

May 22, Wednesday

08:30	REGISTRATION		
09:00	Surface Activated Bonding (SAB) (1) Co-Chairs: F. Fournel E. Higurashi	22O-01	(OPENING REMARKS) [Keynote] Microsystem Integration and Packaging – A Chronicle of the Surface Activated Bonding and its Future Outlook Tadatomo Suga, Meisei University, Japan
09:40		22O-02	Impact of Ar atom irradiation on the crystallinity of GaAs/Si interfaces fabricated by surface activated bonding at room temperature Yutaka Ohno, Tohoku University, Japan
10:00		22O-03	Effect of annealing temperature on diamond/Si interfacial structure Jianbo Liang, Osaka City University, Japan
10:20-10:40	BRAEK		
10:40	Surface Activated Bonding (SAB) (2) Co-Chairs: I. Radu J. M Song	22O-04	SiC-SiC temporary bonding compatible with rapid thermal annealing at 1000 °C Fengwen Mu, The University of Tokyo, Japan
11:00		22O-05	SOI wafer fabricated with extra thick deposited BOX layer using surface activated bonding at room temperature for customized power devices Yoshihiro Koga, SUMCO corp., Japan
11:20		22O-06	Tiny Integrated Laser by Room Temperature Surface Activated Bonding Arvydas Kausas, Institute for Molecular Science, Japan
11:40		22O-07	Oxide Removal for Low-Temperature Metal Thermo-Compression Wafer Bonding Bernhard Rebhan, EV Group, Austria
12:00		22O-08	High Yield Chip-on-wafer Low Temperature Plasma Activated Bonding for III-V/Si Hybrid Photonic Integration Takehiko Kikuchi, Sumitomo Electric Industries, Ltd., Japan
12:20-12:30	(transfer, 5 minutes' walk)		
12:30-13:40	LUNCH <Honda no Mori>		
13:40-15:00	SHORT PRESENTAION for Poster 1 <Honda no Mori> MC: N. Kawamata, H. Ishida		
15:00-16:10	COFFEE BRAEK / POSTER 1 <Honda no Mori>		
16:10-17:30	SHORT PRESENTAION for Poster 2 <Honda no Mori> MC: N. Kawamata, H. Ishida		
17:30-17:40	(transfer, 5 minutes' walk)		
17:50	NOH STAGE		
18:30-19:00	(transfer, 20 minutes' walk)		
19:00	BANQUET <Gojukken Nagaya, Kanazawa Castle>		

May 23, Thursday

08:40	<i>Roles of Low-temperature Bonding in 3D and Hetero-Integration</i> <i>Co-Chairs:</i> K. Kurabayashi L. DiCioccio	23O-01	[Keynote] Where is the Sweet Spot for Panel Level Packaging? Tanja Braun, Fraunhofer IZM, Germany
09:20		23O-02	Low Temperature Cu-Cu Gang Bonding for RDL-First Fan-Out Panel Level Package Kai Ming, Yang, Unimicron Technology Corp., Taiwan
09:40		23O-03	[Invited] Robustness and reliability challenges for hybrid bonding integration: a review Stephane Moreau, Univ. Grenoble Alpes, CEA, LETI, France
10:00		23O-04	Effect of N ₂ plasma treatment in Cu/SiO ₂ hybrid bonding using ultra-thin manganese film Kazumichi Tsumura, Toshiba Corporation, Japan
10:20-10:40	<i>COFFEE BREAK</i>		
10:40	<i>Fundamentals of Nano-bonding</i> <i>Co-Chairs:</i> K. H. Lee T. Shimatsu	23O-05	[Invited] Room temperature GaN-Si bonding via an intermediate atomic-layer-deposition Al ₂ O ₃ layer by using O Ion Beam Xinhua Wang, Institute of Microelectronics, Chinese Academy of Sciences, China
11:00		23O-06	Pre-bonding Characterization of SiCN Enabled Wafer Stacking Lan Peng, IMEC, Belgium
11:20		23O-07	Defect Identification in Bonding Surface Layers by Positron Annihilation Spectroscopy Fumihiko Inoue, IMEC, Belgium
11:40-11:50	<i>(transfer, 5 minutes' walk)</i>		
11:50-13:00	<i>LUNCH <Honda no Mori></i>		
13:00-13:50	<i>POSTER 2 <Honda no Mori></i>		
13:50-14:00	<i>(transfer, 5 minutes' walk)</i>		
14:00	<i>Bonding Technologies for 3D Integration (1)</i> <i>Co-Chairs:</i> G.-Q. Lu S. Moreau	23O-08	[Keynote] Die to wafer direct bonding: from fundamental mechanisms to optoelectronic and 3D applications Frank Fournel, CEA-LETI, France
14:40		23O-09	Multichip thinning technology with temporary bonding for multichip-to-wafer 3D integration Sungho Lee, Tohoku University, Japan
15:00		23O-10	[Invited] Die to die high yield DBI assembly for true 3D interconnect Belgacem Haba, Xperi corp., USA
15:20-15:40	<i>COFFEE BRAEK</i>		
15:40	<i>Power Applications and Solder Bonding</i> <i>Co-Chairs:</i> T. Braun M. Howlader	23O-11	[Invited] Low-temperature Silver Sintering for Bonding 3D Power Modules Guo-Quan Lu, Virginia Tech, USA
16:00		23O-12	[Invited] Wafer Bonding, A Key Stage For Power Devices Lea Di Cioccio, Univ. Grenoble Alpes, CEA, LETI, France
16:20		23O-13	Impact of Emitter Thermal Shunt for InP-based Double-Heterojunction Bipolar Transistors on SiC Substrate Yuta Shiratori, NTT Corporation, Japan
16:40		23O-14	Room temperature bonding of GaN on single-crystal diamond by using Mo/Au nano-adhesion layer Kang Wang, Xi'an Jiaotong University, China
17:00		23O-15	[Invited] Thermodynamic and Kinetic Effects on Microstructure Evolution in Hybrid Low Temperature Solder/High-Sn Solder Joints Yaohui Fan, Purdue University, USA
17:20		23O-16	[Invited] Low Temperature Soldering: Enabling Advancements in Packaging Morgana de Avila Ribas, MacDermid Alpha Electronics Solutions, India
17:40		23O-17	Electroplating of Three-Dimensional Sn-rich Solder for MEMS Packaging Applications Ji Fan, Huazhong University of Science and Technology, China
18:00-19:00	<i>(transfer, 20 minutes' walk)</i>		
19:00	<i>CONFERENCE RECEPTION <Tokyu Hotel></i>		

May 24, Friday

08:20	<i>Low-temperature Bonding for MEMS and Micro-fluidic Devices</i> <i>Co-Chairs:</i> <i>W.-P. Dow</i> <i>B. Corbett</i>	24O-01	[Keynote] Flexible Sensors – Materials, Interfaces and Surfaces Jamal Deen, McMaster University, Canada
09:00		24O-02	[Invited] System integration of nanostructured materials for point-of-care immune biosensing Younggeun Park, University of Michigan, USA
09:20		24O-03	Wafer level low temperature bonding of industrial glass substrates for life science Anke Sanz-Velasco, IMT Masken und Teilungen AG, Switzerland
09:40		24O-04	Adhesive Wafer Bonding for CMOS based Lab-on-a-Chip Devices Werner J. Karl, X-FAB MEMS Foundry Itzehoe GmbH, Germany
10:00		24O-05	Low temperature covalent wafer bonding for X-ray imaging detectors Nasser Razek, G-Ray Medical & Industries, Switzerland
10:20-10:40	<i>COFFEE BREAK</i>		
10:40	<i>Bonding Technologies for Hetero-Integration</i> <i>Co-Chairs:</i> <i>C. Chen</i> <i>N. Shigekawa</i>	24O-06	[Invited] Heterogeneous material integration and manufacturing using wafer bonding technology Ionut Radu, SOITEC, France
11:00		24O-07	Ohmic InP/Si Direct Bonding Ryoichi Inoue, Kyoto University, Japan
11:20		24O-08	High bonding yield and brighter integrated GaN LED and Si-CMOS Kwang Hong Lee, Singapore-MIT Alliance for Research & Technology, Singapore
11:40		24O-09	[Invited] Micro-transfer-printing for heterogeneous integration Brian Corbett, Tyndall National Institute, Ireland
12:00		24O-10	[Invited] Integration of Two-Dimensional Materials: Recent Advances and Challenges Matiar Howlader, McMaster University, Canada
12:20-13:50	<i>LUNCH</i>		
13:50	<i>Bonding Technologies for 3D Integration (2)</i> <i>Co-Chairs:</i> <i>C. Handwerker</i> <i>T. Gregorich</i>	24O-11	[Invited] Electroplated Cu Bump with Ultra-Large Grain without Thermal Annealing and Kirkendall Void at the Interface of Cu/Sn Joint Wei-Ping Dow, National Chung Hsing University, Taiwan
14:10		24O-12	Microstructural Effects on Electrodeposited Copper Direct Bonding Jenn-Ming Song, National Chung Hsing University, Taiwan
14:30		24O-13	[Invited] Low-temperature Cu-to-Cu direct bonding enabled by highly (111)-oriented and nanotwinned Cu Chih Chen, National Chiao Tung Univ., Taiwan
14:50		24O-14	Low temperature direct bonding of nanotwinned Ag thin films Fan-Yi Ouyang, National Tsing Hua University, Taiwan
15:10		24O-15	Light Enhanced Cu to Cu Bonding with Different Electromagnetic Radiations David Tamg, Advanced Semiconductor Engineering Group, Taiwan
15:30		24O-16	Study on role of inserted Pt intermediate layer deposited by atomic layer deposition for Cu-Cu quasi-direct bonding Kosuke Yamada, Waseda University, Japan
15:50-16:10	<i>COFFEE BRAEK</i>		
16:10	<i>Characterization and Emerging Technologies</i> <i>Co-Chairs:</i> <i>J. Deen</i> <i>N. Hosoda</i>	24O-17	[Keynote] Non-Destructive Characterization of Advanced IC Packages with Buried Features Using 3D X-ray Thomas Gregorich, Carl Zeiss SMT Inc., USA
16:50		24O-18	[Keynote] Attachment and anti-attachment structures in plants as concept generators for bioinspired technical materials systems Thomas Speck, University of Freiburg, Germany
17:30	<i>Presenter:</i> <i>H. Takagi</i>	AWARDS	
17:50	<i>Presenter:</i> <i>T. Suga</i>	CLOSING REMARKS	

SHORT PRESENTATION for Poster 1

13:40-15:00 May 22	Bonding Technologies for 3D and Hetero-Integration	22P-01	Wafer-level hybrid bonding for fine-pitch Cu/Interlayer-dielectric bonding Masahisa Fujino, AIST, Japan
		22P-02	Triple-Stacked Wafer-to-Wafer Hybrid Bonding for 3D Structured Image Sensors Yuki Honda, NHK Science and Technology Research Laboratories, Japan
		22P-03	Evaluation of Adhesive Fracture Energy of Polyimide Interlayer Dielectric Film for Redistribution Layer of Semiconductor Package Kenta Ono, Graduate School of Shibaura Institute of Technology, Japan
		22P-04	Cure Shrinkage Behavior Analysis in Ultraviolet Curable Adhesive using Finite Element Method Yuga Sato, Graduate School of Shibaura Institute of Technology, Japan
		22P-05	Fatigue Life Prediction of BGA Solder Joint with Consideration of Microstructural Coarsening Kouchi Moroka, Graduate School of Shibaura Institute of Technology, Japan
		22P-06	Effect of Nitride Passivation on Cu Surface for Low Temperature Cu-to-Cu Bonding Haesung Park, Seoul National University of Science and Technology, Korea
		22P-07	Copper direct bonding with short time and excellent electrical property by (111)-oriented nano-twinned copper Kai Cheng Shie, National Chiao Tung University, Taiwan
		22P-08	Low Temperature Cu-to-Cu Direct Bonding with Thin Gold Capping on Highly (111)-orientated Nanotwinned Cu Films Fu-Chain Chen, National Chiao Tung University, Taiwan
		22P-09	Low temperature Au-Au direct bonding with highly (111)-oriented Au films Wei-You Hsu, National Chiao Tung University, Taiwan
		22P-10	Low temperature all-Cu bonding via Cu-nanoparticle paste sintering in Pt-catalyzed formic acid vapor Fengwen Mu, The University of Tokyo, Japan
		22P-11	Low temperature copper-copper bonding in ambient air using hydrogen radical pretreatment Seongbin Shin, The University of Tokyo, Korea
		22P-12	Artifacts in the structural analysis of SAB-fabricated interfaces by using focused ion beam Yutaka Ohno, Tohoku University, Japan
	Surface Activated Bonding (SAB)	22P-13	Atom probe tomography of GaAs homointerfaces fabricated by surface-activated bonding Yasuo Shimizu, Tohoku University, Japan
		22P-14	Fabrication of Diamond/Cu Direct Bonding for Power Device Application Shinji Kanda, Osaka City University, Japan
		22P-15	Electrical properties of p+-GaAs/patterned metal layer/n+-Si junctions Takashi Hishida, Osaka City University
		22P-16	Bonding strength evaluation of Al foil/AlN junctions by surface activated bonding Shotaro Horikawa, Osaka City University, Japan
		22P-17	A polyimide film/aluminum foil junction by modified surface activated bonding Hidemasa Akazawa, Osaka City University, Japan
		22P-18	Lithium niobate-on-insulator waveguide on Si substrate fabricated by room temperature bonding Ryo Takigawa, Kyushu University, Japan
		22P-19	Room-temperature pressureless wafer sealing using ultrathin Au films activated by Ar plasma Michtaka Yamamoto, The University of Tokyo, Japan
	Atomic Diffusion Bonding (ADB)	22P-20	Oxidation of Bonded Thin Ti Films Using Oxide Underlayers in Atomic Diffusion Bonding Process for Optical Applications Gen Yonezawa, Sony Corp., Japan
		22P-21	Novel Sputter Film Deposition to Fabricate Thick Films with Extremely Smooth Surface Suitable for Room Temperature Bonding Takayuki Saito, Canon Anelva Corporation, Japan
		22P-22	Atomic Diffusion Bonding of Wafers using Thin Nb Films Miyuki Uomoto, Tohoku University, Japan
		22P-23	Atomic Diffusion Bonding of Wafers using a-Ge Films with Extremely Low Electrical Conductivity Arina Muraoka, Tohoku University, Japan
		22P-24	Rearrangement of Crystal Lattice Occurred at Ag/Ag Bonded Interface in Atomic Diffusion Bonding Shigenobu Matsuda, Tohoku University, Japan

SHORT PRESENTATION for Poster 2

16:10-17:30 May 22	Related Technologies for Low-temperature Bonding	22P-25	Leading edge review: What is an important factor of CMP consumables for 3D Integration Bonding? Michio Uneda, Kanazawa Institute of Technology, Japan
		22P-26	III-nitride epitaxy by ion filtered inductively coupled plasma MOCVD Yi Luo, Tsinghua University, China
	New Processes for Low-temperature Bonding	22P-27	Direct bonding of (111) single crystal diamond substrate onto Si wafer by hydrophilic wafer bonding Takashi Matsumae, AIST, Japan
		22P-28	Plasma-activated direct bonding of coated optical glasses Pascal Birckigt, Fraunhofer Institute for Applied Optics and Precision Engineering, Germany
		22P-29	Wavelength-Conversion Material-Mediated Semiconductor Bonding Kodai Kishibe, Kyoto University, Japan
		22P-30	Solution-Process ZnO-Mediated Semiconductor Bonding Tatsushi Yamashita, Kyoto University, Japan
		22P-31	Hydrogel-Mediated Semiconductor Bonding Kodai Kishibe, Kyoto University, Japan
		22P-32	Low temperature polyimide-to-polyimide direct bonding Hong-Che Liu, National Chiao Tung University, Taiwan
	MEMS and Power Applications	22P-33	Sweat Glucose Sensing by Directly Bonded Thin Films Maksud Alam, McMaster University, Canada
		22P-34	Novel Gratings for Astronomical Observations Fabricated by Latest Technologies Noboru Ebizuka, Riken, Japan
		22P-35	Evaluation of Au-Au bonding after annealing for getter activation -Fabrication of all-sapphire Cs gas cell for miniature atomic clock- Yuichi Kurashima, AIST, Japan
		22P-36	Stacking 4" Si Wafer with Parallel 3-Stepped Micro-Trenches to Deposit Superconducting Material for Magnetic Energy Storage Minoru Sasaki, Toyota Technological Institute, Japan
		22P-37	Deformation Behavior of Pressurized Sintered Ag Nanoparticles in Discrete Type Power Semiconductor Device Kichi Nagata, Graduate School of Shibaura Institute of Technology, Japan
		22P-38	High Temperature Fatigue Crack Propagation Characteristics of Pressureless Sintered Silver Nanoparticles Koji Osaki, Graduate School of Shibaura Institute of Technology, Japan
		22P-39	Fracture Analysis of Vertical Direction Crack in Die Attach Joint for Power Semiconductor Device Hiroshige Sugimoto, Graduate School of Shibaura Institute of Technology, Japan
	Surface Activated Bonding (SAB)	22P-40	Low temperature wafer bonding with gas cluster ion beams Noriaki Toyoda, University of Hyogo, Japan
		22P-41	Room Temperature Wafer Bonding with Titanium Thin Films Based on Formation of Ti/Si Amorphous Layers Eiji Higurashi, AIST, Japan
		22P-42	Room Temperature Bonding of Quartz Glass using Aluminum Oxide Intermediate Layer Kai Takeuchi, The University of Tokyo, Japan
		22P-43	Room temperature SiC wafer bonding using SAB methods Fengwen Mu, The University of Tokyo, Japan
		22P-44	GaN-SiC and GaN-diamond integration via room temperature bonding Tadatomo Suga, The University of Tokyo, Japan
		22P-45	The integration of Ga ₂ O ₃ on SiC at room temperature by surface activated bonding method Yang XU, Institute of Microelectronics of Chinese Academy of Sciences, China
		22P-46	Analysis of SiC/Si Bonding Interface with Thermal Annealing Treatment by XPS Zexin Wan, Osaka City University, Japan
		22P-47	Directly bonded n+-InGaP/n+-Si junctions with a low interface resistance Moritake Sakihara, Osaka City University, Japan