Technical Program of TWHM 2022

Aug. 29 (Mon.)

Registration	16:00-18:00
Welcome Reception	18:00-20:00

Invited papaers :	Oral presentation (25 min.)
Cotributed papers :	"Upgraded" Oral presentation (15 min.)
Cotributed papers :	Short Presentation (3 min.) & Poster

Aug. 30 (Tue.)

Session	Start time	Allote d time	No.	Title	Speaker	Affiliation	Type	Local time @ online
Opening	9:00	0:15						
1. Plenary session	9:15	0:45	1-1	Unleashing the power of diamond – Heterogenous integrations for RF and power electronics	Martin Kuball	University of Bristol, United Kingdom	Plenary	
Coffee Break	10:00-10:20							
2. WBG MOS/MIS FETs	10:20	0:25	2-1	Interface science and engineering for GaN-based MOS devices	Heiji Watanabe	Osaka University, Japan	Invited	
	10:45	0:25	2-2	High Mobility in SiC MOS Structures with Low Interface State Density	Tsunenobu Kimoto	Kyoto University, Japan	Invited	
	11:10	0:25	2-3	Recent Progress in Electrical Characterization of Al2O3/Diamond Interface	Xufang Zhang	Kanazawa University, Japan	Invited	
	11:35	0:25	2-4	Gallium oxides lateral devices: kV power transistor to high power switched mode RF amplifiers	Uttam Singisetti	University at Buffalo, USA	Invited	
	12:00	0:03	2-5	Determination of the Effective Critical Breakdown Field for Si, Wide, and Extreme Bandgap Semiconductor Superjunction (SJ) Devices	M. Torky	Rensselaer Polytechnic Institute, USA	SP	
	12:03	0:03	2-6	Development of etching process for fabrication of Ga_2O_3 MOSFETs with self-aligned recessed gate	Takafumi. Kamimura	National Institute of Information and Communications Technology, Japan	SP	
Lunch	12:10-13:20							
3. GaN related devices I	13:20	0:25	3-1	Reinventing Power Electronics: NexGen Power Systems with NexGen Vertical GaN™	Dinesh Ramanathan	NexGen Power Systems, USA	Invited	
	13:45	0:25	3-2	Multi 2DEG Channel BRIDGE HEMT Technology for Millimeter-Wave Power Amplifier and RF Switch Applications	Keisuke Shinohara	Teledyne Scientific Company, USA	Invited	
	14:10	0:15	3-3	MBE grown AlScN/AlN/GaN high electron mobility transistors with regrown contacts	Kazuki Nomoto	Cornell University, USA	Upgraded	
	14:25	0:03	3-4	Lateral thickness change of the high-k film on GaN HEMT for uniform electric field	Yasuyuki. Miyamoto	Tokyo Institute of Technology. Japan	SP	
	14:28	0:03	3-5	Simple characterization of interface states in ALD-Al2O3/AlGaN/GaN structure at room temperature	Zenji Yatabe	Kumamoto University, Japan	SP	
	14:31	0:03	3-6	Possibility of the parallel conduction in AlGaN/GaN MIS-HEMTs	Ryota Ochi	Hokkaido University, Japan	SP	
	14:34	0:03	3-7	Anomalously high threshold voltage shift in Al_2O_3/AlGaN/GaN structures with regrown AlGaN layer	A. Baratov	University of Fukui, Japan	SP	
	14:37	0:03	3-8	Effect of cap layer on the trap states in Si_3N_4/AlGaN/GaN MIS structure with LPCVD grown gate dielectric	Haozhe Sun	Peking University, China	SP	
Coffee Break	14:40-15:00							
4. GaN related devices II	15:00	0:25	4-1	A High Current E-mode GaN HEMT with Thin Barrier Layer	Edward Chang	National Chiao Tung Universty, Taiwan	Invited (online)	14:00 Aug.30
	15:25	0:25	4-2	Local substrate removal for next generation GaN-on-Silicon power transistors	Farid Medjdoub	CNRS-IEMN, France	Invited (online)	8:25 Aug.30
	15:50	0:03	4-3	Output power performance of $In_{0.18}Al_{0.82}N$/AlN/GaN MIS-HEMTs at 70 GHz	Issei Watanabe	National Institute of Information and Communications Technology, Japan	SP	
	15:53	0:03	4-4	PEALD AlN passivation for enhancement-mode p-GaN gated AlGaN/GaN HFET	J.-H. Yim	Hongik University, Korea	SP	
	15:56	0:03	4-5	High-frequency and multi-probe-Hall characterizations for AlGaN/GaN heterostructures under Ohmic-metals	Kazuya Uryu	Japan Advanced Institute of Science and Technology, Japan	SP	
	15:59	0:03	4-6	Contactless-Photoelectrochemical (CL-PEC) etching on process-damaged n-GaN surface	Yoshito Osawa	Hokkaido University, Japan	SP	
	16:02	0:03	4-7	Estimation of device characteristics of normally-off type AlGaN/GaN MIS-HEMTs with SiO2/Al2O3 double insulators fabricated by ALD	Keitaro Toda	Nagoya Institute of Technology, Japan	SP	
	16:05	0:03	4-8	UV assisted room temperature hydrogen sensor with SnO_2 nanoparticles/Pd catalyst	Jeong-Jin Kim	Hongik University, Korea	SP	
Coffee Break	16:10-16:30							
5. Terahertz and mm-wave devicesogy)	16:30	0:25	5-1	InP/GaAsSb DHBTs: Historical Evolution, Device Physics, and State-of-the-Art Performance	Colombo Bolognesi	ETH-Zürich, Switzerland	Invited (online)	9:30 Aug.30
	16:55	0:25	5-2	Sub-THz and THz Double-Resonant-Tunnelling-Diode Patch-Antenna Oscillators	Michael Feiginov	Technical University Wien, Austria	Invited	
	17:20	0:03	5-3	Ultimate Frequency Limit of Direct Modulation in Resonant-Tunneling-Diode Terahertz Emitters	Masahiro Asada	Tokyo Institute of Technology, Japan	SP	
	17:23	0:03	5-4	Study for enhanced THz radiation using InGaSb/InAs heterostructures	Yoshiyuki Takagi	Osaka Institute of Technology, Japan	SP	
	17:26	0:03	5-5	Asymmetric FET structure on Graphene for terahertz applications	Chao Tang	Tohoku University, Japan	SP	
	17:29	0:03	5-6	Characterization of zero bias detection of monolithic integrated rectennas for 300 GHz band by using GaAsSb/ InGaAs backward diodes	Katsuhiro Usui	Tokyo Metropolitan University, Japan	SP	
	17:32	0:03	5-7	A progress report to clarify ultimate functionality of InGaAs/InAlAs triple-barrier resonant tunneling diode towards application for terahertz wireless communication	Heito Ito	Tokyo Metropolitan College of Industrial Technology, Japan	SP	
	17:35	0:03	5-8	A symmetric-type monostable-bistable transition logic element (SMOBILE) with frequency-based I/O isolation for THz-signal under-sampling	Umer Farooq	University of Toyama, Japan	SP	
6. Poster Viewing I	17:40-19:00			Poster no. 2-5~2-6, 3-4~3-8, 4-3~4-8, 5-3~5-8 will be presented in person.			Poster	

Aug. 31 (Wed.)

Session	Start time	Allocated time	No.	Title	Speaker	Affiliation	Type	Local time @ online
7. GaN related devices III	8:30	0:25	7-1	Opportunities and Challenges of GaN Super-Heterojunction	Rongming Chu	Department of Electrical Engineering, Pennsylvania State University, USA	Invited (online)	19:30 Aug.30
	8:55	0:25	7-2	ScAlN/GaN Heterojunction Field Effect Transistors for Ultra-high power and efficient RF Power Amplifiers	Eduardo M. Chumbes	Raytheon Technologies, USA	Invited (online)	19:55 Aug.30
	9:20	0:15	7-3	Ferroelectric-Gated GaN HEMTs for mm-Wave Switch Applications	Hansheng Ye	University of Notre Dame, USA	Upgraded	
	9:35	0:15	7-4	Demonstration of high current and E-mode operation in multi finger type EID AlGaN/GaN MOS-HEMTs on Si substrate	Takuma. Nanjo	Mitsubishi Electric Corporation, Japan	Upgraded	
Coffee Break	9:50-10:10							
8. GaN related devices, techniques and estimations	10:10	0:25	8-1	AlN based devices for new power electronic switches and mm-wave power MMICs	Joachim Würfl	Ferdinand Braun Institut, Germany	Invited (online)	3:10 Aug.31
	10:35	0:25	8-2	Demonstration of GaN IMPATT diodes at microwave frequencies	Manabu Arai	Nagoya University, Japan	Invited	
	11:00	0:03	8-3	Characterization of Fe-doping Induced Trap in AlGaN/GaN HEMTs using Low Frequency Y22 Measurement	Taiki Nishida	Saga University, Japan	SP	
	11:03	0:03	8-4	Nano-structural and electro-thermal analyses of GaN/3C-SiC on-diamond HEMTs prepared by bonding-first process	R. Kagawa	Osaka City University, Japan	SP	
	11:06	0:03	8-5	Carrier Dynamics Simulation and Device Design of GaN-based npn HBTs with Quaternary AlGaInN Emitter and GaInN Base	Akira Mase	Nagoya Institute of Technology, Japan	SP	
Excursion	11:30							
Banquet	19:00							

Sept. 1 (Thu.)

Session	Start time	Allocated time	No.	Title	Speaker	Affiliation	Type	Local time @ online
9. WBG devices, fabrications, and applications	8:30	0:25	9-1	Diamond 2 Inch-Wafer Growth and 875MW/cm2 Power FET	Makoto Kasu	Saga University, Japan	Invited	
	8:55	0:25	9-2	Correlation between Dislocation and Reverse Leakage Current in GaN pn Junctions	Yoshio Honda	Nagoya University, Japan	Invited	
	9:20	0:03	9-3	Field Emission Properties of selective area grown GaN Nanowires on n+ Si substrates	G. Doundoulakis	Florida International University, USA	SP	
	9:23	0:03	9-4	Study of Ti/Al/Ti/Au ohmic contacts to AlGaN/GaN heterostructures	Hiroshi Okada	Toyohashi University of Technology, Japan	SP	
	9:26	0:03	9-5	Growth of N-polar In-rich InAlN by MOCVD	S. Hasenöhrl	Slovak Academy of Sci., Slovakia	SP	
	9:29	0:03	9-6	Self-aligned Ohmic Contact Formation with Selectively Grown n^+-GaN Layer by Using Picosecond Laser Deposition	K. Kodama	Nagoya University, Japan	SP	
	9:32	0:03	9-7	Fabrication and device characteristics of AlGaInN/GaN HEMTs on Single-Crystal AlN Substrate	Sakura Tanaka	Nagoya Institute of Technology, Japan	SP	
	9:35	0:03	9-8	Si- or Ge-sputtering-power dependence of carrier concentration in n-type GaN films deposited by low-temperature sputtering technique	S. Yamada	Nagoya University, Japan	SP	
	9:38	0:03	9-9	A numerical modeling of capacitance-voltage characteristics of GaN MIS diode	Kenya Nishiguchi	Sumitomo Electric Industries, Ltd., Japan	SP	
	9:41	0:03	9-10	Demonstration of Rectifier Characteristics of AlGaN/GaN HEMT Gated-Anode Diode for Microwave Wireless Power Transfer	Naoya Kishimoto	Nagoya Institute of Technology, Japan	SP	
	9:44	0:03	9-11	1.8-2.2 GHz Continuous GaN HEMT Class-F Amplifier Using 1-Port CRLH TL	Eri Tsuji	Shibaura Institute of Technology, Japan	SP	
	9:47	0:03	9-12	High heat-dissipation of high thermal conductive Carbon Composite (CC)	H. Saito	Nagoya Institute of Technology, Japan	SP	
	9:50	0:03	9-13	Fabrication of N-Polar AlGaN/AlN Heterostructure Field Effect Transistors and its Electrical Properties	N. Okada	Yamaguchi University, Japan	SP	
	9:53	0:03	9-14	Electrical properties in wafer-bonding-based GaAs/GaN junctions on free-standing substrates	Makoto Hirose	Osaka City University, Japan	SP	
	9:56	0:03	9-15	Reverse Leakage Mechanism in GaN Vertical SBD with High-Energy Fluorine Ion Implanted Guard Rings	Jiayue Xu	Peking University, China	SP	
Coffee Break	10:00-10:20							
10. InP related devices I	10:20	0:25	10-1	Recent Progress in Metal-Organic Vapor Phase Epitaxy of InP-based Ultrahigh-Speed Transistors	Takuya Hoshi	NTT Corporation, Japan	Invited	
	10:45	0:03	10-2	Investigation of carrier transport properties for InxGa1-xAs/In0.52Al0.48As Quantum-Well HEMTs through modeling their transconductance	Hyo-Jin Kim	Kyungpook National University, Korea	SP	
	10:48	0:03	10-3	Analysis of source resistance for $In_{0.8}Ga_{0.2}As$ quantum-well high-electron-mobility transistor with source resistance modeling	Ji-Hoon Yoo	Kyungpook National University, Korea	SP	
11. Poster Viewing II	11:00-12:20			Poster no. 8-3~8-5, 9-3~9-15, 10-2~10-3 will be presented in person.			Poster	
Lunch	12:20-13:20							
12. InP related devices II	13:20	0:25	12-1	InGaAs Multi-Bridged-Channel Field-Effect-Transistors for future CMOS	Hyeon-Bhin Jo	Kyungpook National University, Korea	Invited	
	13:45	0:15	12-2	Comparison of DC/RF characteristics of InP HEMTs with In-rich InGaAs and InAs composite channel	T. Sasaki	NTT Corporation, Japan	Upgraded	
	14:00	0:15	12-3	Development of GaInSb n-Channel HEMTs Using Experiments and Simulations	A. Endoh	Tokyo University of Science, Japan	Upgraded	
Closing	14:15							

TWHM 2022 Technical Program at a glance

	Aug. 29 (Mon.)	Aug. 30 (Tue.)	Aug. 31 (Wed.)	Sept. 1 (Thu.)
8:30			7. GaN related devices III	9. WBG devices, fabrications, and applications
9:00		Opening		
9:30		1. Plenary session		
10:00		Coffee Break	Coffee Break	Coffee Break
10:30		2. WBG MOS/MIS FETs	8. GaN related devices, techniques and estimations	10. InP related devices I
11:00				11. Poster Viewing II
11:30			Excursion	
12:00				Lunch
12:30		Lunch		
13:00				12. InP related devices II
13:30		3. GaN related devices I		
14:00				Closing
14:30		Coffee Break		
15:00		4. GaN related devices II		
15:30				
16:00	Registration	Coffee Break		
16:30		5. Terahertz and mm-wave devices		
17:00				
17:30		6. Poster Viewing I		
18:00	Welcome Reception			
18:30				
19:00			Banquet	
19:30				
20:00				
20:30				
21:00				