### Wednesday, April 17

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>13:00-13:08</td>
<td>Ceremony</td>
<td>International Hall (4F)</td>
</tr>
<tr>
<td>13:08-13:48</td>
<td>Keynote Lecture I: The Role of Packaging and System Integration in Future Compute Platforms</td>
<td>Tokyo Research Laboratory / Sinterland</td>
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<tr>
<td>13:48-14:14</td>
<td>Keynote Lecture II: Technology Trend of Flash Memory and New Memory</td>
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<tr>
<td>14:14-14:44</td>
<td>Lunch</td>
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<tr>
<td>14:44-15:44</td>
<td>Keynote Lecture III: GPU: the Key Processor for AI and Supercomputing</td>
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<tr>
<td>15:44-16:14</td>
<td>Toru Bajji, NVIDIA / Japan</td>
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<tr>
<td>16:14-16:44</td>
<td>Keynote Lecture IV: Heterogeneous Integration on Fanout Packages</td>
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<tr>
<td>16:44-17:14</td>
<td>Shin-Puu Jeng, Taiwan Semiconductor Manufacturing Company, Ltd. / Taiwan</td>
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<tr>
<td>17:14-18:40</td>
<td>Poster Session / Break</td>
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### Session Details

**Room A (3F)**
- **WA1: INEMI Session**
  - Chair: Yoshio Kanno, Intel, Kanagawa University, Japan
  - **WA1-1: Novel Solution - Pinning Technology Roadmap and Electronics Packaging Challenges and Opportunities**
    - M. Taylor, M. Nakajima, Electronics Packaging Industry Association, USA
  - **WA1-2: Keynote Speech**
    - Roy H. Tessler, Intel, Kanagawa University, Japan
  - **WA1-3: Low-temperature Lead-Free Solders for Phase Equilibrium and Interfacial Reactions**
    - Wei-Chuan Hsu, National Cheng Kung University / Taiwan
  - **WA1-4: Symposium Session**
    - Advanced Electronic Packaging Technology (IEEE)

**Room B (3F)**
- **WB1: Penn Pacific Microelectronics Symposium Sponsored Session**
  - Chair: Charles S. Hurst, Technicolor Corporation, Yamanashi, Japan
  - **WB1-1: Special Session**
    - Yoshiyuki Kanno, Toshiba Research Laboratory, Japan
  - **WB1-2: Symposium Session**
    - Advanced Electronic Packaging Technology (IEEE)

**Room C (3F)**
- **WC1: Taiwan Session**
  - Chair: Yung-Cong, S-H. Tsai, National Cheng Kung University / Taiwan
  - **WC1-1: Session A**
    - Nanomaterials: New Materials for New Wave MEMS
  - **WC1-2: Session B**
    - Low-Temperature Lead-Free Solders for Phase Equilibrium and Interfacial Reactions
  - **WC1-3: Session C**
    - Fabrication of Advanced Microelectronics: Interactions with the Assistance of Light
  - **WC1-4: Session D**
    - Enhancements of Nano-Silver Clqy Attachments by Using Transient Photonic Reaction with Indium

**Room D (3F)**
- **WD1: Materials and Processes Session**
  - Chair: Yung-Cong, S-H. Tsai, National Cheng Kung University / Taiwan
  - **WD1-1: Keynote Speech**
    - Yung-Cong, S-H. Tsai, National Cheng Kung University / Taiwan
  - **WD1-2: Session A**
    - Evaluation and Benchmarking of Cu Pillar Micro-Bumps with Printed Paste Core
  - **WD1-3: Session B**
    - Highly Reliable Fine-Point Bending Test Using Steep DC Line Method for Adhesion Evaluation

**Room E (3F)**
- **WE1: Thermal-Management Session**
  - Chair: Yung-Cong, S-H. Tsai, National Cheng Kung University / Taiwan
  - **WE1-1: Keynote Speech**
    - Yung-Cong, S-H. Tsai, National Cheng Kung University / Taiwan
  - **WE1-2: Session A**
    - Enhancements of Nano-Silver Clqy Attachments by Using Transient Photonic Reaction with Indium
  - **WE1-3: Session B**
    - Fabrication of Advanced Microelectronics: Interactions with the Assistance of Light

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### Thursday, April 18

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>09:00-09:30</td>
<td>Keynote Lecture V: Technical Issues on Micro Display with GaN-Based Micro LEDs</td>
<td>Tokyo Research Laboratory / Sinterland</td>
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<tr>
<td>09:30-10:00</td>
<td>Keynote Lecture VI: Printing the Third Dimension: Design, Materials, Equipment &amp; Applications in Electronics</td>
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<tr>
<td>10:00-10:30</td>
<td>Lunch</td>
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<tr>
<td>10:30-11:00</td>
<td>Poster Session / Break</td>
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**Welcome Reception (Hotel Nikko Higata 4F)**
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<tr>
<th>Time</th>
<th>Room A (3F)</th>
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</table>
| 10:00 | **FA1: Fan Out Technology**  
Chair: Yoshitsugu Satoh, ASET, Konan University, ISS  |
| 10:10 | FA1-1  
Warpage and Simulation Analysis of Panel Level FO-WLP using Equivalent CTE  
Mak-Wai Chan, Chan Wai Ip, Soon-Yi Cheng, National Taiwan University of Science and Technology  |
| 10:20 | FA1-2  
Surface-Molding Technology by Using Radical Infrared Resin (SIR) Process in Substrate Interposer for Fan-out Packaging Applications  
Yasuhiko Shimokawa, Takahiro Sato, Yuki Matsumoto, USMICS, Japan  |
| 10:30 | **FA1-3  
High-Toughness (111) Non-Tinned Copper Lines for Fan-Out WLP/Molded Packaging  
Yu Gu, Wei Wu, Jun Zhou, Liqun Liu, Chao Chen, Chao Zhang, National Chiao Tung University, TAIWAN  |
| 10:40 | **FA1-4  
Integrated Power Panel Level Metalization Technology  
Wu Xiyue, Zhang Chaolei, Gao Yan, Xiujie Huang, Zhejiang University, Zhejiang  |
| 11:00 | Lunch Time  |

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<tr>
<th>Time</th>
<th>Room B (3F)</th>
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| 10:00 | **FB1: Emerging Technologies-3**  
Chair: Yoshitsugu Satoh, ASET, Konan University, ISS  |
| 10:10 | FB1-1  
Dexterous Nanomachining in ULSI, USMICS, Japan  |
| 10:20 | FB1-2  
Nano-Structured Materials for Biomedical Sensor Application  
Mak-Wai Chan, Chan Wai Ip, Soon-Yi Cheng, National Taiwan University of Science and Technology  |
| 10:30 | **FB1-3  
Optimization of Water Trough Process by Reducing Thickness Variation of Temporary Adhesive layer for Medical Devices  
Mak Wai Chan, Chan Wai Ip, Soon Yi Cheng, National Taiwan University of Science and Technology  |
| 10:40 | **FB1-4  
Flexible and Programmable Multi-axis/ Multi-Process Manufacturing System for Micromechanically Integrated Devices  
Motoki Nakamura, Takanori Kato, Fumio Nakajima, Osaka University, Osaka  |
| 11:00 | **FB1-5  
Flexible and Programmable Multi-axis/ Multi-Process Manufacturing System for Micromechanically Integrated Devices  
Motoki Nakamura, Takanori Kato, Fumio Nakajima, Osaka University, Osaka  |

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<tr>
<th>Time</th>
<th>Room C (3F)</th>
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| 10:00 | **FC1: Flexible Hybrid Devices**  
Chair: Atsushi Kikuma, National Institute of Advanced Industrial Science and Technology (AIST), Japan  |
| 10:10 | FC1-1  
Flexible Hybrid Device Application for Microfluidic Sensor  
Yukihiro Morikawa, AIST  |
| 10:20 | FC1-2  
Silicon Based Glass Dielectric Electrothermal Transducer and Reliability  
Islam Saeed, The University of Electro-Communications, Japan  |
| 10:30 | **FC1-3  
The Ultra-Plastic Organic Electronics  
Takahiro Kato, Tomoki Chiba, NTT, Japan  |
| 10:40 | **FC1-4  
Self-Healing Metal Interconnect for Flexible Electronic Devices  
Tetsuya Kodera, Inchiku University, Japan  |
| 11:00 | FC1-5  
Flexible and Programmable Multi-axis/ Multi-Process Manufacturing System for Micromechanically Integrated Devices  
Motoki Nakamura, Takanori Kato, Fumio Nakajima, Osaka University, Osaka  |

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<tr>
<th>Time</th>
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| 10:00 | **FD1: Optoelectronics**  
Chair: Naoyuki Jitsukawa, Nihon University, Japan  |
| 10:10 | JD1-1  
Optical-pulse Devices and Their Packaging Technologies for Data Center Applications  
Magari Shiraishi, Nippon Telegraph and Telephone Corporation  |
| 10:20 | JD1-2  
Polymer Materials for Photonic Integrated Circuits  
Kazunori Morimoto, Kansai University, Japan  |
| 10:30 | JD1-3  
Power Optical Circuit using SiO2 Optical Waveguide on SOI Substrate  
Mitsuharu Nakamura, Kansai University, Japan  |

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<tr>
<th>Time</th>
<th>Room E (3F)</th>
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</table>
| 10:00 | **FE1: Design, Modeling, and Reliability**  
Chair: Hiroshi Tsuchimori, National Institute of Advanced Industrial Science and Technology (AIST), Japan  |
| 10:10 | FE1-1  
Reliability Assessment of Wafer Level Die-on-Si Processed Silicon Micropack  
Hiroshi Tanaka, Toyo University, Japan  |
| 10:20 | FE1-2  
Wafer-level Self-aligned Silicon Micro Circuit  
Takahiro Kato, Tomoki Chiba, NTT, Japan  |
| 10:30 | FE1-3  
Wafer-level Self-aligned Silicon Micro Circuit  
Takahiro Kato, Tomoki Chiba, NTT, Japan  |
| 10:40 | FE1-4  
Wafer-level Self-aligned Silicon Micro Circuit  
Takahiro Kato, Tomoki Chiba, NTT, Japan  |

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<tr>
<th>Time</th>
<th>Break (3F)</th>
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<tr>
<td>11:00</td>
<td>Break (3F)</td>
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**ICEP 2019 Official Program**

**Friday, April 19**

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**ICEP 2019 Official Program**

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Poster Session

Poster sessions will be held from 15:40-16:40 on April 17 and from 15:20-16:10 on April 18.

P01  Effect Analysis of Application of Energy Band Gap to Electrostatic Discharge Protection
Hong-Yin Hsieh, Jheng-Yuan Ruai, Min-Jun Guo, Wei-Chiao Wang, Sheng-Wei Guan, Sung-Mao Wu, National University of Kaohsiung / Taiwan

P02  Au-Sn Soldering Using a Micro-heater to Restrain Excess Temperature Rise in the Package
Hideaki Mizusaki, Toshiro Sato, Makoto Sonohara, Shinshu University / Japan

P03  Thermo-Mechanical Process Emulation and Sensitivity Analysis of Wafer Warpage after Reconstitution in Fan-out Packaging
Cheng-Ying Yang, Kuo-Shen Chen, Tian-Shiang Yang, Tz-Cheng Chiu, Ching-Jenq Ho, National Cheng-Kung University / Taiwan

P04  Wafer-Scale Au-Au Surface Activated Bonding Using Atmospheric-pressure Plasma
Michitaka Yamamoto1, Takashi Matsumae2, Yuichi Kurashima1, Hideki Takagi1, Toshihiro Miyake1, Tatadomo Sug1, Yoshihiro Itoh1, Eiji Higurashi1,2, ‘The University of Tokyo, 1AIST, 2DENSO Corporation / Japan

P05  Nano-Cu Paste Sintering in Pt-Catalyzed Formic Acid Vapor for Cu Bonding at a Low Temperature
Fengwen Ma1, Hui Ren1, Lei Liu1, Yinghui Wang3, Guisheng Zou1, Tatadomo Sug1, ‘the University of Tokyo / Japan, ‘Tsinghua University, ‘University of Chinese Academy of Sciences / China

P06  Development of Sn-Bi-In-Ga Quaternary Low Temperature Soldering
Chih-Han Yang1, Shiqi Zhou1, Shih-kang Lin1, Hiroki Nishikawa2, ‘National Cheng Kung University / Taiwan, ‘Osaka University / Japan

P07  Advanced Materials for Pathogenic Bacterial Sensing
Dung Quang Nguyen1, Kengo Ishiki, Maki Saito, Kata Iwamoto, Hiroshi Shiigi, Osaka Prefecture University / Japan

P08  QFN Multi-Level Pin Routing: Innovative Design Approach Enabling Complex Wire Bonding Layout
Doreno B. Milo1, Texas Instruments Philippines / Philippines

P09  Two-Faced Bondable Leadframe Design: Maximizing Leadframe Usage and Purpose
Ernesto P. Rafael Jr., Dolores Babaran-Milo1, Texas Instrument Philippines / Philippines

P10  Mixed Mode Tension Test of Underfills
Hiroshi Yamaguchi, Toshiaki Enomoto, NAMICS Corporation / Japan

P11  Influence of Module Structure on Reliability of Silicon Solar Cells
Taeo Semb1, Genki Saito1, Shiuchi Ao2, Katsuhiko Shirasuna1, Hideraka Takato1, 1NAMICS Corporation / Japan, 2AIST / Japan

P12  Characteristics of Nickel Thin Film Electroplated by Supercritical CO2 Emulsion Assisted with Ultrasonic Agitation
H. C. Chuang1, C. H. Huang2, A. H. Liao1, ‘National Taiwan University of Technology, ‘National Taiwan University of Science and Technology / Taiwan

P13  Electromechanical Reliability of Flexible Transparent Electrode of Gravure Offset Printed Invisible Silver-Grid Laminated with Conductive Polymer
Masato Ohawa, Natsuki Hashimoto, ULVAC, Inc. / Japan

P14  High Thermal Conductivity Composite Resin Sheet Filled with Large Diameter Aluminum Nitride and Aggregated Boron Nitride
I. Masada, S. Fujii, S. Izumami, K. Fujinami, Y. Kanechika, T. Nawai, M. Ueda, Tokuyama Corporation / Japan

P15  Preparation of Si-Ti Based Nanofibers and Thin Film by Single-Needle Electrospinning
Wen-Yu Wang, Haoyou Lee, Cho-Liang Chung, I-Shou University / Taiwan

P16  A Hollow Nanostructure of Silicon-Based Can be Produced by Using Electrospinning Process
Chun-Yi Chen, Jun-Wei Zheng, Kai-Po Hsu, Cho-Liang Chung, I-Shou University / Taiwan

P17  New Adhesive Design and Evaluation for Bumpless Interconnects and Wafer-On-Wafer (WOW) Integration
S. Maetani1, N. Araki2, Y. S. Kim1, S. Kodama1, T. Obha1, ‘Tokyo Institute of Technology / Japan, ‘DAICEL Corp. / Japan, ‘DISCO Corp. / Japan

P18  Study of Low-Residual Stress Amorphous Film Deposition Method for LiTaO3/Quartz or LiNbO3/Quartz Bonding toward 5G Surface Acoustic Wave Devices
Ami Tezuka1, Hisayuki Kusao2, Koosuke Yamada1, Shiuchi Shoji3, Shoji Kako4, Jun Mizuno5,1, Waseda University, 1Yamanashi University / Japan, 2Soochow University / China

P19  Result of High Accelerated Stress Test of Organic Substrate Made by Integrated Dry Process
Shinichi Endo1, Shinharu Yabu2, Tomoyuki Habu1, ‘Ushio Inc. / Japan, ‘Ushio America Inc. / USA

P20  Electrodeposition of Cu Doped ZnS and Evaluation of Its Photocatalytic Property
Naohi Matsuda, Naoki Okamoto, Takeyasu Saito, Osaka Prefecture University / Japan

P21  Comparison of Low Temperature Sinterability of Silver Micro-particles in Epoxy-based Binders Containing Several Mercaptocarboxylates
Shiho Nakazawa, Masahiro Itoh, Gunma University / Japan

P22  Bonding Strength of Cu-to-Cu Joints Using Cu Cold Spray Deposition by an Oxidation and Reduction Process for Power Device Package
Juncai Hou1,2, Chengxin Li1, Jiye Huang1, Hiroshi Nishikawa1, ‘ShaanXi University of Technology / China, ‘Osaka University / Japan, ‘Xi’an Jiaotong University / China

P23  Suppression of Backside Damage in Stealth Dicing
Natsuki Suzuki1,2,3, Takayuki Ohba1, ‘Tokyo Institute of Technology, ‘Hamamatsu Photonics K.K., ‘The Graduate School for the Creation of New Photonics Industries / Japan

P24  Structural Analysis and Electric Double Layer Capacitor of Furfural Resin -Based Active Carbon with Different Particle Size
Kanade Hikari1, Shinichiro Suzuki1, Naoki Okamoto1, Takeyasu Saito1, Isamu Ide2, Masanobu Nishikawa1, Yoshikazu Onish1, Osaka Prefecture University, 1LIGNYTE CO., LTD. / Japan

P25  High Temperature Dielectric Property of Silicon Nitride Insulating Substrate for Next Generation Power Module up to 350 Degrees Celsius
Tsuoshi Abe, Yasutaka Nishigaki, Masahiro Kozako, Masayuki Hikita, Kyushu Institute of technology / Japan

P26  Characterization of Thermal-Electric Performance of Silicon Power MOSFET Inverter Using Coupled Field Analysis
Y.-S. Liao1, Y.-H. Shen1, H.-C. Cheng2, W.-H. Chen1, ‘National Tsing Hua University, ‘Feng Chia University / Taiwan