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The Leading International Components, Packaging and Manufacturing Technology Symposium



November 15-17, 2023

Ritsumeikan University's Suzaku Campus, Kyoto, Japan



Advanced Program

Last update: September 6, 2023

November 15, 2023 (Wednesday)

	4F/5F Main Hall I On-site presentation	1F Room I On-site presentation	1F Room II On-site presentation
9:00		Registration	
10:20	Opening Remark (General Chair) (Hall I)		
10:35	Award Ceremony (Hall I)		
10:50-12:30	Hall I Chairperson Hideyuki Nasu (Furukawa Electric Co., Ltd), Takaaki Ishigure (Keio University) Plenary Speech I & II		
10:50	Plenary Speech I : Silicon Photonics for Chiplet (TBD) Mark Wade (Ayar Lab) P-02		
11:40	Plenary Speech II : Co-Package Optics is the big next thing: What happened? Daniel M. Kuchta (IBM T. J. Watson Research Center) P-03		
12:30-12:50		Platinum Sponsors' Seminar (with a light meal) @Meeting Room 1 Title : TBD (TBD)	
12:55-13:15		Platinum Sponsors' Seminar (with a light meal) @Meeting Room 1 Title : TBD (TBD)	
13:30-15:25	Session 1: Co-packaged Optics Chairperson Takahiro Matsubara (KYOCERA Corporation) Hidetoshi Numata (IBM Research)	Session 2: Advanced PKG I Chairperson Shoji Uegaki (Crane Research) Chinami Marushima (IBM Japan, Ltd.)	Session 3: Process and Material Technologies I Chairperson Shinya Takyu (LINTEC Corporation) Kei Murayama (SHINKO ELECTRIC INDUSTRIES CO., LTD.)
13:30	Pigttailed-OSFP External Laser Source for Co-Packaged Optics Kohei Umeta, Taketsugu Sawamura, Kyoko Nagai, Kazuhiko Kashima, Hideyuki Nasu Furukawa Electric Co., Ltd	24 (Invited) (TBD) Takeyasu Saito Osaka Metropolitan University	I-07 (Invited) Atomic imaging of Al ₂ O ₃ /diamond interface by photoelectron Mami N. Fujii Kindai University
13:55	Bandwidth Expansion of a Testing Station using a 0.3-mm-Pitch LGA Interface for a 25-Gbaud x 16-channel CPO Transceiver Kazuya Nagashima, Yuta Ishige, Wataru Yoshida, Hideyuki Nasu Furukawa Electric Co., Ltd	31 Polishing of CVD Diamond for Direct Bonding using Ar and SF ₆ -Gas Cluster Ion Beams Junsha Wang ¹ , Tadatomo Suga ¹ , Hideaki Yamada ² , Yoshiaki Mokuno ² 1) Meisei University 2) AIST	58 Influence of EMC Tg on Leakage Current in HTRB Test and Delamination in MSL Test for Power Package ZHIWEN LI, OU DONG, JUANJUAN HUANG, JUNRUI PENG Nexperia
14:20	Jitter Margin Analysis of 56-Gb/s PAM4 x 8-Channel VCSEL-Based Optical Transceiver for Co-Packaged Optics Wataru Yoshida, Yuta Ishige, Kazuya Nagashima, Hideyuki Nasu Furukawa Electric Co., Ltd	29 Pillar-Concave Copper-Copper Bonding for Face-to-Face Carbon Nanotube Synthesis Hua XU, Jeffery C.C. LO, S.W. Ricky LEE The Hong Kong University	63 Reliability Performance Study of Molding Compounds on High Voltage Molded Leaded Package April Joy Garete, Zhiwen Li, Yee Wai Fung, Wai Man Wong Nexperia
14:45	Temperature Distribution Measurement System for a Water-Cooled CPO Daughter Board Yuta Ishige, Kazuya Nagashima, Wataru Yoshida, Takeshi Hirasawa, Hideyuki Nasu Furukawa Electric Co., Ltd	62 Nb-Nb direct bonded pads for superconducting devices and their failure mode Atsushi Kudo ¹ , Masahisa Fujino ² , Yuuki Araga ² , Hiroshi Nakagawa ¹ , Katsuya Kikuchi ² , Tohru Taino ¹ 1) Saitama University 2) AIST	44
15:10	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	Interview with the Authors (Discussion after the session)
15:25	Coffee break + Sponsor's Exhibition		
15:40-17:35	Session 4: Photonics Packaging Chairperson Takaaki Ishigure (Keio University) Hideyuki Nawata (Nissan Chemical Corporation)	Session 5: Bioelectronics Chairperson Beomjoon Kim (The University of Tokyo) Takafumi Fukushima (Tohoku University)	Session 6: Technical Session Chairperson Shigenori Aoki (LINTEC Corporation) Takashi Hisada (IBM Research-Tokyo)
15:40	(Invited) 2.5D Photonic Integration for GPU Interconnects I-01 Benjamin Lee NVIDIA Corporation	FOWLP-based Flexible Hybrid Electronics (FHE) I: Photobiomodulation Device Fabrication on Hydrogel Substrate Using RDL-first Approach Tadaaki Hoshi, Daichi Nishiguchi, Hisashi Kino, Tetsu Tanaka, Takafumi Fukushima Tohoku University	54 TC-6 No.1 High Density Substrates & Boards TC-6 (TBD)
16:05	Development of Adapter-less Compact Multifiber Optical Connector Alexander William Setiawan Putra, Kentaro Matsuda, Motohito Takezaki Hakusan Inc.	20 FOWLP-based Flexible Hybrid Electronics (FHE) II: Heterogeneous Integration Technology of Micro-LEDs on 3D-IC for Smart Skin Display Jiayi Shen, Chang Liu, Hisashi Kino, Tetsu Tanaka, Takafumi Fukushima Tohoku University	60 TC-6 No.2 High Density Substrates & Boards TC-6 (TBD)
16:30	High Density Optical Transceiver Packaging using Glass Substrates and Through Glass Vias Kevin Burt, Joe Ahadian, Chris Bohn, John Coronati, Marc Epitoux, Adam Owens, Nathan Roberson, Sandra Skendzic Samtec Inc.	65 Enhancement for extraction of interstitial fluid through the porous microneedles array patch made of polycaprolactone (PCL) Yosuke Koma, Yuko Tsuruma, Shigenori Aoki, Shinya Takyu, Jongho Park, Beomjoon Kim, Rie Kinoshita 1) LINTEC Corporation 2) The University of Tokyo	34 TC Materials and Processes (TBD) (TBD)
16:55	Unique optical connect structure with polymer waveguide fabricated by the Mosquito method Yuji Furuta, Anzu Ito, Ryoto Ichinose, Hisashi Kaneda, Tomoharu Fujii, Takaaki Ishigure 1) SHINKO ELECTRIC INDUSTRIES C., LTD. 2) Keio University	36 Development of a highly porous polycaprolactone (PCL) Microneedles Array Patch to improve the absorption of interstitial fluid (ISF) Yosuke Koma, Yuko Tsuruma, Shigenori Aoki, Shinya Takyu, Jongho Park, Beomjoon Kim, Rie Kinoshita 1) LINTEC Corporation 2) The University of Tokyo	33 TC Thermal and Mechanical (TBD) (TBD)
17:20	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	Interview with the Authors (Discussion after the session)
17:35-18:15	Hall I Chairperson Shinya Takyu (LINTEC Corporation) & Eiji Higurashi (Tohoku University) IEEE EPS Special Speech I		
17:35	IEEE EPS Special Speech I : EPS Welcome Kitty Pearsall (Boss Precision, Inc.) S-02		
19:15	Welcome Reception		
21:15	Close		

November 16, 2023 (Thursday)

4F/5F Main Hall I On-site presentation		1F Room I On-site presentation Registration	1F Room II On-site presentation	
9:00	Hall I Chairperson Shoji Uegaki (Crane Research) & Kazuyuki Nakagawa (Renesas Electronics Corporation)			
9:20-10:10	Plenary Speech III			
9:20	Plenary Speech III: Pivotal Advanced Package Co-Design for Heterogeneous Integration C.P. Hung (ASE Group)			P-04
10:10-11:00	Hall I Chairperson Yoichiro Kurita (Tokyo Institute of Technology) & TBD			
10:10	Plenary Speech IV: (TBD) Seungwook Yoon (Samsung Electronics Corp.)			P-01
11:00	Coffee break + Sponsor's Exhibition			
11:10-12:40	Session 7: Advanced PKG II Chairperson Kiyokazu Yasuda (Osaka University) Kenji Takahashi (AIST)	Session 8: Automotive I Chairperson Hajime Kimura (Nissan Motor Co., Ltd.) Yutaka Uematsu (Hitachi Ltd.)	Session 9: VCSEL-Based Optical Interconnects Chairperson Hideyuki Nasu (Furukawa Electric Co., Ltd) Junichi Inoue (Kyoto Institute of Technology)	
11:10	(Invited) Metal-polymer direct joining using small textures on metal surface Yusuke Kajihara Tokyo University	1-06 Packaging of SiC Power Module with a Low-Permittivity Material to Reduce Capacitive Coupling Sihoon Choi ¹ , Jiyoung Choi ¹ , Jong-Won Shin ² , Jun Imoka ¹ , Masayoshi Yamamoto ¹ 1) Nagoya University 2) Chung-Ang University	30 (Invited) TBD Michael Tan Lumentum	I-09
11:35	Multi Die Stacked Structure fabricated by WoW Bonding Haruo Shimamoto ¹ , Yuuki Araga ¹ , Masahisa Fujino ¹ , Naoya Watanabe ¹ , Kenji Takahashi ¹ , Tsuyoshi Kawagoe ² , Ichirou Honma ² , Katsuya Kikuchi ¹ 1) AIST 2) UltraMemory Inc.	52 A Review of the Packaging Scheme of a Traction Inverter: Layout, Capacitor, Current Sensing and Power Module Thiyu Warnakulasooriya, Sihoon Choi, Arihiro Kamiya, Jun Imaoka, Masayoshi Yamamoto Nagoya University	39 Crosstalk Reduction in Ultra-High-Density High-Speed Optical Receiver Takatoshi Yagisawa, Tomonori Azuma, Makoto Miyoshi, Jumpei Miike, Yoshiyuki Harada, Satoshi Ide Fujitsu Optical Components Limited	48
12:00	Packaging of a 25-tiles device on large dimension AlN ceramic substrate keeping low dead areas and tight planarity Sarah Renault CEA-Leti	59 Abnormal Position Identification Technique for Communication Channel using Adaptive DFE Soshi Shimomura, Yutaka Uematsu Hitachi Ltd.	7 Polymer Optical Waveguide Coupler with Vertically Bent Cores Nagi Itaru, Takaaki Ishigure Keio University	9
12:25	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition		Interview with the Authors (Discussion after the session)	
12:40-14:10	Lunch			
14:10-15:40	Session 10: Automotive II Chairperson Yutaka Uematsu (Hitachi Ltd.) Hajime Kimura (Nissan Motor Co., Ltd.)	Session 11: Millimeter Wave applications Chairperson Kazuyuki Nakagawa (Renesas Electronics Corporation) Yoichiro Kurita (Tokyo Institute of Technology)	Session 12: Advanced PKG III Chairperson Kenji Takahashi (AIST) Taiji Sakai (FICT LIMITED)	
14:10	(Invited) The Cutting-edge Simulation and Validation Technology using Model-based Development Karsten Krügel dSPACE GmbH	1-02 Design and Optimization of Test Socket for Millimeter-Wave: Steerable Beam Measurement Technology Yu-Chang Hsieh, Hong-Sheng Huang, Wen-Chun Hsiao, Sheng-Chi Hsieh, Chen-Chao Wang ASE Inc.	16 Understanding Design Rules of Wafer Level Chip Scale Packaging Addressing Thermo-Mechanical Challenges Yiyi Ma, Jing-En Luan STMicroelectronics	2
14:35	High Density Automotive Module with Fan-Out Package Wataru Shiroi, Shuuichi Kariyazaki, Yuji Kayashima, Takafumi Betsui, Shiro Machida, Kazuyuki Nakagawa, Toshiniko Akiba Renesas Electronics Corporation	40 Ceramic-packaged Multichip Front-end Module for 5G Millimeter Wave Communication applications Bo Zhou, Zheng Pan, Yong Cheng Nanjing University of Posts and Telecommunications	12 A DFT Technique for Electrical Interconnect Testing of Circuit Boards with 3D Stacked SRAM ICs Yuki Tkiri ¹ , Hiroyuki Yotsuyanagi ¹ , Fara ASHIKIN Binti Ali ² , Shyue-Kung Lu ³ , Masaki Hashizume ⁴ 1) Tokushima University 2) Universiti Teknikal Malaysia 3) National Taiwan Univ. 4) The Open Univ. of Japan	15
15:00	Board-Level Drop Reliability Analysis for Fine-Pitch BGA Packages in Automotive Applications Wei-Hong Lai ASE Inc.	28		
15:25	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition		Interview with the Authors (Discussion after the session)	
15:40	Coffee break + Sponsor's Exhibition			
15:50-16:30	Hall I Masayoshi Yamamoto (Nagoya University) & Yutaka Uematsu (Hitachi, Ltd.)			
15:50	Special Speech I Special Speech I: Special Speech I: Dynamic Wireless Power Transfer Technologies for Future Electric Vehicles Takehiro Imura (Tokyo University of Science)			S-05
16:30-17:10	Hall I Chairperson Shinya Takyu (LINTEC Corporation) & Eiji Higurashi (Tohoku University)			
16:30	IEEE EPS Special Speech II: TBD Sam Karikalan (Broadcom Inc.)			S-01
17:10	Coffee break + Sponsor's Exhibition			
17:20-18:20	Early Career Researcher's (ECR) Session On-site poster presentation			
	A D-Band Waveguide-feed Patch Array on GaAs IPD Process Ta-Yeh Lin, Shuw-Guann Lin, Yin-Cheng Chang, Chaoping Hsieh, Tsenchieh Chiu, Da-Chiang Chang National Central University	4 Fabrication of Polymer Optical Waveguide Based Splitter by the Mosquito Method and Investigation of Its Signal Splitting Ratio Kosei Azuma, Takaaki Ishigure Keio University	11 Structural Investigation of Rare-Earth Metal Polymer Composite Doped Optical Amplifiers for Higher Gain Kohei Ono, Takaaki Ishigure Keio University	14
	Polymer Spot Size Expander on Laser Diode Chip for Fiber Coupling Atsuki Sawada ¹ , Yoshiki Kamiura ² , Chiemi Fujikawa ¹ , Osamu Mikami ³ 1) Tokai University 2) Kyushu University 3) Universiti Teknologi Malaysia	26 Study on Power Transmission System for a Dynamic Charging System Shared Between Light-Duty and Heavy-Duty Vehicles Kouki Onimaru, Kraisor Throngnumchai Kanagawa Institute of Technology Graduate School	32 Reserch on strain sensor using bending loss of optical fiber Takaya Waki, Masaki Fujii, Ryo Nagase Chiba Institute of Technology	43
	Template stripping of Au from polyimide film for smoothing of bonding surface Shogo Koseki ¹ , Mika Ogino ¹ , Kai Takeuchi ¹ , Le Hac Huong Thu ² , Takashi Matsumae ² , Hideki Takagi ² , Yuichi Kurashima ² , Tomoaki Tokuhisa ³ , Toshikazu Shimizu ³ , Eiji Higurashi ¹ 1) Tohoku University 2) AIST 3) Kanto Chemical Co., Inc.	47 Suppression of surface roughening of Ag films by capping layer for Ag/Ag surface activated bonding Yuanhao Cai ¹ , Kai Takeuchi ¹ , Miyuki Uomoto ² , Takehito Shimatsu ² , Eiji Higurashi ¹ 1) Tohoku University 2) FRIS, Tohoku University	49	
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November 17, 2023 (Friday)

4F/5F Main Hall I		1F Room I		1F Room II	
On-site presentation		On-site presentation		On-site presentation	
9:00		Registration			
9:20		ECR Award Ceremony			
9:30-10:10	Hall I Chairperson Kenji Takahashi (AIST) & TBD Special Speech II				
9:30	Special Speech II: (TBD) Yoshihiro Hayashi (AIST/Keio University)			S-04	
10:10-10:50	Hall I Chairperson Eiji Higurashi (Tohoku University) & Mitsuaki Katagiri (Rapidus Corporation) Special Speech III				
10:10	Special Speech III: Challenges for hetero integration: process technology, test and reliability Rer. nat. Harald Kuhn (Fraunhofer ENAS)			S-03	
10:50	Coffee break + Sponsor's Exhibition				
11:00-12:55	Session 13: Process and Material Technologies II Chairperson Satomi Kawamoto (Namics Corporation) Shinya Takyu (LINTEC Corporation)	Session 14: High-Speed Electrical Interconnect Chairperson Kazuyuki Nakagawa (Renesas Electronics Corporation) Yoichiro Kurita (Tokyo Institute of Technology)	Session 15: Polymer Waveguide Technology Chairperson Hideyuki Nawata (Nissan Chemical Corporation) Junichi Inoue (Kyoto Institute of Technology)		
11:00	(Invited) TBD Gari Arutinov Holst Centre	I-04 (Invited) A Novel Chiplet Integration Architecture Employing Pillar-Suspended Bridge with Polymer Fine-Via Interconnect Yasuhiro Morikawa ULVAC	I-11	6 Demonstration of high-power stability of polymer optical waveguides using external laser source (ELS) for co-packaged optics Satoshi Suda, Takayuki Kurosu, Akihiro Noriki, Fumi Nakamura, Takeru Amano National Institute of Advanced Industrial Science and Technology	
11:25	Inductive sintering module for improved multi die attach in the field of power packaging Christian Hofmann, Patrick Rochala, Martin Kroll, Sushant Panhale, Mario Baum, Maik Wiemer, Harald Kuhn, Kiyoshi Oi Fraunhofer Institute for Electronic Nano Systems ENAS, Chemnitz University of Technology, Institute for Machine Tools and Production Processes (IWP), Professorship for Forming and Joining, SHINKO Electric Industries Co., Ltd.	41 Simulation method of 32Gbps Signal Transmission Considering Xtalk Impact using Probability Density Function Masahiro Yao, Norio Chujo Hitachi, Ltd.	35	45 Low Loss Design and Fabrication for Tapered Waveguide Based Spot Size Converter Fumimasa Kondo, Yuji Furuta, Hisashi Kaneda, Tomoharu Fujii, Takaaki Ishigure 1) Keio University 2) SHINKO ELECTRIC INDUSTRIES CO., LTD.	
11:50	Printable Sheet Sensor System with Organic Circuit for Structural Health Monitoring Mihoko AKIYAMA, Tepei ARAKI, Takafumi UEMURA, Shusuke YOSHIMOTO, Naoko NAMBA, Yuko KASAI, Hiroshi OHTA, Toshikazu NEZU 1) Osaka University 2) SANKEN	21 A 3.6-4.5 GHz Doherty RF Power Amplifier Using 0.25-um GaN/SiC HEMT and GaAs IPD technology Hsin-Chieh Lin, Hsin-Chieh Lin, Te-Hua Fan, Hwann-Kaeo Chiou, Da-Chiang Chang 1) National Central University 2) Taiwan Semiconductor Research Institute	18	22 Temperature dependence of coupling loss between SMF and polymer optical waveguides with various refractive index profiles Ryota Kinoshita, Takaaki Ishigure 1) Sumitomo Bakelite Co., Ltd. 2) Keio University	
12:15	Warpage Observation of Liquid Compression Mold Underfill on Strip Substrate Takayuki Oe, Yuto Shigeno, Yukihiko Ikeda, Kyota Aoyama, Tsuyoshi Kamimura NAMICS CORPORATION	42 Crosstalk Mitigation for High Speed SerDes Applications on FCBGA Package Li-Chieh Hung, Hung-Chun Kuo, Ming-Fong Jhong, Chen-Chao Wang ASE Inc.	25	17 Tactile Pressure Sensor Based on Flexible Polymer Optical Waveguides Fabricated by the Mosquito Method YUANTIAN YIN, Takaaki Ishigure Keio University	
12:40	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition	Interview with the Authors (Discussion after the session)	Interview with the Authors (Discussion after the session)		
12:55	Lunch (free time)				
14:25-16:45	Session 16: Power Electronics Chairperson Kentaro Kaneko (Ritsumeikan University) Hiroki Imabayashi (Fuku University)	Session 17: Integrated Photonics Chairperson Takahiro Matsubara (KYOCERA Corporation) Hidetoshi Numata (IBM Research)	Session 18: Process and Material Technologies III Chairperson Naoko Araki (DAICEL CORPORATION) Mitsuaki Katagiri (Rapidus Corporation)		
14:25	(Invited) 350°C operation of SiC complementary JFET logic gates Mitsuaki Kaneko Kyoto University	I-03 (Invited) Energy-Efficient Integrated Photonics for Future Optical Interconnects and Neuromorphic Computing Stanley Cheung Hewlett Packard Labs	I-08	10 Development of Anti-ESD back grinding tape Shinya Takaoka, Issei Adachi Lintec Corporation	
14:50	The effect of the power module structure (copper clip thickness) on reliability under power cycling test Ryoichi Kato, Yoshinari Ikeda, Takafumi Yamada, Kohei Yamauchi, Hiromichi Gohara, Tatsuhiko Asai, Hirohisa Oyama Fuji electric Co., Ltd.	23 Retroreflection Using Bloch Surface Wave Resonance for External Laser Mirror Keisuke Ozawa, Aika Taniguchi, Yuya Yamanishi, Junichi Inoue, Shogo Ura Kyoto Institute of Technology	53	18 Development of high heat-resistant multilayer barrier electrodes suitable for multiple reflow processes KAZUTAKA MAEDA, DAISUKE TOYOTA, SUGURU MISAWA KYOCERA Corporation	
15:15	Study of Nitride Crack Reduction for Electronic Power Devices Nick Chenchao Zhong, Haibo Fan, Nivasan Yogeswaran, Mark Gajda 1) Nexperia Hong Kong 2) Nexperia UK	3 Polymer Optical Waveguide Type 3-D MUX device for Mode Division Multiplexing Links Ryoto Ichinose, Takaaki Ishigure Keio University	46	27 RAC Process characterization in SMT PCBA Jui Ang Tan, Chee Chuan Tan, Alvin Kok Wah Leong, Viiren Subramaniam, Khian Chee Chua Intel Sdn Bhd	
15:40	Schottky barrier diode composed of Ge-doped α -Ga ₂ O ₃ grown by mist-CVD method Takeru Wakamatsu, Yuki Isobe, Hitoshi Takane, Kentaro Kaneko, Katsuhisa Tanaka 1) Kyoto University 2) Ritsumeikan University	55 (Invited) Photonic System-in-Package (pSiP) by applying thin glass Henning Schroder Fraunhofer IZM	I-10	Interview with the Authors (Discussion after the session)	
16:05	Prototyping and Evaluation of SiC Half Bridge Circuit using Power Device Embedded Module Process Towards Future Three Dimensional Packaging. Kazuhiro NAKAMURA, Koichi SHIGEMATSU, Jun IMAOKA, Masayoshi YAMAMOTO Nagoya University	38 Interview with the Authors (Discussion after the session)			
16:30	Interview with the Authors (Discussion after the session) + Sponsor's Exhibition				
16:45	Close				