

# IEDMS 2021 獲獎名單

## Symposium A

### 最佳論文獎 Best Paper Award

Paper ID	Paper Title	Author
#1130	Impacts of Asymmetric Gate Metal Structure on the Current Behavior of Normally-OFF p-GaN/AlGaN/GaN HEMTs	Tz-Yan Huang, Ya Chun Chang, Chih-Chao Hsu, and Chao-Hsin Wu
# 1006	High Power High Speed 940 nm Tunnel Junction Flip-Chip VCSEL for LiDAR	Zhi Kuang Lu, Yu Ming Huang, Hao-chung Kuo, and Min-Hsiung Shih
# 1175	Gelatin for Used in Self-Healing Resistive Memory Device	Jia-Cheng Jian, Yu-Chi Chang, Shouou Jinn Chang, and Sheng-Po Chang
# 1148	Switching Behaviors of GaN-on-Si Power HEMTs with Deep Source Metal Trenches	Chih-Kang Chang, Dai-Jie Lin, Jih-Yuan Yang, Yuh-Renn Wu, and Jian Jang Huang

### 佳作論文獎 Excellent Paper Award

Paper ID	Paper Title	Author
#1213	300 V – 7.5A Enhancement-Mode p-GaN HEMTs on Silicon Substrate with 100mm Gate Width	Ya-Han Yang, Tong-Wen Wang, and Meng-Chyi Wu
#1026	AlGaN/AlN/GaN Metal-Oxide-Semiconductor High Electron Mobility Transistors with Ni/Au Gate Electrode	Jung-Hui Tsai, Jing-Shiuan Niu, Li-An Tsai, Wei-Che Shao, and Wen-Chau Liu
#1037	A Novel Heterostructure Schottky Diode with a Bimetallic Surface Structure for Hydrogen Sensing Application	Wei-Cheng Chen, Jing-Shiuan Niu, Pu-Yuan Ke, Shiou-Ying Cheng, and Wen-Chau Liu
#1271	Investigation of TiO <sub>2</sub> /AlGaN/GaN Metal-Oxide-Semiconductor High-Electron Mobility Transistors	Yu-Shyan Lin, Chi-Che Lu, and Wei-Chou Hsu
#1093	Al <sub>2</sub> O <sub>3</sub> -Dielectric AlGaN/AlN/SiC Widegap Channel MOS-HFETs	Ching Sung Lee, Yun Zhong Lin, Yan Tling Shen, Jian Hong Ke, Zhi Zong Zheng, Yu Xuan Li, Jia Sheng Chen, Zheng Yang You, and Wei-Chou Hsu
#1251	Comparison of ultraviolet sensing performance of IGZO thin film transistors with Schottky metal and p-type NiO capping layer	Sin-Jih Huang, Meng-Yung Su, Rong-Ming Ko, Chao-Yen Chang, Chien-Hung Wu, and Shui-Jinn Wang

### 最佳海報論文獎 Best Poster Paper Award

Paper ID	Paper Title	Author
#1025	Nanocomposite of tin oxide and tungsten oxide for ethanol gas sensor	Feng-Renn Juang
#1260	Oxygen-based digital etch for arsenic-based III-V materials and the fabrication of InGaAs MOSFET	Yu Chen, Yan-Kui Liang, and Chun Hsiung Lin
#1038	Formaldehyde gas sensing properties of a sputtered vanadium pentoxide thin film decorated with gold nanoparticles	Jing-Shiuan Niu, Yen-Lin Pan, and Wen-Chau Liu

### 佳作海報論文獎 Excellent Poster Paper Award

Paper ID	Paper Title	Author
#1048	Gate Breakdown Analysis of Schottky p-GaN gate HEMTs under High Positive Gate Bias	Zhen-Wei Qin, Wei-Chia Chen, Hao-Hsuan Lo, and Yue-ming Hsin
#1203	Investigation of Recessed-Gate InAlN/GaN High Electron Mobility Transistors	Chong-Jie Huang, Cheng-Yang You, Ba Kuan-Jen, Yi-Ping Huang, Wei-Chou Hsu, and Ching-Sung Lee
#1214	The Study of Electrical Properties and Photoresponsivity of BiFeO <sub>3</sub> Crossbar Resistive Random Access Memory	Yu-Chi Chang, Chung Chieh Shih, and Ricky Wenkuei Chuang

#1034	Enhanced Performance of SnO <sub>2</sub> -based Thin-Film Transistors by Barium Doping	Han-Yin Liu, and Yu-Jie Liao
#1077	An ITO-based High Surface Area Hydrogen Sensor with Fast Predictive Ability	Kun Wei Lin, and Cheng Hao Wu
#1164	Investigation on the Electrical and Microwave Characteristics of AlInN/GaN HEMTs on Different Substrates	Yu-Cheng Chang, Yu Jie Luo, Wei Cheng Tzeng, Tz-Yan Huang, and Chao-Hsin Wu
#1139	Pt/AlGaIn/GaN High Electron Mobility Transistors for High- Sensitivity Hydrogen Sensor Applications	Yin-Yu Hsueh, Po-Cheng Pan, Pu-Chou Lin, and Yeong-Her Wang

## Symposium B

### 最佳論文獎 Best Paper Award

Paper ID	Paper Title	Author
#1008	Performance Improvement of Amorphous InGaZnO Thin Film Transistors Using Double-layer Structure	Jih-Chao Chiu, Song-Ling Li, Ming-Xuan Lee, and Chee-Wee Liu
# 1182	Enhanced Self-stability of Un-capsulated Polycrystalline MAPbI <sub>3</sub> Solar Cells with Urea and Fullerene additives	Diksha Thakur, Shou En Chiang, Jyh-Shyang Wang, and Sheng Hsiung Chang
# 1206	Studies of Transport Properties and Scaling Issues of MoS <sub>2</sub> and WS <sub>2</sub> Based Transistors	Pin-Fang Chen ,Che-Yu Wu , and Yuh-Renn Wu

### 佳作論文獎 Excellent Paper Award

Paper ID	Paper Title	Author
#1273	The First Demonstration of the Optoelectrical Amplifier and High Resolution Thermal Sensor with Light-Emitting Transistors	Lu-Ching Hsueh, Sheng-Wen Cheng, Hsin-Yu Lin, Mukul Kumar, and Chao-Hsin Wu
#1170	Charge Storage of Isolated Mono-layer Molybdenum Disulfide in Epitaxially Grown MoS <sub>2</sub> /Graphene Hetero-structures	Po-Cheng Tsai, Chun Wei Huang, Shoou Jinn Chang, Shu-Wei Chang, and Shih-Yen Lin
# 1234	Quantization Effect on the Magnetotransport in Textured Bi(0003) Nanofilms	Lee Chi Hung, Chieh Chou, Chao-Chuan Chen, and Hao-Hsiung Lin
# 1030	Titanium-Doped Cerium Fluoride Sensing Membrane Applied in Extend Gate Field Effect Transistor Devices	Yen Su, Chyuan Haur Kao, Yun-Hao Lin, Chan Yu Lin, Yu Ching Liao, Munmun Das, Titisha Chakraborty, Min Zhe Wei
# 1133	High-Performance Solution-Processed Cu <sub>2</sub> O Photodetector Arrays via UV- Irradiation	Hung Chen, Sheng-Wei Pai, Ming-Hsien Li, and Chun-Ying Huang

### 最佳海報論文獎 Best Poster Paper Award

Paper ID	Paper Title	Author
#1101	Investigation of Hybrid MgZnO Nanoparticles Chitosan Non-Volatile Resistive Memory Devices with Different Mg Composition	I-Ching Tsai, Wei-Chiao Liao, Chih-Chia Su, Wang Zi-Hao, and Hsin-Chieh Yu
#1173	HfZrO <sub>2</sub> Ferroelectric Thin-Film Transistors Based on InGaZnO Channels for Memory Applications	Chun-Wei Chang, Yu-Hsin Kuo, Chun-Yu Liao, Min-Hung Lee, and I-Chun Cheng

### 佳作海報論文獎 Excellent Poster Paper Award

Paper ID	Paper Title	Author
#1272	Effective Reduction of Defects at the Ge <sub>0.96</sub> Sn <sub>0.04</sub> /Al <sub>2</sub> O <sub>3</sub> Interface by Rapid Thermal Oxidation and Oxygen Plasma	Yi-Chieh Chen, Chia-You Liu, Yu-Rui Wu, Cheng-Kai Hsiung, and Jiun-Yun Li
#1137	Stacked Three-dimensional Crossbar Resistive Random Access Memory based Synapse for Neuromorphic Computing	Szu-Han Hu, Min-Jung Tsai, Fang-Rong Zhang, Ke-Jing Lee, Dar-Sen Lu, Ting- Chang Chang, and Yeong-Her Wang

#1082	Fabrication of Two-Dimensional Tungsten Disulfide Thin Film	Sheng-Po Chang, Guan-Yuan Liou, Chieh-Yu Kuan, Qi Rui Qiu, Wei-Lun Huang, Jone F. Chen, Shouu Jinn Chang, and Wei-Chih Lai
#1156	Perovskite Quantum Dots/Silicon White Light Photodetectors	Chao-Yu Tiao, Yi-Shan Shih, Jun-Hao Shen, and Wei-Chen Tu
#1199	Effects of Metallic Dopants in Indium Oxide-based Thin-Film Transistor for Monolithic Three-Dimension Integrated Circuits	Yu-Chen Chen, Zhen-Hao Li, Tsung-Che Chiang, Chun-Hao Tu, and Po-Tsun Liu
#1136	Ultrahigh Spin-Transfer Torque Effect in Superlattice-Barrier Magnetic Tunnel Junctions Using Half-Metallic Magnets	Chun-Pu Wang, Shih-Hung Cheng, Jing-Ci Su, Sin-You Huang, Yu-Chi Chen, Peng Tseng, and Wen-Jeng Hsueh

## Symposium C

### 最佳論文獎 Best Paper Award

Paper ID	Paper Title	Author
#1032	Dependency of Transient Current Behavior on Oxide Thickness in Trench Structure MIS TDs	Jian-Yu Lin and Jenn-Gwo Hwu
#1094	Germanium Quantum Dots Arrays with Self-organized Confinement Barriers and Self-aligned Electrodes for Quantum-Computing Devices	I Hsiang Wang, PENG KANG-PING, CHING LUN CHEN, Horng-Chih Lin, and Pei-Wen Li

### 佳作論文獎 Excellent Paper Award

Paper ID	Paper Title	Author
#1107	New Observations on Strain-enhanced Cryogenic Ballistic Transport in Advanced FinFETs for High-performance Cold-electronic Applications	E-Ray Hsieh
#1018	Physical Unclonable Function by Random Plasma Charging Event in FinFET CMOS Processes	Wei Chang ,Chrong Jung Lin, and Ya-Chin King
#1150	TCAD Based Study of the Impact of Traps on RF FinFETs	Jhao-Lin Huang, Yu-Che Liu, and Meng-Hsueh Chiang
#1015	Theoretical Analysis of Reverse Current of MIS(p) Tunnel Diodes with Oxide Thickness in Ultra-thin Region	kung-chu Chen, Kuan-Wun Lin, and Jenn-Gwo Hwu

### 最佳海報論文獎 Best Poster Paper Award

Paper ID	Paper Title	Author
#1102	Investigation on Hot-carrier Induced Degradation and Lifetime of HV MOSFETs	Chao-Hung Wang, Jone F. Chen, Po-Hao Ko, Jin-Chin Liao, Ke-Jhu Pan, Yun-Chien Tsai, and Sheng-Po Chang
#1180	Interface Engineering of High- $\kappa$ Dielectric for Ge MOSFETs	Chiung-Yi Yang, Hsin-Fu Huang, Tzu-Chieh Hong, Yao-Jen Lee, Chun-Jung Su, Wen-Fa Wu, Tien-Sheng Chao, and Yeong-Her Wang

### 佳作海報論文獎 Excellent Poster Paper Award

Paper ID	Paper Title	Author
#1202	An Optimized Ferroelectric Option to Nanosheet Vertical Tunneling FETs	Narasimhulu Thoti and Yiming Li
#1097	Scalability Assessment of Ferroelectric-FET NVMs considering Ferroelectric Phase Nonuniformity using Voronoi Approach	Yuan Yu Huang, You-Sheng Liu, and Pin Su
#1201	Metal Contamination Suppression on Nickel-induced Laterally Crystallized Low-Temperature Polycrystalline Silicon Thin-Film Transistors for Monolithic 3D-IC Applications	Yu-Ting Tsai, Zhen-Hao Li, Tsung-Che Chiang, Shao Chi Lo, Po-Yi Kuo, and Po-Tsun Liu
#1012	High Performance Double Channel Poly-Si Thin Film Transistor With Lightly Doped Drain Design	JO-CHIN LIU, Po-Yun Cheng, Yu-Wei Chang, Feng-Tso Chien, and Yao-Tsung Tsai

#1239	Evaluation of FE behavior in Pt/TiN/HZO/p-Si MFS and Pt/TiN/HZO/TiN MFM structure for future logic/memory devices	Asim Senapati, SIDDHESWAR MAIKAP, Abhijit Aich, Chen Ying Lin, Chun-Yu Liao, and Min-Hung Lee
#1031	Impact of Inner Spacer on Gate-Induced Drain Leakage Current in Nanosheet FET	Jia Ying Lin, YU GAN WANG, Chia An Wang, and Meng-Hsueh Chiang
#1217	Silicon Wafer Surface Treatment Process for Solar Photovoltaics	Yu-Chun Huang, Ricky Wenkuei Chuang, Y D Wu, Wei-Chen Tien, and Man-Ying Wang
#1286	Nanosheet Compatible Complementary FET Logic Non Volatile Memory Device for 3nm CMOS and Beyond	Darsen Lu, Yu-Ming Chang, and Yao-Jen Lee

## Symposium D

### 最佳論文獎 Best Paper Award

Paper ID	Paper Title	Author
#1159	Dispersion Relation and Condensation of Exciton–Polaritons in ZnO Whispering-Gallery Microcavities	Sheng-Chan Wu, Gia-Yuan Zhuang, Chung-Xian Yang, Yia-Chung Chang, and Hsu-Cheng Hsu
#1258	Gate-Stacking Heterostructure Design and Fabrication of Self-aligned ITO/Ge dots/SiO <sub>2</sub> /SiGe photoMOSFETs for Si-based Optical Interconnects	Po-Yu Hong, Bing Ru Li, Horng-Chih Lin, and Pei-Wen Li

### 佳作論文獎 Excellent Paper Award

Paper ID	Paper Title	Author
#1098	AC-Driven Multi-Color Electroluminescent from a Hybrid WSe <sub>2</sub> /AlGaInP Light-Emitting Device	Ya-Hui Chang, Yen-Shou Lin, Hsiang-Ting Lin, Hao-Chung Kuo, and Min-Hsiung Shih
#1114	On-Wafer DUV Detector Through Metal Sensing Pad by 28nm CMOS Technologies	Chia-Ru Lu, Chien-Ping Wang, Jiaw-Ren Shih, Chrong Jung Lin, and Ya-Chin King
#1055	Aluminum-Gallium-Oxide based Ultraviolet Photodetector	Sheng-Po Chang, Shen-Hao Zhang, Chih-Yung Wang, Wei-Lun Huang, Yi-Hsin Liu, Wei-Chih Lai, and Shoou Jinn Chang
#1189	Defect and inter-sphere coupling effects on high-Q modes in ZnO microspheres	Ching-Hang Chien, Chia-Liang Liu, and Yia-Chung Chang
#1033	Gallium Nitride Metalenses at Visible Wavelengths	Chen Meng-Hsin, Li Jia-Ying, Su Vin-Cent, Hsiung Chieh Kuan, and Lin Hoang Yan

### 最佳海報論文獎 Best Poster Paper Award

Paper ID	Paper Title	Author
#1124	On the study of GPS band pass protectors with Si based AlGaIn/GaN symmetric varactor	CHNG-HAO YANG, Liann-Be Chang, MING-JER JENG, Yu-Li Hsieh, Chia-Ning Chang, and Zi-Xin Ding
#1142	Stability Improvement of Low-bandgap Perovskite Solar Cell Using Formamidinium as Cation	Yu-Han Hung, CHENLUN LAN, Wei-Chou Hsu, and En-Ping Yao

### 佳作海報論文獎 Excellent Poster Paper Award

Paper ID	Paper Title	Author
#1123	Comparison Study of SiN and TiO <sub>2</sub> Sandwiched Colloidal Quantum-Dot Microdisks	Kai-Wen Chen and Ming-Hua Mao
#1128	Fabrication and Properties of InWO Ultraviolet Photodetector	Sheng-Po Chang, Chieh-Yu Kuan, Po-Ju Wu, Wei-Lun Huang, Qi Rui Qiu, Wei-Chih Lai, and Shoou Jinn Chang
#1190	Photon-current Conversion from High-level Singlet Fission Reaction in Tetracene-based Diodes	Shi Hong Luo, Wu Chien-Chih, and Tzung-Fang Guo

#1196	Enhance Power Conversion Efficiency of Non-toxic Rudorfittes Solar Cells through Modification of Carrier Transporting Layer	Yu-Hsiang Chang, Yu Yen-Fu, kai-chi Hsiao, Shih-Hsuan Chen, and Ming-Chung Wu
#1292	Finite Array Size Effect of High Index Dielectric Bound States in the Continuum	Yi-Chen Wang, Bo-Xiang Cao, Tsung-Bo Chen, Chi-Ting Weng, Zhang-Qi Liao, Yu-Chen Hsu, and Jui-Nung Liu