jen-Hsiang Liu, Jenn-Ming Song, National Chung Hsing University / Taiwan<br><br>FD2-2<br><b>Investigation of Aluminum Patterned Electrodeposition Process from AlCl3-[EMIm]Cl Ionic Liquid for Microsystems Application</b><br>Muhammad Salman Al Farisi <sup>1</sup> , Silvia Hertel <sup>2</sup> , Maik Wiemer <sup>2</sup> , Thomas Otto <sup>2,3</sup> , <sup>1</sup> Tohoku University / Japan, <sup>2</sup> Fraunhofer Institute for Electronic Nano Systems, <sup>3</sup> Chemnitz University of Technology / Germany<br><br>FD2-3<br><b>Reliability Performance of 30µm-pitch Solder Micro Bump Fluxless Bonding Interconnections</b><br>Shin-Yi Huang, Tao-Chih Chang, Yu-Min Lin, Su-Ching Chung, Su-Yu Fun, Industrial Technology Research Institute / Taiwan                                                                                                                                                                          | FE2: Thermal<br>FE2-1<br><b>Heat Flow Simulation for Circuit Board Assembly</b><br>Yukikatsu Ozawa, Shimizu <sup>2</sup> , <sup>1</sup> SCS<br><br>FE2-2<br><b>Relationship between Thermal and Shape of Mounted Boards</b><br>Yoshinori Aruga, Takayuki Yamamoto, Tomoyuki Hatada, Msaru Ishizuka, University of Japan<br><br>FE2-3<br><b>Thermal Resistance and Heat Flux Evaluation</b><br>Risako Kibushi, Unno <sup>1</sup> , Kohei Ueda <sup>1</sup> , Tomoyuki Hatada, <sup>1</sup> Tokyo University<br><sup>2</sup> Tohoku University, <sup>4</sup> Toyama Prefecture<br><br>FE2-4<br><b>Investigation of Dimensional Change Measurement and Conductivity Measurement for Prediction - Model</b><br>Kohei Urata, Jiro Hirose, Michiru Iwate University |

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| 12:30 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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|       | Lunch Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 13:30 | <p>FA3: Fan-out Packaging Technology-2<br/>FA3-1 &lt;Session Invited&gt;<br/><b>Fan-out Wafer Level Packaging for 5G and mm-Wave Applications</b><br/>Tanja Braun<sup>1,2</sup>, Karl-Friedrich Becker<sup>2</sup>, Ole Hoelck<sup>1</sup>, Ruben Kahle<sup>1</sup>, Markus Woehrmann<sup>1</sup>, Michael Toepper<sup>1</sup>, Ivan Ndip<sup>1</sup>, Uwe Maass<sup>1</sup>, Christian Tschoban<sup>1</sup>, Rolf Aschenbrenner<sup>1</sup>, Steve Voges<sup>2</sup>, Klaus-Dieter Lang<sup>2</sup>, <sup>1</sup>Fraunhofer IZM, <sup>2</sup>Technical University Berlin / Germany</p> <p>FA3-2 &lt;Session Invited&gt;<br/><b>Development of Liquid Compression Molding Material (LCM) for Low Warpage</b><br/>Tsuyoshi Kamimura<sup>1</sup>, Satomi Kawamoto<sup>1</sup>, Daisuke Hashimoto<sup>1</sup>, Haruyuki Yoshii<sup>1</sup>, Hidetoshi Inoue<sup>2</sup>, <sup>1</sup>Namics, <sup>2</sup>Hitachi Chemical / Japan</p> <p>FA3-3 &lt;Session Invited&gt;<br/><b>Temporary Adhesive and Equipment Solutions for Fan-out WLP/PLP Technology</b><br/>Akihiko Nakamura, Tokyo Ohka Kogyo / Japan</p> <p>FA3-4<br/><b>UV Laser Releasable Temporary Bonding Materials for FO-WLP</b><br/>Hikaru Mizuno, Hiroyuki Ishii, Hitoshi Kato, Takashi Mori, Hiroki Ishikawa, Yooichiroh Maruyama, Kenzo Ohkita, Koichi Hasegawa, JSR / Japan</p> | <p>FB3: Emerging Technologies-4<br/>FB3-1<br/><b>Flexible Substrate with Movable Device Island Supported by Serpentine Interconnect for Mounting Ultra-thin Silicon Chips</b><br/>Takeshi Kobayashi, Toshihiro Takeshita, Yusuke Takei, Ryohei Takei, National Institute of Advanced Industrial Science and Technology / Japan</p> <p>FB3-2<br/><b>Fully-printed Vertical Interconnections with Tapered Contact Holes Formed by Vapor-annealing Technique</b><br/>Yasuyuki Kusaka, Shusuke Kanazawa, Hirobumi Ushijima, National Institute of Advanced Industrial Science and Technology / Japan</p> <p>FB3-3<br/><b>Reliability Analysis of SiP Module Board Level Bending Test</b><br/>Wei-Hong Lai, Shao-Chen Yen, Hsin-Chih Shih, Meng-Kai Shih, David Tarng, Chih-Pin Huang, Advanced Semiconductor Engineering / Taiwan</p> <p>FB3-4<br/><b>Void Reduction in Reflow Soldering Processes by Sweep Stimulation of PCB Substrate</b><br/>Viktoria Rawinski, Ersa / Germany</p>                                                                                                                                                                                                                                                                                                                               | <p>FC3: Power Electronics Integration-1<br/>FC3-1 &lt;Session Invited&gt;<br/><b>Power Device Applications of Ga2O3</b><br/>Kentaro Kaneko<sup>1</sup>, Takashi Shinohe<sup>2</sup>, Shizuo Fujita<sup>1</sup>, <sup>1</sup>Kyoto University, <sup>2</sup>FLOSFIA / Japan</p> <p>FC3-2<br/><b>SiC Power Module for Motor Driving System</b><br/>Chun-Kai Liu<sup>1</sup>, Chih-Ming Tzeng<sup>1</sup>, Rong-Chang Fang<sup>1</sup>, Chih-Wei Li<sup>2</sup>, James Goo<sup>3</sup>, <sup>1</sup>Industrial Technology Research Institute, <sup>2</sup>LINGSEN Precision, <sup>3</sup>Shihlin Electric / Taiwan</p> <p>FC3-3<br/><b>Failure Mode Verification of Power IGBT under Different Thermal Stress Application Conditions in Power Cycling Test Environment</b><br/>Qun Yuan<sup>1</sup>, Ryo Endoh<sup>2</sup>, Tetsuya Ima<sup>3</sup>, Yasushi Kajita<sup>4</sup>, Yafei Luo<sup>1</sup>, <sup>1</sup>Mentor Graphics Japan, <sup>2</sup>Toray Research Center, <sup>3</sup>Yamaha Motor, <sup>4</sup>Nagoya Municipal Industrial Research Institute Industrial Research Institute / Japan</p> <p>FC3-4<br/><b>Metallization Technology of SiC Power Module in High Temperature Operation</b><br/>Tomohito Iwashige<sup>1</sup>, Kazuhiko Sugiura<sup>1</sup>, Takeshi Endo<sup>1</sup>, Kazuhiro Tsuruta<sup>1</sup>, Yuich Sakuma<sup>2</sup>, Seigo Kurosaka<sup>2</sup>, Yukinori Oda<sup>2</sup>, Chuantong Chen<sup>3</sup>, Shijo Nagao<sup>3</sup>, Katsuaki Suganuma<sup>3</sup>, <sup>1</sup>Denso, <sup>2</sup>C. Uyemura, <sup>3</sup>Osaka University / Japan</p> | <p>FD3: Materials and Processes: advanced process<br/>FD3-1 &lt;Session Invited&gt;<br/><b>New Market Trend in CMP Equipment / Material for the " More than Moore" era</b><br/>Yasuhiko Takeno<sup>1</sup>, Kazuya Okamoto<sup>2</sup>, <sup>1</sup>Global Net, <sup>2</sup>Yamaguchi University / Japan</p> <p>FD3-2<br/><b>Investigation of the Laser Ablation Threshold for Optimizing Laser Direct Structuring in the 3D-MID Technology</b><br/>Li Wang, Robert Suess-Wolf, Michael Ulm, Joerg Franke, Friedrich-Alexander University Erlangen-Nuremberg / Germany</p> <p>FD3-3<br/><b>Rapid Laser Drilling on Thick Ceramic Substrates for SiP Applications</b><br/>Shih-jeh Wu<sup>1</sup>, Hsiang-Chen Hsu<sup>1,2</sup>, Wen-Fei Lin<sup>1</sup>, Boen Hung<sup>1</sup>, Yeh Chang<sup>1</sup>, <sup>1</sup>I-Shou University, <sup>2</sup>St. John’s University / Taiwan</p> <p>FD3-4<br/><b>Investigation of the Differences in Nanometric Grinding of SiC and Si by Molecular Dynamics</b><br/>Miaocao Wang<sup>1</sup>, Fulong Zhu<sup>1</sup>, Yixin Xu<sup>1</sup>, Sheng Liu<sup>1,2</sup>, <sup>1</sup>Huazhong University of Science and Technology, <sup>2</sup>Wuhan University / China</p> | <p>FE3: Optoelectronics-4<br/>FE3-1 &lt;Session Invited&gt;<br/><b>Toward Coincident Optical and Polymer for CO2 Laser</b><br/>Okiihiro Sugihara, National Institute of Advanced Industrial Science and Technology / Japan</p> <p>FE3-2 &lt;Session Invited&gt;<br/><b>Multimode / Single-mode Waveguides for On-chip Optical Interconnects</b><br/>Takaaki Ishiguro, National Institute of Advanced Industrial Science and Technology / Japan</p> <p>FE3-3 &lt;Session Invited&gt;<br/><b>High-density Silicon Photonics for Data Center Interconnects</b><br/>Tsuyoshi Aoki, National Institute of Advanced Industrial Science and Technology / Japan</p> <p>FE3-4<br/><b>Process Development of Sintered High-conductivity Cu and Flip Chip Interconnects</b><br/>Alexander Harnisch, Krishna Bhogal, Elger<sup>1</sup>, <sup>1</sup>Technische Universität München, Germany, <sup>2</sup>University of Duisburg-Essen, Germany</p> |
| 15:10 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| 15:30 | <p>FA4: Fan-Out Packaging Technology-3<br/>FA4-1<br/><b>Highly Reliable Low Temperature Curable Photosensitive Polyimide</b><br/>Masao Tomikawa, Yuki Masuda, Yu Shoji, Kazuyuki Matsumura, Ryoji Okuda, Toray Industries / Japan</p> <p>FA4-2<br/><b>Modeling of Cure Kinetics of Molding Compound and Its Effects on Drag Force in Compression Molding</b><br/>Chia-Heng Chung<sup>1</sup>, Hsien-Chie Cheng<sup>2</sup>, Wen-Hwa Chen<sup>1</sup>, <sup>1</sup>National Tsing Hua University, <sup>2</sup>Feng Chia University / Taiwan</p> <p>FA4-3<br/><b>Mechanical Characterization Comparison as Flip-Chip Package to Fan-Out Package</b><br/>Dao-Long Chen, Po-Hsien Sung, Wei-Jie Yin, Meng-Kai Shih, David Tarng, Chih-Pin Hung, Advanced Semiconductor Engineering / Taiwan</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>FB4: Medical &amp; Healthcare-2<br/>FB4-1 &lt;Session Invited&gt;<br/><b>Peripheral Nerve Detection Probe by Raman Spectroscopy</b><br/>Yasuaki Kumamoto, Tetsuro Takamatsu, Kyoto Prefectural University of Medicine / Japan</p> <p>FB4-2 &lt;Session Invited&gt;<br/><b>Smart Environment Sensor for Healthcare Applications</b><br/>Naotsugu Ueda, Rysuke Sakai, Hiroyuki Mino, OMRON / Japan</p> <p>FB4-3<br/><b>Fundamental Study to Evaluate Walking Skill of Visually Impaired Person</b><br/>Hiroaki Inoue<sup>1</sup>, Shunji Shimizu<sup>1</sup>, Toshiya Tsubota<sup>1</sup>, Tatsuo Hisaoka<sup>1</sup>, Yoshikazu Seki<sup>2</sup>, <sup>1</sup>Tokyo University of Science, Suwa, <sup>2</sup>National Institute of Advanced Industrial Science and Technology / Japan</p> <p>FB4-4<br/><b>Noncontact Heart Rate Measurement System on Single Board Computer</b><br/>Daisaku Ikoma<sup>1</sup>, Yuya Abe<sup>1</sup>, Naoki Kawazu<sup>1</sup>, Hideharu Toda<sup>1</sup>, Masatoshi Sato<sup>2</sup>, Hisashi Aomori<sup>1</sup>, <sup>1</sup>Chukyo University, <sup>2</sup>Tamagawa University / Japan</p> <p>FB4-5<br/><b>Development of an Automatic Urine Monitoring Device using Cross-selectivity Sensing Principle</b><br/>Benjamin Ioller, Norihisa Miki, Keio University / Japan</p> | <p>FC4: Power Electronics Integration-2<br/>FC4-1 &lt;Session Invited&gt;<br/><b>Semiconductor Package Technologies in J-Devices for Automotive Application</b><br/>Akio Katsumata, Akito Yoshida, Akinori Ono, Nobuaki Oie, Toru Takahashi, Fumihiko Taniguchi, J-Devices / Japan</p> <p>FC4-2<br/><b>A highly Integrated Copper Sintered SiC Power Module for Fast Switching Operation</b><br/>Bao Ngoc An<sup>1</sup>, Dai Ishikawa<sup>2</sup>, Thomas Blank<sup>1</sup>, Helge Wurst<sup>1</sup>, Horst Demattio<sup>1</sup>, Benjamin Leyrer<sup>1</sup>, Johannes Kolb<sup>3</sup>, Torsten Scherer<sup>1</sup>, Ansgar Simon<sup>4</sup>, Marc Weber<sup>1</sup>, <sup>1</sup>Karlsruhe Institute of Technology / Germany, <sup>2</sup>Hitachi Chemical / Japan, <sup>3</sup>Schaeffler Technologies, <sup>4</sup>Infineon Technologies / Germany</p> <p>FC4-3<br/><b>Cu-Sn Based Die Attach Material for Power Semiconductor with Stress Control</b><br/>Hiroaki Ikeda, Shigenobu Sekine, Ryuji Kimura, Koichi Shimokawa, Keiji Okada, Hiroaki Shindo, Tatsuya Ooi, Rei Tamaki, Napra / Japan</p> <p>FC4-4<br/><b>A Nearly-perfect Ag Joints Prepared by Novel Ag to Ag Direct Bonding</b><br/>Hao Zhang, Seungjun Noh, Norio Asatani, Yukiharu Kimoto, Aiji Suetake, Shijo Nagao, Tohru Sugahara, Katsuaki Suganuma, Osaka University / Japan</p> <p>FC4-5<br/><b>A High Efficient Synchronous Rectifier for Next Generation Automotive Alternator Applications</b><br/>K. S. Kao, H. H. Lin, W. K. Han, S. T. Wu, C. M. Tseng, T. J. Yu, P. K. Chiu, Y. T. Lin, S. F.</p>     | <p>FD4: Materials for Nanophotonics Devices<br/>FD4-1 &lt;Session Invited&gt; (50min)<br/><b>Nanophotonics: a frontier cultivated by microassembly</b><br/>Hideki T. Miyazaki, National Institute for Materials Science / Japan</p> <p>FD4-2<br/><b>Organic/Inorganic Interfacial Microstructures Achieved by Fast Atom Beam Bombardment and Vacuum Ultraviolet Irradiation</b><br/>Tilo Hongwei Yang<sup>1,2</sup>, C. Robert Kao<sup>1</sup>, Akitsu Shigetou<sup>2</sup>, <sup>1</sup>National Taiwan University / Taiwan, <sup>2</sup>National Institute for Materials Science / Japan</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|       |  |  | Hsu, J. Y. Chang, T. C. Chang, Industrial Technology Research Institute / Taiwan |  |  |
| 17:35 |  |  |                                                                                  |  |  |

Cancelled

On Material Modelling and Characterization of Thermal Interface Materials

Emad A. Poshtan, Bosch / Germany

Solving Wirebond Sporadic Ball Size on a 2D MCM Package

Ernesto Pentecostes Rafael, Joel De Guzman Raposas, Lora Calaguas Razon, Texas Instrument Philippines / Philippines

Laserbonding Directly on Semiconductor Surfaces: LIMBO process

Josef Sedlmair<sup>1</sup>, Benjamin Mehlmann<sup>1</sup>, Simon W Britten<sup>2</sup>, Alexander Olowinsky<sup>2</sup>, <sup>1</sup>F&K Delvotec Bondtechnik, <sup>2</sup>Fraunhofer IZM / Germany

Cu-Cu Interconnect using Electroless Palladium Plating in High Frequency Application

Ying-Hsuan Chen, Han-Tang Hung, Sean Yang, I-An Weng, C. Robert Kao, National Taiwan University / Taiwan

Electrostatic Characteristics of AlN with Sm2O3 Addition <Session Invited>

Yong-Bin Sun, Chang-Hee Lee, Kyonggi University / Korea

Zero-Balance Method for A Sealed Cavity Pressure Evaluation of Vacuum Packaged Micro-Devices

Muhammad Salman Al Farisi, Hideki Hirano, Shuji Tanaka, Tohoku University / Japan

Impacts of H-Containing HCOOH Vapor Treatment on Cu Micro-Particles

Ran He<sup>1,2</sup>, Fengwen Mu<sup>1</sup>, Zhi Cao<sup>2</sup>, Yinghui Wang<sup>2</sup>, Tadatomo Suga<sup>1</sup>, <sup>1</sup>The University of Tokyo / Japan, <sup>2</sup>Institute of Microelectronics of Chinses Academy of Sciences / China

Poster Session Poster sessions wil be held from 14:50-15:50 on April 18 and from 15:10-16:10 on April 19.

| P01 | <b>Effect of W Addition for Cu Diffusion Barrier Property of Electroless CoB Films Formed on SiO<sub>2</sub></b><br>Takaki Iseri <sup>1</sup> , Shusuke Shindo <sup>1</sup> , Tomohiro Shimizu <sup>1</sup> , Takeshi Ito <sup>1</sup> , Moriji Matsumoto <sup>2</sup> , Shoso Shingubara <sup>1</sup> , <sup>1</sup> Kansai University, <sup>2</sup> JCU / Japan |
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| P02 | <b>Batch Microwave Plasma Cleaning for Robustification of Automotive Devices</b><br>Ghizelle Jane Estrada Abarro, Rod Delos Santos, Darwin De Lazo, Alvin Denoyo, Ariel Tan, Manny Ramos, ON Semiconductor Philippines / Philippines                                                                                                                              |
| P03 | <b>Multi-chip Gang Bonding Technology Using the Thermo-compression Bonder for Si Substrate</b><br>Noboru Asahi, Yoshihito Mizutani, Koichi Imai, Hiroto Tanaka, Yasunori Hashimoto, Toshiyuki Jinda, Mikio Kawakami, Katsumi Terada, Toray Engineering / Japan                                                                                                    |
| P04 | <b>Loop Height Assessment for Automotive Package</b><br>Mohd Izzuddin Suboh, Mohamad Syahirul Syafiq Ali, Infineon Technologies (Malaysia) / Malaysia                                                                                                                                                                                                             |
| P05 | <b>Material Characterization in TSV Fabricated by Supercritical Carbon Dioxide Electroplating</b><br>Ho-Chiao Chuang <sup>1</sup> , Guan-Wei Jiang <sup>1</sup> , Ai-Ho Liao <sup>2</sup> , <sup>1</sup> National Taipei University of Technology, <sup>2</sup> National Taiwan University of Science and Technology / Taiwan                                     |
| P06 | <b>Flexible and Transparent Silver-grid Over-coated with PEDOT: PSS electrode prepared by gravure offset printing</b><br>Masato Ohsawa, Natsuki Hashimoto, ULVAC / Japan                                                                                                                                                                                          |
| P07 | <b>A Study of the Anodizing of Titanium for Dye-sensitized Solar Cells</b><br>Yu-Wen Chen, Chih-Ming Chen, National Chung Hsing University / Taiwan                                                                                                                                                                                                               |
| P08 | <b>Preparation of Vitamin C Doped Polymers for Physical Characteristics Using Electrospinning Process</b><br>Sheng-Hung Shih, Chun-Yi Chen, Cho-Liang Chung, I-Shou University / Taiwan                                                                                                                                                                           |
| P09 | <b>Enhancement of Electrical Conductivity Developed in an Epoxy-based Adhesive with Silver Flakes Loading</b><br>Tomohito Negishi, Masahiro Inoue, Gunma University / Japan                                                                                                                                                                                       |
| P10 | <b>Preparation of Superhydrophobic Silicon-Based Net-like Hollow Nanostructure Using Electrospinning</b><br>Jui-Wen Liang, Wen-Yu Wang, Cho-Liang Chun, I-Shou University / Taiwan                                                                                                                                                                                |
| P11 | <b>Variation in Electrical Conductivity of Air-curable Copper Pates Composed of a Phenolic-based Binder during Soaking in Several Environments</b><br>Kenta Kawarai, Masahiro Inoue, Gunma University / Japan                                                                                                                                                     |
| P12 | <b>Creation and Functional Control of Metal Nanoparticle-Polymer Interface by Laser Plasma EUV Light Excitation</b><br>Kiyokazu Yasuda, Nozomi Tanaka, Nao Wada, Hiroaki Nishimura, Osaka University / Japan                                                                                                                                                      |
| P13 | <b>First Principles Calculation of the Structure and Quantum Capacity of Acidic Functional Groups on Graphene-based Capacitor</b><br>Bochen Li, Takeyasu Saito, Naoki Okamoto, Osaka Prefecture University / Japan                                                                                                                                                |
| P14 | <b>A Fracture Analysis of Different Cu Electroplated Layers on Ni-metallized Polyimide Film</b><br>Yi-Hsuan Chen, Shan-Chen Tsai, Chih-Ming Chen, National Chung Hsing University / Taiwan                                                                                                                                                                        |
| P15 | <b>Variations in Electrical Resistivity of Stretchable Printed Wires Composed a Polyurethane-based Binder Containing Silver Fillers under Cyclic Tensions</b><br>Yuta Hosono, Masahiro Inoue, Gunma University / Japan                                                                                                                                            |
| P16 | <b>Coupling Model and Non-contact Measurement Approach by Near-field Technology</b><br>Sheng-Wei Guan <sup>1</sup> , Chih-Wen Kuo <sup>1</sup> , Cheng-Tao Li <sup>2</sup> , Sung-Mao Wu <sup>2</sup> , <sup>1</sup> National Sun Yat-sen University, <sup>2</sup> National University of Kaohsiung / Taiwan                                                      |
| P17 | <b>Effect of Au Thickness on Bonding Reliability for Silver Coated Au Bonding Wire</b><br>Xiangqing Yang, HeNan Polytechnic University / China                                                                                                                                                                                                                    |

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| P18 | <b>Feasibility Study of All-SiC Pressure Sensor Fabrication without Deep Etching</b><br>Fengwen Mu <sup>1</sup> , Yechao Sun <sup>2,4</sup> , Haiping Shang <sup>2</sup> , Yinghui Wang <sup>2,3,4</sup> , Tadatomo Suga <sup>1,3</sup> , Weibing Wang <sup>2,4</sup> , Dapeng Chen <sup>2,4</sup> , <sup>1</sup> The University of Tokyo / Japan, <sup>2</sup> Institute of Microelectronics Chinese Academy of Sciences, <sup>3</sup> Kunshan Branch, Institute of Microelectronics of Chinese Academy of Sciences, <sup>4</sup> University of Chinese Academy of Sciences / China |
| P19 | <b>Reduction of Parasitic Capacitance of Flexible Tactile Sensors</b><br>Tatsuho Nagatomo, Norihisa Miki, Keio University / Japan                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| P20 | <b>Electrodeposition of ZnS and Evaluation of Its Optical Property</b><br>Naohiro Matsuda, Naoki Okamoto, Takeyasu Saito, Osaka Prefecture University / Japan                                                                                                                                                                                                                                                                                                                                                                                                                        |
| P21 | <b>Synthesis and Thermal Conductivity of Carbon Nanotube (CNT)/Polymer Composites</b><br>Chih-Feng Wang <sup>1</sup> , Pei-Kang Huang <sup>1</sup> , Yi-Jung Tsai <sup>1</sup> , Chih-Lin Wu <sup>1</sup> , Yan-Yu Chang <sup>1</sup> , Kuo-Jung Lee <sup>1</sup> , Ping-Feng Yang <sup>2</sup> , <sup>1</sup> I-Shou University, <sup>2</sup> Advanced Semiconductor Engineering / Taiwan                                                                                                                                                                                           |
| P22 | <b>Synthesis and Thermal Conductivity of Expanded Graphite (EG)/Polymer Composites</b><br>Chih-Feng Wang <sup>1</sup> , Pei-Rung Hung <sup>1</sup> , Chih-Lin Wu <sup>1</sup> , Yi-Jung Tsai <sup>1</sup> , Yan-Yu Chang <sup>1</sup> , Kuo-Jung Lee <sup>1</sup> , Ping-Feng Yang <sup>2</sup> , <sup>1</sup> I-Shou University, <sup>2</sup> Advanced Semiconductor Engineering / Taiwan                                                                                                                                                                                           |
| P23 | <b>Development of Novel AlN Filler for High Thermal Conductivity Packaging Material</b><br>Yukihiro Kanechika, Akimasa Kuramoto, Yutaka Fukunaga, Yasushi Imoto, Yoshitaka Inaki, Saiko Fjii, Meng Wan, Teruhiko Nawata, Masahide Ueda, Tokuyama / Japan                                                                                                                                                                                                                                                                                                                             |
| P24 | <b>Evaluation of Thermal Resistance of Various Thermal Grease</b><br>Shinya Seki, Ryo Endoh, Masaaki Takeda, Toray Research Center / Japan                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| P25 | <b>Evaluation of Thermal Cycle Stress in SiC Power Devices by Raman Spectroscopy</b><br>Tomoyuki Uchida, Ryuichi Sugie, Toray Research Center / Japan                                                                                                                                                                                                                                                                                                                                                                                                                                |
| P26 | <b>Thermal Conductivity Measurement of Diamond and <math>\beta</math>-Ga<sub>2</sub>O<sub>3</sub> Thin Films by a 3<math>\omega</math> Method</b><br>Shinichiro Suzuki <sup>1,2</sup> , Shinya Ohmagari <sup>2</sup> , Yusuke Akutsu <sup>1</sup> , Naoki Okamoto <sup>1</sup> , Takeyasu Saito <sup>1</sup> , Hitoshi Umezawa <sup>2</sup> , Yoshiaki Mokuno <sup>2</sup> , <sup>1</sup> Osaka Prefecture University, <sup>2</sup> The National Institute of Advanced Industrial Science and Technology / Japan                                                                     |

Cancelled

The Geometric Approach on Enabling Angular Die Bonding Process

Ernesto Pentecostes Rafael, Dolores Babaran Milo, Texas Instrument Philippines / Philippines

Leadframe Design Resolution to Eliminate Bsm Risk of Leakage and Metal Shorting

Dolores Babaran Milo, Texas Instrument Philippines / Philippines

BAMFIT – Bond Accelerated Mechanical Fatigue Interconnect Test

Josef Sedlmair<sup>1</sup>, Bernhard Czerny<sup>2</sup>, Golta Khatibi<sup>2</sup>, <sup>1</sup>F&S Bondtec Semiconductor, <sup>2</sup>Technical University Vienna / Austria

Package-in Temperature Measuring with Micro-heater Soldering for Pyroelectric IR Sensor

Hideaki Mizusaki<sup>1,2</sup>, Toshiro Sato<sup>2</sup>, Makoto Sonehara<sup>2</sup>, <sup>1</sup>Nagano Prefecture General Industrial Technology Center, <sup>2</sup>Shinshu University / Japan

Wire Bond Design and Process Simulation for Optimum Wire Bond Interconnect

Chee Meng Chai, Chan Lam Cha, Infineon Technologies Asia Pacific / Singapore

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