

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 01. Metrology and Inspection for Micro Display |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:30 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Tae-gon Kim (Hanyang Univ., Korea) Dr. Yong Jun Park (Samsung Display Co., Ltd., Korea) |

[A01-1] [Invited] 09:00-09:25

Latest Methods of Measuring Virtual Reality Device Displays

Eric Eisenberg (Radiant Vision Systems, USA)

[A01-2] [Invited] 09:25-09:50

Photoluminescence-Based Optical Inspection Metrologies for GaN / InGaN μ LED Wafers

Sami Dzsaber, Adam Virovecz, Zsolt Szekrényes, and György Nádudvari (SEMILAB Co., Ltd., Hungary)

[A01-3] [Invited] 09:50-10:15

Emerging Trends in MicroLED Chip Architecture, Metrology, and Inspection

David Lewis (InZiv Ltd., Israel)

[A01-4] 10:15-10:30

Machine Learning and Deep Learning Based Display Defect Detection and Classification Strategy

Sanghoon Cho, Myeongho Song, Changhyun Park, and Sangrak Son (Samsung Display Co., Ltd., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 02. Special Session II: High Resolution Frontplane Technologies for XR I |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:30 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Hyunkoo Lee (Sookmyung Women's Univ., Korea) Prof. Changhun Hwang (OLEDON, Korea) |

[B02-1] [Invited] 09:00-09:25

CMOS Integrated Circuitry Active-Matrix Backplane Design for High-Resolution XR Microdisplays

P. Wartenberg, A. Fritscher, S. Damnik, S. Brenner, J. Baumgarten, S. Lenk, K. Fehse, D. Schlebusch, M. Törker, J. Zeltner, C. Schmidt, M. Rolle, J. Mütze, F. Schuster, B. Richter, and U. Vogel (Fraunhofer Inst. for Photonic Microsystems IPMS, Germany)

[B02-2] [Invited] 09:25-09:50

OLED Color Patterning Technologies for AR/VR and IT Displays

Chiwoo Kim, Jae Hoon Jung, and Kiro Jung (APS Inc., Korea)

[B02-3] [Invited] 09:50-10:15

Direct in Situ Photolithography of Perovskite Quantum Dots

Gaoling Yang and Haizheng Zhong (Beijing Inst. of Tech., China)

[B02-4] 10:15-10:30

Dual Color Emission in One Pixel to Achieving High-Resolution in AR/VR Application

Jae-In Yoo, Hyo-Bin Kim, Sung-Cheon Kang (Sungkyunkwan Univ., Korea), Suk-Ho Song (Samsung Electronics Co., Ltd., Korea), and Jang-Kun Song (Sungkyunkwan Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 03. Semiconductor Materials and Processing for High Performance TFTs |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Hyun Suk Kim (Dongguk Univ., Korea) Prof. Keisuke Ide (Tokyo Inst. of Tech., Japan) |

[C03-1] [Invited] 09:00-09:25

High-Mobility and Enhancement-Mode Thin-Film Transistors with Solid-Phase Crystallized Hydrogen-Doped Polycrystalline Indium Oxide Channel

Mamoru Furuta, Xiaoqian Wang, Naoki Okamoto, Kotaro Morita (Kochi Univ. of Tech., Japan), and Yusaku Magari (Hokkaido Univ., Japan)

[C03-2] [Invited] 09:25-09:50

High Performance Oxide TFTs Deposited by ALD Method

Takanori Takahashi and Yukiharu Uraoka (Nara Inst. of Science and Tech., Japan)

[C03-3] 09:50-10:05

Low Voltage Solution Processed α -Ga₂O_x Thin-Film Transistor Using Bilayer High-k Al₂O₃ and HfO₂ Gate Insulator

Dian Budiarti Kastian, Juan Paolo S. Bermundo, and Yukiharu Uraoka (Nara Inst. of Science and Tech., Japan)

[C03-4] 10:05-10:20

High-Performance Oxide Transistor Induced by a Metal Capping Layer on the Active Layer with Controlled Hydrogen Content

Ji-Min Park (Dongguk Univ., Korea), Minju Song, Junghwan Kim (UNIST, Korea), and Hyun-Suk Kim (Dongguk Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 04. Recent Developments in AR/VR/MR Displays |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room D (301) |
| Chair(s): | Prof. Qiong-Hua Wang (Beihang Univ., China) Prof. Jae-Hyeung Park (Seoul Nat'l Univ., Korea) |

[D04-1] [Invited] **09:00-09:25**

The Trend of MR Display Technology

Jacob Choi and Jim Zhuang (Meta, USA)

[D04-2] [Invited] **09:25-09:50**

Effects of Viewing Angle and Viewing Distance on Head Motion in Near-Eye Displays

Sumio Yano (Shimane Univ., Japan) and Shuichi Ojima (Sojo Univ., Japan)

[D04-3] **09:50-10:05**

Semi-Transparent CMOS Backplane for Advanced Near-to-Eye Microdisplays

U. Vogel, P. Wartenberg, B. Richter, S. Brenner, J. Baumgarten, S. Lenk, K. Fehse, D. Schlebusch, M. Törker, A. Fritscher, J. Zeltner, C. Schmidt, M. Rolle, S. Damnik, J. Mütze, and F. Schuster (Fraunhofer Inst. for Photonic Microsystems, Germany)

[D04-4] **10:05-10:20**

High Index, UV Stable NIL Formulation for AR Waveguides

Benjamin Balfanz, Mariah Durant, Selina Monickam, Peter Guschl, Serpil Gonen Williams, and Vincent Jao (Pixelligent Technologies LLC, USA)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 05. Display Circuits & Driving Technologies |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room E (302) |
| Chair(s): | Prof. Byung Seong Bae (Hoseo Univ., Korea) Dr. Jae Hoon Lee (Samsung Display Co., Ltd., Korea) |

[E05-1] [Invited] **09:00-09:25**

Integrated Mini-LED LCD and MIMO Visible Light Communication

Zong Qin and Zhiqing Zhao (Sun Yat-Sen Univ., China)

[E05-2] **09:25-09:40**

Multi-Output Scan Driver Circuits Based on LTPS and LTPO TFTs

Hye-Won Woo, Hwarim Im, Kook Chul Moon, and Yong-Sang Kim (Sungkyunkwan Univ., Korea)

[E05-3] **09:40-09:55**

Improvement of Flicker Phenomenon at Low Frequency in LTPO AMOLED Display by Applying Compensation Scheme of Variable Reset Voltage

Dong Sup Sim (Yonsei Univ. & LG Display Co., Ltd., Korea), Sujin Jung (Yonsei Univ., Korea), Byungchul Kim, Nack Bong Choi, Sang Yoon Park (LG Display Co., Ltd., Korea), and Hyun Jae Kim (Yonsei Univ., Korea)

[E05-4] **09:55-10:10**

Further Power Reduction by Aggressive Peripheral Dimming

Won-Been Jeong, Jeong-Soo Park (Kyung Hee Univ., Korea), Chanhung Yoo, Nari Kim (Samsung Electronics, Korea), and Seung-Woo Lee (Kyung Hee Univ., Korea)

[E05-5] [Invited] **10:10-10:35**

LTPO TFTs Integrated Gate Driver for AM μ LED Displays

Congwei Liao, Yunfei Liu, Xin Zheng, and Shengdong Zhang (Peking Univ., China)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 06. Free Form Factor : Sensors and Application |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Dong Chan Kim (Gachon Univ., Korea) |

[F06-1] [Invited] **09:00-09:25**

Ultrasoft Sensors and Displays That Can Conform To Skin Wrinkles

Naoji Matsuhisa (The Univ. of Tokyo, Japan)

[F06-2] [Merck Young Scientist Award] **09:25-09:50**

Omnidirectional Printing of Intrinsically Soft Interconnects for Free-Form Displays

Seungjun Chung (Korea Univ., Korea)

[F06-3] **09:50-10:05**

Novel Stretchable Interconnect Structure and Its Display Application

Ji Hun Choi, Chan Woo Park, Jiho Joo, Chanmi Lee, Jong-Heon Yang, and Chi-Sun Hwang (ETRI, Korea)

[F06-4] **10:05-10:20**

Development of High Refractive Index and Foldable Material for Inkjet Printing

Hiroki Ikegami, Yusuke Uraoka, and Atsushi Yamaguchi (Panasonic Industry Co., Ltd., Japan)

[F06-5] **10:20-10:35**

Enhancing Foldable Display Analysis: Integrating Cross-Sectional and Three-Dimensional DIC Techniques

Jinsu Yoon, Jong Ho Park, Minkyun Kang, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 07. Metamaterials for Display |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room G (401) |
| Chair(s): | Dr. Sung-Hoon Hong (ETRI, Korea) Prof. Hongseok Yun (Hanyang Univ., Korea) |

[G07-1] [Invited] **09:00-09:25**

Programmable Directional Colors Using Plasmonics

Gyurin Kim, Jang-Hwan Han, Juhwan Kim, Hyun Min Kim, and Hyeon-Ho Jeong (GIST, Korea)

[G07-2] [Invited] **09:25-09:50**

Spatiotemporally-Multiplexed Full-Color Metasurface Holographic Movie

Kentaro Iwami (Tokyo Univ. of Agriculture and Tech., Japan)

[G07-3] **09:50-10:05**

High-Resolution Active Pixel based on Low-Loss Metasurfaces

Soo-Jung Kim, Doa Kim, Yong-Hae Kim, and Sung-Hoon Hong (ETRI, Korea)

[G07-4] **10:05-10:20**

Terahertz Chiral Metasurface based on Kirigami Structure for Controlling Circular Dichroism

Kyungbin Cho, Wonwoo Lee, and Hojin Lee (Soongsil Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 08. Future Micro-LED Pixel Technology |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room H (402) |
| Chair(s): | Dr. Yong-Ho Ra (Chonbuk Nat'l Univ., Korea) Dr. Ja-Yeon Kim (KOPTI, Korea) |

[H08-1] [Invited] 09:00-09:25

New Opportunities of Micro-LED Display

Kyoseop Choo (LabEnt Inc., Korea)

[H08-2] [Invited] 09:25-09:50

Patterning Quantum Dot Color Conversion Layers

Dieter Cuyppers, Harindra Kumar Kannojia, and Geert Van Steenberge (IMEC, Belgium)

[H08-3] 09:50-10:05

Study on Increasing Durability of Wrap Around Black Material for Tiled Displays

Nakcho Choi, Sangwoo An, Jaechil Hwang, Jongmoo Huh, and Jaebeom Choi (Samsung Display Co., Ltd., Korea)

[H08-4] 10:05-10:20

Multiple-Color Emission from Tb-Doped AlGaIn-Based Light-Emitting Diodes

Y. Fujiwara (Ritsumeikan Univ. & Osaka Univ., Japan), S. Yamazaki, T. Iwaya, and S. Ichikawa (Osaka Univ., Japan)

[H08-5] 10:20-10:35

Evaluation of Energy Efficiency in Microdisplays for AR/XR/MR Wearable

Qi Wu, Xiaowei Yue and Zhaojun Liu (Shenzhen Sitan Tech. Co., Ltd., China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 09. High Resolution Metrology Inspection and AI Technologies |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:20 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Junho Lee (Kongju Nat'l Univ., Korea) Mr. Sangrock Son (Samsung Display Co., Ltd., Korea) |

[A09-1] [Invited] 10:50-11:15

Super-Depth Imaging with Volumetric Reflection Matrix

Ye-Ryoung Lee (Inst. for Basic Science & Korea Univ. & Konkuk Univ., Korea), Dong-Young Kim, Yonghyeon Jo (Inst. for Basic Science & Korea Univ., Korea), Moonseok Kim (Catholic Univ., Korea), and Wonshik Choi (Inst. for Basic Science & Korea Univ., Korea)

[A09-2] [Invited] 11:15-11:40

Avoiding Frequent Model Retraining for Deep Learning Inspection

Juhyun Ahn, Hwehee Jung, Stephen Lee, and Hyunjun Kim (Cognex, Korea)

[A09-3] [Invited] 11:40-12:05

Real Performance and Accuracy of XYZ Imaging Systems

Ruud Bouten (Admesy B.V., The Netherlands) and Sungyun Kang (Admesy Technologies Asia, Korea)

[A09-4] 12:05-12:20

Evaluating HDR Video Quality with Local Gray Fidelity Analysis

Sianyi Huang and Jongseo Lee (Google LLC, USA)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 10. Special Session II: High Resolution Frontplane Technologies for XR II |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-11:55 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Donggu Lee (Gyeongsang Nat'l Univ., Korea) Dr. Chan-mo Kang (ETRI, Korea) |

[B10-1] [Invited] 10:50-11:15

High Brightness Microdisplays Combining Multi-Stack OLED Frontplanes with Advanced SXGA CMOS Backplanes

John Hamer, Jonathon Schrecengost, Daniel Fleischer, Xiao Ni, Suzannah Hamer, Jeffrey Spindler, J.P. DesOrmeaux, Ryan Mashack, Shannon Mason, Greg Waterman, Anatole Pleten, Michael Andre, Joseph Heberger, Jeremy Caton, Jonathan Schnapp, John Engstrom, David Scott, Chris Reckner, Daniel Scully (OLEDWorks LLC, USA), Philipp Wartenberg, and Bernd Richter (Fraunhofer IPMS, Germany)

[B10-2] [Invited] 11:15-11:40

High Resolution Evaporator For 10Kppi RGB OLEDs XR Displays

Changhun Hwang (OLEDON, Korea)

[B10-3] 11:40-11:55

Optical Crosstalk Effect Depending on Pixel Structures in the High-Resolution Full-Color Organic Light-Emitting Diode Displays with Quantum Dot Color Conversion Layers

Soobin Sim, Chaehyun Bae (Sookmyung Women's Univ., Korea), Chan-mo Kang, Hyunsu Cho, Jin-Wook Shin, Sukyung Choi, Byoung-Hwa Kwon, Gi Heon Kim, Chun-Won Byun, Nam Sung Cho (ETRI, Korea), Hyoc Min Youn, Jin Sun Kim, JongHo Jeong (Dongjin Semichem Co., Ltd., Korea), and Hyunkoo Lee (Sookmyung Women's Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 11. Understanding and Addressing Instabilities of TFTs |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:10 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Mamoru Furuta (Koichi Univ. of Tech., Japan) Dr. Seungjae Moon (UNIST, Korea) |

[C11-1] [Invited] 10:50-11:15

Carrier Transport Mechanisms in Amorphous / Polycrystalline Oxide Semiconductors

Toshio Kamiya (Tokyo Inst. of Tech., Japan)

[C11-2] [Invited] 11:15-11:40

Oxide-TFT Technology for Next-Generation Sustainable Electronics

Kenji Nomura (Univ. of California San Diego, USA)

[C11-3] 11:40-11:55

Analysis of Instability Mechanism under the High Voltage Drain Stress in Oxide Thin Film Transistors

Hyeonjoo Seul, Jaeyoon Park, Dongyeon Kang, Won-Sang Ryu, Jiyong Noh, and Kwon-Shik Park (LG Display Co., Ltd., Korea)

[C11-4] 11:55-12:10

Development of Highly Reliable Oxide TFTs for Display Applications Operating under Harsh Environment

Minho Lee, Hochang Lee, Hyun-cheol Cho, JungHyun Lee, Chan-Yong Jeong, DaeHwan Kim, Jiyong Noh, Kwon-Shik Park, and SooYoung Yoon (LG Display Co., Ltd., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 12. Novel Holographic Displays |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:10 |
| Session Room: | Room D (301) |
| Chair(s): | Dr. Keehoon Hong (ETRI, Korea) Dr. Soon-gi Park (Samsung Display Co., Ltd., Korea) |

[D12-1] [Invited] 10:50-11:15

Holographic Display based on Geometric Phase Liquid Crystal Device

Yi-Wei Zheng, Di Wang, and Qiong-Hua Wang (Beihang Univ., China)

[D12-2] [Invited] 11:15-11:40

Real-Time Holography Media System Using FPGA

Wonok Kwon and Sanghoon Cheon (ETRI, Korea)

[D12-3] 11:40-11:55

Correction of Parameter Mismatches in Transmission of Holographic 3D Images

Chang-Joo Lee, Hirohito Nishi, and Kyoji Matsushima (Kansai Univ., Japan)

[D12-4] 11:55-12:10

Holographic Axial Beam Shaping for Laser-Drawn Volumetric Display

Yuto Toda, Kota Kumagai, and Yoshio Hayasaki (Utsunomiya Univ., Japan)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 13. Display Systems for High-Performance XR |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:00 |
| Session Room: | Room E (302) |
| Chair(s): | Prof. Soo-Yeon Lee (Seoul Nat'l Univ., Korea) Dr. Jun-Han Han (Meta, USA) |

[E13-1] [Featured Invited]

10:50-11:20

Challenging Issues on Ultra-High Resolution and High Frame Rate OLEDoS Microdisplays for Hyper-Realistic Metaverse Systems

Oh-Kyong Kwon (Hanyang Univ., Korea)

[E13-2] [Invited]

11:20-11:45

Digital Driving Backplane Technology for XR

Jun-Han Han, Yun Wang, and Brian Wheelwright (Meta, USA)

[E13-3]

11:45-12:00

MIPI D-PHY/LVDS Combo Receiver Design for an XR Display Controller

Eunsu Kim, Sanghyeon Park, and Joon Goo Lee (RAONTECH, Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 14. Free Form Factor : Backplane |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:00 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. SeungJun Chung (Korea Univ., Korea) |

[F14-1]

10:50-11:05

High Throughput and Performance InZnAlO Thin Film Transistor on Polyimide Substrate via Atmospheric Pressure Spatial Atomic Layer Deposition

Dae Jung Kim, Kwang Su Yoo, Chi-Hoon Lee, Ji Min Kim, and Jin-Seong Park (Hanyang Univ., Korea)

[F14-2] [Invited]

11:05-11:30

Oxide Semiconductor Thin-Film Transistors Based Active-Matrix Photodetector Arrays

Yingjie Tang, Dingwei Li, Yan Wang (Westlake Univ., China), and Bowen Zhu (Westlake Univ. & Westlake Inst. for Optoelectronics, China)

[F14-3]

11:30-11:45

Hydrogel-Elastomer Hybrid Platform for Effective Heat Dissipation based on Evaporative and Radiative Cooling in Wearable Devices

Byeonggeol Lee, Dongju Jang, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[F14-4]

11:45-12:00

Effect of Elongation Stress on Island-Bridge Structural Oxide TFT with Metal Interconnects for Stretchable Electronics

Won-Bum Lee, Min-Seo Kim, and Jin-Seong Park (Hanyang Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 15. Emerging Materials for Display |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:15 |
| Session Room: | Room G (401) |
| Chair(s): | Prof. Hyeon-Ho Jeong (GIST, Korea) Dr. Sung-Hoon Hong (ETRI, Korea) |

[G15-1] [Invited] 10:50-11:15

Structural Control of Supracrystals through Self-Assembly of Nanocrystals in Oil-in-Water Emulsion

Hongseok Yun (Hanyang Univ., Korea)

[G15-2] 11:15-11:30

N-CGL Dopant with a High Binding Energy for a Low Progressing Driving Voltage

Seong Keun Kim, Young-Eun Choi, Ji-Yong Choi, Sungsoo Bae, Jaeheung Ha, and Dong-Chan Kim (Samsung Display Co., Ltd., Korea)

[G15-3] 11:30-11:45

Low-Optical Losses Silicon Composite for Efficient Metasurface at the Visible

Younghwan Yang (POSTECH, Korea) and Junsuk Rho (POSTECH & POSCO-POSTECH-RIST Convergence Research Center for Flat Optics and Metaphotonics, Korea)

[G15-4] 11:45-12:00

New QD Bank Materials for Higher Light Efficiency

Sukhoon Kang, Israel Lazo Martinez, Hyungguen Yoon, Sunghwan Hong, and Beomsoo Shin (Samsung Display Co., Ltd., Korea)

[G15-5] 12:00-12:15

Enhancing Device Performance through Crystal Structural Approaches Using Composition and Temperature Control in Indium-Zinc Oxide (IZO) System

Seong-Hwan Ryu, Hye-Mi Kim (Hanyang Univ., Korea), Sangwook Kim, Kwang-Hee Lee (Samsung Electronics Co., Ltd., Korea), and Jin-Seong Park (Hanyang Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 16. Micro-LED Manufacturing Technology |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:20 |
| Session Room: | Room H (402) |
| Chair(s): | Dr. Jae-Hyun Kim (KIMM, Korea) Prof. Yei Hwan Jung (Hanyang Univ., Korea) |

[H16-1] [Invited] **10:50-11:15**

Micro-LED Display with MoS₂ Backplane TFT

Jong-Hyun Ahn (Yonsei Univ., Korea)

[H16-2] [Invited] **11:15-11:40**

Ultra-Conformable, Skin-Like Electronics based on Microdevices

Byeongmoon Lee (Stanford Univ., USA)

[H16-3] [Invited] **11:40-12:05**

Selective Mass Transfer of Micro LED Using Lightizer Photoresist Expansion

Byoung Gu Cho (Lightizer Co., Ltd., Korea)

[H16-4] **12:05-12:20**

Laser Processes for High Throughput and High Precision MicroLED Display Manufacturing

Oliver Haupt (Coherent, Germany)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 17. Emerging QD Technologies |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Moon Kee Choi (UNIST, Korea) Dr. Taesoo Lee (Seoul Nat'l Univ., Korea) |

[A17-1] [Invited] **09:00-09:25**

Electronic Transport Control of Core-Shell Colloidal Quantum Dot Assemblies

Satria Zulkarnaen Bisri (Tokyo Univ. of Agriculture and Tech., Japan)

[A17-2] [Invited] **09:25-09:50**

Stabilization of Perovskite Nanocrystal Quantum Dots for Advanced Display Technologies: from Photoluminescence to Encapsulation

Rong Chen, Kun Cao, Qing Xu, Di Wen, and Bin Shan (Huazhong Univ. of Science and Tech., China)

[A17-3] **09:50-10:05**

Assessing Light Conversion Efficiency in Quantum Dot Down-Conversion Films

Markus Regnat (Fluxim AG, Switzerland), Kurt P. Pernstich (Zurich Univ. of Applied Science, Switzerland), Balthasar Blülle, Sandra Jenatsch, Moonkang Heo (Fluxim AG, Switzerland), Kwon Ok, Sean Ahn (InnoQD & Construction Co., Ltd., Korea), and Beat Ruhstaller (Fluxim AG & Zurich Univ. of Applied Science, Switzerland)

[A17-4] **10:05-10:20**

Aligned Quantum Rods as Emitter for Polarized Light Sources

Soeren Becker, Tobias Jochum, and Jan S. Niehaus (Fraunhofer CAN, Germany)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 18. OLED Devices I : Future Perspectives (Advancements and Challenges) |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:05 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Hui Xu (Heilongjiang Univ., China) Prof. Jae-Min Kim (Chung-Ang Univ., Korea) |

[B18-1] [Invited] 09:00-09:25

OLEDs of the Future

Michael S. Weaver (Universal Display Corp., USA)

[B18-2] [Invited] 09:25-09:50

Synergetic Interface Engineering on Blue Perovskite Light-Emitting Diodes

Jianxin Tang (Macau Univ. of Science and Tech., China)

[B18-3] 09:50-10:05

High-Efficiency and Enhanced-Color-Gamut RGBY AMOLED Displays

Woo-Young So, Mike Hack, Eric Margulies, Michael S. Weaver, and Julie J. Brown (Universal Display Corp., USA)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 19. TFT Based Functional Devices |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Myung-Gil Kim (Sungkyunkwan Univ., Korea) Prof. Kenji Nomura (Univ. of California San Diego, USA) |

[C19-1] [Invited] 09:00-09:25

Biosourced Materials in Organic Field Effect Transistor for Active-Matrix Display

E. Jacques (Univ. Rennes, France)

[C19-2] [Invited] 09:25-09:50

Large-Scale 2D Chalcogenide Active Matrix Pixel Image Sensor

Dipti Gupta (IIT Bombay, India) and Sunkook Kim (Sungkyunkwan Univ., Korea)

[C19-3] 09:50-10:05

Pseudohalide Enabling Synergistic Hole Concentration and Crystallization Modulation of Tin-Based Perovskite Films for High-Performance Transistors

Geonwoong Park, Wonryeol Yang (POSTECH, Korea), Ao Liu, Huihui Zhu (POSTECH, Korea & Univ. of Electronic Science and Tech. of China, China), Filippo De Angelis (Univ. of Perugia and INSTM, Italy & Prince Mohammad Bin Fahd Univ., Saudi Arabia & Sungkyunkwan Univ., Korea), and Yong-Young Noh (POSTECH, Korea)

[C19-4] 10:05-10:20

CuI/IGZO Pseudo-Depletion Load Full-Swing Inverter with IGZO TFT Enhancement Driver for Light-to-Frequency Circuits

Hyeon-Jong Lee, Yun-Sung Lee, Jae-Min Han, Hyun-Cheol Pi, Seung-Il Baek, Ji-Won Kim, and Sung-Hun Jin (Incheon Nat'l Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
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| Session Title: | 20. Novel 3D Displays |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room D (301) |
| Chair(s): | Mr. Donghee Nam (META Reality Lab., USA) Dr. Kihong Choi (ETRI, Korea) |

[D20-1] [Invited] 09:00-09:25

Aerial Graphics Drawn by Focused Femtosecond Laser Pulses

Yoshio Hayasaki, Tatsuki Mori, Keisuke Numazawa, and Kota Kumagai (Utsunomiya Univ., Japan)

[D20-2] [Invited] 09:25-09:50

Slim and Vergence-Accommodation-Conflict-Free VR near Eye Display

Jae-Hyeung Park (Seoul Nat'l Univ., Korea), Minseong Kim, Woongseob Han, and Xu Yunhan (Inha Univ., Korea)

[D20-3] 09:50-10:05

Polarized AIRR Optical System with a Flat Mirror Forms High Luminance Aerial Image at Long Floating Distance

Kazuaki Takiyama, Shiro Suyama, and Hirotsugu Yamamoto (Utsunomiya Univ., Japan)

[D20-4] 10:05-10:20

A Polarization Multiplexed Foveated Lightfield Display without Mechanical Moving Components

Hyeontaek Lee and Hee-Jin Choi (Sejong Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 21. Applied Vision/Human Factors I |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:30 |
| Session Room: | Room E (302) |
| Chair(s): | Dr. Don Gyou Lee (Meta, Korea) Mr. Dale Stolitzka (Samsung Display Co., Ltd. America Lab, USA) |

[E21-1] [Invited] 09:00-09:25

Challenges for Measuring Display Halation

John Penczek (NIST & Univ. of Colorado, USA)

[E21-2] [Invited] 09:25-09:50

Demonstration of Gamut Rings Color Scope

Kenichiro Masaoka (NHK Foundation, Japan)

[E21-3] [Invited] 09:50-10:15

Observer Metameric Mismatch Measurements of Wide-Gamut Displays

Johan Bergquist (Consultant, Japan)

[E21-4] 10:15-10:30

A New Approach for Just Noticeable Color Differences, beyond CIELAB

Patrick Candry, Patrick De Visschere (Ghent Univ., Belgium), and Kristiaan Neyts (Ghent Univ., Belgium & Hong Kong Univ. of Science and Tech., Hong Kong)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 22. Free Form Factor : Frontplane |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:25 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Jin-Seong Park (Hanyang Univ., Korea) Prof. Sang-Hee Ko Park (KAIST, Korea) |

[F22-1] 09:00-09:15

Development of QLEDs with Unconventional Form Factors: 3D Origami and Intrinsic Stretchability

Dong Chan Kim (Gachon Univ., Korea)

[F22-2] [Featured Invited] 09:15-09:45

Development of Highly Stretchable Display Using Liquid-Metal Electrodes

Mitsuru Nakata, Masashi Miyakawa, Hiroshi Tsuji, Tatsuya Takei (NHK Science &Tech. Research Lab., Japan), Toshihiro Yamamoto (NHK Foundation, Japan), and Yoshihide Fujisaki (NHK Science &Tech. Research Lab., Japan)

[F22-3] [Invited] 09:45-10:10

Highly Stretchable Display with Serpentine-Shaped Design and Intrinsically Stretchable Materials

Jangyeol Yoon, Jinwoo Choi, Seongwon Kim, Woosuk Seo, Heonjung Shin, Gyujeong Lee, Jong-Ho Hong, Yongjo Kim, and Changhee Lee (Samsung Display Co., Ltd., Korea)

[F22-4] 10:10-10:25

Study of Stress Management Technology in Display Form Factor with Comparison between Acylates and Silicones Laminating Material

Seung-A Lee (WACKER Chemical Korea, Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 23. Display Component/Systems for Next Generation Display |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-09:55 |
| Session Room: | Room G (401) |
| Chair(s): | Dr. Jong Hyun Park (LG Display Co., Ltd., Korea) Prof. Hongseok Yun (Hanyang Univ., Korea) |

[G23-1] [Invited] 09:00-09:25

Surface and Interface Engineering for Scalable Fabrication of Highly-Efficient and Stable Perovskite Light Emitting Diodes

Chih-Yu Chang (Nat'l Taiwan Univ. of Science and Tech., Taiwan)

[G23-2] 09:25-09:40

A Study on the Improvement of Tandem OLED Structure Using Two Photon Excitation Microscopy

Wooyoung Lee, Hyejeong Oh, Jeabum Han, Ki Young Yeon, and Nari Ahn (Samsung Display Co., Ltd., Korea)

[G23-3] 09:40-09:55

Display Bezel Design Using Irreversible Transmittance Control Materials

Jin-Hyung Jung, Won-Jong Jo, Tae-Woon Ko, Tae-hyoung Kwak, Kwon-Shik Park, and Soo-Young Yoon (LG Display Co., Ltd., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
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| Session Title: | 24. Innovative Color Conversion Applications |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room H (402) |
| Chair(s): | Prof. Hobeom Kim (GIST, Korea) Prof. Himchan Cho (KAIST, Korea) |

[H24-1] 09:00-09:15

Cavity-Based Color Conversion Layer Achieving Highly Directional Emission for Augmented Reality Micro-LED Displays

Heechan Lim and Jaesang Lee (Seoul Nat'l Univ., Korea)

[H24-2] 09:15-09:30

A New External Compensation Pixels for Micro-LED PWM Capable of Real-Time Compensation

SoYi Lee, JongBum Lee, Gi-Hong Kim, and JoonYoung Yang (LG Display Co., Ltd., Korea)

[H24-3] [Invited] 09:30-09:55

Study of Thin Film Blue-Light MicroLEDs for Microdisplay Applications

Ray-Hua Horng, Tsung-Chih Wan, Yu-Hsuan Hsu, and Yu-Yun Lo (Nat'l Yang Ming Chiao Tung Univ., Taiwan)

[H24-4] 09:55-10:10

Submicron Narrow-Band Phosphors in Luminescent Color Filters & Next Generation MiniLED and MicroLED Displays

James Murphy, Derrick Brewer, Samuel Camardello, Zeying Chen, Daniel DePuccio, Felipe Pavinatto, James Presley, Anant Setlur, Oltea Siclovan, and Aharon Yakimov (GE Research, USA)

[H24-5] [Invited] 10:10-10:35

Perovskite Nanocrystals for Down Conversion Displays and AR/VR Application Under LED Backlight

Tae-Woo Lee (Seoul Nat'l Univ. & SN Display Co., Ltd., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
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| Session Title: | 25. QLED Applications |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:20 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Jeonghun Kwak (Seoul Nat'l Univ., Korea) Prof. Hyunho Lee (Kwanwoon Univ., Korea) |

[A25-1] [Invited]

11:00-11:25

Overview of QD-LED Development: Current Status and Future Prospect

Donghoon Kwak, Yeogeon Yoon, Jaekook Ha, Sehun Kim, Youngmo Koo, Jaehyun Park, Seunguk Noh, and Changhee Lee (Samsung Display Co., Ltd., Korea)

[A25-2] [Invited]

11:25-11:50

The Influence of Charge Transport Layers on the Electroluminescence Stability of QLEDs

Dong Seob Chung, Tyler Davidson-Hall, Atefeh Ghorbani, Mohsen Azadinia, and Hany Aziz (Univ. of Waterloo, Canada)

[A25-3]

11:50-12:05

Toward Stretchable Quantum Dot Light-Emitting Diodes

Moon Kee Choi (UNIST, Korea)

[A25-4]

12:05-12:20

Substrate Modification of Flexible Quantum Dot Light-Emitting Diodes

Taesoo Lee and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 26. Young Leaders Conference I |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:30 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Soo-Yeon Lee (Seoul Nat'l Univ., Korea) |

[B26-1] 11:00-11:15

Ultrahigh Resolution, Polychromatic Quantum Dot Patterning for Advanced Applications

Tae Won Nam (Pusan Nat'l Univ., Korea)

[B26-2] 11:15-11:30

Heterogeneous Integration for Chip-Less Wireless Electronic Skins and Hemispherical Organic Image Sensors

Yeongin Kim (Univ. of Cincinnati, USA), Zhenan Bao (Stanford Univ., USA), and Jeehwan Kim (Massachusetts Inst. of Tech., USA)

[B26-3] 11:30-11:45

Creative Use of Multi-Gate Architectures and Contact Effects for Circuit Reduction: Applications of Multimodal Transistors to Display and Beyond

Eva Bestelink (Univ. of Surrey, UK)

[B26-4] 11:45-12:00

Frame Interpolation for High-Frame-Rate Holographic Video Using Stochastic Gradient Descent

Dae-Youl Park and Keehoon Hong (ETRI, Korea)

[B26-5] 12:00-12:15

Intelligent Medical Solution using Multimodal Electronics and Control Networks

Jae-Young Yoo (Sungkyunkwan Univ., Korea)

[B26-6] [Kim Yong-Bae Award-Grand Prize] 12:15-12:30

A Study on High Fill Factor Stretchable Organic Light-Emitting Diodes with a Hidden Active Area in 3D Structure

Donggyun Lee (KAIST & Seoul Nat'l Univ., Korea) and Seunghyup Yoo (KAIST, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 27. Scaling of TFTs for High Resolution Integration |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:20 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Jin-Seong Park (Hanyang Univ., Korea) |

[C27-1] [Invited] 11:00-11:25

Amplified NIR-Vis Up-Conversion based on Vertical Field Effect Phototransistor

Wei Lei, Sajid Hussain (Southeast Univ., China), and Tayeb Mohammed-Brahim (Southeast Univ., China & Univ. éRennes, France)

[C27-2] [Invited] 11:25-11:50

Towards Submicron Channel Length Oxide Semiconductor Thin-Film Transistor Backplane for Ultra-High Resolution Display

Sung Haeng Cho, Chihun Sung, and Jeho Na (ETRI, Korea)

[C27-3] 11:50-12:05

Effect of Active Layer Thickness on Contact Properties of Ultra-Thin Channel Amorphous InGaZnO Thin Film Transistor with Ti Source/Drain Electrodes

Sunyeol Bae, Jinkyu Lee, and Soo-Yeon Lee (Seoul Nat'l Univ., Korea)

[C27-4] 12:05-12:20

Accurate Sheet Resistance Extraction in Short-Channel IGZO Transistors Utilizing the Gated van der Pauw Method

Woo-Seok Lee and Jeong-Hwan Lee (Inha Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 28. [Joint Session I with KIBME] Immersive Media Technology for Displays |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:20 |
| Session Room: | Room D (301) |
| Chair(s): | Prof. Suk-Ju Kang (Sogang Univ., Korea) |

[D28-1] 11:00-11:20

JPEG Quality Enhancement from Continuous Cosines with Implicit Neural Representation

Woo Kyoung Han and Kyong Hwan Jin (Korea Univ., Korea)

[D28-2] 11:20-11:40

4D Gaussian Splatting for Multi-view 3D Cinemagraphy

In-hwan Jin, Haesoo Choo (Pukyong Nat'l Univ., Korea), and Kyeongbo Kong (Pusan Nat'l Univ., Korea)

[D28-3] 11:40-12:00

Hologram Super-Resolution with Deep Neural Network

Youchan No, Jaehong Lee (KOREATECH, Korea), Hanju Yeom (ETRI, Korea), and Duksu Kim (KOREATECH, Korea)

[D28-4] 12:00-12:20

Neural Network-Based Video Coding Techniques with Future Research Issues

Je-Won Kang (Ewha Womans Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 29. Applied Vision/Human Factors II |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:40 |
| Session Room: | Room E (302) |
| Chair(s): | Dr. Jae Joong Kwon (Samsung Display Co., Ltd., Korea) Dr. John Penczek (NIST, USA) |

[E29-1] [Featured Invited] 11:00-11:30

Switchable Privacy Displays: Measurements & Parameters for Standardization

Karlheinz Blankenbach, Beyza Civanlar, and Steffen Reichel (Pforzheim Univ., Germany)

[E29-2] [Invited] 11:30-11:55

Advances in Assessing and Certifying Display Picture Quality

Dale Stolzka (Samsung Display Co., Ltd. America Lab, USA)

[E29-3] 11:55-12:10

ClearMR 1.1 – Reducing the Noise

Frank Seto, Dale Stolzka (Samsung Display Co., Ltd. America Lab, USA), Dong-Yeol Yeom, and Yongwoo Yi (Samsung Display Co., Ltd., Korea)

[E29-4] 12:10-12:25

Evaluation of Melanopic EDI in Display Devices

Yan Jin, Jaehong Kim, Jang Jin Yoo, and Bu Yeol Lee (LG Display Co., Ltd., Korea)

[E29-5] 12:25-12:40

Research on Optimal Brightness Strategy Based of Augmented Reality Display

Nailong He (Southeast Univ. & Shi Cheng Lab. for Information Display and Visualization, China), Wei Wang, Lan He (Southeast Univ., China), Yumin Su (Shi Cheng Lab. for Information Display and Visualization, China), and Yuning Zhang (Southeast Univ. & Shi Cheng Lab. for Information Display and Visualization, China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 30. [Joint Session II with ISE] Display Driving and Circuit Technologies for Next-Generation Display |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:20 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Yoonseuk Choi (Hanbat Nat'l Univ., Korea) |

[F30-1] 11:00-11:20

Adaptive Backlight Dimming Control for Low Power and High Image Quality

Ji Won Lee, Jae-Chan Cho, Jong-Sang Yoo, Jun-Young Park (LX Semicon, Korea), and Suk-Ju Kang (Sogang Univ., Korea)

[F30-2] 11:20-11:40

Next Generation Image Reconstruction Technology of Microdisplay for XR Glasses

Minsu Jeong, Jeong Hwan Lee, Eunsu Kim, Kwangsoo Lee, and Bo-Eun Kim (RAONTECH Inc., Korea)

[F30-3] 11:40-12:00

Research on Multidrop Configuration for D-PHY Compatibility

Khamzat, Jonggu Jeon, and Hansu Pae (Sapien Semiconductors Inc., Korea)

[F30-4] 12:00-12:20

Micro-LED Pixel Circuits based on Thin-Film Transistors

Hwarim Im and Yong-Sang Kim (Sungkyunkwan Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 31. Optoelectronic Devices for Display |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:15 |
| Session Room: | Room G (401) |
| Chair(s): | Prof. Hongseok Yun (Hanyang Univ., Korea) Dr. Jong Hyun Park (LG Display Co., Ltd., Korea) |

[G31-1] 11:00-11:15

High Power Parallel-Stacked OLEDs with Multi-Cavity Design for Wearable PDT Application

Seung Min Jeong, Young Cheol Seo, Eun Hae Cho, Hye Jeong Yeon, and Kyung Cheol Choi (KAIST, Korea)

[G31-2] 11:15-11:30

Reversible Phase Conversion between Amorphous SiO₂ and Crystalline Si at Gate Insulators in Thin-Film Transistors

Kim Sungho, Choi, Jongkwon, Park Sungmoo, and Choi Youngseok (LG Display Co., Ltd., Korea)

[G31-3] 11:30-11:45

p-Type Se_xTe_{1-x} Thin-Film Transistors for Complementary Logic Gate

Kyunghee Choi, Sooji Nam, Himchan Oh, Chihun Sung, and Sung Haeng Cho (ETRI, Korea)

[G31-4] 11:45-12:00

High-Performance Split-Gate Thin-Film Transistor based on Coplanar Asymmetric Nanogap Electrodes Created Via Adhesion Lithography

Minseo Kim (Gachon Univ., Korea), Gyeongho Lee (Korea Univ., Korea), and Hocheon Yoo (Gachon Univ., Korea)

[G31-5] 12:00-12:15

Study on Sparkling Issue of Anti-Glare Layer in WOLED Display

Jisu Han, Hyun Woo Jeon, Young Hoon Kim, Taehyoung Kwak, Kwon-Shik Park, and Soo Young Yoon (LG Display Co., Ltd., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 32. Microscale Lighting Materials for Display Applications |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:20 |
| Session Room: | Room H (402) |
| Chair(s): | Prof. Young Joon Hong (Sejong Univ., Korea) Prof. Moon Sung Kang (Sogang Univ., Korea) |

[H32-1] [Invited] 11:00-11:25

Advanced Microscale Light-Emitting Diodes for Neuroscience Applications

Xing Sheng (Tsinghua Univ., China)

[H32-2] [Invited] 11:25-11:50

Vertical-Emitting InGaN Nanorod LED Structure for High-Density Pixel Arrays

Yong-Ho Ra (Jeonbuk Nat'l Univ., Korea)

[H32-3] 11:50-12:05

3D μ -Lens Printing for Highly Efficient μ -LED Arrays Using Thixotropic Siloxane/Silica Nanocomposites

Byung Jo Um, Hyungshin Kweon, and Byeong-Soo Bae (KAIST, Korea)

[H32-4] 12:05-12:20

Stabilized and High-Performance Illumination Using Perovskite Quantum Wire Technology

Qianpeng Zhang (Fudan Univ., China), Daquan Zhang, Zhiyong Fan (Hong Kong Univ. of Science and Tech., Hong Kong, China), and Xiaoliang Mo (Fudan Univ., China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 33. Fundamentals of QLEDs |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:20 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Jeongkyun Roh (Pusan Nat'l Univ., Korea) Prof. Jaehoon Lim (Sungkyunkwan Univ., Korea) |

[A33-1] [Invited] 16:00-16:25

Fast-Response Quantum-Dot Light-Emitting Diodes

Yizheng Jin (Zhejiang Univ., China)

[A33-2] [Invited] 16:25-16:50

Dipole-Dipole-Interaction-Assisted Self-Assembly of Quantum Dots for Highly Efficient Light-Emitting Diodes

Fengjia Fan (Univ. of Science and Tech. of China, China)

[A33-3] 16:50-17:05

Unraveling the Degradation Mechanism of InP Quantum-Dot Light-Emitting Diodes

Ganghyun Park (Seoul Nat'l Univ., Korea), Doyoon Shin, Wan Ki Bae (Sungkyunkwan Univ., Korea), and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

[A33-4] 17:05-17:20

Colloidal Quantum Dot Patterning Using Plasma-Induced Ligand Polymerization and Argon Sputter Etching

Boram Kim, Jinchul Park, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 34. OLED Materials I : Advances in Emitting Materials |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:40 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Dr. Mike Weaver (UDC, USA) Prof. Jianxin Tang (Macau Univ. of Science and Tech., Macau) |

[B34-1] [Invited] 16:00-16:25

Host Engineering for Efficient Cluster Light-Emitting Diodes

Hui Xu, Ying Li, and Nan Zhang (Heilongjiang Univ., China)

[B34-2] [Invited] 16:25-16:50

Polaritonic OLEDs with Assistant Strong-Coupling Layers: A New Approach to Sub-20nm Emission Linewidth in OLED Displays

Andreas Mischok, Sabina Hillebrandt, Julia Witt, Seonil Kwon (Univ. of Cologne, Germany), and Malte C. Gather (Univ. of Cologne, Germany & Univ. of St Andrew, UK)

[B34-3] [Invited] 16:50-17:15

Efficient Blue Delayed Fluorescence Molecules with Ultrafast Bipolar Charge Transport for Simplified Non-Doped Thick-layer Organic Light-Emitting Diodes

Yan Fu, Hao Liu (South China Univ., China), Ben Zhong Tang (The Chinese Univ. of Hong Kong, China), and Zujin Zhao (South China Univ., China)

[B34-4] [Invited] 17:15-17:40

Deuteration of OLED Materials: Performance, Scalability, Sustainability

Lara-Isabel Rodríguez, Elvira Montenegro, Stephanie Ganss, Marcel Bürger, Camille Correia, Aaron Lackner, Sebastian Stolz, Jonas Kröber, Anna Hayer, Jens Engelhart, Rouven Linge (Merck Electronics KGaA, Germany), Won-Kyung Na, and Su-Hwan Na (Merck Performance Materials Ltd., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 35. Merck Science Connect_“Shaping the Future of Automotive Display” |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:30 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Seungjun Chung (School of Electrical Engineering, Korea Univ.) Hye-Jung Im (Head of Global Marketing Communication, Display Solutions, Merck) |

[C35-1] 16:00-16:20

Automotive Display Market Outlook

Brian Huh (Principal Analyst, Omdia)

[C35-2] 16:20-16:40

Merck’s Solution for Automotive Display

Jun-Ho Kim (Head of OLED R&D, Korea, Merck)

[C35-3] [Merck Award] 16:40-17:05

Introduction to Atomic Layer Deposition for Emerging Display Application

Prof. Jin-Seong Park (Div. of Materials Science and Engineering, Hanyang Univ.)

Break Time 17:05-17:10

[C35-4] 17:10-17:30

Automotive Head-Up Display Technology Trend

Chan-Young Yoon (Team Leader & Principal Research Engineer, HUD Optics Team, Hyundai Mobis)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 36. Holography |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:45 |
| Session Room: | Room D (301) |
| Chair(s): | Dr. Hyon-Gon Choo (ETRI, Korea) Prof. Hak-Rin Kim (Kyungpook Nat'l Univ., Korea) |

[D36-1] [Invited] 16:00-16:25

Standardization on Digital Hologram Compression

Kwan-Jung Oh, Yongjun Lim, and Hyon-Gon Choo (ETRI, Korea)

[D36-2] [Invited] 16:25-16:50

Recent Techniques in Full-Color Large-Scale Computer Holography

Kyoji Matsushima, Hirohito Nishi, Chang-Joo Lee, Takeshi Imai, Shunsuke Fujiki, and Ryosuke Katsura (Kansai Univ., Japan)

[D36-3] [Invited] 16:50-17:15

A Novel Transparent 3D Display based on Integral Imaging Light-Field Display

Hoang Yan Lin and Chia-Yuan Chang (Nat'l Taiwan Univ., Taiwan)

[D36-4] 17:15-17:30

Electronic Holography with Waveguide

Rio Ouchi and Yasuhiro Takaki (Tokyo Univ. of Agriculture and Tech., Japan)

[D36-5] 17:30-17:45

Implementation of Large-Scale Holographic Imaging Display without Lenses Using Spatial Multiplexing Phase Mask Algorithm

Chuan-Feng Nehemiah Kuo (Nat'l Taiwan Univ. of Science & Tech., Taiwan), Chih-Hao Chuang (Feng Chia Univ., Taiwan), Tzu-An Chou, Ling-Dong Tsau, and Chien-Yu Chen (Nat'l Taiwan Univ. of Science & Tech., Taiwan)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

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| Session Title: | 37. Soft Sensors and Actuators for Interactive Display I |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:25 |
| Session Room: | Room E (302) |
| Chair(s): | Prof. Hyunhyub Ko (UNIST, Korea) Prof. Kyoseung Sim (UNIST, Korea) |

[E37-1] [Featured Invited] 16:00-16:30

Large-Scale and Flexible Light-Emitting Diodes based on Halide Perovskite Quantum Materials

Zhiyong Fan (Hong Kong Univ. of Science and Tech., Hong Kong, China)

[E37-2] [Invited] 16:30-16:55

Soft Human-Interactive Sensing and Synaptic Displays

Cheolmin Park (Yonsei Univ., Korea)

[E37-3] 16:55-17:10

Ultrafast Underwater Self-Healing Piezo-ionic Elastomer via Dynamic Hydrophobic-Hydrolytic Domains

Zhengyang Kong, Elvis K. Boahen, Joo Sung Kim, So Young Kim, Hyukmin Kweon, Hanbin Choi (Hanyang Univ., Korea), Wu Bin Ying (KAIST, Korea), and Do Hwan Kim (Hanyang Univ., Korea)

[E37-4] 17:10-17:25

Constant Resolution Touch Sensing Interfaces for Stretchable Electronics

Ji Yeong Park, Won Kyung Min, Dong Hyun Choi, Sun Min Song, Hye Jin Son, Yong-Min Jeong, and Hyun Jae Kim (Yonsei Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 38. LC XR Devices |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:35 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Qi-Huo Wei (SUSTech, China) Prof. Jiangan Lu (Shanghai JiaoTong Univ., China) |

[F38-1] [Invited] 16:00-16:25

3D Visual Fatigue-Free AR Displays

Yan Li, Xiaojin Huang, and Yikai Su (Shanghai Jiao Tong Univ., China)

[F38-2] [Invited] 16:25-16:50

Interactive Liquid Crystal Polymers for Haptic Display

Danqing Liu (Eindhoven Univ. of Tech. & Inst. for Complex Molecular Systems, The Netherlands)

[F38-3] 16:50-17:05

Patterned Photoalignment for Liquid Crystal Diffractive Optical Components

Kristiaan Neyts (Hong Kong Univ. of Science and Tech., Hong Kong & Ghent Univ., Belgium),
Migle Stebryte, Rohan Sharma, Jeroen Beeckman, and Inge Nys (Ghent Univ., Belgium)

[F38-4] 17:05-17:20

Multispectral Pancharatnam-Berry Phase Liquid Crystal Lens and its Application in Augmented Reality Displays

Xiaojin Huang and Yan Li (Shanghai Jiao Tong Univ., China)

[F38-5] 17:20-17:35

Polarization-Multiplexed Self-Interference-Based Geometric Phase Recording Scheme for High Fill Factor of Geometric Phase Lens Array

Young-Min Cho, Hyeon-Su Jeong, Jin-Hyeok Seo, Min-Seok Kim, Jung-Yeop Shin, Jae-Won Lee, Hae-Rin Jung, and Hak-Rin Kim (Kyungpook Nat'l Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 39. AI & Computational Technologies I |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:10 |
| Session Room: | Room G (401) |
| Chair(s): | Prof. Jungho Kim (Kyung Hee Univ., Korea) Mr. Jake Lee (Samsung Display Co., Ltd. America Lab, USA) |

[G39-1] [Invited] 16:00-16:25

Deep-Learning-Based Inverse Design of Colloidal Quantum Dots Using Transfer Learning and Conditional Variational Autoencoder

Jungho Kim and Deokho Jang (Kyung Hee Univ., Korea)

[G39-2] 16:25-16:40

Rational Design of Singlet-Only Fluorescent OLEDs Using a Simulation Approach

Tobias Neumann, Artem Fediai, Timo Strunk, and Franz Symalla (Nanomatch GmbH, Germany)

[G39-3] 16:40-16:55

Digital Discovery of OLED Materials with DiaDEM

Jacopo Marcheselli, Artem Fediai, Timo Strunk, Tobias Neumann (Nanomatch GmbH, Germany), Ömer Omar, Alessandro Troisi (Univ. of Liverpool, UK), Dávid Havasi, Benjámín Kováts, and Attila Wootsch (mcule.com Kft., Hungary)

[G39-4] 16:55-17:10

Real-Time Holographic Display based on Dynamic Scene Reconstruction and Rendering

Juan Liu, Shijie Zhang, and Qiukun Liao (Beijing Inst. of Tech., China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 40. High Efficiency Light-Emitting Materials and Devices |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:35 |
| Session Room: | Room H (402) |
| Chair(s): | Prof. Keehoon Kang (Seoul Nat'l Univ., Korea) Prof. Young Joon Hong (Sejong Univ., Korea) |

[H40-1] [Invited] 16:00-16:25

Halide Perovskite Nanocrystals: Polarised Emission and Defect Tolerance in Hot Carriers

Robert L. Z. Hoyer (Univ. of Oxford, UK)

[H40-2] [Invited] 16:25-16:50

Semiconductor/2D Heterostructures and Their Device Applications

Kunook Chung (UNIST, Korea)

[H40-3] 16:50-17:05

Development of New Polymeric HTMs for Perovskite Quantum-Dot Light Emitting Diodes and Their Structure-Property Relations

Hyejin Na, Hyeon Woo Jeong, Seungmin Baek, Gwang-il Kim (KRICT, Korea), Chan Bin Park (KRICT & UST, Korea), Sungho Choi (KRICT, Korea), Seon Joo Lee, and Jaemin Lee (KRICT & UST, Korea)

[H40-4] 17:05-17:20

Intrametallic Deep Blue OLED Emitters based on Divalent Europium

Carsten Rothe, Toni Bärschneider, and Jun Hwang (beeOLED GmbH, Germany)

[H40-5] 17:20-17:35

A Narrowband Stable Blue MR-TADF Emitter via Combining DABNA and Heterocyclic Analogous

Tirupati Meghana, Subramanian Muruganatham, Young Hun Jung, Se Chan Cha, Jung Ho Ham, and Jang Hyuk Kwon (Kyung Hee Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 41. Enhanced Optical Properties of QLEDs |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:30 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Hyunho Lee (Kwanwoon Univ., Korea) Prof. Seong-Yong Cho (Hanyang Univ., Korea) |

[A41-1] [Invited] **09:00-09:25**

Light Field Manipulation of Quantum Dot Light-Emitting Diode

Taikang Ye, Guanding Mei, Qingqian Wang, and Kai Wang (Southern Univ. of Science and Tech., China)

[A41-2] [Invited] **09:25-09:50**

Recent Progress in Colloidal Quantum Dot Lasers

Namyong Ahn (Yonsei Univ., Korea)

[A41-3] [Invited] **09:50-10:15**

Luminescent Quantum Rods Empowering Efficiency for Next-Generation Display and Lighting Systems

M. F. Prodanov, C. Kang, J. Song, Y. Gao, Z. Liao, K. Mallem, V. Vashchenko, and Abhishek K. Srivastava (The Hong Kong Univ. of Science and Tech., Hong Kong)

[A41-4] **10:15-10:30**

Development of a Sidewall Reflector for Light Recycling in Quantum Dot Organic Light-Emitting Diodes Displays

Jaedong Jang (KAIST, Korea), Hyunsu Cho, Sukyung Choi (ETRI, Korea), Hyewon Jeon (KAIST, Korea), Chan-Mo Kang (ETRI, Korea), Duk Young Jeon (KAIST, Korea), Wan Ki Bae (Sungkyunkwan Univ., Korea), Hyok-Min Youn (Dongjin Semichem Co., Ltd., Korea), Nam Sung Cho (ETRI, Korea), and Hee-Tae Jung (KAIST, Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 42. OLED Materials II : Advances in Blue Emitting Materials |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:10 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Jonghee Lee (Hanbat Nat'l Univ., Korea) Prof. Andrew Monkman (Univ. of Durham, UK) |

[B42-1] 09:00-09:15

Key Requirements of Sensitizer for Efficient Phosphor-Sensitized Fluorescence: Energetic Landscape Generated by Sensitizer and Emitting Dopant

Dong Jin Shin, Junseop Lim (Sungkyunkwan Univ., Korea), Jae-Min Kim (Chung-Ang Univ., Korea), and Jun Yeob Lee (Sungkyunkwan Univ., Korea)

[B42-2] 09:15-09:30

Regioisomeric High Triplet Host Materials Enable Exceptional Lifetime For Blue Phosphorescent Organic Light-Emitting Diodes

Subramanian Muruganatham, Young Hun Jung, and Jang Hyuk Kwon (Kyung Hee Univ., Korea)

[B42-3] 09:30-09:45

Blue Thermally Activated Delayed Fluorescence Excimers with High External Quantum Efficiency and Enhanced Horizontal Emitting Dipole Orientation

Junseop Lim (Sungkyunkwan Univ., Korea), Kwangmo Yang (Seoul Nat'l Univ., Korea), Vilas Venunath Patil (Sungkyunkwan Univ., Korea), Jaesang Lee (Seoul Nat'l Univ., Korea), and Jun Yeob Lee (Sungkyunkwan Univ., Korea)

[B42-4] [Invited] 09:45-10:10

High-Efficiency Organic Light-Emitting Materials with Narrowband Emission

Zhuang Cheng and Ping Lu (Jilin Univ., China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 43. Emerging TFT Devices |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:10 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Radu Sporea (Univ. of Surrey, UK) Prof. Changwook Jeong (UNIST, Korea) |

[C43-1] [Invited] 09:00-09:25

Vand der Waals Gate Stack Engineering for High-Performance 2D Electronics

Chul-Ho Lee (Seoul Nat'l Univ., Korea)

[C43-2] 09:25-09:40

Unusual Charge Transport Induced by Ion Migration in Sn-Halide Perovskites

Taewan Roh, Huihui Zhu, Wonryeol Yang, Ao Liu, and Yong-Young Noh (POSTECH, Korea)

[C43-3] 09:40-09:55

Visible Light-Stimulated IGZO-Based Optical Synaptic Transistor with ZnON Light Absorption Layer

Kyu Min Kim, Hyung Tae Kim, Sung Min Rho, Sujin Lee, Sun Min Song, Yong Seon Hwang, and Hyun Jae Kim (Yonsei Univ., Korea)

[C43-4] 09:55-10:10

Research of Transconductance Modulation Field Effect Transistor based on Tellurium/Indium Gallium Zinc Oxide Heterojunction Structure

Dong Hyun Lee, Somi Kim (Gachon Univ., Korea), Gunhoo Woo (Sungkyunkwan Univ., Korea), Taesung Kim, Yeong Jae Kim (Sungkyunkwan Univ. & Korea Inst. of Ceramic Engineering and Tech., Korea), and Hocheon Yoo (Gachon Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 44. Immersive Media Processing |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room D (301) |
| Chair(s): | Prof. Kyu Heon Kim (Kyung Hee Univ., Korea) Prof. Kenji Yamamoto (Tokushima Univ., Japan) |

[D44-1] [Invited] 09:00-09:25

Recent Progress on AI-Based Point Cloud Compression

Junsik Kim and Gun Bang (ETRI, Korea)

[D44-2] [Invited] 09:25-09:50

V-PCC Performance with VVC-Based Codec and Filtering Techniques

Jaeha Kang, Kaeun Lee, and Haechul Choi (Hanbat Nat'l Univ., Korea)

[D44-3] 09:50-10:05

Modification of Point Cloud Using Reflection Intensity in ToF Camera

Shuto Ogura (Tokushima Univ., Japan), Toshihide Kobayashi, Atsushi Suzuki, Ryouyuke Nakagoshi (JVCKENWOOD Corp., Japan), Haruki Mizushima (Tokushima Univ., & Shinshu Univ., Japan), and Kenji Yamamoto (Tokushima Univ., Japan)

[D44-4] 10:05-10:20

A Study on Light-Weight 3D Scene Graph Generation Models Using Knowledge Distillation

Dong-hun Lee, Hojun Song, Chae-yeong Song, Dabin Kang, Hui-yan Yu, Jeonghun Hong, and Sang-hyo Park (Kyungpook Nat'l Univ., Korea)

[D44-5] 10:20-10:35

SLAM for Deformable Scenes by Dynamic Probability of Feature Points

Jean-Baptiste Joannic (Keio Univ., Japan), Kisho Mihara (Kawasaki Municipal Kawasaki Hospital, Japan), Sachiko Matsuda, Yosuke Uematsu, Masayuki Tanaka, Minoru Kitagou, Yuko Kitagawa (Keio Univ. School of Medicine, Japan), and Hideo Saito (Keio Univ., Japan)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 45. Soft Sensors and Actuators for Interactive Display II |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room E (302) |
| Chair(s): | Prof. Kyoseung Sim (UNIST, Korea) Prof. Hyunhyub Ko (UNIST, Korea) |

[E45-1] [Invited] **09:00-09:25**

Cycling Stability Manipulation on Organic Electrochemical Transistors

Wei Huang and Miao Xie (Univ. of Electronic Science and Tech. of China, China)

[E45-2] [Invited] **09:25-09:50**

Advancing Soft Electronics: Innovative Structural and Material Designs for Enhanced Functionality

Hae-Jin Kim (Yonsei Univ., Korea)

[E45-3] **09:50-10:05**

Development of Stretchable Strain-Insensitive Pressure Sensor based on Structural Strain Engineering of Sensor Elements

Hayun Kim, Sanghyun Bae, Dongju Jang, Jinsu Yoon, Jaeyoung Yoon, Donggeun Jin, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[E45-4] **10:05-10:20**

Flexible Sensors for Healthcare and Robotics

Hao Wu (Huazhong Univ. of Science and Tech., China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 46. LC Applications |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:30 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Dong Ki Yoon (KAIST, Korea) Dr. Yu-Jin Choi (KRICT, Korea) |

[F46-1] [Invited] 09:00-09:25

Dual-Axis Aligned Thermophilic Artificial Water Channels Formed by Water Induced Self-Assembly

Chien-Lung Wang (Nat'l Taiwan Univ., Taiwan)

[F46-2] [Invited] 09:25-09:50

Asymmetrical Light Scattering of Waveguide-Mode Devices Using Twisted Hybrid Polymer-Network Liquid Crystals

Chun-Ting Wu, Yuan-Chang Tsai, Chi-Tang Huang, Sheng-Wen Wang, and Ko-Ting Cheng (Nat'l Central Univ., Taiwan)

[F46-3] [Invited] 09:50-10:15

Leveraging Stimuli-Responsiveness of Liquid Crystals to Manipulate Non Stimuli-Responsive Nanomaterials

Changyeon Lee (Chung-Ang Univ., Korea)

[F46-4] 10:15-10:30

Regulating Crystallization of Optoelectronic Nanomaterials by Using Liquid Crystalline Templates

Jun-Hyung Im, Myeonggeun Han, Jisu Hong, Hyein Kim, Yong-Young Noh, and Young-Ki Kim (POSTECH, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 47. AI & Computational Technologies II |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room G (401) |
| Chair(s): | Dr. Hyun Sung Park (Samsung Display Co., Ltd., Korea) Mr. Hiroya Nitta (JSOL, Japan) |

[G47-1] [Invited] 09:00-09:25

Charge Transport and Exciton Dynamics in TADF OLEDs Assessed by Measured and Simulated Modulated Electroluminescence Spectroscopy

Balthasar Blülle, Sandra Jenatsch, Hamilton Carillo-Nunez, Simon Züfle (Fluxim AG, Switzerland), and Beat Ruhstaller (Fluxim AG & ZHAW Zurich Univ. of Applied Sciences, Switzerland)

[G47-2] 09:25-09:40

4K Computer Generated Hologram Using Encoding-Decoding CNN Model

Shariar Md Imtiaz, F.M. Fahmid Hossain, Nyamsuren Darkhanbaatar, Erkhembaatar Dashdavaa, Tuvshinjargal Amgalan, Ki-Chul Kwon (Chungbuk Nat'l Univ., Korea), Seok-Hee Jeon (Incheon Nat'l Univ., Korea), and Nam Kim (Chungbuk Nat'l Univ., Korea)

[G47-3] 09:40-09:55

First Principle Calculation for OLED Device Performance Prediction

Hanjin Park, Han Wool Park, Bumjong Park, Han-Seung Yang, Yoon Ji Choi, Jong Seuk Kang, Dong Shin Choi, Sung Ki Kim, Seok Woo Lee, Joon Young Yang, and Soo Young Yoon (LG Display Co., Ltd., Korea)

[G47-4] [Invited] 09:55-10:20

Molecular Simulation for OLED Materials

Hiroya Nitta, Teppei Fukuya, and Taku Ozawa (JSOL Corp., Japan)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 48. Printing Technology |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:05 |
| Session Room: | Room H (402) |
| Chair(s): | Prof. Bung Doo Chin (Dankook Univ., Korea) Dr. Seong Jun Lee (Samsung Display Co., Ltd., Korea) |

[H48-1] [Invited] 09:00-09:25

The Challenges and Solutions of Inkjet Printing for Mass Production of Quantum Dot Displays

Myung-Soo Huh, Wooree Ko, Jeong-Ho Yi, Cheongwan Min, and Cheol-Lae Roh (Samsung Display Co., Ltd., Korea)

[H48-2] [Invited] 09:25-09:50

Current Status and Trends of Inkjet Technology: Hints for Application in the Display Industry

Shinri Sakai (Yamagata Univ., Japan)

[H48-3] 09:50-10:05

Aerosol Jet Printed High-Resolution Free-Standing Quantum Dot Films for Color Conversion in Display Applications

Anna Meredith, Zahra Bahrami, Kevin Schnittker (Univ. of Wisconsin-Madison, USA), Hyunsu Cho, Sukyung Choi (ETRI, Korea), and Joseph Andrews (Univ. of Wisconsin-Madison, USA)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 49. Young Leaders Conference II |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-11:55 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Soo-Yeon Lee (Seoul Nat'l Univ., Korea) |

[A49-1] 10:40-10:55

Strain-Engineered Meta-Elastomer for Stretchable Displays without Image Distortion

Jun-Chan Choi and Seungjun Chung (Korea Univ., Korea)

[A49-2] 10:55-11:10

Ultrasensitive and Sensitivity-Tunable Smart Strain Sensor by Thermo Responsive Shape Reconfiguration

Seungjae Lee, Youngoh Lee, Cheolhong Park, and Hyunhyub Ko (UNIST, Korea)

[A49-3] 11:10-11:25

Thermally Evaporated High-Performance Metal-Halide Perovskite P-Channel Transistors

Youjin Reo, Taesu Choi, Taoyu Zou, Ji-Young Go (POSTECH, Korea), Huihui Zhu, Ao Liu (POSTECH, Korea & Univ. of Electronic Science and Tech. of China, China & Northwestern Univ., USA), and Yong-Young Noh (POSTECH, Korea)

[A49-4] 11:25-11:40

Enhancing Field of View and the Angular Resolution in Micro Lens Array Type VR System through Polarization Grating

Kwang-Soo Shin (Inha Univ., Korea) and Jae-Hyeong Park (Seoul Nat'l Univ., Korea)

[A49-5] 11:40-11:55

Neural 360° Structured Light Driven by Learned Metasurface for 3D Imaging

Gyeongtae Kim, Eunsue Choi, Seung-Hwan Baek (POSTECH, Korea), and Junsuk Rho (POSTECH & POSCO-POSTECH-RIST Convergence Research Center for Flat Optics and Metaphotonics, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 50. OLED Devices II : Future Perspectives (Innovations in OLED Technology) |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-11:55 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Taekyung Kim (Hongik Univ., Korea) Prof. Sunwoo Kang (DanKook Univ., Korea) |

[B50-1] [Invited] 10:40-11:05

Key Design Rules for Ultra-Efficient Sensitisation in Hyperfluorescence OLEDs

Kleitos Stavrou, Larissa Gomes Franca, Andrew Danos, and Andrew Monkman (Durham Univ., UK)

[B50-2] [Invited] 11:05-11:30

Tuning The Energy Levels of Exciplexes for Ultralow-Voltage Operation of Organic Light-Emitting Diodes

Hirohiko Fukagawa (Chiba Univ., Japan), Tsubasa Sasaki, Takuya Okada, Taku Oono, and Takahisa Shimizu (NHK Science & Tech. Research Lab., Japan)

[B50-3] [Invited] 11:30-11:55

Study on Degradation Mechanism of Phosphor-Sensitized Blue Thermally Activated Delayed Fluorescent Organic Light-Emitting Diodes

Hyun Shin, Hyosup Shin, Jinyoung Yun, Seokgyu Yoon, Changwoong Chu, and Sunghan Kim (Samsung Display Co., Ltd., Korea)

[B50-4] 11:55-12:10

The Latest Update of Flexible Printed OLED TV Display Technology

Jueng Gil (James) Lee (Guangdong Juhua Printed Display Tech. Co., Ltd., China & TCL Corporate Research, Hong Kong), Zhuo Gao, Ting Dong, Lei Yu (Guangdong Juhua Printed Display Tech. Co., Ltd., China), and Dong Fu (Guangdong Juhua Printed Display Tech. Co., Ltd., China & TCL Corporate Research, Hong Kong)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 51. Flexible and Stretchable TFT Devices and Circuits |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:05 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Chul-Ho Lee (Seoul Nat'l Univ., Korea) |

[C51-1] [Invited] 10:40-11:05

Organic Transistors for Neuromorphic Display

Huipeng Chen (Fuzhou Univ., China)

[C51-2] 11:05-11:20

Synthesis of High-k Polymer Dielectric Materials for Low-Power Organic Electronics

Junhwan Choi (Dankook Univ., Korea)

[C51-3] 11:20-11:35

Solution-Processed Rare-Metal-Free Amorphous Oxide Source-Gated Transistors via Fermi Energy Tuning Through Argon Plasma

Mark D. Ilasin, Juan Paolo S. Bermundo, Pongsakorn Sihapitak, Candell Grace P. Quino, and Yukiharu Uraoka (Nara Inst. of Science and Tech., Japan)

[C51-4] 11:35-11:50

High-Performance Amorphous Oxide Semiconductor Thin-Film Transistors Fabricated by Atomic Layer Deposition for Display Backplanes

Se-Ryong Park, Sang-Joon Park (Kwangwoon Univ., Korea), Woo-Seok Jeon (Samsung Display Co., Ltd., Korea), Jong Mu Na (JI-Tech Co., Ltd., Korea), Jun Hyung Lim (Samsung Display Co., Ltd., Korea), Sukhun Ham (JI-Tech Co., Ltd., Korea), Yung-Bin Chung (Samsung Display Co., Ltd., Korea), and Tae-Jun Ha (Kwangwoon Univ., Korea)

[C51-5] 11:50-12:05

High-k/Low-k Bilayer Gated Transistors Enhance Charge Transport of Amorphous Indium Gallium Zinc Oxide by Using Hafnia-Based Gate Dielectric

Reem Alshanbari and Ioannis Kymissis (Columbia Univ., USA)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 52. 3D & Spatial Display |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:15 |
| Session Room: | Room D (301) |
| Chair(s): | Prof. Gwangsoon Lee (ETRI, Korea) Prof. Hoang Yan Lin (Nat'l Taiwan Univ., Taiwan) |

[D52-1] [Invited] 10:40-11:05

3D Human Model Generation from 2D Single Image

Seongjun Park, Yeonghun Jeong, Subin Cho, and Jeongil Seo (Dong-A Univ., Korea)

[D52-2] [Invited] 11:05-11:30

Integral Three-Dimensional Display Technologies for Mobile Devices

Hisayuki Sasaki, Hayato Watanabe, Masanori Kano, and Naoto Okaichi (NHK, Japan)

[D52-3] 11:30-11:45

Verification of the Expanding Observation Area by Using Time-Division Reproduced Light in the Projection-Type Holographic Display

Tomoki Kanno (Chiba Univ. & Nat'l Inst. of Information and Communications Tech., Japan), Yasuyuki Ichihashi (Nat'l Inst. of Information and Communications Tech., Japan), Takashi Kakue, Tomoyoshi Shimobaba, and Tomoyoshi Ito (Chiba Univ., Japan)

[D52-4] 11:45-12:00

Floating Display with Lower Eyestrain

Chih-Hao Chuang (Feng Chia Univ., Taiwan), Pei-Jung Wu (Nat'l Taichung Univ. of Science and Tech., Taiwan), Shu-Cheng Hsu (Nat'l Taiwan Univ. of Science and Tech., Taiwan), Hong-Yi Chien, Che-Wei Lee (Feng Chia Univ., Taiwan), and Chien-Yu Chen (Nat'l Taiwan Univ. of Science and Tech., Taiwan)

[D52-5] 12:00-12:15

Extended Visual Acessibility in AI-Based AR Glasses Docent Service

Sunghee Ahn (Hongik Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 53. Bio-Integrated Optoelectronic Sensors |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-11:40 |
| Session Room: | Room E (302) |
| Chair(s): | Prof. Sungjun Park (Ajou Univ., Korea) Prof. Sang Min Won (Sungkyunkwan Univ., Korea) |

[E53-1]

10:40-10:55

Red-NIR OLED Using Fibrous Color Conversion Layers of CuInS₂/ZnS Quantum Dots for Bioactivating Cytochrome C Oxidase Enzyme

Tran Thien Tri, Sung Min Cho (Sungkyunkwan Univ., Korea), Hyun Jong Lee (Gachon Univ., Korea), and Deok Su Jo (Sungkyunkwan Univ., Korea)

[E53-2]

10:55-11:10

Wavelength Selective Quantum Dots Organic Light Emitting Diodes Patch for PPG & Photomedicine Applications

Young Woo Kim (Gachon Univ., Korea), Jae Gyun Choi, Kyoung Hwa Kim (InnoQD, Co., Ltd., Korea), Jeong Hyun Kwon (Chungbuk Nat'l Univ., Korea), Eou-Sik Cho, Sang Jik Kwon, and Yongmin Jeon (Gachon Univ., Korea)

[E53-3]

11:10-11:25

Plant-Integrated Electronics

Jae Joon Kim and Jaehyun Kim (ETRI, Korea)

[E53-4]

11:25-11:40

Development of a Wearable Balloon-Shaped Optical Fiber Sensor for Real-Time Pulse Monitoring

Abhishek Joshi and Hyoung Won Baac (Sungkyunkwan Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 54. LC Smart Films & Materials |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40–12:15 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Abhishek Kumar Srivastava (Hong Kong Univ. of Science and Tech., Hong Kong) Dr. Tae Hoon Choi (KATECH, Korea) |

[F54-1] [Invited] 10:40–11:05

Coatable Electro–Optical Materials for Antireflective Films

Yu-Jin Choi (KRICT, Korea)

[F54-2] [Invited] 11:05–11:30

Mono–Molecular Photo Alignment Layer for Liquid Crystals

Oleksandr Semenenko, Xinyi Yu, Valerii V. Vashchenko, and Abhishek K. Srivastava (The Hong Kong Univ. of Science and Tech., Hong Kong, China)

[F54-3] 11:30–11:45

Strain Control for Uniform Distribution Using Mechanochromism

Jun Hyuk Shin, Hak Jun Yang, Ji Yoon Park, Sang Hyun Han, Seungmin Nam, and Su Seok Choi (POSTECH, Korea)

[F54-4] 11:45–12:00

Development of An Active Reconfigurable Intelligent Surfaces based on Thin Liquid Crystal Medium

Jae-Won Huh, Boyoung Kang, Chang-Hyeong Lee, Hyengcheul Choi, and Byounggwan Kang (Corning Tech. Center Korea, Korea)

[F54-5] 12:00–12:15

Parallel Processing of Liquid Crystal Double Emulsions by Temperature Control

W.D.N. Sandaruwan, Yuanxin Su, and Jin-Kun Guo (Xidian Univ., China)

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The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 55. AI & Computational Technologies III |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:10 |
| Session Room: | Room G (401) |
| Chair(s): | Dr. Seungin Baek (Samsung Display Co., Ltd., Korea) Prof. Joonku Hanh (Kyungpook Nat'l Univ., Korea) |

[G55-1] [Invited] 10:40-11:05

Predicting Inkjet Jetting and Drying for Functional Inks by Machine Learning

Sungjune Jung (POSTECH, Korea)

[G55-2] [Invited] 11:05-11:30

Quantum Computing Methods for Phosphorescent Materials Design

Scott Genin, Ilya Ryabinkin, Rami Gherib, Mehdi Jenab, and Jacopo Simoni (OTI Lumionics Inc., Canada)

[G55-3] 11:30-11:45

CNN, GCN Based Capacitance Extraction Model for Pixel Layout Design Evaluation

In Huh, Jaekeon Bae, Changseung Woo, Jeongguk Min, Seokwoo Lee, Joonyoung Yang, and Sooyoung Yoon (LG Display Co., Ltd., Korea)

[G55-4] [Invited] 11:45-12:10

Holographic Virtual-Reality Optical Waveguide

Joonku Hahn, Woonchan Moon, and Hosung Jeon (Kyungpook Nat'l Univ., Korea)

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The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 56. TFT Manufacturing |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:05 |
| Session Room: | Room H (402) |
| Chair(s): | Dr. Myung Soo Huh (Samsung Display Co., Ltd., Korea) Dr. Yong Sup Choi (KFE, Korea) |

[H56-1] [Featured Invited] **10:40-11:10**

Navigating The Opportunities and Challenges in Commercializing MicroLED Display Technology

Ying-Tsang Liu and Yun-Li Li (PlayNitride Inc., Taiwan)

[H56-2] [Invited] **11:10-11:35**

Plasma Technologies of IPT-KFE for Display Manufacturing and Processes

Yong Seop Choi (Inst. of Plasma Tech., Korea)

[H56-3] **11:35-11:50**

Hydrogen-Free SiO₂ Gate Insulator for Top-Gate Oxide TFTs

Mamoru Furuta, Mir Mutakabbir Alom, and Motoki Ando (Kochi Univ. of Tech., Japan),
Yoshihiro Sato, Takafumi Kambe, and Tsutomu Satoyoshi (Tokyo Electron Tech. Solutions Ltd.,
Japan)

[H56-4] **11:50-12:05**

Remarkable Performance Encapsulation Films with High Productivity through In-Situ Growth Mode Control Using AP S-ALD

Chi-Hoon Lee, Kwang Su Yoo, Dae Jung Kim, and Jin-Seong Park (Hanyang Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 57. QLED Devices |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:35 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Prof. Seong-Yong Cho (Hanyang Univ., Korea) Prof. Nuri Oh (Hanyang Univ., Korea) |

[A57-1] [Featured Invited] 13:10-13:40

QD-LED as the Most Challenging Technology for Developing QD-Based Electroluminescent Displays

Armin Wedel, Yohan Kim, Jiyong Kim, and Manuel Gensler (Fraunhofer Inst. for Applied Polymer Research, Germany)

[A57-2] [Invited] 13:40-14:05

Devices Analysis of QLED : Methodology and Models

Haizheng Zhong (Beijing Inst. of Tech., China)

[A57-3] 14:05-14:20

Time-Resolved Mechanism of Positive Aging in InP Quantum-Dot Light Emitting Diodes

Sung-yoon Joe, Beomhee Yoon (Kwangwoon Univ., Korea), Doyoon Shin, Wan Ki Bae (Sungkyunkwan Univ., Korea), Sang-Shin Lee, and Hyunho Lee (Kwangwoon Univ., Korea)

[A57-4] 14:20-14:35

High-Resolution Patterning of Quantum Dots by Blending with a Photo Crosslinkable Hole Transporting Layer Polymer

Jaeyeop Lee, Seon Lee Kwak (Pusan Nat'l Univ., Korea), Woon Ho Jung (Sungkyunkwan Univ., Korea), Chaegwang Lim (Pusan Nat'l Univ., Korea), Jaehoon Lim (Sungkyunkwan Univ., Korea), Do-Hoon Hwang, and Jeongkyun Roh (Pusan Nat'l Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 58. OLED Materials III : Emitting Materials and New Emission Mechanisms in OLEDs |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:50 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Yeonjin Yi (Yonsei Univ., Korea) Prof. Ping Lu (Jilin Univ., China) |

[B58-1] [Invited] 13:10-13:35

High Performance Green Phosphorescent Emitters Suitable for BT.2020 Color Gamut

Jing Wang, Ying Hou, Huiqing Pang, Wei Cai, Zheng Wang, Hongbo Li, Zhen Wang, Raymond Kwong, and Sean Xia (Summer Sprout Tech. Co., Ltd., China)

[B58-2] [Invited] 13:35-14:00

Luminescence of the Molecules with Double Excitation Character

Yong-Jin Pu (RIKEN, Japan)

[B58-3] [Invited] 14:00-14:25

Hole Transport Materials to Control Lateral Current in OLED Panel

Su-Hwan Na, You-Hyun Kim, Leo Weegels, Christian Eickhoff, Falk May, Jens Engelhart, Sebastian Meyer (Merck Electronics KGaA, Germany), Michele Ricks (EMD Performance Materials, USA), and Joachim Kaiser (Merck Electronics KGaA, Germany)

[B58-4] [Invited] 14:25-14:50

Development of New Blue Emitting Materials

Yun-Hi Kim (Gyeongsang Nat'l Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 59. Circuit Design and Implementations of TFT |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:40 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Hyun Suk Kim (Dongguk Univ., Korea) |

[C59-1] 13:10-13:25

Development of Reliability Diagnosis Tool of Oxide TFTs

Younghyun Ko, Gawon Yang, Chan-Yong Jeong, Jaeman Jang, Ju Heyuck Baeck, Won-Sang Ryu, Jiyong Noh, Kwon-Shik Park, and SooYoung Yoon (LG Display Co., Ltd., Korea)

[C59-2] 13:25-13:40

Split-Gate Organic Thin Film Transistor Compact Model For Logic Circuit Applications

Patryk Golec (Univ. of Surrey, UK), Seongjae Kim (Gachon Univ., Korea), Eva Bestelink (Univ. of Surrey, UK), Ahmed Mounir, Benjamin Iñiguez (Universitat Rovira i Virgili, Spain), Radu A. Sporea (Univ. of Surrey, UK), and Hocheon Yoo (Gachon Univ., Korea)

[C59-3] 13:40-13:55

A Compact 5T2C AMOLED Pixel Circuit with Multimodal LTPS Drive Transistor

Eva Bestelink and Radu A. Sporea (Univ. of Surrey, UK)

[C59-4] 13:55-14:10

Highly Efficient Neuromorphic Computing Devices with Charge Trap TFTs for Intelligent Displays

Hyunji Jeong, Seoungmin Park (Hanyang Univ., Korea), Dae-Hwan Ahn (KIST, Korea), and Younghyun Kim (Hanyang Univ., Korea)

[C59-5] 14:10-14:25

Possibility of Advanced BLDA of Lumped CW Scanning for Low-Cost LTPS Using WBC (Wavelength Beam Combiner) Technique

T. Noguch, T. Okada (Univ. of the Ryukyus, Japan), M. Hishida, N. Kobata, K. Miyano, and M. Nobuoka (Panasonic Connect Co., Ltd., Japan)

[C59-6] 14:25-14:40

Chip-First Active-Matrix Fabrication Approach Improves Transistor Connectivity to Micro-LEDs for Higher Yielding Displays

Dan Sharkey, Doil Kim, Steven Tsai, and Simon Ogier (Smartkem Ltd., UK)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 60. Novel AR/VR/MR Displays |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:15 |
| Session Room: | Room D (301) |
| Chair(s): | Prof. Leo Miyashita (Tokyo Univ. of Science, Japan) Prof. Tomoya Nakamura (Osaka Univ., Japan) |

[D60-1] [Invited] 13:10-13:35

Polarization Volume Holograms: Revolutionizing AR Smart Glasses for Mass Adoption

Lu Lu (Meta Platform Inc., USA)

[D60-2] [Invited] 13:35-14:00

Towards Holographic AR Glasses

Hong-Seok Lee (Pukyong Nat'l Univ., Korea)

[D60-3] 14:00-14:15

Multifocal Near-Eye Display with a Varifocal Lens and Adjustable Aperture

Gyu-Chan Han, Woongseob Han (Inha Univ., Korea), and Jae-Hyeong Park (Seoul Nat'l Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 61. Biomedical/Neural Applications |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:10 |
| Session Room: | Room E (302) |
| Chair(s): | Prof. Jae Young Yoo (Sungkyunkwan Univ., Korea) |

[E61-1] 13:10-13:25

Liquid-State Light-Emitting Devices for Optogenetic Manipulation of Neuronal Activity

Chang-Ki Moon (Univ. of Cologne, Germany & Univ. of St Andrews, UK), Matthias König (Univ. of Cologne, Germany), Julian F. Butscher, and Malte C. Gather (Univ. of Cologne, Germany & Univ. of St Andrews, UK)

[E61-2] 13:25-13:40

Stretchable Fabric OLED with a Single Surface Stretching Light Source: Toward Wearable Photomedical Applications

Ye Ji Shin, Eou-Sik Cho, Sang Jik Kwon, and Yongmin Jeon (Gachon Univ., Korea)

[E61-3] 13:40-13:55

Electrolyte-Gated Organic Light-Emitting Synapses

Kwan-Nyeong Kim, Huanyu Zhou, and Tae-Woo Lee (Seoul Nat'l Univ., Korea)

[E61-4] 13:55-14:10

Analysis of Electrical Noise in Micro-OLED Integrated Neural Probes to Improve Neural Recording Accuracy

Somin Lee, Jia Chee Leong, Junhee Sim, Hyunjoo J. Lee, and Kyung Cheol Choi (KAIST, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 62. LC Phenomena |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:40 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Yoonseuk Choi (Hanbat Nat'l Univ., Korea) Prof. Young-ki Kim (POSTECH, Korea) |

[F62-1] [Invited] 13:10-13:35

Twist Structure Liquid Crystal Photonic Devices

Changli Sun, Mingyuan Tang, Weiping Ding, and Jiangang Lu (Shanghai Jiao Tong Univ., China)

[F62-2] [Invited] 13:35-14:00

Photon Up-Conversion Using Optical Nonlinearity in a Ferroelectric Nematic Liquid Crystal

Daichi Okada, Hiroya Nishikawa, and Fumito Araoka (RIKEN, Japan)

[F62-3] [Invited] 14:00-14:25

Topological Structures in Ferroelectric Nematic Liquid Crystals

Zhongjie Ma, Miao Jiang, Aile Sun, Shenzhu Yi, Chao Zhou (Southern Univ. of Science and Tech., China), Mingjun Huang, Satoshi Aya (AISMST, China), and Qi-Huo Wei (Southern Univ. of Science and Tech., China)

[F62-4] 14:25-14:40

Functional Color-Changing Cholesteric Liquid Crystal Elastomer

Jiazhe Ma and Zhongqiang Yang (Tsinghua Univ., China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 63. AI & Computational Technologies IV |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:15 |
| Session Room: | Room G (401) |
| Chair(s): | Mr. Hoilim Kim (Samsung Display Co., Ltd., Korea) Dr. Shaun Kwak (Schrodinger, USA) |

[G63-1] [Invited] 13:10-13:35

Physics-Informed Design of Display Materials Enabled by Digital Chemistry

H. Shaun Kwak, Hadi Abroshan, Anand Chandrasekaran, Paul Winget, Thomas F. Hughes, Steven Dajnowicz, and Mathew D. Halls (Schrodinger, Inc., USA)

[G63-2] 13:35-13:50

Nondestructive Sheet Resistance Prediction of Silver Nanowire Transparent Electrode Using Convolutional Neural Network

Yewon Han, Ildoo kim (Konkuk Univ, Korea), Kyung-Tae Kang (KITECH, Korea), and Kunsik An (Konkuk Univ., Korea)

[G63-3] [Invited] 13:50-14:15

Leveraging Generative AI for OLED Material Innovation

Jaebeom Han, Kwan Skinner (Dassault Systèmes, USA), Sabine Schweitzer (DS Deutschland GmbH, Germany), and Lalitha Subramanian (Dassault Systèmes, USA)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 64. Advanced Manufacturing and Processes I |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:30 |
| Session Room: | Room H (402) |
| Chair(s): | Dr. Kwan Hyun Cho (KITECH, Korea) Dr. Sang-Jin Lee (KRICT, Korea) |

[H64-1] [Invited]

13:10-13:35

What Limits the Scale of MicroLED Displays?

Ioannis Kymissis, Reem Alshanbari, Keith Behrman, Oliver Durnan, Vikrant Kumar, Christine McGinn, and Megan Noga (Columbia Univ., USA)

[H64-2] [Invited]

13:35-14:00

Ultra High Viscosity Inkjet Print Engine for Additive Manufacturing of Electronics and Displays

Ramon Borrell (Quantica GmbH, Germany)

[H64-3]

14:00-14:15

EHD Spinning Process for QD Color Converting Display

Ilju Mun, Jinwoo Jung, Seongyong Kim, and Keon Kuk (Samsung Electronics Co., Ltd., Korea)

[H64-4]

14:15-14:30

Top Emission WOLED Display with Ultra Wide Viewing Angle

Jungcheol Shin, Youngwook Lee, Ho Seung Lee, Min-Joo Kim, Seunghee Nam, Jiyong Noh, and Kwon-Shik Park (LG Display Co., Ltd., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 65. Material Science in QDs |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:10 |
| Session Room: | Room A (Halla A) |
| Chair(s): | Dr. Ju Young Woo (KITECH, Korea) Prof. Namyoung Ahn (Yonsei Univ., Korea) |

[A65-1] [Invited] 14:50-15:15

Quantum Dot Linewidth: Importance for Applications Beyond Display

Hunter McDaniel (UbiQD, Inc., USA)

[A65-2] [Invited] 15:15-15:40

Exploiting Surface Ligands of Pnictide Quantum Dots for Active Functionality Beyond Merely Encapsulation

Nuri Oh (Hanyang Univ., Korea)

[A65-3] 15:40-15:55

Giant Shelled Cadmium-Free QDs with Increased Absorption and Stability for Colour Conversion of Blue Light

Jan S. Niehaus (Fraunhofer IAP-CAN, Germany)

[A65-4] 15:55-16:10

Surface Chemistry of InP NCs on (110) and (111) Facets in Response to Oxidation

Eunhye Cho, Meeree Kim, and Sohee Jeong (Sungkyunkwan Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 66. OLED Devices III : Comprehensive Analysis on Devices |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:10 |
| Session Room: | Room B (Halla B) |
| Chair(s): | Prof. Wan Pyo Hong (Gachon Univ., Korea) Dr. Yong-Jin Pu (RIKEN, Japan) |

[B66-1] [Invited] 14:50-15:15

Probing OLED Degradation Mechanism with Direct- and Inverse-Photoelectron Spectroscopy: Insights into Host-Dopant Systems and Deuterium Isotope Effects

Yeonjin Yi, Kiwoong Kim (Yonsei Univ., Korea), Soohyung Park (KIST, Korea), Jun Yeob Lee (Sungkyunkwan Univ., Korea), and Hyunbok Lee (Kangwon Nat'l Univ., Korea)

[B66-2] [Invited] 15:15-15:40

Key Requirements for Blue Hyperfluorescent Organic Light-Emitting Diode

Sungho Nam, Ji Whan Kim, Hye Jin Bae, Yusuke Makida Maruyama, Daun Jeong, Joonghyuk Kim, Jong Soo Kim, Soo-Ghang Ihn, and Hyeonho Choi (Samsung Advanced Inst. of Tech., Korea)

[B66-3] 15:40-15:55

Enhancing First Frame Ratio in OLED Displays through Dual-Prime Layer

Eun-Hyung Lee, Yong-Cheol Kim, Moon-Sung Kil, Yu-Ri Park, So-Hee Lee, Hyun-Sook Jeon, Mi-Na Kim, Kyu-Il Han, Ji-Ho Baek, Kwon-Shik Park, and Soo-Young Yoon (LG Display Co., Ltd., Korea)

[B66-4] 15:55-16:10

Enhancement of the Electro-Optical Performance and the Lifetime of Blue Emitting OLEDs by Controlling Molecular Orientation Using Low Substrate Temperature

Chang-Hee Lee (Dong-A Univ., Korea), Shin-Han Kim (Yonsei Univ., Korea), Jeong-Hwan Lee (Inha Univ., Korea), Yeonjin Yi (Yonsei Univ., Korea), and Gi-Dong Lee (Dong-A Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 67. Fundamental Studies on TFT Devices |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:15 |
| Session Room: | Room C (Samda) |
| Chair(s): | Prof. Junghwan Kim (UNIST, Korea) |

[C67-1] [Invited] 14:50-15:15

Machine learning Approaches for IGZO Research

Keisuke Ide, Hideo Hosono, and Toshio Kamiya (Tokyo Inst. of Tech., Japan)

[C67-2] 15:15-15:30

Spectroscopic Analysis of the Source-Drain/Channel Interface of Fully Solution Processed Self-Aligned α -InZnO Thin Film Transistors

Krittin Auewattanapun (Nara Inst. of Science and Tech., Japan & Kasetsart Univ., Thailand), Juan Paolo S. Bermundo, Umu Hanifah (Nara Inst. of Science and Tech., Japan), Hideki Nakajima, Wanwisa Limphirat (Synchrotron Light Research Inst. Suranaree, Thailand), Ratchatee Techapiesancharoenkij (Kasetsart Univ., Thailand), and Yukiharu Uraoka (Nara Inst. of Science and Tech., Japan)

[C67-3] 15:30-15:45

Contact-Induced Mobility Enhancement in Oxide Thin-Film Transistors

Oliver Durnan, Reem Alshanbari (Columbia Univ., USA), Hong-rae Cho (Gachon Univ., Korea), Ioannis Kymissis (Columbia Univ., USA), and Chang-Hyun Kim (Univ. of Ottawa, Canada)

[C67-4] 15:45-16:00

What Determines Electron Effective Mass and Structural Stability in Crystalline Semiconductors with InGaZnO₄ Isostructures

Tomoya Suzuki, Keisuke Ide, Takayoshi Katase, Hideo Hosono, and Toshio Kamiya (Tokyo Inst. of Tech., Japan)

[C67-5] 16:00-16:15

Oxygen-Related Defect Control Layer for High-Performance α -InZnO Thin-Film Transistors

Ji-Hoon Han, Dong-geun Lee, and Hyun-Jae Kim (Yonsei Univ., Korea)

iMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 68. Computational Issues in AR/VR/MR and 3D Displays |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:35 |
| Session Room: | Room D (301) |
| Chair(s): | Dr. Lu Lu (Meta Platforms Inc., USA) Prof. Hong-Seok Lee (Pukyong Nat'l Univ., Korea) |

[D68-1] [Invited] 14:50-15:15

Dynamic Projection Mapping based on High-Speed Sensing and Display

Leo Miyashita (Tokyo Univ. of Science, Japan)

[D68-2] [Invited] 15:15-15:40

Multilayering of Coded Apertures in Lensless Imaging

Tomoya Nakamura (Osaka Univ., Japan)

[D68-3] 15:40-15:55

High-Quality Holographic Image Reproduction Method Using Light Field Image Phase Optimized by Stochastic Gradient Descent Algorithm

Young-Gyu Bae, Hee-Dong Jeong, and Seung-Yeol Lee (Kyungpook Nat'l Univ., Korea)

[D68-4] 15:55-16:10

Computer-Generated Hologram in Holographic Curved Waveguide Display

Sehwan Na and Hwi Kim (Korea Univ., Korea)

[D68-5] [Invited] 16:10-16:35

Waveguide Holography: a Novel Representation for Wave Propagation in Waveguides

Changwon Jang and Douglas Lanman (Meta, USA)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|---|
| Session Title: | 69. Flexible Biomedical Devices |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:10 |
| Session Room: | Room E (302) |
| Chair(s): | Prof. Kyungwon Han (Seoul Nat'l Univ., Korea) Prof. Hui Joon Park (Hanyang Univ., Korea) |

[E69-1] [Invited]

14:50-15:15

Flexible OLED to Eliminate Waveguiding for High-Efficiency and Photoacoustic-Printed CNT Transistors for Additive Fabrication

L. Jay Guo (Univ. of Michigan, USA)

[E69-2] [Invited]

15:15-15:40

Design of Soft Actuators, Mechanisms, and Sensors for Medical Applications

Amy Kyungwon Han (Seoul Nat'l Univ., Korea)

[E69-3]

15:40-15:55

Patch-Type Pulse Oximeter Capable of Real-Time Measurement With Wavelength Tunable OLED

Minseong Park (Gachon Univ., Korea), Ho Seung Lee (KAIST, Korea), Eou-Sik Cho, Sang Jik Kwon, and Yongmin Jeon (Gachon Univ., Korea)

[E69-4]

15:55-16:10

Wearable Textile-Based Red Organic Light-Emitting Diodes (OLEDs) for User Friendly Devices

Eun Hae Cho, Junhee Sim, and Kyung Cheol Choi (KAIST, Korea)

imiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|--|
| Session Title: | 70. LC Elastomers |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:20 |
| Session Room: | Room F (303) |
| Chair(s): | Prof. Changyeon Lee (Chung-Ang Univ., Korea) |

[F70-1] [Invited] 14:50-15:15

Formation of Orientation-Assisted Crystals based on Organic Semiconducting Materials with Liquid Crystal Alignment

Yosei Shibata, Shunsuke Natsume, Saho Ohtani, and Munehiro Kimura (Nagaoka Univ. of Tech., Japan)

[F70-2] [Invited] 15:15-15:40

Liquid Crystal Materials beyond Displays

Zhongqiang Yang (Tsinghua Univ., China)

[F70-3] [Invited] 15:40-16:05

Mechanochromic Palettes of Cholesteric Liquid Crystal Elastomers for Direct Visualization of Deformation

Hyewon Park (KAIST, Korea), Hye Joo Lee (Pukyong Nat'l Univ., Korea), Hyungju Ahn (Pohang Accelerator Lab., Korea), Woong Chan Han (Pukyong Nat'l Univ., Korea), Hee Seong Yun (KAIST, Korea), Yun-Seok Choi (Los Alamos Nat'l Lab., USA), Dae Seok Kim (Pukyong Nat'l Univ., Korea), and Dong Ki Yoon (KAIST, Korea)

[F70-4] 16:05-16:20

Liquid Crystal Elastomers with Movable Crosslinks: Strong and Switchable Adhesion via Extreme Dynamic Soft Elasticity

Subi Choi (Pusan Nat'l Univ., Korea), Ji-Hun Seo (Korea Univ., Korea), Mohand O. Saed (Univ. of Cambridge, UK), and Suk-kyun Ahn (Pusan Nat'l Univ., Korea)

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The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

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|-----------------------|--|
| Session Title: | 71. AI & Computational Technologies V |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:10 |
| Session Room: | Room G (401) |
| Chair(s): | Dr. Hyung Uk Cho (Samsung Display Co., Ltd., Korea) Prof. Hongyun So (Hanyang Univ., Korea) |

[G71-1] [Invited] 14:50-15:15

Thermal Transport Analysis for Improved Simulation in Micro-OLEDs

Hongyun So (Hanyang Univ., Korea)

[G71-2] 15:15-15:30

Research on Identifying Foreign Substance Defect Root Causes in Transport Routes Using Machine Learning

hyojoong Kim, Gyungju Lee, Sooyoung Lee, Minbeom Kim, Jeongguk Min, Seokwoo Lee, Joonyoung Yang, and Sooyoung Yoon (LG Display Co., Ltd., Korea)

[G71-3] 15:30-15:45

Utilizing Computer-Aided Engineering in Analytical Device Model for OLEDs based on Temperature-Dependent Dynamic Behavior

Han Wool Park, Bumjong Park, Han-Seung Yang, Yoon Ji Choi, Dong Shin Choi, Hanjin Park, Jong Seuk Kang, Sung Ki Kim, Seok-Woo Lee, Joon-Young Yang, and Soo-Young Yoon (LG Display Co., Ltd., Korea)

[G71-4] [Invited] 15:45-16:10

Lessons from AI-Based Materials Development for Display Devices

Young Sang Choi (Samsung Advanced Inst. of Tech., Korea)

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The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

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|-----------------------|---|
| Session Title: | 72. Advanced Manufacturing and Processes II |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:10 |
| Session Room: | Room H (402) |
| Chair(s): | Prof. Byung Doo Chin (Dankook Univ., Korea) Dr. Joseph Andrews (Univ. of Wisconsin - Madison, USA) |

[H72-1] [Invited] 14:50-15:15

The Advanced Inkjet Technology: Smart Inkjet Printhead (SIP4.0)

Yoshinori Domae (iPrint, HEIA-FR, HES-SO (Univ. of Applied Sciences and Arts Western Switzerland), Switzerland)

[H72-2] [Invited] 15:15-15:40

Understanding Fluid Dynamic Properties and Jetting Behaviour to Advance Inkjet Printing for Display Solutions

Tri Tuladhar (Trijet Limited, UK)

[H72-3] 15:40-15:55

Utilizing Machine Learning for the Analysis of Organic Lighting Emitting Diodes Display Defect Origins: A Practical Approach

Jun Hee Han, Yoonseob Jeong, Minkyu Chun, Sang Won Yoon, Jeong-Hyeon Choi, So Jung Lee, Young Jun Choi, Young Mi Kim, Sang Hoon Jung, Joon-Young Yang, and Sooyoung Yoon (LG Display Co., Ltd., Korea)

[H72-4] 15:55-16:10

Simulation Methodology of OLED Cell Mask Shadow Prediction

Jai Hyuk Lee, Hyo Joon Gong, Dong Shin Choi, Sung Ki Kim, Seok Woo Lee, Joon Young Yang, and Soo Young Yoon (LG Display Co., Ltd., Korea)

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The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

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|-----------------------|-----------------------------------|
| Session Title: | P1. Poster Session 1 |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 13:20-14:50 |
| Session Room: | 1F, Event Hall & Lobby |

[P1-001]

Enhancing Flexural Strength Analysis of Ultra-Thin Glass in Foldable Displays through Graph Causal Modeling

Kyongtae Park and Ki-taek Kim (Samsung Display Co., Ltd., Korea)

[P1-002]

Optimizing Durability and Reflectivity in Low-Reflective Films for Flexible Displays: An Approach Using Explainable AI and Local Linear Models

Kyongtae Park and Gilyong Park (Samsung Display Co., Ltd., Korea)

[P1-003]

Auxetic Structured Glass-Cloth Reinforced Elastomer Substrate with Negative Poisson's Ratio for Distortion-Free Stretchable Display

Hyun Seok Kang, Sehun Park, and Byeong-Soo Bae (KAIST, Korea)

[P1-004]

Multi-Pixel Cylindrical Fiber-Based OLEDs for Truly Wearable Displays

Seong Uk Kong and Kyung Cheol Choi (KAIST, Korea)

[P1-005]

Dry Etchable Inorganic/Organic Hybrid Structure of SiO_x-SiN_x-Tincone Deposited by Atomic/Molecular Layer Deposition for Bendable OLED Encapsulation

Ji-Min Kim, Gi-Beom Park, Hyo-Lim Jung, Hae-Lin Yang, and Jin-Seong Park (Hanyang Univ., Korea)

[P1-006]

Depth-Graded Modulus-Engineered Elastomer Composite with 2D/3D Strain Control for Stretchable Displays

Dong Won Lee, Jun-Chan Choi, and Seungjun Chung (Korea Univ., Korea)

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The 24th International Meeting on Information Display
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[P1-007]

Implementation of Oxide Thin-Film Transistors on Ultra-Thin PET Substrates Utilizing Delamination and Transfer Process

Jong Beom Ko (Hanbat Nat'l Univ., Korea) and Sang-Hee Park (KAIST, Korea)

[P1-008]

Inkjet-Printed Stretchable Thin-Film Transistors with van der Waals Heterostructures

Jiwoo Yang (Korea Univ., & Seoul Nat'l Univ., Korea), Kyungjune Cho (KIST, Korea), Yongtaek Hong (Seoul Nat'l Univ., Korea), and Seungjun Chung (Korea Univ., Korea)

[P1-009]

In-Situ Crystallized Perovskite Nanocrystals for Stretchable Primary-Blue Down Conversion

Jun-Su Yeo, Eun-Ha Cho, Joo Yoon Woo, Joo Hyeong Han, Won Bin Im, and Tae-Hee Han (Hanyang Univ., Korea)

[P1-010]

Real-Time Changes in Electrical Resistance during Torsion Tests of Conductive Flexible Films for Wearable Flexible Display Application

Jeong Ah Lim, Jiho Ahn, Gang Yeol Yoo, and Hyun Min Cho (KETI, Korea)

[P1-011]

Stability Analysis in Slidable Display Using Multilayer Film with Adhesive Layer by Repetitive Sliding Deformation

Taehyeon Kim, Jae Ho Song, Sangwoong Baek, and Chan-Jae Lee (KETI, Korea)

[P1-013]

3D Printable Composite Ink Using Self-Alignment for Highly Conductive Stretchable Interconnects

Jonghyun Jeong, Hoon Yeub Jeong, and Seungjun Chung (Korea Univ., Korea)

[P1-014]

Low-Cycle Fatigue Analysis of Stretchable Interconnects Using Finite Element Method Analysis

Sang Hyun Han, Hak Jun Yang, and Su Seok Choi (POSTECH, Korea)

[P1-015]

A Novel Hidden Pixel Driving Method for Driver IC Reduction in Stretchable Displays

Hye Jin Son (Yonsei Univ., Korea), Yong Min Jeong (Yonsei Univ. & LG Display, Co., Ltd, Korea), Won Kyung Min, Ji Yeong Park, Sun Min Song, Dong Hyun Choi, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-016]

High-Efficiency and Stability Light-Emitting Diodes Utilizing in-situ Fabricated Perovskite Nanocuboid Emitters

Jeong Wook Jang, Joo Yoon Woo, Min Gyo Kim, Jong Ho Park, Dae Hwan Kim, and Tae-Hee Han (Hanyang Univ., Korea)

[P1-017]

High Performance Metallic Stretchable Electrodes Having Graphite Interconnection Layer

Jhongwoong Park, Juhyeon Lee, and Jaewook Jeong (Chungbuk Nat'l Univ., Korea)

[P1-018]

Investigation of the Influences of Solution Processing Variables on Solution-Processed OLEDs

Eon Ji Cha, Jun Won Jeon, Joo Yoon Woo, and Tae-Hee Han (Hanyang Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
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[P1-019]

Micro Patterning in OLED Using Photolithography with Fluorinated Photoresist

Eun Yeong Soh, Seohyeon Lee, Dongjin Shin, Byung Jun Jung (Univ. of Seoul, Korea), Gayoung Kim, Jin-Kyun Lee, Sangmin Yoon, and Myungwoong Kim (Inha Univ., Korea)

[P1-021]

Blue OLED Patterning Using Photolithography based on Fluorinated Photoresist

Dongjin Shin, Eun Yeong Soh (Univ. of Seoul, Korea), Han-un Park, Jungmin Lee, Hyokyun Ham, Woosam Kim (LT Materials Co., Ltd., Korea), Gayoung Kim, Sangmin Yoon, Myungwoong Kim, Jin-Kyun Lee (Inha Univ., Korea), and Byung Jun Jung (Univ. of Seoul, Korea)

[P1-022]

Analysis of GaN Micro-LEDs for AR/XR Applications

Yanxia Feng, Xiaowei Yue, and Ke Zhang (Sitan Tech., China)

[P1-023]

Vertical Thin-Film Transistor with Parasitic Capacitance Reduction Structure for High-Resolution XR Display

Su Hyun Kim (Hanyang Univ., Korea), Hyoung-Do Kim, Joon Seok Park (Samsung Display Co., Ltd., Korea), and Saeroonter Oh (Hanyang Univ. & Sungkyunkwan Univ., Korea)

[P1-024]

Self-Aligned Top-Gate In-Ga-Zn-O Thin-Film Transistors (IGZO TFTs) with Hydrogen-Free SiO₂ Gate Insulator and Boron Implanted Source and Drain Regions

Motoki Ando and Mamoru Furuta (Kochi Univ. of Tech., Japan)

iMiD 2024

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[P1-025]

Defects Analysis of Ionizing Effect on Low-Temperature Polycrystalline Silicon Thin-Film Transistor and Its Curing Behavior

Junho Noh and Byoungdeog Choi (Sungkyunkwan Univ., Korea)

[P1-026]

Doping Level-Dependent Morphology Changes in Amorphous-Like Conjugated Polymer

Eunsol Ok and Kilwon Cho (POSTECH, Korea)

[P1-027]

Enhancing Reliability in Thin-Film Transistors: The Role of Amorphous InGaSnO/TiO₂ Bilayer Structure under NBIS Conditions

Hwan-Gyu Lee and Byoung-deog Choi (Sungkyunkwan Univ., Korea)

[P1-028]

Wavelength-Dependent Multi-State Programmable Optoelectronic Logic-in-Memory based on Light-Sensitive Floating Gate

Taehyun Park, Youngmin Han (Gachon Univ., Korea), Yun-Hi Kim (Gyeongsang Nat'l Univ., Korea), and Hocheon Yoo (Gachon Univ., Korea)

[P1-029]

Electrical Analysis of Microwave Annealed Amorphous Indium Gallium Tin Oxide Thin Film Transistor

Sungsoo Park and Byoungdeog Choi (Sungkyunkwan Univ., Korea)

[P1-030]

Electrical Properties of Air Spray Coated ZTO Thin-Film Transistor

Young Jik Lee, Yong Jae Kim, and Woon-Seop Choi (Hoseo Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-031]

Fabrication and Electrical Characteristics of Solution-Based Zinc-Tin Oxide/Carbon Nanotube Hybrid Thin-Film Transistors

Yong-Jae Kim, Young-Jik Lee, and Woon-Seop Choi (Hoseo Univ., Korea)

[P1-032]

Double Gate p-ch Cu-MIC Poly-Ge TFT on a Glass Substrate by Gate-Last Process

Daiki Goshima, Sho Suzuki, and Akito Hara (Tohoku Gakuin Univ., Japan)

[P1-033]

High-Performance Heterojunction IGZO/ITZO Thin-Film Transistors

Zhenyuan Xiao, Jidong Jin, and Jaekyun Kim (Hanyang Univ., Korea)

[P1-034]

Superlattice Channel Structure for High-Performance Oxide Thin-Film Transistors

Dinh Hai Tung Nguyen, Jidong Jin, and Jaekyun Kim (Hanyang Univ., Korea)

[P1-035]

Active Matrix Micro-LED Display based on Resistive Random-Access Memory

Seok Hee Hong, Ho Jin Lee, Sim Hun Yuk, Dong Hyun Kim, Jun Young Choi, and Tae Geun Kim (Korea Univ., Korea)

[P1-036]

High Mobility and Flexible mIZO/IGZO:Hf Thin Film Transistor for OLED Display

Kang Min Lee, Nahyun Kim, Ho Jin Lee, Jin Kyung Lee, Jae Yeon Kim, Sung Keun Choi, and Tae Geun Kim (Korea Univ., Korea)

[P1-037]

Heterostructure Vertical Thin Film Transistor for High-Resolution Display

Jin Kyung Lee, Ho Jin Lee, Kang Min Lee, Jin Suk Oh, Jong Min Joo, and Tae Geun Kim (Korea Univ., Korea)

[P1-038]

Memory-Modulated Interpenetrating Semiconductor Networks based on Ion Doping Physics

Hayoung Lim, Hayoung Oh, Hyukmin Kweon, and Do Hwan Kim (Hanyang Univ., Korea)

[P1-039]

Enhancement of Positive Bias Temperature Stress performance for Gate In Panel based on CMOS of Low Temperature Polycrystalline Si and Oxide TFT

Se-Hwan Na (Yonsei Univ. & LG Display Co., Ltd., Korea), Seok Gyu Hong, Yong Seon Hwang (Yonsei Univ., Korea), Jung-Chul Kim, Joon-Seok Yoo (LG Display Co., Ltd., Korea), and Hyun-Jae Kim (Yonsei Univ., Korea)

[P1-040]

AMOLED Pixel Circuit for AR/VR Application Using Inverted Double Gate Oxide TFT

Kook Chul Moon, Hwarim Im, and Yong-Sang Kim (Sungkyunkwan Univ., Korea)

[P1-041]

Strategies for Highly Stress-Reliable InSnZnO Dual-Gate Thin-Film Transistors

Delang Lin (South China Univ., China), Rongsheng Chen, Zhibo Sun, Fion Sze Yan Yeung, Man Chun Tseng, and Hoi Sing Kwok (Hong Kong Univ. of Science and Tech., China)

[P1-042]

High-Performance Ferroelectric $\text{Hf}_{0.5}\text{Zr}_{0.5}\text{O}_2$ Field-Effect Transistors with IGZO Channels for Monolithic 3-D Integration

Kyong Jae Kim, Eun Seo Jo, and You Seung Rim (Sejong Univ., Korea)

imiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-043]

A Study of the Enhancement of Mobility through Metal-Induced Crystallization of IGZO TFTs for Display Backplanes at a Low Temperature of 300 °C

Seongkyu Kang, Byongwoo Kim, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-044]

Investigation of Bottom Gate Connection in Double Gate α -IGZO TFTs for Optimizing Compensation Performance of AMOLED Displays

Seung Hee Kang (Yonsei Univ. & LG Display Co., Ltd., Korea), Moon Ho Lee (Yonsei Univ., Korea), Won Ho Son, Do-Kyung Kim, Jeong Woo Jang, Sung Jin So, Sang Yoon Park (LG Display Co., Ltd., Korea), and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-045]

Implementation of a Physically Unclonable Functions Capable of Generating Multiple Keys Using Morphological Characteristics of Small Molecule

Raksan Ko and Hocheon Yoo (Gachon Univ., Korea)

[P1-046]

Optimization of α -ITZO/IGZO Heterojunction TFTs with Drain Offset Structure for High-Voltage Display Applications

Jungha Lee (DGIST, Korea) and Hongki Kang (DGIST & Seoul Nat'l Univ., Korea)

[P1-047]

High-Performance CuI p-Type Thin-Film Transistors with ALD Al_2O_3 -Based Sandwiched Structure

Hyo-Won Jang, Hyun-Ah Lee (Chung-Ang Univ., Korea), Tae In Kim (Inha Univ., Korea), Ick-Joon Park (Joongbu Univ., Korea), and Hyuck-In Kwon (Chung-Ang Univ., Korea)

[P1-048]

Electrical Characteristics of XFLA-Treated IGZO TFT according to Oxygen Injection during IGZO Sputtering

Yun Hyeok Jeong, Won Woo Lee, Joon Hyung Park, Dong Hyun Lee, Yongmin Jeon, Sang Jik Kwon, and Eou-Sik Cho (Gachon Univ., Korea)

[P1-049]

Improvement of Electrical Performances of p-Type Tellurium Thin-Film Transistor Using Strain Modulation Technique

Joon-Young Lee, Jong-Sang Oh (Chung-Ang Univ., Korea), Tae In Kim (Inha Univ., Korea), Ick-Joon Park (Joongbu Univ., Korea), and Hyuck-In Kwon (Chung-Ang Univ., Korea)

[P1-050]

Difference in Hydrogen Behavior Using High Pressure Hydrogen Annealing with Crystallinity Variation in In-Ga-O TFTs

Jin Won Bak, Jae Seok Hur, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-051]

Unraveling the Cation Compositional Influence on Indium Tin Oxide Thin-Film Transistors via Atomic Layer Deposition

Soojin Park, Jae Seok Hur, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-052]

High-Performance p-Type Tellurium Transistor Arrays and Circuits via Vapor Phase Deposited Polymer Passivation

Taehyun Nam, Seung Min Lee, Chungryeol Lee, Changhyeon Lee (KAIST, Korea), Junhwan Choi (Dankook Univ., Korea), and Sung Gap Im (KAIST, Korea)

[P1-053]

High Field Effect Mobility IGO TFTs Achieved by Tuning Preferential Crystalline Orientation via S/D Electrode Induced Crystallization

Sang Won Chung and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-054]

Low Voltage Ferroelectric Polymer Thin-Film Transistors for Capacitorless Pixel Circuits

Eun-Seo Park, Bon-Seong Gu, Jin-Hyuk Kwon, and Min-Hoi Kim (Hanbat Nat'l Univ., Korea)

[P1-055]

Fluorinated Polymeric Tunneling Layer of Thin-Film Transistor Memory for Wearable Electronics

Jeong-In Lee (Hanbat Nat'l Univ., Korea), Yuji Shibasaki (Iwate Univ., Japan), Jin-Hyuk Kwon, Yoonseuk Choi, and Min-Hoi Kim (Hanbat Nat'l Univ., Korea)

[P1-056]

Sheet Resistance Control of Hydrogen-Doped InOx (InO_x:H) via Boron Ion Implantation for Source and Drain Regions of Thin-Film Transistors

Mir Mutakabbir Alom, Motoki Ando, Xiaoqian Wang, and Mamoru Furuta (Kochi Univ. of Tech., Japan)

[P1-057]

Sol-Gel-Based High-k Dielectric Films for Low-Voltage Operating Thin-Film Transistors in Display Backplanes

Chae-Eun Kim, Se-Ryong Park, and Tae-Jun Ha (Kwangwoon Univ., Korea)

[P1-058]

Effects of Metal Ion Doping on the Electrical Characteristics of Metal-Oxide Thin-Film Transistors

Eun-Ha Kim, Se-Ryong Park, and Tae-Jun Ha (Kwangwoon Univ., Korea)

[P1-059]

Solution-Processed Ambipolar Thin Film Transistors-Based Inverters for Circuit Applications

Min Ki Kim, Seungyeon Koh, Hyowon Jang, Swarup Biswas, and Hyeok Kim (Univ. of Seoul, Korea)

[P1-060]

Ambipolar Thin Film Transistors for Logic Circuit

Seungyeon Koh, HwaPyeong Noh, Hyo Won Jang, Swarup Biswas, and Hyeok Kim (Univ. of Seoul, Korea)

[P1-061]

Physically Unclonable Function Using Bismuth Sulfide and Doping of Self-Assembled Monolayer

Heebeen Shin, Dong Hyun Lee, and Hocheon Yoo (Gachon Univ., Korea)

[P1-062]

Enhancing Contact Resistance in α -IGZO TFTs through Geometric Structural Modification between Channel and Electrode

Dongseon Kim and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-063]

Interface Engineering for Contact Resistance Reduction in Downscaled Perovskite Thin-Film Transistors

Hyoung-Ha Ryu, Youjin Reo, and Yong-Young Noh (POSTECH, Korea)

[P1-064]

Directly Photopatternable High-k Poly(Para-Xylylene) as Gate Dielectric

Seong Cheol Jang (Dongguk Univ., Korea), Gunoh Lee, Kyung Jin Lee (Chungnam Nat'l Univ., Korea), and Hyun-Suk Kim (Dongguk Univ., Korea)

[P1-065]

Identification of Stable Operation and Charge Transfer Characteristics of n-Type Metal-Oxide and p-Type Organic Anti-Ambipolar Transistor Using CYTOP Trap Separating Layer

Youngmin Han, Subin Lee, Minseo Kim, and Hocheon Yoo (Gachon Univ., Korea)

[P1-066]

Classification of Interface Traps in InGaZnO Thin-Film Transistors by Emission Time Constant Decomposition

Jae Hyeong Park, Min Geun Yun (Hanyang Univ., Korea), Ki Hwan Kim (Hanyang Univ & LG Display Co., Ltd., Korea), Ning Li (Hanyang Univ., Korea), Jae Man Jang, Ju Heyuck Baek, Won Sang Ryu, Jiyong Noh, Kwon Shik Park (LG Display Co., Ltd., Korea), and Saeroonter Oh (Hanyang Univ. & Sungkyunkwan Univ., Korea)

[P1-067]

Oxide Semiconductor-Based Negative Capacitance Field Effect Transistors for Low Power Consumption

Jihyeon Min, Hojeong Jo (Dongguk Univ., Korea), Kyong Jae Kim, You Seung Rim (Sejong Univ., Korea), and Hyun-Suk Kim (Dongguk Univ., Korea)

[P1-068]

Broadband Organic Phototransistor based on Bulk Heterojunction

Dong Hyun Nam, Jae Won Park, Yongju Lee, Swarup Biswas, and Hyeok Kim (Univ. of Seoul, Korea)

[P1-069]

Low-Voltage Organic Thin Film Transistors based on Eco-Friendly Gate Dielectric

HuiCheol Shin, MiRiNae Lee, Swarup Biswas, and Hyeok Kim (Univ. of Seoul, Korea)

[P1-070]

A Study on 3-D Field-Effect-Transistors with Indium-Gallium-Zinc-Oxide Channel by TCAD Simulation

Yena Kim and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-071]

Enhanced Stretching Performance of Wavy Structure TFTs Compared to Planar Structure TFTs

Jeong Eun Oh and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-072]

A Study on the Improvement of Subthreshold Swing of α -IGZO Transistor: Conversion Mechanism by the Deposition Sequence

SeongHun Yoon, MinGyeong Jo, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-073]

The Effect of Hr/Zr Ratio on the MW of IGZO Based FeTFT

He Young Kang and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-074]

Dipole Polarization-Charge Capture Based Unipolar Transistor for Artificial Sensory System

Sukwon Jang, Chungryeol Lee, and Sung Gap Im (KAIST, Korea)

[P1-075]

A Study on the Drain Induced Barrier Lowering of IGO TFT Using TCAD Simulation

Seon Woong Bang and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-076]

Monolithically Integrated p-Type CCTS RRAM and Photodetectors with Solid-Doped NMOS Technology for Low Power Image Sensor Applications

Seo-young Jo, Gyu-been Kim, In-hyeok Hong, Song-i Cheon, Myeong-ju Park, and Sung Hun Jin (Incheon Nat'l Univ., Korea)

[P1-077]

Next-Generation Display Power Optimization: Memory-in-Pixel Application with Amorphous Oxide Semiconductor Charge Trapping TFTs

Seoungmin Park, Teahyeon Noh (Hanyang Univ., Korea), Youngyeong Lee (HANA Optronics Inc., Korea), and Younghyun Kim (Hanyang Univ., Korea)

[P1-078]

Impact of Drain Induced Barrier Lowering on Indium Gallium Oxide Thin-Film Transistors according to Crystallographic Structure

Gwang-Bok Kim (Hanyang Univ., Korea), Taikyung Kim (KIST, Korea), Seon Woong Bang, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-079]

Scaled Indium Oxide Thin Film Transistors with Plasma Enhanced Atomic Layer Deposition

Jaewon Park, Seong-Cheol Jang, Dong-Bin Lee, and Hyun-Suk Kim (Dongguk Univ., Korea)

[P1-080]

Investigation of Trap Density Effects on Electrical Characteristics in α -IGZO Thin-Film Transistor

Dong-Ho Kim, Swarup Biswas, and Hyeok Kim (Univ. of Seoul, Korea)

[P1-081]

Investigation on Ferroelectric Memory with Complementary Organic-Inorganic Hybrid Insulator

Hyowon Jang (Univ. of Seoul, Korea), Yongju Lee (Univ. of Seoul, Korea & Univ. of Paris, France), Swarup Biswas, and Hyeok Kim (Univ. of Seoul, Korea)

[P1-082]

Non-Degenerate Semiconductor Polycrystalline InOx:H Film for Thin-Film Transistors Formed by Solid-Phase Crystallization

Xiaoqian Wang and Mamoru Furuta (Kochi Univ. of Tech., Japan)

[P1-083]

Y6-Based Phototransistor Using NIR Light Detection

Jae Won Park, HwaPyeong Noh, Dong Hyun Nam, Swarup Biswas, and Hyeok Kim (Univ. of Seoul, Korea)

[P1-084]

Monolithic 3D Integration of Full-Swing Logic Gates via Solid-Doped NMOS Drivers and Pseudo-Depletion Cu/IGZO Loads for Enhanced Cyber Security

Hanmin Kim, Hogeon Jeon, Dongwook Lee, Geonho Bang, Jongjoon Park, and Sung Hun Jin (Incheon Nat'l Univ., Korea)

[P1-085]

Monolithically Integrated Broad-Band CuI Photodetectors and Solid-Doped NMOSFETs Stacked with Al₂O₃ RRAMs for Smart Image Sensors

Hanmin Kim, Hyeonbin Jo, Yunsung Lee, Geonho Bang, Jongjoon Park, Hogeon Jeon, Dongwook Lee, and Sung Hun Jin (Incheon Nat'l Univ., Korea)

[P1-086]

A Study of Erasable Characteristics in Oxide Semiconductor Hybrid Channel for 3D NAND Flash Memory Application

Ji-Hwan Choi and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-087]

High-Performance Metal Oxide TFTs: Moving from Materials to Structure

John S. Brewer, Jr (Amorphyx, Inc., USA)

[P1-088]

Impact of Hf/Zr Ratio and Oxygen Content on FTJ for High TER

Hyeon Seong Kang, Tae Gue Yang, He Young Kang, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-089]

Improvement of High Temperature Reliability through Optimizing Oxygen-Related Defect on Oxide TFT by Control of Fabrication Process

Wan-Ho Choi, HeeSung Han, Sueon Lee, Hyunwook So, Chan-Yong Jeong, Changjun Lee, DaeHwan Kim, JungWoong Baek, JaeHoon Bae, Jiyong Noh, and SungChun Kang (LG Display Co., Ltd., Korea)

[P1-090]

Ion Implantation Technique Application for Short Channel Oxide Semiconductor TFT

Feng Guan, Chaolu Wang, Yang Lv, Meng Zhao, Jianhua Du, Hao Wu, Yicheng Wang, Ce Ning, and Guangcai Yuan (BOE Tech. Group Co., Ltd., China)

[P1-091]

A Novel Method for Fabricating High Performance IGZO FeFET Using Multi-Layered Stressor for HZO Crystallization

Jae Seong Han, Ju Hyun Lee, Kyungmoon Kwak, Kyungho Park, Subi Choi, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-092]

A Study of Anti-Ambipolar Transistor based on Heterojunction Structure Combining n-Type Oxide and p-Type TMDC Materials

Chanwoo Jung, Junho Lee, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-093]

A Study of Enhancing Pattern Quality in Short-Channel α -IGZO TFTs : Optimized Photoresist Material and Processing

Min Gyeong Jo, Seong Hun Yoon, and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-094]

Improving Performance of PbS QDs/IGZO Phototransistor through Introduction of Ga_2O_3 Passivation Layer for Broadband Sensor

Yongjun Jeong and JaeKyeong Jeong (Hanyang Univ., Korea)

[P1-095]

Study on Multi-Layer Stacking Effects of Oxide-Based Thin Films

Jinyeong Lee, Sungbin Jo, and Jaewook Jeong (Chungbuk Nat'l Univ., Korea)

[P1-096]

Integration of Zn-ON and Te Thin-Film Transistors for Low Temperature Processed, Highly-Stable CMOS Inverter

Jimin Kim, Muhammad Naqi, Yongin Cho, Joo On Oh, and Sunkook Kim (Sungkyunkwan Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-097]

Analysis of Energy Band Well Formation and Interface States between Active Channel and Interlayer Using Electrical Characterization

Moonsoo Kim and Byoungdeog Choi (Sungkyunkwan Univ., Korea)

[P1-098]

Characterization of Trap States in Indium-Gallium-Oxide Transistors Using Low Frequency Noise Measurement and Photo-Excited Charge Collection Spectroscopy

Sang Yeon Kim and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P1-099]

Cost-Effective Designs of Power Network in Slim Sized PCB

Min-woo kim, Deokho Kang, Kyunghwan Moon, and Jiwon Kim (Samsung Display Co., Ltd., Korea)

[P1-100]

High Dynamic Contrast Display Technology

Xiao-tong Xu, Li-mei Jiang, Ya-qin Xu, Hui-long Zheng, Peter Liao, and Smart Chung (InfoVision Optoelectronics (Kunshan) Co., Ltd., China)

[P1-101]

TFT-Based Neuromorphic Circuits Enabling Computer Haptics Applications

Kai Wang (Sun Yat-sen Univ., China)

[P1-102]

Automatic Routing Algorithm of Multiple Nets in PCB Design

Sung-kwon Kim, Yong-sang Cho, Ji-won Kim, and Seung-in Ba (Samsung Display Co., Ltd., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-103]

A Novel Circuit for SNR Improvement in OPD-Integrated OLED Display

Wonjun LEE, Cholho Kim, Haeryeong Park, Jewon Yoo, and Seungin Baek (Samsung Display Co., Ltd., Korea)

[P1-104]

Image Quality Enhancement in Variable Refresh Rate LTPO Applied AMOLED Displays Using A Variable GIP Voltage Scheme

Li Jin Kim (Yonsei Univ. & LG Display Co., Ltd., Korea), Sujin Jung (Yonsei Univ., Korea), I Sak Lee (LG Display Co., Ltd., Korea), Chang Hoon Jeon (LG Display Co., Ltd., Korea), and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-105]

Emission Driver Circuit based on Depletion-Mode Metal Oxide Thin-Film Transistors Using Double Gate Structure

Eun Kyo Jung, Hwarim Im, and Yong-Sang Kim (Sungkyunkwan Univ., Korea)

[P1-106]

Efficient Powering in Display Subsystem Using GaN-Based Ultra-Low-Profile LED Driver

Satoshi Ikeda, Natsuki Maeda (Panasonic Corp., Japan), and Kimihiro Nishijima (Sojo Univ., Japan)

[P1-107]

Amorphous Indium-Gallium Zinc Oxide Thin-Film Transistor MicroLED Pixel Circuit with Zero-VGS Inverter for Short Falling Time

Ji-Hwan Park, Kyeong-Soo Kang, and Soo-Yeon Lee (Seoul Nat'l Univ., Korea)

[P1-108]

Aerial Walk-through Projection Display Using Diffusion Screen Made from Soapy Water Micro Bubbles for Aero Signage Which is Floating in the Air

Kunio Sakamoto and Hironari Yashik (Konan Univ., Japan)

[P1-109]

Integrated Emission Driver Circuit based on LTPO TFTs without Capacitors

Han Cheol Lee, Eun Kyo Jung, Hwarim Im, and Yong-Sang Kim (Sungkyunkwan Univ., Korea)

[P1-110]

Novel Pixel Circuit Compensating for Sub-Threshold Swing Variations and Threshold Voltage Shifts of Depletion-Mode α -IGZO TFT in AMOLED Displays

Hyunwoo Kim, Jinho Moon, Yongchan Kim, and Hojin Lee (Soongsil Univ., Korea)

[P1-111]

A Novel QB Control Circuit of Scan Driver for Low Power Driving

Won-Been Jeong and Seung-Woo Lee (Kyung Hee Univ., Korea)

[P1-112]

Scan Drive Circuit with Reduced Number of Signal Lines

Hye Kang Park, Jang Hoo Lee, Young Jin Kim, Seung Jae Moon, and Byung Seong Bae (Hoseo Univ., Korea)

[P1-113]

A Novel Scan Driver based on α -IGZO TFTs with Extra Clock Modulation for Extremely Low Power Consumption

Dongseok Kim, Hyunwoo Kim, Jinho Moon, Yongchan Kim, and Hojin Lee (Soongsil Univ., Korea)

[P1-114]

Driver on Array: Merging Scan and Emission Outputs with Selectable Operation

Jang Hoo Lee, Young Jin Kim, Hye Kang Park, Seongjae Moon, and Byung Seong Bae (Hoseo Univ., Korea)

[P1-115]

Metasurface-Driven Gabor Superlens for Large-Area Floating Display

Joocheon Kim and Junsuk Rho (POSTECH, Korea)

[P1-116]

Aerial Optical Equipments Using Soapy Water or PVA Gel Layer for Aero Sign Which is Floating in the Air and Enables to Make Images Invisible from Back

Kunio Sakamoto and Takumi Tsukiji (Konan Univ., Japan)

[P1-117]

Shifting the Emission Peak of Organic Light-Emitting Diodes Utilizing Meta-surface Reflection Phase Delay

Seonghyeon Park, Jun-Young Park, Jian Cheng Bi, Junbeom Song, Ji-Sung Lee, Kyo-Cheol Kang, Sang-Ho Shin, and Byeong-Kwon Ju (Korea Univ., Korea)

[P1-118]

Antibiotic-Enhanced Charge Balancing in InP/ZnSe_xS_{1-x}/ZnS Quantum Dot Light Emitting Diodes

Awais Ali (Sungkyunkwan Univ. & Korea Univ., Korea), Soong Ju Oh (Sungkyunkwan Univ. & Korea Univ., Korea), and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[P1-119]

Scalable Manufacturing of Metalens for Wide Field-of-View Augmented Reality Displays

Eunji Lee, Younghwan Yang, Seong-Won Moon (POSTECH, Korea), and Junsuk Rho (POSTECH & POSCO-POSTECH-RIST Convergence Research Center, Korea)

[P1-120]

Hardware-Based Random Electrical Property Induction ZnGa₂O₄ Cluster Security Platform

Seungme Kang, Wangmyung Choi, and Hocheon Yoo (Gachon Univ., Korea)

[P1-121]

Residual Layer-Free Metasurface by Tape-Assisted Nanoimprint Lithography

Yujin Park and Junsuk Rho (POSTECH, Korea)

[P1-122]

Novel Charge-Accumulation Method to Achieve Large Photomultiplication for Ultra-Sensitive Quantum Dot Infrared Photodiodes

Byung Ku Jung, Taesung Park, Young Kyun Choi, Yong Min Lee, Tae Hyuk Kim (Korea Univ., Korea), Bogyom Seo (Univ. of California San Diego, USA), Seongkeun Oh, Jae Won Shim (Korea Univ., Korea), Yu-hwa Lo, Tse Nga Ngc (Univ. of California San Diego, USA), and Soong Ju Oh (Korea Univ., Korea)

[P1-123]

Development of Siloxane-Based Overcoat Material with Enhanced Performance for Touch Sensor on Thin Film Encapsulation in OLEDs

Dongyoung Shim (KETI, Korea), Sun Yu (Herachem Tech. Co., Ltd. Korea), and Sun Hong Yoon (KETI, Korea)

[P1-124]

Fabrication of Cellulose-Based External Light Extraction Film for Organic Light-Emitting Diodes with UV-Blocking Property

JooHo Lee, Baeksang Sung, Sora Han, Hyunjun Jang, Hyunbin Kim (Hanbat Nat'l Univ., Korea), Yong-Hyun Kim (Pukyong Nat'l Univ., Korea), Jae-Hyun Lee, and Jonghee Lee (Hanbat Nat'l Univ., Korea)

[P1-125]

Lattice-Based Anti-Aliasing for Phase Gradient Metasurface

Seokwoo Kim, JooHoon Kim, Kyungtae Kim (POSTECH, Korea), and Junsuk Rho (POSTECH & POSCO-POSTECH-RIST Convergence Research Center for Flat Optics and Metaphotonics, Korea)

[P1-126]

Solution-Processable Hybrid Organic-Inorganic Hole Transporting Layer for Organic Light-Emitting Diodes

Woosum Cho (KITECH, Korea), Hee Jeong Park (KITECH & Korea Univ., Korea), Yongseok Yoo (KITECH & Seoul Nat'l Univ., Korea), Sungkoo Lee, and Seunghwan Bae (KITECH, Korea)

[P1-127]

High Stretchable, Flexible Serpentine Carbon Electrode-Based Supercapacitor for Display System

Zhifan Wang, Thi Huyen Nguyen, Dawoon Lee, Manh Cuong Nguyen, and Jaekyun Kim (Hanyang Univ., Korea)

[P1-128]

Design and simulation of Meta-Surface Mirrors to Improve Light-Coupling Efficiency in OLED Display Structures

Doogyu Lee (Sungkyunkwan Univ. & Samsung Electronics Co., Ltd., Korea), and Hyoung Won Baac (Sungkyunkwan Univ., Korea)

[P1-129]

Efficient and Bright Deep-Blue Perovskite Light-Emitting Diodes with Synergetic Halide Exchange

Jun-Seo Lee, Hyungdoh Lee, Eunha Park, and Himchan Cho (KAIST, Korea)

[P1-130]

New TFE Structure with a HMDSO Buffer Layer

Woosuk Jung, Jongwoo Kim, and Jaeheung Ha (Samsung Display Co., Ltd., Korea)

[P1-131]

Improved Plasmonic Color Filter with Distributed Bragg Reflector and Fabry-Perot Interferometer

Hyo Jong Cho and Yun Seon Do (Kyungpook Nat'l Univ., Korea)

[P1-132]

Curved and Fast Response Time Vertical-Alignment (VA) Liquid Crystal Gaming Display Development

An-Thung Cho, Gui-qing Du, Zhi-peng He, Wei-Chao, James Hsu, and Wade Chen (Chongqing HKC Optoelectronics Tech. Co., Ltd., China)

[P1-133]

Integrated In-Cell Ambient Light and Color Temperature Sensors in TFT-LCDs Using α -Si Photo-Transistor and Color-on-Array (COA)/Four-Mask Process Technology

An-Thung Cho, Feng-yun Yang, Young Zhang, Ting-ting Ruan, You-zheng Lu, Lu Mao, Wen-xin Li, Ming-liang Wang, James Hsu, and Wade Chen (Chongqing HKC Optoelectronics Tech. Co., Ltd., China)

[P1-134]

New Biobased Dielectric Materials in Organic Thin Film Transistors

E. Jehanno, N. Coulon, O. De Sagazan, M. Harnois, C. Lebreton (Université De Rennes, France), A. K. Diallo (Université Gaston Berger, Sénégal), and E. Jacques (Université De Rennes, France)

[P1-135]

Ultra Low Power Consumption And Reconfigurable Optoelectronic Logic Operation based on Poling Effect Of BaTiO₃/CuO Heterojunction Photodetector

Junhyung Cho, Wangmyung Choi, Taehyun Park, and Hocheon Yoo (Gachon Univ., Korea)

[P1-136]

Exploring Perovskite Solar Cells as Dosimeters: Insights from 6 MeV Electron Beam Exposure for Space and Medical Applications

Chang Min Lee (Dongguk Univ., Korea), Sangsu Kim, Syed Hamad Ullah Shah, Yeong Beom Kim (Korea Univ., Korea), Insung Ha, P. Justin Jesuraj (Dongguk Univ., Korea), Shinhaeng Cho (Chonnam Nat'l Univ., Korea), and Seung Yoon Ryu (Dongguk Univ., Korea)

[P1-137]

Well-Balanced Hole and Electron Charge Transport in an Organic P-Type-Insulator-N-Type Layered Sandwich Structure

Jaechan Song, Youngmin Han, and Hocheon Yoo (Gachon Univ., Korea)

[P1-138]

Self-Powered Broadband Photodiodes: Low Dark Current ZnGa₂O₄/p-Si for light detection from Ultraviolet to Near-Infrared

Wangmyung Choi, Seungme Kang, and Hocheon Yoo (Gachon Univ., Korea)

[P1-139]

Solution-Processed Gaussian Transistor based on DNNT/In₂O₃ Heterostructure Anti-Ambipolar Operation

Jisoo Park, Taehyun Park, and Hocheon Yoo (Gachon Univ., Korea)

[P1-140]

Monolithically Integrated Dip-Coating CuI RRAM and Photodetectors with Solid-Doped NMOS Technology for High Quality Image Sensors

Geun Lee, Hyun Bin Jo, Tae Hyun Ji, Seo Hyun Kim, Jun Seo Jang, Seok Yeong Yun, and Sung Hun Jin (Incheon Nat'l Univ., Korea)

[P1-141]

Bio-Inspired Smart Windows with Nanoparticles Dispersed in Asymmetric Fluids

Yonghyeon Lee and Hyunsik Yoon (Seoul Nat'l Univ. of Science & Tech., Korea)

[P1-142]

Device Simulation for Organic Anti-Ambipolar Transistor Modeling

Yeoeun Kim, Subin Lee, and HoChon Yoo (Gachon Univ., Korea)

[P1-143]

Optimization of In-Ga-Sn-O Oxide TFTs with Additional Dopants for Enhanced Mobility and Stability

Hyunil Jo, Sumi Kim, Boram Shin, Yiryeong Choi, and Young-woo Heo (Kyungpook Nat'l Univ., Korea)

[P1-144]

Two-Dimensional Dion-Jacobson Tin Perovskite Transistors with Enhanced Ambient Stability

Wantae Park, Youjin Reo, Wonryeol Yang, Hamin Choi (POSTECH, Korea), Ao Liu (POSTECH, Korea & Univ. of Electronic Science and Tech. of China, China), Huihui Zhu (POSTECH, Korea & Univ. of Electronic Science and Tech. of China, China), and Yong-Young Noh (POSTECH, Korea)

[P1-145]

Monolithically Integrated Copper-Iodide Film Photodetectors, RRAMs on a Stack of Solid-Doped NMOSFETs for Advanced Image Sensor Arrays

Geun Lee, Hyun Bin Jo, Taehyun Ji, Seo Hyun Kim, Jun Seo Jang, Seok Yeong Yun, and Sung Hun Jin (Incheon Nat'l Univ., Korea)

[P1-146]

Light- and Voltage-Induced Memory Behaviors Using Metal Oxide Floating-Gate

Gyeongho Lee (KICET & Korea Univ., Korea), Dong Hyun Lee (Gachon Univ., Korea), Yeong Jae Kim (KICET, Korea), and Hocheon Yoo (Gachon Univ., Korea)

[P1-148]

Comparative Analysis of Performance Enhancement in Inverted Quantum Dot Light-Emitting Diodes Employing the Arginine and Polyethylenimine as the Interfacial Modifier on ZnO Nanoparticles

Young-Bin Chae, Suyoung Kim, Jimin Lee, Da-Yeon Hyeong, Honyeon Lee, and Chang Kyo Kim (Soonchunhyang Univ., Korea)

[P1-149]

Impact of a New Donor as TADF Sensitizer for Pure Blue Hyperfluorescence OLEDs

Odugu Pavan Kumar (Kyung Hee Univ., Korea), Alicja A. Zielinska (Doctoral School of Exact and Natural Sciences, Poland), Hae Ung Kim (Kyung Hee Univ., Korea), Braveenth Ramanaskanda (Noctiluca S.A., Poland), Mariusz J. Bosiak (Nicolaus Copernicus Univ., Poland), and Jang Hyuk kwon (Kyung Hee Univ., Korea)

[P1-150]

The Highly Efficient Stretchable OLEDs with Nanowavy Structures for Angle-Independent Narrow Band Emission

Ajay Nimbalkar, Aqsa Irfan, and Min Chul Suh (Kyung Hee Univ., Korea)

[P1-151]

Low-Temperature Crosslinked Soluble Polyimide as a Dielectric for Organic Thin-Film Transistors: Enhanced Electrical Stability and Performance

Tae Gwang Kim and Taek Ahn (Kyungsung Univ., Korea)

[P1-152]

Preparation and Characterization of a Novel Polyimide/Surface Modified Al_2TiO_5 Nanocomposite for Solution Processable High k Dielectric

Tae Gwang Kim and Taek Ahn (Kyungsung Univ., Korea)

[P1-154]

Tailoring Sizes and Compositions of Bismuth-Based Chalcogenide Nanorods and Nanowires via Heat-up Method

Da Won Lee, Dagam Kim, Ho Young Woo, Yoonjoo Choi, and Taejong Paik (Chung-Ang Univ., Korea)

[P1-155]

Size- and Shape-Controlled Synthesis of Highly Uniform Upconverting Calcium Fluoride Nanocrystals

Seung Hyeon Kim, Ho Young Wo, Seong Vin Hong, and Taejong Paik (Chung-Ang Univ., Korea)

[P1-156]

Bimodal Frequency Reconfigurable Antenna Pair Elements for Surface Display

Sang Gyeong Nam and Su Seok Choi (POSTECH, Korea)

imiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-157]

Effect of New Dopant Al on In-Ga-Sn-O Oxide Semiconductor with High Mobility

Sumi Kim, Hyunil Jo, Boram Shin, Yiryeong Choi, and Young-woo Heo (Kyungpook Nat'l Univ., Korea)

[P1-158]

MOCVD of NiS Film Using Single Source Precursor without Any Sulfur Reactant

Mikyong Jung (KRICT & Hanyang Univ., Korea), Younghee Park, Dasom Song, Jihun Kim (KRICT, Korea), Jinseong Park (Hanyang Univ., Korea), Jongsun Lim, and Changgyoun Kim (KRICT, Korea)

[P1-159]

Visible and Infrared Dual-Band Camouflage Using Reflective Display Technology

Ju Hyun Park (Korea Univ. & ETRI, Korea), Chil Seong Ah, Jiyoung Oh, Yongjun Lee, Sanghoon Cheon, Doo-Hee Cho (ETRI, Korea), Byeong-Kwon Ju (Korea Univ., Korea), and Tae-Youb Kim (ETRI, Korea)

[P1-160]

Controllable Defect Diffusion Model for Improving Inspection Performance

Eunchul Ko (Sungkyunkwan Univ. & Samsung Display Co., Ltd., Korea), Haneol Kim, Anthony S Son (Samsung Display Co., Ltd., Korea), and Jeehyong Lee (Sungkyunkwan Univ., Korea)

[P1-161]

High-Precision Luminance Image Stitching for Free-Form Displays Made Simple

Ingo Rotscholl (TechnoTeam Bildverarbeitung GmbH, Germany), Shin Myung Choi (IS-Soft Co., Ltd., Korea), and Udo Krüger (TechnoTeam Bildverarbeitung GmbH, Germany)

[P1-162]

In-line Inspection Methods for the Electrical Properties of IGZO Thin Films using Local Annealing with CO₂ Laser

Jin-Choul Park, Woong Jang, Min-Uk Kim, Soo-Keun Lee, Byeong-Cheol An (AVACO Co., Ltd., Korea), and Chi-Sun Hwan (ETRI, Korea)

[P1-163]

Optical Device Development and Image Reconstruction for Improved Defect Observation of Pellicle Inner Wall

Seongjin Choi and BY Yoo (APS Division, Korea)

[P1-164]

Defect Image Generation using Grad-CAM To Improve Inspection Performance

No Sung Lee and Sang Rak Son (Samsung Display Co., Ltd., Korea)

[P1-165]

Measurement of SiO_x Thin Film Characteristics on a Glass Substrate using Infrared Reflection Spectroscopy

Junmo Im, Yongjun Park, and Se-yoon Oh (Samsung Display Co., Ltd., Korea)

[P1-166]

Real-Time Glass Carbonization Measurement using Spectroscopic Spectra

SeungCheol Ko, YongJun Park, and Se-yoon Oh (Samsung Display Co., Ltd., Korea)

[P1-167]

Camera Hole Inspection Using Circle Scanning Optical Coherence Tomography

Hyungseo Jeon, Yoonseok Kim, Sangyeob Han (Kyungpook Nat'l Univ., Korea), Dowan Kim, Heungwoo Jung, Kihoon Jung (Samsung Display Co., Ltd., Korea), and Mansik Jeon (Kyungpook Nat'l Univ., Korea)

[P1-168]

Automotive Curved Display Inspection System using Optical Coherence Tomography

Bosung Kim, Yoonseok Kim, Sangyeob Han (Kyungpook Nat'l Univ., Korea), Jangki Baek, Taejin Hwang, Wonhee Choi (Samsung Display Co., Ltd., Korea), and Mansik Jeon (Kyungpook Nat'l Univ., Korea)

[P1-169]

Investigation of Hydrogen Diffusion by Nano-SIMS Depth Profiles in Oxide TFT

Hoon Choi and Sura Kim (LG Display Production Tech. Center, Korea)

[P1-170]

Verification of Defect by EELS of α -IGZO TFT Depending on the Hydrogen Content

Sura Kim, Dongho Won, Jiseong Lee, Minjong Park, and Hoon Choi (LG Display Production Tech. Center, Korea)

[P1-171]

Multi-Functional Image Transformer for Display Defect Inspection: Unified Super Resolution and Classification

Seung-Gi Kim, SungHoon Jo, HanEol Kim, and DongGon Yoo (Samsung Display Co., Ltd., Korea)

[P1-172]

Detection of Fab Induced Module Defect Using Defect Map Similarity

Jungsuk Hahn (Samsung Display Co., Ltd., Korea)

[P1-173]

A Novel Method for Visualizing and Evaluating Nanocrystals of Oxide Thin Film in Micro-Display

Mihyang Sheen, Jaehan Lee, and Nari Ahn (Samsung Display Co., Ltd., Korea)

[P1-174]

Micro-LED Chip Inspection based on Multimodal Deep Learning

Sung-Kyu Lee, Sungmin Lee, Seong-Gyun Kim, Jeongguk Min, Seok-Woo Lee, Joon-Young Yang, and Soo-Young Yoon (LG Display Co., Ltd., Korea)

[P1-175]

Measurement of the Flight Speed of the Inkjet Droplet using the Interference Fringe Pattern

Dong Yeol Shin (Korea Univ. & KITECH, Korea), Yoon Jae Moon (KITECH, Korea), Byeong-Kwon Ju (Korea Univ., Korea), and Kyung-Tae Kang (KITECH, Korea)

[P1-176]

Auto Raman Analysis Equipment

Jaewoo Jung, Hyunsuk Guak, and Yonghee Park (Samsung Display Co., Ltd., Korea)

[P1-177]

Dynamic Spectroscopic Ellipsometry and Its Applications for Display MI

Gukhyeon Hwang, Saeid Kheiryzadehkhaghah, Sukhyun Choi, and Daesuk Kim (Jeonbuk Nat'l Univ., Korea)

[P1-178]

Large-Area Ultra-Thin Film Thickness Profilometer with Nanometer Resolution

Kheiryzadehkhaghah Saeid, Hwang Gukhyeon, Choi Sukhyun, and Kim Daesuk (Jeonbuk Nat'l Univ., Korea)

[P1-179]

Extracting Subgap State Distributions of Solution-Processed IZO Semiconductors Through Characterization of Electrical TFT Behavior

Dongwook Kim, Seulle Lee, Taehui Kim, Sehyun Heo, Sooyoun Shin, Youngjun Yun, and Jaehoon Park (Hallym Univ., Korea)

[P1-180]

3D Mass Imaging Analysis of OLED Multilayer Structure Using Oblique Etching Preparation by Ion Beam

Jae Ho Song, Taehyeon Kim, Youngmin Kim (KETI, Korea), Jooyeon Oh (ASTA Inc., Korea), and Chan-Jae Lee (KETI, Korea)

[P1-181]

Characterization of Seam Area and Optical Uniformity in LED Tiled Displays

Jiho Ahn, Jeong Ah Lim, Gang Yeol Yoo, and Hyun Min Cho (KETI, Korea)

[P1-182]

Metrology & Inspection Technology in the Display Manufacturing Industry

Jeonghun Lee (ELP Corp., Korea)

[P1-183]

Sub-Micron Sized Inorganic Halide Luminescence Materials for Optoelectronic Application

Seon Yeong Lee, Bo Young Kim (KOPTI, Korea), Seok Bin Kwon, Jung Hyeon Yoo (Sungkyunkwan Univ., Korea), Sie-Wook Jeon, Young Hyun Song, and Seung Hee Choi (KOPTI, Korea)

[P1-184]

Vertically Stacked RGB Micro-LEDs Via Transfer Printed Semiconductor Sheets

Seong Woo Hong and Yei Hwan Jung (Hanyang Univ., Korea)

[P1-185]

First-Principles Calculations of Direct and Indirect Auger Recombination Coefficients in $\text{In}_x\text{Ga}_{(1-x)}\text{N}$

Arindam Sannal, Kisang Byun, Dohee Kim (Pusan Nat'l Univ., Korea), Sang Ho Jeon, Sang-Hoon Lee, Hyeon-Deuk Kim, Sung-Chan Jo (Samsung Display Co., Ltd., Korea), and Joonkyung Jang (Pusan Nat'l Univ., Korea)

[P1-186]

Bulk Shockley-Read-Hall Recombination Coefficient Calculation of InGaN Based MicroLEDs with DFT Study

Kisang Byun, Arindam Sannal, Dohee Kim (Pusan Nat'l Univ., Korea), Sang Ho Jeon, Sang-Hoon Lee, Hyeon-Deuk Kim, Sung-Chan Jo (Samsung Display Co., Ltd., Korea), and Joonkyung Jang (Pusan Nat'l Univ., Korea)

[P1-187]

Fill factor-Free Stretchable Micro-LED Display using Quantum Dot Superstrate

Hyeon Ho Shin and Yei Hwan Jung (Hanyang Univ., Korea)

[P1-188]

Radiative Recombination Coefficients of $\text{In}_x\text{Ga}_{(1-x)}\text{N}$ from First-Principle Calculations

Dohee Kim, Kisang Byun, Arindam Sannyal (Pusan Nat'l Univ., Korea), Sang Ho Jeon, Sang-Hoon Lee, Hyeon-Deuk Kim, Sung-Chan Jo (Samsung Display Co., Ltd., Korea), and Joonkyung Jang (Pusan Nat'l Univ., Korea)

[P1-189]

Spatial Region Electroluminescence Analysis of InGaN Micro-Size Light-Emitting Diodes

Byeong-U Bak, Taein Kim, and Jaekyun Kim (Hanyang Univ., Korea)

[P1-190]

Switchable Shape Memory Polymer Dry Adhesives with Controllable Surface Roughness for Transfer Printing

Junhyung Kim, Seungbeom Kim, and Seok Kim (POSTECH, Korea)

[P1-191]

Comparing the Characterization of HfO_2 , a High-k Material, Used as a Passivation Layer in InGaN/GaN-Based Micro LEDs

Taein Kim and Jaekyun Kim (Hanyang Univ., Korea)

[P1-192]

Investigation into Improving the Performance of GaN-Based Micro-LEDs by using Various Sidewall Al_2O_3 Passivation Methods

Kijun Kwon, Joongjin Pi, and Jaekyun Kim (Hanyang Univ., Korea)

[P1-193]

Size-Dependent Trend of Efficiency in InGaN/GaN Flip-Chip Green Micro Light Emitting Diodes

Abu Bashar Mohammad Hamidul Islam (KENTECH, Korea), Tae Kyoung Kim (Wavelord Co., Ltd., Korea), Joochan Bae (Hanyang Univ., Korea), Yu-Jung Cha, Hyeondong Lee, Chan Park, Jae Won Seo, Jiun Oh, Minji Kim (KENTECH, Korea), Dong-Pyo Han (Pkyoung Nat'l. Univ., Korea), Dong-Soo Shin, Jong-In Shim (Hanyang Univ., Korea), and Joon Seop Kwak (KENTECH, Korea)

[P1-194]

Understanding on Cation and Anion Vacancy Clustering in Nitrides and Their Impact on Reliability in LED

Sang Ho Jeon, Eui-Cheol Shin (Samsung Display Co., Ltd., Korea), and Youngho Kang (Incheon Nat'l Univ., Korea)

[P1-195]

Dry Transfer Method of Micro-Chips Using Laser Induced Blisters

Do Young Kim, Ju Hyoeng Yu, and Seoung-Ki Lee (Pusan Nat'l Univ., Korea)

[P1-196]

Investigation of the Electrical and Optical Characteristics of InGaN-Based Red Micro LEDs

Jinchan Seo and Jaekyun Kim (Hanyang Univ., Korea)

[P1-197]

Theoretical Study for the Characteristics of Micro-LED Displays with Quantum-Dot Color Conversion Layer

Heumell Baek, HoJin Ryu, Gi-Hong Kim, and JoonYoung Yang (LG Display Co., Ltd., Korea)

[P1-198]

3D μ -Lens Printing of QD/Siloxane Hybrid Encapsulant for Highly Efficient and Stable Full-Color μ -LED Display

Somin Park, Yongmin Shin, Byung Jo Um, and Byeong-Soo Bae (KAIST, Korea)

[P1-199]

Simulation of GaN Epitaxy Structure to Maximize Low-Current Driving Efficiency

Yuseop Shin, Kiyong Hong, Jihyun Koo, Kiyong Song, Jinhyeon Yun, Byungyeon Choi, and Myungsoo Han (LG Display Research and Development Center, Korea)

[P1-200]

Smart PWM Pixel Circuit with Novel Bidirectional Phototransistor in Stretchable Display for Micro-LED

Yong-Min Jeong (Yonsei Univ. & LG Display Co., Ltd., Korea), Youjin Seo, Sun Min Song, Kyungho Park, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-201]

Enhancing Microchip Assembly Through Mixed Alloy Fluidic Self-Assembly: Achieving Optimal Melting Points for Durability and Efficiency

Kyeongmin Ryu, Yongjae Song, and Daewon Lee (Myongji Univ., Korea)

[P1-202]

Optimizing Micro-LED Performance: Sidewall Morphology Modification via KOH Etching

Huang Wenjun, Zeng Jingnan, Yin Yanzhen, Byung-Ryool Hyun, and Liu Zhaojun (Southern Univ. of Science and Tech., China)

[P1-203]

Full-Color Micro-LED Display Utilizing Novel Simultaneous Transfer and Bonding (SITRAB) and SITRAB Film Technology

Jiho Joo, Gwang-Mun Choi, Jungho Shin, Chanmi Lee, Yong-Sung Eom, Ki-Seok Jang, Jin-Hyuk Oh, Ji-Eun Jung, Ga-Eun Lee, and Kwang-Seong Choi (ETRI, Korea)

[P1-204]

Investigation to Enhanced Optical and Electrical Characteristics of Nanorod Light-Emitting Diodes Array

Youngwook Shin, Minjeong Kim, Quang Trung Le, and Jaekyun Kim (Hanyang Univ., Korea)

[P1-205]

Correlation of Surface Current and Size-Dependent Properties of GaN-Based Blue and Green Micro-Light-Emitting Diodes

Woo Jin Baek, Juhyuk Park, Hyun Soo Kim, and Sang Hyeon Kim (KAIST, Korea)

[P1-206]

Demonstration of Vertically Stacked Full-Color Micro-LED using CMOS Compatible Oxide Wafer-Bonding Technology

Hyun Soo Kim, Juhyuk Park, Woo Jin Baek (KAIST, Korea), Dae-Myeong Geum (Chungbuk Nat'l Univ., Korea), and SangHyeon Kim (KAIST, Korea)

[P1-207]

Threshold Voltage Compensation in Micro LED Pixel Circuits with Reduced Number of TFTs

Young Jin Kim, Jang Hoo Lee, Hye Kang Park, Seung Jae Moon, and Byung Seong Bae (Hoseo Univ., Korea)

[P1-208]

Hybrid PDMS Stamp for Micro-LED Transfer

Seol Ahn, Hyeonji Yang, and Yei Hwan Jung (Hanyang Univ., Korea)

[P1-210]

Advancement in Pixel Structure and Electrode Connection Design for Micro LED Displays in Signage Application

Soyoung Lee, Young In Jang, Kwangsu Lim, Gi-Hong Kim, and JoonYoung Yang (LG Display Co., Ltd., Korea)

[P1-211]

Development of Sky-Blue Phosphorescent Pt(II) Compound and Its Application to Organic Light-Emitting Diodes

Hakjo Kim, Miso Hong, Da Gyung Lim, Ju Hee Lim (Kangwon Nat'l. Univ., Korea), Jun Yeob Lee (Sungkyunkwan Univ., Korea), and Youngjin Kang (Kangwon Nat'l. Univ., Korea)

[P1-212]

Micrometre-Scale Indirect Photopatterning of RGB OLED Emissive Layers in Single Phase Network Structure

Seunghan Lee (Sogang Univ., Korea), Hybin Ham (UNIST, Korea), SeungHwan Roh (Sogang Univ., Korea), BongSoo Kim (UNIST, Korea), and Moon Sung Kang (Sogang Univ., Korea)

[P1-213]

A Novel Variable Refresh Rate Driving for AMOLED Applications

Zhengde Lai, Xiaoxu Li, Chunli Wei, Zhongjie Wang, Shuai Hou, Ruihui Shao, Lizhong Zheng, Xuesong Tian, and Zhengde Lai (BOE Tech. Group Co., Ltd., China)

[P1-214]

Improving Power Efficiency of Tandem Organic Light Emitting Diodes with Metal Assistant Interlayer

Eun-young Choi, Sung-Cheon Kang, Kanghoon Kim, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P1-215]

Enhancing Light Efficiency of Organic Light Emitting Diode with Biopolymer-Based External Light Extraction Film

Hyunjun Jang, Sora Han, Baeksang Sung, Jooho Lee (Hanbat Nat'l Univ., Korea), Yonghyun Kim (Pukyong Nat'l Univ., Korea), Jaehyun Lee, and Jonghee Lee (Hanbat Nat'l Univ., Korea)

[P1-216]

Ag:MoO₃:Yb Transparent Cathode for Top Emission Organic Light-Emitting Diodes

Ki Ju Kim, Bum June Park, Dohyeon Yoo, and Taekyung Kim (Hongik Univ., Korea)

[P1-217]

Multi-Stacked Oxide/Metal Layers-Based Flexible Electrodes for Transparent Organic Light-Emitting Diodes

Nahyun Kim, Ho Jin Lee, Wanqi Ren, Kiran Arun Nirmal, Tejas Dhanalaxmi Raju, and Tae Geun Kim (Korea Univ., Korea)

[P1-218]

Spontaneously Formed Microstructures on Bio Outcoupling Film for Organic Light-Emitting Diodes

Sora Han, Baeksang Sung, Hyunjun Jang, Jooho Lee, Seung Wan Woo, Dasol Kim, Jinhwa Kim, Hye-Ri Joe (Hanbat Nat'l Univ., Korea), Joo Won Han, Yong-Hyun Kim (Pukyong Nat'l Univ., Korea), Jae-Hyun Lee, and Jonghee Lee (Hanbat Nat'l Univ., Korea)

[P1-219]

High Brightness Monochrome OLED Stacks for Micro-Display Applications

Johannes Zeltner, Simone Lenk, Michael Toerker, Karsten Fehse, Bernd Richter, Philipp Wartenberg, and Uwe Vogel (Fraunhofer Inst. for Photonic Microsystems IPMS, Germany)

[P1-220]

Inverted OLEDs with Mg and Li Doped ZnO Nanoparticles Electron Injection Layer

Hwan-Jin-Yoo, Go-Eun Kim, Su Been Lee, Chan Jun Park, Da-Young Park, and Dae-Gyu Moon (Soonchunhyang Univ., Korea)

[P1-221]

Long-Lifetime Single Emissive Layer White Organic Light-Emitting Diodes Incorporating Electron Leakage Current Pathway

You Na Song and Taekyung Kim (Hongik Univ., Korea)

[P1-222]

High Efficient Deep Blue OLEDs using MR-TADF by Reducing Non-Radiate Triplet Exciton

Yeonju Jeong (Hongik Univ., Korea), Devulapally Mohan Gandhi, Wan Pyo Hong (Gachon Univ., Korea), and Taekyung Kim (Hongik Univ., Korea)

[P1-223]

Temperature Distribution of Large-Size and High-Resolution AMOLED Considering IR-Drop

Hongtao Ren, Xiangjun Li, Qibin Feng, Zi Wang, and Guoqiang Lv (Hefei Univ. of Tech., China)

[P1-224]

AIE Luminophores with TADF Properties through Adjusting Carbazoles for Highly Efficient Deep Blue OLEDs

Jae Hee Lee (Gachon Univ., Korea), Yeonju Jeong, Taekyung Kim (Hongik Univ., Korea), and Wan Pyo Hong (Gachon Univ., Korea)

[P1-225]

Genetic Algorithm Based Structural Optimization of Foldable OLED Screens

Chen Zheng, Zhe Dong, Qibin Feng, Zi Wang, and Guoqiang Lv (Hefei Univ. of Tech., China)

[P1-226]

Development of Technology to Improve Efficiency and Stability of Color Conversion Structures Applicable to OLED

Jinhwa Kim, Dasol Kim (ETRI & Hanbat Nat'l Univ., Korea), Chul Woong Joo, Jin-Wook Shin, Sukyung Choi, Chun-Won Byun (ETRI, Korea), Jonghee Lee (Hanbat Nat'l Univ., Korea), and Byoung-Hwa Kwon (ETRI, Korea)

[P1-227]

Effect of Trap on the Electrical Properties of Unipolar Organic Device

Kyung Jae Lee, Eunyong Seo, Dong Hyun Kim, and Donggu Lee (Gyeongsang Nat'l Univ., Korea)

[P1-228]

Rapid Photonic Annealing of AZO-Ag-AZO Multilayer by Xenon Flash Lamp and its Application to Transparent Red OLED

Won Woo Lee, Yong Hyeok Seo, Young Woo Kim, Dong Gyun Kim, Minseong Park, Ye Ji Shin, Yongmin Jeon, Sang Jik Kwon, and Eou-Sik Cho (Gachon Univ., Korea)

[P1-229]

Comparison of Lifetime Characteristics by OLED Electrode Pattern Shapes for Light Source Applications

Dong Gyun Kim, Young Woo Kim, Joon Hyung Park, Hye Yeon Shin, Minseong Park, Ye Ji Shin, Yongmin Jeon, Eou-Sik Cho, and Sang Jik Kwon (Gachon Univ., Korea)

[P1-230]

Direct Probing of the Charge Behavior of the OLED Devices under Operation Using Electronic Sum-Frequency Generation Spectroscopy

Tatsuya Kaburagi, Kazunori Morimoto, and Takayuki Miyamae (Chiba Univ., Japan)

[P1-231]

Simple White Organic Light Emitting Diode Utilizing Mixed Two Molecules with Dual Peaks

Yisak Jeong, Yeonju Jeong (Hongik Univ., Korea), Won-Sik Han (Seoul Women's Univ., Korea), and Taekyung Kim (Hongik Univ., Korea)

[P1-232]

t-Butyl Group Position Effects in Blue Tetradentate Platinum (II) Complexes for Enhanced Device Stability

Young Hun Jung, Subramanian Muruganantham, and Jang Hyuk Kwon (Kyung Hee Univ., Korea)

[P1-233]

Photocurable Hybrid Polymer Capping for Pixelized Encapsulation, with Application to Stretchable OLED

Jaewan Park, Falguni Ahmed (Korea Univ., Korea), Gerhard Domann, Daniela Collin (Fraunhofer-Inst. für Silicatforschung, Germany), and MunPyo Hong (Korea Univ. & Advanced Material Transfer Evaluation Center, Korea)

[P1-234]

Microlithography Patterning of Silicon-Integrated Small-Molecule for 3,000-ppi Resolution Full-Color OLEDs

Ryungyu Lee, Keun-Yeong Choi, Changhee Lee, and Hojin Lee (Soongsil Univ., Korea)

[P1-235]

Enhanced Optoelectrical Properties of Organic Light-Emitting Diodes by ZnO Nanoparticles Reacted with Organic Solvents

Changhee Lee, Ryungyu Lee, Keun-Yeong Choi, and Hojin Lee (Soongsil Univ., Korea)

[P1-236]

High-Performance and Stable Organic Light-Emitting Diodes with Micro-Grating Structures

Jae Choul Yu, Jeong Oh Kim, Hyun Taek Lim, Jiyong Noh, and Kwon-Shik Park (LG Display Co., Ltd., Korea)

[P1-237]

Spiro Based Electron Transport Materials for Improved Electron Mobility in Phosphorescent Organic Light-Emitting Diodes

Byeonghun Kim, Seungwon Han, and Jun Yeob Lee (Sungkyunkwan Univ., Korea)

[P1-238]

Temperature-Dependent Dynamics of Triplet Excitons in MR-TADF OLEDs: Insights from Magneto-Electroluminescence Analysis

Inseu Won, Jeoungmin Ji (KAIST, Korea), Hyosup Shin, and Changwoong Chu (Samsung Display Co., Ltd., Korea)

[P1-239]

Investigation of Hole Trapping Mechanism in Blue Phosphorescent Organic Light Emitting Diodes

Seungwon Han and Jun Yeob Lee (Sungkyunkwan Univ., Korea)

[P1-240]

Extremely High Sensitivity Measurements of Displacement Current and Luminance for OLEDs

Masaru Inoue (TOYOTech LLC, USA), Masanobu Mizusaki (Sharp Display Tech. Corp., Japan), and Hideyuki Murata (Japan Advanced Inst. of Science and Tech., Japan)

[P1-241]

Impact of Donor-Acceptor Modifications on Thermally Activated Delayed Fluorescence and Roll-Off Behaviors in OLED

Thi Na Le, Hee Tae Yang (Kyung Hee Univ., Korea), Yun-Hi Kim (Gyeongsang Nat'l Univ., Korea), and Min Chul Suh (Kyung Hee Univ., Korea)

[P1-242]

The Low-Temperature Cross-Linkable Blue Emitting Polymers for Highly Efficient Solution-Processed OLEDs

Nargis Ali, Da Hwan Lee (Kyung Hee Univ., Korea), Jihoon Lee (Korea Nat'l Univ. of Transportation, Korea), and Min Chul Suh (Kyung Hee Univ., Korea)

[P1-243]

Designing a Novel Cathode System for Stable, High-Performance, and Efficient Top Emission Organic Light Emitting Devices

Seung Ju Ok, Ki Tae Kang (Kyung Hee Univ., Korea), Yeon Hwa Lee, Seung Yong Song (Samsung Display Co., Ltd., Korea), and Min Chul Suh (Kyung Hee Univ., Korea)

[P1-244]

Strategic Approach for Efficient Sensitization in Thermally Activated Delayed Fluorescent Organic Light Emitting Diodes

Aqsa Irfan and Min Chul Suh (Kyung Hee Univ., Korea)

[P1-245]

Study on Perovskite-Organic Hybrid Color Conversion Layers for High Color Conversion Efficiency

Young Rok Kim and Min Chul Suh (Kyung Hee Univ., Korea)

[P1-246]

Analyzing the Temperature-Dependent Stability Changes in Organic Light Emitting Diodes

Bum June Park, Ki Ju Kim, and Taekyung Kim (Hongik Univ., Korea)

[P1-247]

Efficient Singlet Exciton Sensitizing Host-Assisted Fluorescence OLEDs via Molecular Engineering of Tetradentate Pt(II) Complex

Unhyeok Jo, Kiun Cheong (Sungkyunkwan Univ., Korea), Jae-Min Kim (Chung-Ang Univ., Korea), and Jun Yeob Lee (Sungkyunkwan Univ., Korea)

[P1-248]

Role of Fused Indolocarbazole for Deep Blue Boron Based Multi-Resonance Delayed Fluorescent Emitters

Junyoung Moon, Seungwon Han, and Jun Yeob Lee (Sungkyunkwan Univ., Korea)

[P1-249]

Evaluation of Visibility when Blur or Color is Added to Virtual Images Depending on the Gaze Point on AR-Based Information Display

Yuta Machigashira (Tokushima Univ., Japan), Haruki Mizushina (Tokushima Univ. & Shinshu Univ., Japan), and Kenji Yamamoto (Tokushima Univ., Japan)

[P1-250]

Evaluation of the Pseudo-3D Perception of the 2D Aerial Images by Adding Motion

Kenta Saito (Tokushima Univ., Japan), Haruki Mizushina (Tokushima Univ. & Shinshu Univ., Japan), and Kenji Yamamoto (Tokushima Univ., Japan)

[P1-251]

Image Encryption based on Optical Joint Transform Correlator with Double Input Phase Only Functions in Double Planes

Hsuan-Ting Chang and Shao-Hong Ting (Nat'l Yunlin Univ. of Science and Tech., Taiwan)

[P1-252]

HOE Printer Using Mechanical Components for Object Beam

Kenji Yamamoto (Tokushima Univ., Japan), Boaz Jessie Jackin, Naoto Tsutsumi (Kyoto Inst. of Tech., Japan), and Haruki Mizushina (Tokushima Univ. & Shinshu Univ., Japan)

[P1-253]

A Novel 2-to-3 Human Body Presenting Approach

Yueh-Yi Lai, An-Chun Luo, Yu-Shan Deng, Shang-Yi Lin, and I-Hsuan Chung (Industrial Tech. Research Inst., Taiwan)

[P1-254]

Improved Data-Adaptive Global Patch Allocation Method in Video-Based Point Cloud Compression

Hyun-Ho Kim and Yong-Hwan Kim (KETI, Korea)

[P1-255]

Optical See-Through Display with Coarse Integral Imaging Using an Interleaved Fresnel Lens Array

Hiroto Omori and Hideki Kakeya (Univ. of Tsukuba, Japan)

[P1-256]

Gop-Based Displacement Data Packing And Coding

Yaqing Li and Euee S. Jang (Hanyang Univ., Korea)

[P1-257]

Analysis of G-PCC Motion Estimation in Terms of Geometry and Attribute Relationship in RAHT Tree

Dowan Kwon, Joon Kwon, and Kyuheon Kim (Kyung Hee Univ., Korea)

[P1-258]

Study of Focused Light-Field Camera with Switchable Microlens Array for Capturing 2D and 3D Movie

Tae-Hyun Lee, Ki-Dong Lim, Sungjin Lim, Min-Kyu Park (KOPIT, Korea), Hak-Rin Kim (Kyungpook Nat'l Univ., Korea), and Kyung-II Joo (KOPIT, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-259]

Diffraction-Based Moiré Analysis of a Light Field Display with a Near Virtual-Image Mode

Koichiro Fukano (Tokyo Univ. of Agriculture and Tech., Japan), Takaaki Kudo, Toshiki Yura (IMAGICA GROUP Inc., Japan), and Yasuhiro Takaki (Tokyo Univ. of Agriculture and Tech., Japan)

[P1-260]

Evaluating the Resolution of See-Through Images Generated by a Holographic Contact Lens Display

Youjia Gu and Yasuhiro Takaki (Tokyo Univ. of Agriculture and Tech., Japan)

[P1-261]

ClassSR++: Efficient Classification Scheme for Patch-Level Super Resolution

Hyeon-Cheol Moon, Jinwoo Jeong, and Sungjei Kim (KETI, Korea)

[P1-262]

Improving DCRA Floating Imaging with Polyhedral Structures

Tzu-An Chou, Cheng-Hsun Tsai, Chuan-Feng Nehemiah Kuo, Ling-Dong Tsau, and Chien-Yu Chen (Nat'l Taiwan Univ. of Science & Tech., Taiwan)

[P1-263]

Regional Feature-Based Adaptive Subdivision Scheme Selection Algorithm to Improve Dynamic Mesh Coding Performance

Dayun Nam, Seong Yong Lim, and Hyon-Gon Choo (ETRI, Korea)

[P1-264]

Rotation Perception of Face-Like Illustration by Changing View Position in Depth-Fused 3D Display

Takahiro Omoto, Shiro Suyama, and Hirotsugu Yamamoto (Utsunomiya Univ., Japan)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-265]

Depth Difference Measurement Using Focus Detection Suitable for Holograms

Hiroshi Yoshikawa, Xiang Huo, Yi Cao, Ryutaro Hotta, and Takeshi Yamaguchi (Nihon Univ., Japan)

[P1-266]

Implementation of MIV Plugin for Unreal Engine

Bongho Lee, Sangwoon Kwak, Hong-Chang Shin, Gwangsoon Lee, Won-Sik Cheong, and Hyon-Gon Choo (ETRI, Korea)

[P1-267]

Analysis of AI Based Point Cloud Geometry Compression Methods: SparsePCGC and GRASP-Net

Joon Kwon, Dowan Kwon, and Kyuheon Kim (Kyung Hee Univ., Korea)

[P1-268]

Monocular 3D Human Reconstruction under Noise Conditions

Inho Chang, Min-Gyu Park, Yong-Hoon Kwon, Je Woo Kim, and Ju Hong Yoon (KETI, Korea)

[P1-269]

Holographic Display System with Eye-Tracker for Foveated Rendering

Ryo Yoshioka, Arisa Muramoto, and Yuji Sakamoto (Hokkaido Univ., Japan)

[P1-270]

Adaptive Point Prompt Training for Point Cloud Segmentation

Taehyun Jeong, Suhyeon Lee, and Sungjei Kim (KETI, Korea)

[P1-271]

Generation of Mirror Images of Bézier Surfaces in Computer-generated Hologram

Kodai Ono, Hiroya Aral, and Yuji Sakamoto (Hokkaido Univ., Japan)

[P1-272]

Development of an Emulator for the Special-Purpose Computer for Hologram Generation Using Orthographic Ray-Wavefront Conversion

Itsuki Karube (Chiba Univ. & Nat'l Inst. of Information and Communications Tech., Japan), Yasuyuki Ichihashi (Nat'l Inst. of Information and Communications Tech., Japan), Tomoyoshi Shimobaba, and Tomoyoshi Ito (Chiba Univ., Japan)

[P1-273]

Reduction of Crosstalk in Autostereoscopic Displays with Time-Multiplexed Directional Backlight by Black Frame Insertion

Riku Shiobara, Garimagai Borjigin, and Hideki Kakeya (Univ. of Tsukuba, Japan)

[P1-274]

Study of High-Order Bessel Beam Arrays for Optical Wireless Communication

Shun Nishijima, Tomoyoshi Ito, and Tomoyoshi Shimobaba (Chiba Univ., Japan)

[P1-275]

3D Gaussian Splatting Based Computer Generated Holography

Kai Kumano, Minsung Kang, Fan Wang, Tomoyoshi Ito, and Tomoyoshi Shimobaba (Chiba Univ., Japan)

[P1-276]

Point-Based Volumetric Surface Rendering via Multi-Projection

HyungWoo Kang, SeonYoung Jang, and ByungTae Oh (Korea Aerospace Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-277]

Design of Calculation Circuit of Computer-Generated Hologram for Holographic Head-Mounted Display

Shuto Inuma and Yuji Sakamoto (Hokkaido Univ., Japan)

[P1-278]

Spatial-Temporal Emotion Recognition in Image Sequences Using Vision Transformers and GRUs

Yong-Hoon Kwon, Inho Chang, Ju Hong Yoon, Jewoo Kim, and Min-Gyu Park (KETI, Korea)

[P1-279]

Multi-Dimensional Style Encoding and Mapping for Virtual Try-On

Yong-Hoon Kwon, Ju Hong Yoon, Yejin Hyeong, Jewoo Kim, and Min-Gyu Park (KETI, Korea)

[P1-280]

Leveraging Interactive Vision-Language Models for Improved Dataset Labeling

Yong-Hoon Kwon, Ju Hong Yoon, Jewoo Kim, and Min-Gyu Park (KETI, Korea)

[P1-281]

Saturation Equalization for Computer-Generated Holography

Yogi Udjaja (Chiba Univ., Japan & Bina Nusantara Univ., Indonesia), David Blinder (Chiba Univ., Japan & Vrije Univ. Brussel & IMEC, Belgium), Tomoyoshi Shimobaba, and Tomoyoshi Ito (Chiba Univ., Japan)

[P1-282]

3D Immersive Display Using Warped Videos

Santiago Raul Mersch Fernandez, Kevin Edilson Da Rosa Franco, Sebastian Santacruz Viñales (Univ. Politécnica Taiwan-Paraguay, Paraguay), and Tzung-Han Lin (Nat'l Taiwan Univ., Taiwan)

[P1-283]

Segmentation of Holograms Using Diffusion Models

Yu Yamazawa, Tomoyoshi Ito, and Tomoyoshi Shimobaba (Chiba Univ., Japan)

[P1-284]

Arbitral Patterns of Multiple Spots in Wide-Field Holographic Microscopy

Shumpei Tsuchiya, Mitsuhiro Morita, Naru Yoneda, Manoj Kumar, and Osamu Matoba (Kobe Univ., Japan)

[P1-285]

Investigation of 2D and 3D Video Identification to Mouse

Shota Mizusaki (Kobe Univ., Japan), Yuta Tanisumi (Nagoya Univ. & Nat'l Inst. of Natural Sciences, Japan), Hiroaki Wake (Nagoya Univ. & Nat'l Inst. of Natural Sciences & Kobe Univ., Japan), Naru Yoneda, Manoj Kumar, and Osamu Matoba (Kobe Univ., Japan)

[P1-286]

Doubling the Video Recording Speed with Spatial Multiplexing in Incoherent Digital Holography

Takaho Ueyama, Takashi Kakue, Tomoyoshi Shimobaba, and Tomoyoshi Ito (Chiba Univ., Japan)

[P1-287]

Development of Diffractive Neural Networks for Optical Communications Using Bessel Beams

Yuta Kaihatsu, Tomoyoshi Ito, and Tomoyoshi Shimobaba (Chiba Univ., Japan)

[P1-288]

Transmission System for Computer Holography and Electro-Holography Considering Transmission Errors in Wireless Communication

Kazuhiro Yamaguchi, Misato Onishi (Suwa Univ., Japan), and Yuji Sakamoto (Hokkaido Univ., Japan)

[P1-289]

Verification of Effect of Hologram's Bit Depth on Quality of Reconstructed Images in Angular Multiplexing Recording Based on Off-Axis Digital Holography

Shinichiro Yuge, Ken Morita, and Takashi Kakue (Chiba Univ., Japan)

[P1-290]

Holographic Recording System by Geometric Phase Replication Scheme based on Polarization-Multiplexed Self-Interference Principle

Min-Seok Kim, Jin-Hyeok Seo, Young-Min Cho, Jae-Yeol Cha, Jae-Won Lee, Hafiz Saad Khaliq, Jung-Yeop Shin, Seoyeong Kim, and Hak-Rin Kim (Kyungpook Nat'l Univ., Korea)

[P1-291]

Enhanced Full-Color Self-Interference Incoherent Digital Holography by Quarter-Waveplate Geometric Phase Lens and Cholesteric Liquid Crystal Polarizing Filter

Jin-Hyeok Seo, Jae-Won Lee, Jung-Yeop Shin, Min-Seok Kim, Young-Min Cho, Jae-Yeol Cha, Hyeon-Su Jeong, Jun-Hyeop Cho (Kyungpook Nat'l Univ., Korea), Kihong Choi, Keehoon Hong (ETRI, Korea), and Hak-Rin Kim (Kyungpook Nat'l Univ., Korea)

[P1-292]

Digital Circuit Design for Crosstalk Effect Elimination in Integral Imaging-Based Light Field Display by Using Digital Filter

Yu Ting Lee, Erh Hung Chen, and Hoang Yan Lin (Nat'l Taiwan Univ., Taiwan)

[P1-293]

Enhanced Light-Field Imaging Using Polarization-Dependent Depth-Switchable Geometric Phase Lens for Time-Sequential Angular Ray Sampling

Hyeon-Su Jeong, Young-Min Cho, Jin-Hyeok Seo, Min-Seok Kim, Jung-Yeop Shin, Jae-Won Lee, Hae-Rin Jung, and Hak-Rin Kim (Kyungpook Nat'l Univ., Korea)

[P1-294]

Acceleration of Single-Step Fresnel Diffraction Calculations for High-Resolution Holograms Using Sub-Sampled-Fast Fourier Transform

Kazuma Mori, Tomoyoshi Ito, and Tomoyoshi Shimobaba (Chiba Univ., Japan)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-295]

Using Complementary Dual-Phase Time Multiplexing and Spatial Multiplexing to Reduce Speckle for Augmented Reality Head-Up Display

Hung-I Chang, Yuan-Wei Su, and Hoang-Yan Lin (Nat'l Taiwan Univ., Taiwan)

[P1-296]

Memory Saving Convolutional Neural Networks Using Error Diffusion Methods

Kaito Tsuchiya, Tomoyoshi Ito, and Tomoyoshi Shimobaba (Chiba Univ., Japan)

[P1-297]

Reducing the Number of Mask Patterns in Single-Pixel Imaging Using Nonnegative Matrix Factorization

Takashi Shikamura, Tomoyoshi Ito, and Tomoyoshi Shimobaba (Chiba Univ., Japan)

[P1-298]

Generating Animatable Human Avatars from a Single Image

Min-Gyu Park, Ju-Mi Kang, Yong-Hoon Kwon, and Ju Hong Yoon (KETI, Korea)

[P1-299]

Enhancing the Image Quality of Light Field Displays based on Digital Image Processing Techniques

Kuei Chun Yeh and Hoang Yan Lin (Nat'l Taiwan Univ., Taiwan)

[P1-300]

A Study of Structured and Unstructured Pruning on 3D Scene Graph Generation Model

Hojun Song, Chae-Yeong Song, Dong-Hun Lee, and Sang-Hyo Park (Kyungpook Nat'l Univ., Korea)

[P1-301]

Using LCoS to Design a 3×6 Wavelength Selective Switch with a 2D Fiber Array

You-Si Lin, Yu-Chia Cheng, and Hoang-Yan Lin (Nat'l Taiwan Univ., Taiwan)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-302]

Mitigating Residual Stress in Thin-Film Encapsulation for Wearable Displays: A Nano-Laminate Approach Using ALD and PVD

Chaewon Park and Eun Gyo Jeong (Incheon Nat'l Univ., Korea)

[P1-303]

ZnO-Based Biocompatible Thin-Film Encapsulation for Wearable Displays through the Restructuring of ZnO Thin-Film

Dong Hwan Kim and Eun Gyo Jeong (Incheon Nat'l Univ., Korea)

[P1-304]

Thermally Designed Stretchable Thermoelectric Generators for Long-Term, Efficient Low-Grade Heat Harvesting

Dongju Jang, Byeonggeol Lee, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[P1-305]

Storage-Capacitorless, Wide-Dynamic-Range Oxide-TFT Active Pixel Sensor Circuit for TFT Photosensors

Han-Jun Lee and Byong-Deok Choi (Hanyang Univ., Korea)

[P1-306]

Low Temperature Crystallization of IGZO Oxide Semiconductor Through Ar Plasma Treatment

Minsu Park and Byoungdeog Choi (Sungkyunkwan Univ., Korea)

[P1-307]

Enhancing Hydrogen-Resistance and Stability in IGZO-TFTs using Al_2O_3 Gate Insulators with N_2O Plasma Reactant

Sang-Hyun Kim, Yoon-Seo Kim, Tae-Won Hwang, and Jin-Seong Park (Hanyang Univ., Korea)

[P1-308]

Evaluating Solution-Based Approach to Synthesize Tellurium Oxide Thin Films for p-Type Oxide Thin Film Transistor Applications

Nu Myat Thazin, Juan Paolo S. Bermundo, and Yukiharu Uraoka (Nara Inst. of Science and Tech., Japan)

[P1-309]

Optimizing Electrical Performance of α -IGZO Thin-Film Transistors via Vacuum Annealing Processes

Donghyun Kim and Byoungdeog Choi (Sungkyunkwan Univ., Korea)

[P1-310]

Neuro-Inspired IGZO-Based Optical Sensor with Readily Accessible Metal Induced Defect Engineering for Neuromorphic Display

Kyungmoon Kwak, Kyungho Park, Jae Seong Han, Ju Hyeon Lee, Seok Min Hong, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-311]

Endurable IGZO/SnSx/IGZO Heterojunction Phototransistors for Image Sensors

Kyungho Park (Yonsei Univ., Korea), Byung Ha Kang (Massachusetts Inst. of Tech., USA), Jong Bin An, Sujin Jung, Kunho Moon, Kyungmoon Kwak, Jusung Chung, Dong Hyun Choi, Yong Seon Hwang, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-312]

Correlation of Subthreshold Swing – Oxide Traps – Ionized Oxygen Vacancy of Amorphous Indium-Gallium-Zinc-Oxide Thin-Film Transistor

Kanghyun Kim (Samsung Display Co., Ltd., Korea), In Kyu Yoon, Donghyun Kim, Sang Hyeok Kim, SoMi Lee, Seung Gyu Lee, Seongju Baek, Sangpil Yun (Korea Univ., Korea), Young-Gil Park, Na Ri Ahn (Samsung Display Co., Ltd., Korea), and Jae Woo Lee (Korea Univ., Korea)

[P1-313]

Improved Printability of Top Contact Organic Source-Gated Transistors Enabled by Surface Modification

S. A. Skinner, E. Bestelink (Univ. of Surrey, UK), U. Zschieschang (Max Planck Inst. for Solid State Research, Germany), A. Panagiotopoulos (Univ. of Surrey, UK), H. Klauk (Max Planck Inst. for Solid State Research, Germany), and R. A. Sporea (Univ. of Surrey, UK)

[P1-314]

Bulk Mobility Extraction of β -Ga₂O₃ Thin Film Transistors Using Comprehensive Depletion-Mode Model via Optimizing Effective Bulk Channel Thickness

Moohyun Kim, Hoyoung Cho, Jiheon Ha, and Jeongkyun Roh (Pusan Nat'l Univ., Korea)

[P1-315]

Simultaneous Formation of Channel and Electrode in Vertical Transistor Using IZO

Seok Min Hong, Jong Bin An, Kunho Moon, Subi Choi, Shilin Lu, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-316]

Enhancing Ferroelectric Properties of HZO Gate Insulator for FeTFT Through Gradual ALD ZrO₂ Cycle Control

Ju Hyun Lee, Jae Seong Han, Kyungmoon Kwak, Kyungho Park, Subi Choi, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-317]

A Novel Method for Activating Top-Gate IGZO TFTs by O₂ Stabilization During HfO₂ Atomic Layer Deposition

Subi Choi, Jae Seong Han, Seok Min Hong, Nam Su Heo, Jong Bin An, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-318]

Suppression of Persistent Photoconductivity in In-Ga-O NIR Phototransistor Using Ge Light Absorption Layer

Siyeon Park, Kyungho Park, Kyungmoon Kwak, Sujin Lee, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-319]

Mobility Overestimation in Thin-Film Transistors: Implications of Channel Design

Soohyun Kim, Seokyeon Shin, Minju Song, Changwook Jeong, and Junghwan Kim (UNIST, Korea)

[P1-320]

Wavelength Dependent Synaptic Characteristics in Optoelectronic Organic Floating-Gate Memories

Shusei Hattori, Takashi Kobayashi (Osaka Metropolitan Univ., Japan), Hiroyoshi Naito (Osaka Metropolitan Univ. & Ritsumeikan Univ., Japan), and Takashi Nagase (Osaka Metropolitan Univ., Japan)

[P1-321]

Selectively Electrohydrodynamic Jet Printed Absorption Layer for Widening the Wavelength Detection Range of IGZO-Based Phototransistors

Dong Keun Lee, Jong Hyuk Ahn, Jong Bin An, Sung Min Rho, Jae Seong Yun, Yong Seon Hwang, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-322]

A 10-bit Column-Driver IC with High-Speed DAC with Feed-Forward Paths for OLED Display

Haesang Park and Byong-Deok Choi (Hanyang Univ., Korea)

[P1-323]

α -IGZO TFT Pixel Circuit Enhancing Low Gray Expression for Active-Matrix OLED Displays

Key Young Yang (Seoul Nat'l Univ. & LG Display Co., Ltd., Korea) and Soo-Yeon Lee (Seoul Nat'l Univ., Korea)

[P1-324]

Optimal Structural Design of Separated View Display for Automobiles Using Micro Prism Array

Young-Sang Ha, Rang-kyun Mok, Tae-ho Lee, and Yongjo Kim (Samsung Display Co., Ltd., Korea)

[P1-325]

Sequential Design of PEALD IGZO Active Layer Using Novel Indium Precursor for Enhancing TFT Stability

Min-Seo Kim, Hae Lin Yang, Yoon-Seo Kim, Taewon Hwang (Hanyang Univ., Korea), Sunao Kamimura, Aya Eizawa, Takashi Teramoto, Christian Dussarrat (Tokyo Innovation Campus by Air Liquide, Japan), Takashi Ono (Air Liquide Advanced Materials, USA), and Jin-Seong Park (Hanyang Univ., Korea)

[P1-326]

Reduction of Trap Density for Thermal-ALD-Deposited ZrO₂ High-k Insulators by Deposition Process Modulation and High-Pressure Annealing

Jun-Yeoub Lee, Su-Hwan Choi, Tae-Won Hwang, Chang-Kyun Park, and Jin-Seong Park (Hanyang Univ., Korea)

[P1-327]

Development of Flexible and Self-Healing Encapsulation Materials for Flexible Display

Sze Yii Voon, Wu Bin Ying, and Jung-Yong Lee (KAIST, Korea)

[P1-328]

High Stability of Deep Blue Perovskite Light-Emitting Diodes with Multi-Ligand Strategies

Hyojun Kim, Seungjae Lee, and Jungyong Lee (KAIST, Korea)

[P1-329]

Synthesis and Photoluminescence Analysis of Perovskite Films: Measurement and Characterization of Luminescence Properties

Jong-Keon Won and Jae-Hee Han (Gachon Univ., Korea)

[P1-330]

Fabrication of Heat-Responsive rGO-WO₃ Nanofibers via Electrospinning for High-Performance Display Devices

Ji Hoon Jeong, Seung Chan Jung, and Jae-Hee Han (Gachon Univ., Korea)

[P1-331]

Development and Luminescence Characterization of an Electroluminescence Device based on n-Type MoS₂ and p-Type Perovskite pn Junction

Yu-Jeong Choi, Jongkeon Won, and Jae-Hee Han (Gachon Univ., Korea)

[P1-332]

Development of Nondestructive Technology for Micro-Optical System Alignment of OLEDoS

Dongyoun Yoo, Jungwoon Jung, Jeabum Han, Ki Young Yeon, and Nari Ahn (Samsung Display Co., Ltd., Korea)

[P1-333]

Investigation of Imprinted Substrates for Transparent Stretchable Display

Min Jae Sung, Jong Ho Lee (KETI, Korea), Sora Jang (Jeonbuk Nat'l Univ., Korea), Chul Jong Han (KETI, Korea), Bum-Joo Lee (Jeonbuk Nat'l Univ., Korea), and Byungwook Yoo (KETI, Korea)

[P1-334]

2D/3D Heterostructured Perovskite Films-Based Highly Selective Room-Temperature Blue Spin Light-Emitting Diodes

Gyumin Jang, Chan Uk Lee, Junwoo Lee, Wooyong Jeong, Jaehyun Son, Jeong Hyun Park, Seonyoo Kim, and Jooho Moon (Yonsei Univ., Korea)

[P1-335]

Optically and Electrically Driven Memory Transistor based on Oxide Semiconductor with MgO_x Oxygen Vacancy Forming Layer

Sujin Lee, Min Seong Kim, Hyung Tae Kim, Young Wook Kim, Jae Seong Han, Si Yeon Park, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-336]

Enhancement of In-Ga-Sn-O Oxide Semiconductor Properties by Dopant Ta

Boram Shin, Sumi Kim, Hyunil Jo, Yiryeong Choi, and Young-Woo Heo (Kyungpook Nat'l Univ., Korea)

[P1-337]

Characterization of TGBC TFTs with ALD-Deposited IZO Active Layer

Eunpyo Jang, Kang Kim, and Sang-Hee Ko Park (KAIST, Korea)

[P1-338]

Ultra-Compact 3-Dimensional Micro-Supercapacitors for Advanced Display Applications

Sujin Jung, Jonghyuk Ahn, Kyu Min Kim, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-339]

MgZnO Photodetectors with Temperature-Enhanced Responsivity for Smart Brightness and Cooling Management in Large Outdoor Displays

Shilin Lu, Ji Hoon Han, Jong Bin An, Jae Seong Han, Lu Zhang, and Hyun Jae Kim (Yonsei Univ., Korea)

[P1-340]

Evaluation of Display Color Gamut Efficiency based on Real Object Colors

Yoojin Kang, Woong-Jin Seo, Young-Tae Kim, Tae-Yong Park, and Dongwoo Kang (LG Display Co., Ltd., Korea)

[P1-341]

Simultaneous Observation of the Transition Dipole Moment Orientation and Refractive Index of Nanomaterial-Based Thin-Films

Donghyeon Shin, Seungyeon Cho, and Jongchan Kim (Yonsei Univ., Korea)

[P1-342]

Surface Defect Height and Embedded Defect Depth Estimation Using Through-Focus Scanning Optical Microscopy

Ji Yong Joo, Jun Sung Lee, Se Jeong Kim, and Jun Ho Lee (Kongju Nat'l Univ., Korea)

[P1-343]

A Study on Measurement Accuracy of Inkjet Printed Droplet for Display Application

Yuehua Hu (KITECH & Hanyang Univ., Korea), Dong Yeol Shin (KITECH & Korea Univ., Korea), Yoon Jae Moon (KITECH, Korea), Jaekyun Kim (Hanyang Univ., Korea), and Kyung-Tae Kang (KITECH, Korea)

[P1-344]

A Study on the Improved Measurement Evaluation to Evaluate the Surface Energy of Nano Thin Films with High Accuracy

Do-Young Jeong, Hyun-Do Choi, and Kwan-Young Han (Dankook Univ., Korea)

[P1-345]

Sidewall Traps of Nano-Rod Device by Deep Level Transient Spectroscopy

Do Hyung Kim, Hyunsang Seo, Kiyoung Yeonm, and Nari Ahn (Samsung Display Co., Ltd., Korea)

[P1-346]

Design Method for Multilayer Electrode Substrates Using Real-Time Imaging of LED Chips with Non-Uniform Orientation in Fluidic Self-Assembly

Seoyu Kwak, Yoonmo Koo, Yeonsu Kim, Jaeho Kim, Kyeongmin Ryu, Garam Kim, Sang Jeen Hong, and Daewon Lee (Myongji Univ., Korea)

[P1-347]

Degradation of Low-Temperature Melting Point Alloy by Acid in Fluidic Self-Assembly

Jaeheon Lim, Jaesung Park, and Daewon Lee (Myongji Univ., Korea)

[P1-348]

Enhancing Fluidic Self-Assembly for MicroLED Displays through Ultrasonic-Assisted Micro-Solder Formation

Jinhee Moon, Seonghyeon Jeong, Inseok Ju, Seokyoung Park, Nakwon Cho, Garam Kim, Sang Jeen Hong, and Daewon Lee (Myongji Univ., Korea)

[P1-349]

High Efficiency and Color-Tunable Organic Light Emitting Diodes via Optimal Donor-Acceptor Ratios in Exciplex Hosts

Hyunsoo Park and Byoungdeog Choi (Sungkyunkwan Univ., Korea)

[P1-350]

Organic Quantum Dots Hybrid AC Driven Color Tunable Device

Sung-Cheon Kang, Eun-Young Choi, Hyo-Bin Kim, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P1-351]

EQE of over 23% of High-Efficient Blue Boron-Based MR Type Thermally Activated Delayed Fluorescence (MR-TADF) Emitter

Dong-Gun Lee (Sungkyunkwan Univ., Korea), Ki Ju Kim, Yeonju Jeong, Taekyung Kim (Hongik Univ., Korea), and Seung Soo Yoon (Sungkyunkwan Univ., Korea)

[P1-352]

A Study on the Improvement of Bank Surface Properties and Color Uniformity with Fluorine Additives for OLED Display

Ji-Hoon Park (Dankook Univ., Korea), Mohara Kensuke (Daikin Korea Co., Ltd., Korea), and Kwan-Young Han (Dankook Univ., Korea)

[P1-353]

Leveraging Interactive Vision-Language Models for Improved Dataset Labeling

Yong-Hoon Kwon, Ju Hong Yoon, Jewoo Kim, and Min-Gyu Park (KETI, Korea)

[P1-354]

Head-Mounted Projector for Enlarging Field-of-View Corresponding to User's Attitude Angle in Electronic Holography

Natsu Kikuchi and Yuji Sakamoto (Hokkaido Univ., Japan)

[P1-355]

Verification of Separated Background View Encoding in MPEG Immersive Video Coding Technology

Gwangsoon Lee, Kwan-Jung Oh, Jun-Young Jeong, and Hyon-Gon Choo (ETRI, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

| | |
|-----------------------|------------------------|
| Session Title: | P2. Poster Session 2 |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 14:00-15:30 |
| Session Room: | 1F, Event Hall & Lobby |

[P2-001]

Improving the Recognition of the Align Mark Damaged by the Stripe Pattern of Automotive Display

Sang-Hoon Lim, Dongkeun Lee, Jinhyeong Kim, and Keunsoo Lee (Samsung Display Co., Ltd., Korea)

[P2-002]

Neural Network Modeling for OLED Display Image Sticking and Compensation Algorithm

Sang-ik Lee, Jun-kyu Lee, Jin-hwan Cho, Mi-yeong Joo, and Kang-hee Lee (Samsung Display Co., Ltd., Korea)

[P2-003]

Diffusion Models for Generation of Synthetic QD Backplane Defect Images

Rahul Shenoy, Zhihong Pan, Kaushik Balakrishnan, Qisen Cheng, Janghwan Lee (Samsung Display Co., Ltd. America Lab., USA), Yongmoon Jeon, Deokyeong Jeong, and Jaewon Kim (Samsung Display Co., Ltd., Korea)

[P2-004]

Thermal Property Prediction and Application in OLED Materials: AI Model for Predicting Tg

Jihye Kim, Eunkyung Koh, Dongsun Yoo, Hoilim Kim, Hyeondeuk Kim, and Seungjin Baek (Samsung Display Co., Ltd., Korea)

[P2-005]

Molecular Dynamics Simulation of Giant Surface Potential in Vapor-Deposited Organic Semiconductors

Dongsun Yoo, Seran Kim, Junyoung Lee, Hoi-Lim Kim, Moran Ha, Hyosup Shin, Sung-Soo Bae, Hyeondeuk Kim, and Seung-In Baek (Samsung Display Co., Ltd., Korea)

[P2-006]

Design of New High Refractive Index CPL Materials: Machine Learning Approach

Sanghee Yu, Dongsun Yoo, Gyeongheon Kim, Yongsub Shim, Gyubong Kim, Eunkyung Koh, Hoilim Kim, Hyeondeuk Kim, and Seungin Baek (Samsung Display Co., Ltd., Korea)

[P2-007]

A High Resolution Design Methodology for Pixel Layout Generator

Jungsuk Bang, Myunghun Lim, Taehyun Kim, Dongil Yoo, Yongwoo Lee, and Sang Hwan Cho (Samsung Display Co., Ltd., Korea)

[P2-008]

Improve Radiation Problems in X-ray Image via N Observations Photon Counting

Jingyu Kim (Korea Inst. of Medical Microrobotics & Hankyong Nat'l Univ., Korea), Seokmin Hong, Byungwoo Cho, Byungjeon Kang (Korea Inst. of Medical Microrobotics, Korea), and Myungjin Cho (Hankyong Nat'l Univ., Korea)

[P2-009]

Inverse Design of Multilayer Thin Films Using Three Different Configurations of Tandem Deep Neural Networks

Uijun Jung and Jungho Kim (Kyung Hee Univ., Korea)

[P2-010]

Multi-Objective Design Optimization of Jetting Equipment Using NSGA-2

Daein Kang, Jangwoo Kim, Daeyong Kim, Jaehee Seo, and Seungin Baek (Samsung Display Co., Ltd., Korea)

[P2-011]

Yield Prediction from Defect Information Using Machine Learning

Seokyeon Yang (Samsung Display Co., Ltd., Korea)

[P2-012]

Design Method of Gate Driver with AI Optimization for Narrow Bezel AMOLED Display

Cholho Kim, Yooseok Jang, Haeryeong Park, Jewon Yoo, and Seungin Baek (Samsung Display Co., Ltd., Korea)

[P2-013]

Machine-Learning Based Mobility Prediction and Composition Optimization for Oxide Semiconductor

Young Mi Cho, Hyunyoung Choi, Hyunguk Cho, and Seungin Baek (Samsung Display Co., Ltd., Korea)

[P2-014]

Investigating One-to-Many-Mapping Issue in the Inverse Design of Multilayer Nanoparticle Configurations Using Conditional Variational Autoencoders

Hayeon Chae and Jungho Kim (Kyung Hee Univ., Korea)

[P2-015]

Simulation and Modeling of QED Deposition in Evaporating Colloidal Droplets

Hyung Uk Cho, Minjeong Ko, Richard James, Jahoon Koo, Seungin Baek, and Changhee Lee (Samsung Display Co., Ltd., Korea)

[P2-016]

ESD Hotspot Detection Methodology for Oxide TFT Based OLED Panels

Hyun Sung Park, Hyeseok Na, Dongjin Seo, Sooyoung Park, Young-Gu Kang, Hyeondo Park, Yujin Choi, Minji Kim, and Seung-in Baek (Samsung Display Co., Ltd., Korea)

[P2-017]

Angle-Multiplexed Metasurface Design with Broken Mirror Symmetry

Nayoung Kim (Samsung Display Co., Ltd. & KAIST, Korea), Myungjoon Kim, Joonkyo Jung, Taeyong Chang, Suwan Jeon, Jonghwa Shin (KAIST, Korea), and Seungin Baek (Samsung Display Co., Ltd., Korea)

imiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-018]

Machine Learning Model for Dielectric Constant Prediction of Monomer

Hyungwoo Lee, Sanghee Yu, Dongsun Yoo, Jihye Kim, Eunkyung Koh, Seran Kim, Hoilim Kim, Hyeondeuk Kim, and Seungin Baek (Samsung Display Co., Ltd., Korea)

[P2-019]

1D Convolution Neural Network Inception Models for Scrubber Failures

Seki Park, Jungyu Park, Gimin Gwon, and Yechan An (Samsung Display Co., Ltd., Korea)

[P2-020]

Diagnosis of AI Robot Failure Using Disturbance Observer System

Yonggu Kim (Samsung Display Co., Ltd., Korea)

[P2-021]

Dual Fabry-Perot Interferometer and Its Design Method based on Deep Neural Networks

Keun Soo Shin, Ki Won Jeong, and Yun Seon Do (Kyungpook Nat'l Univ., Korea)

[P2-022]

Method of Applying Anomaly Detection to Mass Production Using an Anomaly Transformer

Gimin Gwon, Yunyoung Kyeong, and Seki Park (Samsung Display Co., Ltd., Korea)

[P2-023]

Enhanced Anomaly Detection and Classification in Industrial Robots Using CNN

Young Mo Ham (Samsung Display Co., Ltd., Korea)

[P2-024]

Eye-Tracking Based Wide Viewing High-Quality 3D Holographic Display Using Deep Neural Network

Tuvshinjargal Amgalan, Munkh-Uchral Erdenebat, Anar Khuderchuluun, Shariar Md. Imtiaz (Chungbuk Nat'l Univ., Korea), Jong-Rae Jung (Suwon Science College, Korea), Sang-Keun Gil (Univ. of Suwon, Korea), and Nam Kim (Chungbuk Nat'l Univ., Korea)

[P2-025]

Automatic Edge Inspection of Display Panels with Deep-Learning-Based Defect Classification

Kyungeun Kim, Un Yang, Haneol Kim, Jinyong Lee, and Donggon Yoo (Samsung Display Co., Ltd., Korea)

[P2-026]

YOLOv₃ Contingent Depth Map Generation from Light Field Data

F M Fahmid Hossain, Shariar Md Imtiaz, Md. Biddut Hossain, Hui-Ying Wu, Tuvshinjargal Amgalan, KiChul Kwon (Chungbuk Nat'l Univ., Korea), Kwon-Yeon Lee (Suncheon Nat'l Univ., Korea), and Nam Kim (Chungbuk Nat'l Univ., Korea)

[P2-027]

Enhancing Depth Estimation in Various Objects

Jincheol Yang, Beoungwoo Kang (Sogang Univ., Korea), Sanggu Lee, Hyunyoung Choi, Hyunguk Cho (Samsung Display Co., Ltd., Korea), and Suk-Ju Kang (Sogang Univ., Korea)

[P2-028]

Challenges in Real-World Under-Display Camera Video Restoration

JiSoo Kim (Seoul Nat'l Univ., Korea), Kyusu Ahn (Seoul Nat'l Univ. & Samsung Display Co., Ltd., Korea), and Jaejin Lee (Seoul Nat'l Univ., Korea)

[P2-029]

Finite Element Analysis of Serpentine Interconnects Considering Nonlinear Properties of Metallic Electrodes

Hak Jun Yang, Sang Hyun Han, and Su Seok Choi (POSTECH, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-030]

Training Stereo, Inference Mono: Human Avatar Generation with Robust View Consistency

Min-Ho Lee and Min-Gyu Park (KETI, Korea)

[P2-031]

Field of View Effect on Presence in Virtual Environments based on Electroencephalogram Measurement and Questionnaire Approaches

Zhenping Xia, Qishuai Han, Yujie Liu, Yueyuan Zhang, and Cheng Cheng (Suzhou Univ. of Science and Tech., China)

[P2-032]

Mirage: Floating Real Image Display Using Soapy Water Reflection Screen Which Enables to Make Images Invisible from Back Side

Kunio Sakamoto and Mitsuki Arakawa (Konan Univ., Japan)

[P2-033]

Micro Display MLA/CF Shift Automation Methodology

Byeonggeon Ko, Suah Oh, Gwangsoo Park, Yongwoo Lee, and Sanghwan Jo (Samsung Display Co., Ltd., Korea)

[P2-034]

Visual Importance-Based Assistive Technology for Blurry Vision People to Improving TV-Watching Experience

Jae Sung Park, Jongho Kim, Younghoon Jeong, and Youngseok Han (Samsung Electronics Co., Ltd., Korea)

[P2-035]

New Lenticular Lens Array Film Design for High Quality 3D Display

Jeong Woo Park, Young Sang Ha, Suyeon Sim, Beom-Shik Kim, Young-chan Kim, Jong Ho Hong, and Yongjo Kim (Samsung Display Co., Ltd., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-036]

Restoration of Speckled Hologram Reconstruction by Using Denoising Diffusion Probabilistic Model

Kyosik Min (Inha Univ., Korea) and Jae-Hyeung Park (Seoul Nat'l Univ., Korea)

[P2-037]

Improving the Transmittance and Resolution for Micro-Display with New Color Filter

Hyejeong Park, Byung Gwan Hyun, Wonjin Choi, Younghoon Kim, Taehyoung Kwak, Kwon-Shik Park, and Sooyoung Yoon (LG Display Co., Ltd., Korea)

[P2-038]

Depth Enhanced Holographic Super Multi-View Display based on Depth Segmentation

Yumeng Su, Yue Wang, Yujian Pang, Guoqiang Lv, Qibing Fen, and Zi Wang (Hefei Univ. of Tech., China)

[P2-039]

Design of Transmission-Type Diffraction Gratings for Enhanced Color Accuracy and Efficiency in AR Glasses

Yoon Heo, Seo In Han, Doo Kyu Lee, Hong Bi Joo, Abhishek Joshi, and Hyoung Won Baac (Sungkyunkwan Univ., Korea)

[P2-040]

Genetic-Algorithm-Based Exit Pupil Uniformity Improvement for Waveguide Display System

Yusong Guo, Jiahao Cai, Min Guo, Qibin Feng, Zi Wang, and Guoqiang Lv (Hefei Univ. of Tech., China)

[P2-041]

Multi-Objective Algorithm to Generate Compensated DOE in VHG-Based Waveguide Displays

Min Guo, Yusong Guo, Jiahao Cai, Qibin Feng, Zi Wang, and Guoqiang Lv (Hefei Univ. of Tech., China)

[P2-042]

Large-View-Volume Reflection-Type Cylindrical Volumetric Display

Hyeonbin Im, Hosung Jeon, Minwoo jung, and Joonku Hahn (Kyungpook Nat'l Univ., Korea)

[P2-043]

Computer Generated Volume Hologram for Full-Color Dynamic Holographic 3D Display

Chenxiao Wei and Juan Liu (Beijing Inst. of Tech., China)

[P2-044]

Compressive Light Field Quality Enhancement based on Stochastic Gradient Descent with Visual Perception

Qiyang Chen, Zhiyu Chen, Zi Wang, Qibin Feng, and Guoqiang Lv (Hefei Univ. of Tech., China)

[P2-045]

Extended Eyebox in Holographic Displays Adapted for Pupil Movement

Seongju Lee and Joonku Hahn (Kyungpook Nat'l Univ., Korea)

[P2-046]

Inverse Design through Auto-Differential Programming of Fourier Modal Method based on MATLAB

Youngsub Kim and Hwi Kim (Korea Univ., Korea)

[P2-047]

Gap Complementation in Aerial Image by Moving Slit-Shaped Retro-Reflector

Takeru Nishiyama, Shiro Suyama, and Hirotsugu Yamamoto (Utsunomiya Univ., Japan)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-048]

Aerial Image Display Using Retroreflective Mirror Array for Simultaneous Observation by Multiple Persons

Riku Suzuki (Hosei Univ., Japan), Takafumi Koike (Hosei Univ. & ReallImage Inc., Japan), and Yasushi Onishi (OPTCERAMICS Ltd., Japan)

[P2-049]

Two-Depth Floating Images by Using Retro-Reflector in Arc 3D Display

Hiroto Oishi, Shiro Suyama, and Hirotosugu Yamamoto (Utsunomiya Univ., Japan)

[P2-050]

Optimization of a Dot Projector

Jeongwoo Son and Hyuntaek Choi (Ansys Korea, Korea)

[P2-051]

Smooth Motion Parallax Using Camera Switching and Low-Cost Image Processing on Autostereoscopic 3D Display

Kaito Sasaki, Kyosuke Yanagida (Hosei Univ., Japan), and Takafumi Koike (Hosei Univ. & ReallImage Inc., Japan)

[P2-052]

Static and Dynamic View Morphing for XR Displays by Exploiting Temporal and Spatial Locality of Pixel Data

Wook Hong, Hokwon Kim, Bonggu Hwang, and Joon Goo Lee (RAONTECH Inc., Korea)

[P2-053]

Augmented Reality Head-Up Display via Polarization Volumetric Grating Waveguide

Jeongwoo Son, Jinhee Kim, and Hyuntaek Choi (Ansys Korea, Korea)

[P2-054]

High Quality OLED Display Manufacturing – A Perfect Task for High Power UV Lasers

Oliver Haupt (Coherent Corp., Germany)

[P2-055]

Optimization of Capping Layer Thickness in OLED Panels for Reduced Reflection

Horyun Chung and Eunjae Na (Samsung Display Co., Ltd., Korea)

[P2-056]

One-Way Observable Color Pixel Unit for Aerial Signage Using Dye-Doped Soapy Water Thin Film Layer Which Enables to Make Colors Invisible from Back Side

Kunio Sakamoto and Towa Maeda (Konan Univ., Japan)

[P2-057]

Improvement of Arcing Defect in Active Layer Dry Etch Process on G8.6 Large Glass

Fan Yang, Hejing Zhang, Zhen Liu, Jie Zhang, Yichuan Zhang, James Hsu, and Wade Chen (Chongqing HKC Optoelectronics Tech. Co., Ltd., China)

[P2-058]

Hot Implantation Technique for Wide Process Window in Amorphous-InGaZnO Sheet Resistance Reduction

Yuya Yamane, Keisuke Yasuta, Toshimasa Ui, Koichi Orihira, Shojiro Dohi, and Junichi Tatemichi (Nissin Ion Equipment Co., Ltd., Japan)

[P2-059]

Analysis and Improvement of Passivation Etching Undercut on Indium-Tin-Oxide Film

Junlong Fan, Chunyan Lin, Hejing Zhang, Zhen Liu, Yichuan Zhang, James Hsu, and Wade Chen (Chongqing HKC Optoelectronics Tech. Co., Ltd., China)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-060]

A Double-Layered Optically Clear Adhesive with Enhanced Resistances to Waviness and Impact Designed for Use in High-End Mobile Display Applications

Intae Son, Dasong Lee, Jueyoun Park, Won Seok Kim, and Kang Woo Lee (Samsung Display Co., Ltd., Korea)

[P2-061]

Fabrication of Polycrystalline Silicon Thin Films at 300°C Using Dehydrogenation by Argon Ion Implantation

Tomokazu Nagao, Yutaka Inouchi, Junichi Tatemichi (Nissin Ion Equipment Co., Ltd., Japan), Masahiko Hasumi, Tomo Ueno, and Toshiyuki Sameshima (Tokyo Univ. of Agriculture and Tech., Japan)

[P2-062]

Enhanced SiO₂ Thin Film Deposition Utilizing NO as a Substitute Gas for Environmental Sustainability in CVD

Yunhui Jang, Yeojin Jeong, Duy Phong Pham, and Junsin Yi (Sungkyunkwan Univ., Korea)

[P2-063]

Two Sub-Pixel Full Color Structure for Ultra-High-Resolution Display with AC Tandem Structure

Seong-Kuk Park, Hyo-Bin Kim, Jang-Kun Song, and Sang Min Won (Sungkyunkwan Univ., Korea)

[P2-064]

An Development of COP Based Chiller Operation Recommender System in Display Panel Manufacturing Cleanroom MAU for Energy Saving

Dong Hwi Park (Samsung Display Co., Ltd., Korea)

[P2-065]

Plasma Enhanced Atomic Layer Deposition for Robust SiO₂ Thin Film

Kyung joo Min, Choel min Jang, Saehong Kim, Youjong Lee, and Myung soo Huh (Samsung Display Co., Ltd., Korea)

[P2-066]

In-situ Impact Strength Evaluation with Reliability for Rollable Devices

Hyun-Jae Park, Hyojung Son, Jong-In Woo, Eunhye Yang (Kyungpook Nat'l Univ., Korea), Ki-Yong Lee (FlexiGO Inc., Korea), and Byoung-Seong Jeong (Kyungpook Nat'l Univ., Korea)

[P2-067]

Pull Force Optimization for Flattening Substrates in Rollable/Slidable Display Durability Tests

Byoung-Seong Jeong, Hyun-Jae Park (Kyungpook Nat'l Univ., Korea), Yeon Woo Jeong, and Ki-Yong Lee (FlexiGO Inc., Korea)

[P2-068]

Analysis of Laser Cutting Process for Automotive Display

Dongkeun Lee, KwangSeon Lee, Junhwan Park, Chanhee Lee, Kyungchul Shin, Yoojin Byeon, and Myeongseok Jeong (Samsung Display Co., Ltd., Korea)

[P2-069]

Application of Deep Reinforcement Learning on Photolithography Scheduler in Multi-Floor Display FAB

Eungjin Kim (Samsung Display Co., Ltd., Korea), Shuhui Qu (Samsung Electronics Co., Ltd., Korea), Woosub Kim (Samsung Display Co., Ltd., Korea), Kasra Yazdani, Janghwan Lee (Samsung Electronics Co., Ltd., Korea), and Jaewon Kim (Samsung Display Co., Ltd., Korea)

[P2-070]

Carrier Generation Rates by Boron and Oxygen Vacancy in Oxide Semiconductor

Keisuke Yasuta, Yuya Yamane, Toshimasa Ui, Koichi Orihira, Shojiro Dohi, and Junichi Tatemichi (Nissin Ion Equipment Co., Ltd., Japan)

[P2-071]

Thermal Stability improvement of α -IGZO Thin Film Transistor through Isotope Effect Engineering

Yejin Jeong, Fucheng Wang, Yunhui Jang, Duy Phong Pham, and Junsin Yi (Sungkyunkwan Univ., Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-072]

Effect of Dead Zones in Slot-Coated Organic Thin Films on Light Emission of OLEDs

Gieun Kim and Jongwoon Park (Korea Univ. of Tech. and Education, Korea)

[P2-073]

Multi-Cavity Slot-Die Head with a Broad Viscosity Spectrum for Fabrication of OLEDs

Gieun Kim and Jongwoon Park (Korea Univ. of Tech. and Education, Korea)

[P2-074]

Fabrication of Core-Shell Structured MAPbBr₃ Nanofibers with Enhanced Water Stability

Chanhyuk Choi, Giho Kang (Sungkyunkwan Univ., Korea), Dae-Hyun Cho (Gyeongsang Nat'l Univ., Korea), Doyoung Byun (Sungkyunkwan Univ., Korea)

[P2-075]

Investigation of High Performance IGTO TFTs at Different Sputtering Power Levels

Sohee Choi, Jidong Jin, and Jaekyun Kim (Hanyang Univ., Korea)

[P2-076]

Fabrication of IGTO TFTs on Ultra-Flexible Polyimide Substrates

Chaewon Jeong, Jidong Jin, and Jaekyun Kim (Hanyang Univ., Korea)

[P2-077]

Improvement of Characteristic in Indium Tin Zinc Oxide Thin-Film Transistors with Top Gate Structure by O₂ Plasma Treatment

Jaemin Park, Heesung Jung, and Jaekyun Kim (Hanyang Univ., Korea)

[P2-078]

Architecture with Pixel on Driver for Corner Border Reduction of OLED Display

Juhoon Kang, Sang Hee Jang, Jieun Kim, Dahwan Lee, Sunyoung Jung, Gun Hee Kim, and Yongjo Kim (Samsung Display Co., Ltd., Korea)

[P2-079]

Investigation of Low-Reflective PA Structures for Improving Optical Property Efficiency of OLED Display Panel

Jin Seock Ma (Samsung Display Co., Ltd., Korea)

[P2-080]

Development of Novel UPC Plus™ Applied to Samsung Galaxy Z Fold 4: Improvements in Terms of Display Quality and Camera Related Properties

Donghyun Son, Sola Lee, Kyunghyun Choi, and Seongjun Lee (Samsung Display Co., Ltd., Korea)

[P2-081]

Backside Bonding for Extremely Narrow Bezel at the Bottom of Flexible Displays

Donghyun Lee, Daesoo Kim, Yeonwoong Kang, Minsang Koo, Donghwan Kong, Dongkyun Seo, and Yangho Jung (Samsung Display Co., Ltd., Korea)

[P2-082]

Performance Analysis of Pixelated Quantum Dot Light-Emitting Diodes by Inkjet Printing Process

Seong Woo Jeong (Gyeongsang Nat'l Univ., Korea), Jun Young Park (Hannam Univ., Korea), Dae Yun Kim (Pusan Nat'l Univ., Korea), Jae Bum Jeong, Collins Kiguye (Gyeongsang Nat'l Univ., Korea), Byeong Guk Jeong (Pusan Nat'l Univ., Korea), Dong Ryeol Whang (Hannam Univ., Korea), and Jun Young Kim (Gyeongsang Nat'l Univ., Korea)

[P2-084]

Laser Filamentation-Assisted Deep Etching for Micro-Tapered Hole Fabrication

Juil Hwang (Samsung Display Co., Ltd. & Hanyang Univ., Korea), Seunghyun Bang (Hanyang Univ., Korea), Ki Sang Lee, Woohyun Jung, Hyungsik Kim (Samsung Display Co., Ltd., Korea), and Kwang-Geol Lee (Hanyang Univ., Korea)

[P2-085]

Enhancing Optical Performance of Optoelectronic Devices by Nanostructure Coupled with PPFC Thin Film

Jun Hyuk Lee, Mac Kim, Minjun Cho, Jun Sik Oh, Cheol Hwan Kim, and Sang-Jin Lee (KRICT, Korea)

[P2-086]

Optimization for Laser Dicing of Thick Silicon Wafer

Doowon Lee, Jinhong Jeon, Junghoon Woo, Haesook Lee, and Jekil Ryu (Samsung Display Co., Ltd., Korea)

[P2-087]

Sputtered Nickel Oxides as Hole Transport Layers and Their Applications for Optoelectronic Devices

Jae Won Kim, Mac Kim, Minjun Cho, Jun Sik Oh, Cheol Hwan Kim, and Sang-Jin Lee (KRICT, Korea)

[P2-088]

Investigation of hydrogen Migration Mechanism in InGaZnO and Improvement of Electrical Properties through Specific Process

Hee Yeon Noh, Jung-Hwa Cha, June-Seo Kim, Myoung-Jae Lee, and Hyeon-Jun Lee (DGIST, Korea)

[P2-089]

Micro-LED Bonding and Repair on Display Backplanes by Simultaneous Transfer and Bonding (SITRAB) Technology

Jung Ho Shin, Jiho Joo, Gwang-Mun Choi, Chanmi Lee, Ki-seok Jang, Jin-hyuk Oh, Ji-Eun Jung, Ga-Eun Lee, Yong-Sung Eom, Solyee Lim, Seok-Hwan Moon, Ho-Gyeong Yun, and Kwang-Seong Choi (ETRI, Korea)

[P2-090]

Reactive Ion Etch Properties of Sapphire Substrate by Cl_2 Gas

Won Woo Lee, Joo Hyun Jeong, Jun Su Seol, Yun Hyeok Jeong, Young Woo Kim, Hye Yeon Shin (Gachon Univ., Korea), Ji Eun Han, In Hwan Kim, Yeon Ju Lee, Che Hoo Cho (Milaebo Co., Ltd., Korea), Yongmin Jeon, Sang Jik Kwon, and Eou-Sik Cho (Gachon Univ., Korea)

[P2-091]

Vacuum Drying Process according to Vacuum Pumping Speed for Printing a Uniform Emissive Layer of Inkjet OLED

Youngwook Noh (KITECH, Korea), Sang Youn Lee, Jonghyun Choi (KITECH & Korea Univ., Korea), and Kwan Hyun Cho (KITECH, Korea)

[P2-092]

Establishment of Cold Trap to Atomic Layer Deposition and Analysis on Composition of Aluminum Oxide By-Products

Dong Gyun Kim, Jun Su Seol, Joo Hyun Jeong, Yun Hyeok Jeong, Won Woo Lee, Yong Hyeok Seo, Seung Min Lee, Young Woo Kim, Hye Yeon Shin (Gachon Univ., Korea), Ji Eun Han, In Hwan Kim, Yeon Ju Lee, Che Hoo Cho (Milaebo Co., Ltd., Korea), Yongmin Jeon, Sang Jik Kwon, and Eou-Sik Cho (Gachon Univ., Korea)

[P2-093]

Research and Improvement of Altitude Storage Bubble in TFT-LCDs

Chuyun Zhou, Sudi Rao, Chengyi Huang, James Hsu, and Wade Chen (Chongqing HKC Optoelectronics Tech. Co., Ltd., China)

[P2-094]

Extreme Temperature Durable Hyperelastic Adhesive Forming Multiple Neutral Planes

Dahye Ahn, Kihoon Jeong, Dohun Kim, Taek-Soo Kim, and Sung Gap Im (KAIST, Korea)

[P2-095]

A Research of Droplet Velocity Control for Inkjet Printing for OLED Display

Katsuyuki Hirato, Wooree Ko, Cheongwan Min, JaiHyuk Choi, and MyungSoo Huh (Mechatronics Tech. Center Samsung Display Inc., Korea)

[P2-097]

Rapid Activation of Solution-Processed Aluminum Oxide Gate Dielectric Using Flash Lamp Annealing

Yeon-Wha Oh (Nat'l Nanofab Center & Chungnam Nat'l Univ., Korea), Hoon Kim, Lee-Mi Do, Kyu-Ha Bae (ETRI, Korea), Ga-Won Lee (Chungnam Nat'l Univ., Korea), Il-Suk Kang (Nat'l Nanofab Center, Korea), and Chan-mo Kang (ETRI, Korea)

[P2-098]

Design of Flexure Structure for a Large-Sized UVW Align Stage

Kim Yong-hyun, Myoung Seung-ho, Kim Kyu-bum, Yoon Joo-young, and Han Gyeong-hee (Samsung Display Co., Ltd., Korea)

[P2-099]

A Study on Improving the Transfer Durability of Low-Adhesive Using Fluorine

In-Seon Park, Chil-Won Lee, Suk-Min Hong (Dankook Univ., Korea), Won-Keun Baik, Kyung-Hyun Kim (YMK Co., Ltd., Korea), and Kwan-Young Han (Dankook Univ., Korea)

[P2-100]

Analyzing Parasitic Excitons via Operando Electrically Pumped Spectroscopy in Blue Phosphorescent Organic Light-Emitting Diodes

Chang Min Lee (Dongguk Univ., Korea), Hyun Jae Lee (Korea Univ. Korea), Tae Wook Kim, Yeong Beom Kim (Korea Univ. Korea), Insung Ha, P. Justin Jesuraj (Dongguk Univ., Korea), Chul Hoon Kim (Korea Univ. Korea), and Seung Yoon Ryu (Dongguk Univ., Korea)

[P2-101]

Vertical α -IGZO Thin-Film Transistor by Lift-Off Process

Se Yong Choi, Sang Hun Hwang, Byung Seol Hwang, Sang Ho Hwang, Seung Jae Moon, and Byung Seong Bae (Hoseo Univ., Korea)

[P2-102]

Efficient Organic-Light Emitting Diode Fabrication with Plane-Source Evaporating System

Seok Hyun Hong, Jeong-Yeol Yoo, Young Jun Lee (Dankook Univ., Korea), Chang Hoong Hwang (OLEDON Corp., Korea), and Byung Doo Chin (Dankook Univ., Korea)

[P2-103]

Improvement of TFE Encapsulation Film Characteristics by Improving CCP Equipment Performance

Ko Seok-Jin, Sim Ji-Hoon, Park Won-Woong, and Lee Seung-Jae (Samsung Display Co., Ltd., Korea)

[P2-104]

Surface Treatment Effects Prior to Gate Insulator Deposition on Top Gate IGZO Thin-Film Transistors

Seung Jun Choi, Sang Ho Hwang, Seung Jae Moon, and Byung Seong Bae (Hoseo Univ., Korea)

[P2-105]

Multiphase Solvent Formulation Guideline with Hansen Solubility Parameter and Jetting Profile Analysis for OLED Inkjet Printing

Ji Eun Kim, Hee Ju Kang, Yoon-Jeong Choi, and Byung Doo Chin (Dankook Univ., Korea)

[P2-106]

Fabrication of a Micro-Scale Hydrophobic/Hydrophilic Surface Patterns based on a Photolithography Technique

Sungyun Kim, Sehwan Park, Duhyoung Gong (Dong-A Univ., Korea), Bongjun Kim (Sookmyung women's Univ., Korea), and Hanul Moon (Dong-A Univ., Korea)

[P2-107]

Enhancing Adhesion of Underlying ITO in Oxide/Metal/Oxide Structures for Vertical Structured Devices

Sang Hun Hwang, Byung Seol Hwang, Se Yong Choi, Sang Ho Hwang, Seung Jae Moon, and Byung Seong Bae (Hoseo Univ., Korea)

[P2-108]

Development of Vertical Structure Diode Using Shadow Mask

Byung Seol Hwang, Sang Hun Hwang, Se Yong Choi, Sang Ho Hwang, Seung Jae Moon, and Byung Seong Bae (Hoseo Univ., Korea)

[P2-109]

Wafer-Scale Fabrication of Vertically Aligned GaN Nanorod Arrays Using Nanoimprint Lithography for Optoelectronic Devices

Hak-Jong Choi, Soongeun Kwon, Geehong Kim, Junhyuon Ahn, hyungjun Lim, Ki-Bong Choi, Jae Jong Lee (KIMM, Korea), Sanghyun Lee, and Sang-Wan Ryu (Chonnam Nat'l Univ. Korea)

[P2-110]

Reduction of Surface Waviness for Polarizer-Free Display Using Module Materials

Daeho Kim, Hoick Cho, and Sangbong Lee (Samsung Display Co., Ltd., Korea)

[P2-111]

A Study of Module Material Recycle Process

Jae Young Oh, Chang Hyun Song, Dong Kyu Lee, SeungHee Nam, Ji Yong Noh, Kwon-Shik Park, and SooYoung Yoon (LG Display Co., Ltd., Korea)

[P2-112]

A Research on Scratch Resistance of Electronic Paper TFT Backplane

Yang Pu, Xiaoli Yang, Min Li, Ranlong Wang, Jeff Chou, Kaijun Liu, Jinn Hung, James Hsu, and Wade Chen (Chongqing HKC Optoelectronics Tech. Co., Ltd., China)

[P2-113]

Fine-Pattern Formation of Blackened ITO by H-Treatment for High-Resolution Display

Junghoon Yang, Mingu Ji, Yong-Il Kim, Min-Joo Kim, SeungHee Nam, Jiyong Noh, and Kwon-Shik Park (LG Display Co., Ltd., Korea)

[P2-114]

Improving Bias-Stress-Induced Instability Characteristics in Bi-layer IGZO TFT with High Mobility based on BCE Structure

Insoo Kim, Donghyuk Choi, Byoung-ho Lee, Whahyun Kim, Sungjin Park, Jungwoong Baek, Jaehoon Bae, and SungChun Kang (LG Display Co., Ltd., Korea)

[P2-115]

Research on TFT-LCD Horizontal Stripe at High-Temperature-Humidity

Jinsong Lu, Dengli Yao, Song Sun, Qin Xiong, Ranlong Wang, Kaijun Liu, Jinn Hong, James Hsu, and Wade Chen (Chongqing HKC Optoelectronics Tech. Co., Ltd., China)

[P2-116]

A Study of Mask Reduction Process of Pixel and Bank in OLED Display

Jung Sun Baek, Nam Yung Kim, Min-Joo Kim, Seung Hee Nam, Ji Yong Noh, Kwon-Shik Park, and SooYoung Yoon (LG Display Co., Ltd., Korea)

[P2-117]

Electrohydrodynamic (EHD)-Jet Printing for High-Resolution Quantum Dot Display Applications

Yohan Kim, Manuel Gensler, Jiyong Kim, Christine Boeffel (Fraunhofer Inst. for Applied Polymer Research IAP, Germany), Min Suk Oh, Kyoungwon Park, Chul Jong Han (KETI, Korea), and Armin Wedel (Fraunhofer Inst. for Applied Polymer Research IAP, Germany)

[P2-118]

Multifunctional Multibarrier with UV Reflectance and Gas Impermeability for Transparent Flexible OLEDs

Hyoungmin Nam, Hyewon Seo, Jaehoon Choi, Jihyang Yang, and Jeong Hyun Kwon (Chungbuk Nat'l Univ., Korea)

[P2-119]

Multi-Functional PET Substrate with Light Extraction and Superhydrophobic Effects for Reliable OLEDs

Saewoong Jeon, Sangwon Heo, Deokhyung Lee, Hyuncheol Bang, Hyeonseong An, and Jeong Hyun Kwon (Chungbuk Nat'l Univ., Korea)

[P2-120]

Mask Reduction in Trench Structure TFTs

Kang Kim (KAIST, Korea), Chi-Sun Hwang (ETRI, Korea), and Sang-Hee Ko Park (KAIST, Korea)

[P2-121]

The Stability of OLEDs Encapsulated with Parylene C films under Acidic Conditions

Sehun Jang, Jee Hoon Sim, Hyeonwook Chae, and Seunghyup Yoo (KAIST, Korea)

[P2-122]

Monolithic-ALD-Oxide-Semiconductor-Channel CMOS Inverter Applications with n-Type IGZO Vertical TFT and p-Type SnO Planar TFT

Jeho Na (ETRI & KAIST, Korea), Seong-Mok Cho, Jong-Heon Yang, Jae-Eun Pi, Seung Youl Kang, Hee-Ok Kim, Sung Haeng Cho (ETRI, Korea), Jaehyun Moon (ETRI & Univ. of Science and Tech., Korea), Ji Yeon Ryu (KRICT, Korea), Taek-Mo Chung (KRICT & Univ. of Science and Tech., Korea), Nak-Jin Seong, Young Ha Kwon, Kyu-Jeong Choi (NCD Co., Ltd., Korea), and Chi-Sun Hwang (ETRI, Korea)

[P2-123]

Electric and Magnetic Field-Induced Birefringence of 2D Nanocolloidal Liquid Crystals

Zhe Song, Huai-Ke Jia, Yu-Yang Su (Beihang Univ., China), Le-Sun (Nanjing Univ., China), and Tian-Zi Shen (Beihang Univ., China)

[P2-124]

Light Control Using a Liquid Crystal Film for Viewing Angle Control of a Co-Driver Display

Tae-Hoon Choi, Hyun Wook Lee, and Jin Uk Ha (Korea Automotive Tech. Inst., Korea)

[P2-125]

Enhancing Color Gamut of QD-OLED through Reduction of Blue Leakage with Blended Cholesteric Liquid Crystal Film

So-Young Sim, Ye-Kang Ku, Cheong-Min Shin, Myoung-Jin Han, Won-Jung Yang, Jae-Hoon Kim, and Chang-Jae Yu (Hanyang Univ., Korea)

[P2-126]

Polymer-Dispersed Multicolored Cholesteric Liquid Crystal Device

Ju-Young Kim, Gi-Eun Kim, You-jin Lee, Jae-Hoon Kim, and Chang-Jae Yu (Hanyang Univ., Korea)

[P2-127]

Large Aperture Nanocolloidal Lenses with Minimized Image Distortion

Sahul Hameed Syed Ali, Seung-Ho Hong, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P2-128]

Synthesis of Carbon Quantum Dots and Their Possible Application to UV Radiation Detection based on Polymer Dispersed Liquid Crystals

Archana Ramadas, Mangesh. D. Patekari, Jayakiran Vutti, Mengdi Fu, MinSu Kim, and Seung Hee Lee (Jeonbuk Nat'l Univ., Korea)

[P2-129]

Liquid Crystal Phase Shifter for Multi-Bit Driving with Improved Response Speed

Dowon Kim, Kitae Kim, Chanho Park, and Jun-Hee Na (Chungnam Nat'l Univ., Korea)

[P2-130]

Tunable Diffractor Using Electrophoresis of Carbon Black Particles

Yeon Jin Han, Chae Lim Han, Ji Su Kim, Hyung Jun Choi, Young Jin Lim, MinSu Kim, and Seung Hee Lee (Jeonbuk Nat'l Univ., Korea)

[P2-131]

Enhanced Photoluminescence of Quantum Dots by Utilizing Liquid Crystal Droplets and Suppressed Blue Light Leakage with Cholesteric Liquid Crystal Layer in QD OLEDs

HaYoung Jung, Gyu Ri Choi, MinSu Kim, and Seung Hee Lee (Jeonbuk Nat'l Univ., Korea)

[P2-132]

Imprinted Liquid Crystal Nanodroplet Microlens Array Layer for High Brightness OLEDs

Seongmin Lim, Eun-Jeong Jang, Jae-Hyun Lee, and Yoonseuk Choi (Hanbat Nat'l Univ., Korea)

[P2-133]

Optical Beam Steering of Quarter-Wave-Based Geometric Phase Prism Arrays for Angular-Selective Viewing Zone Control

Jae-Yeol Cha, Jin-Hyeok Seo, Jung-Yeop Shin, Jae-Won Lee, Duck-Hoon Kang, and Hak-Rin Kim (Kyungpook Nat'l Univ., Korea)

[P2-135]

Polarization-Tunable Closed-Circuit Television with Guest-Host Liquid Crystals

Na-Kyung Lee, Hyeon-Sik Ahn, Jae-Hyun Lee, Min-Hoi Kim, and Yoonseuk Choi (Hanbat Nat'l Univ., Korea)

[P2-136]

Enhancement of Optical Performance in Diffractive Liquid Crystal Cell for Smart Window Applications

Jae-Won Huh and Hong Yoon (Corning Tech. Center, Korea)

[P2-137]

On-Demand Control of Elasticity and Viscosity in Liquid Crystalline Organogel Fabricated by DNA-Cationic Surfactant Complex

Baekman Kim, Geonhyeong Park, Geunjung Lee, Juri Kim, Changjae Lee, Jesse G. Park (KAIST, Korea), Mingeun Kim (KRICT, Korea), Soon Mo Park (Cornell Univ., USA), Woo Jin Choi (KRICT, Korea), and Dong Ki Yoon (KAIST, Korea)

[P2-138]

Controlling Boojum Defects of Nematic Liquid Crystal on Fixed Microparticle Arrays using Capillarity-Assisted Particles Assembly

Hee Seong Yun (KAIST, Korea), Zazo Cazimir Meijs (ETH Zürich, Switzerland), Geonhyeong Park (KAIST, Korea), Yutong Fu, Lucio Isa (ETH Zürich, Switzerland), and Dong Ki Yoon (KAIST, Korea)

[P2-139]

Making Mechanochromic Palettes of Cholesteric Liquid Crystal Elastomers for Visual Signaling

Hyewon Park (KAIST, Korea), Hye Joo Lee (Pukyong Nat'l Univ., Korea), Hyungju Ahn (Pohang Accelerator Lab., Korea), Woong Chan Han (Pukyong Nat'l Univ., Korea), Hee Seong Yun (KAIST, Korea), Yun-Seok Choi (Los Alamos Nat'l Lab., USA), Dae Seok Kim (Pukyong Nat'l Univ., Korea), and Dong Ki Yoon (KAIST, Korea)

[P2-140]

Dual Orientation Control of MOF-RM Composite for Thermal Insulating

Taegyun Hong and Dong Ki Yoon (KAIST, Korea)

[P2-141]

Low-Temperature Reprogrammable and Recyclable Exchangeable Liquid Crystal Elastomer

Sooji Hwang and Suk-kyun Ahn (Pusan Nat'l Univ., Korea)

[P2-142]

Cholesteric Liquid Crystal Elastomers with Adjustable Reflection Wavelength for Near-Eye Display

Chaewon Seo, Jihye Choi, and Suk-kyun Ahn (Pusan Nat'l Univ., Korea)

[P2-143]

Electro-Optic Properties of Light-Emitting Liquid Crystal Device

Gyu Jin Choi, Jeong Won Ryu, and Jin Seog Gwag (Yeungnam Univ., Korea)

[P2-144]

Utilization of Physical Anisotropy in Metal–Organic Frameworks via Postsynthetic Alignment Control with Liquid Crystal

Yeongseo Bak, Geonhyeong Park, Taegyun Hong, Changjae Lee, Hongju Lee, Tae-Hyun Bae, Jesse G. Park, and Dong Ki Yoon (KAIST, Korea)

[P2-145]

Optical Film Structure for Asymmetric Transparency

Hwa Jun Jeon, Jeong Won Ryu, and Jin Seog Gwag (Yeungnam Univ., Korea)

[P2-146]

Design of Thermally Tunable Chiral Liquid Crystals within Chiral Polymer Templates

Wontae Jung, Seungmin Nam, Chaeyeong Yun, and Su Seok Choi (POSTECH, Korea)

[P2-147]

Multi-Stable Smart Windows Driven by Frequency

Jeong Won Ryu, Gyu Jin Choi, Hwajun Jeon, and Jin Seog Gwag (Yeungnam Univ., Korea)

[P2-148]

Pixelated Polymer Stabilized Cholesteric Liquid Crystal Cavity for Fluorescent Dye Gain

Hyerin Kim, Chaeyeong Yun, Seungmin Nam, Wontae Jung, and Su Seok Choi (POSTECH, Korea)

[P2-149]

Tunable, Patternable, and Polarization Controllable Structural Colors using Chiral Liquid Crystals

Chaeyeong Yun, Seungmin Nam, Wontae Jung, Hyerin Kim, and Su Seok Choi (POSTECH, Korea)

[P2-150]

Analysis of Meander Delay Line Liquid Crystal Phase Shifter using Director Angle Extraction

Hyunwoo Oh, Sungeun Park, Jinyoung Choi, Junseok Ma, Seungho Choi, and Wooksung Kim (POSTECH, Korea)

[P2-151]

Uniform Strain Controllable Cholesteric Liquid Crystal Elastomer

Seohyun Woo, Jiyeon Park, Junhyuk Shin, and Su Seok Choi (POSTECH, Korea)

[P2-152]

Continuously Tuneable Laser Formed in 10 Min in the Full Visible Spectrum Using Cholesteric Liquid Crystal Cells based on the Electrothermal Effect

Mi-Yun Jeong, Hyeon-Jong Choi, Youngwoo Nam (Gyeongsang Nat'l Univ., Korea), and Keumcheol Kwak (Albatrace Inc., Korea)

[P2-153]

Shamrock-Shaped Materials based on Trifluoromethyl-Carbazole Serve as Hosts in Green Phosphorescent OLEDs

Chi-Hao Huang, Kuan-Yu Su, Ya-Hsin Cheng, Jia-Fan Wu, Chih-Hao Chang (Yuan Ze Univ., Taiwan), Premkumar Gnanasekaran, Tse-Jui Chen, and Yuan Jay Chang (Tunghai Univ., Taiwan)

[P2-154]

Efficient OLEDs Employing Pyrazino[2,3-f][1,10]Phenanthroline-Based Thermally Activated Delayed Fluorescent Emitters

Kuan-Yu Su, Chi-Hao Huang, Yi-Ting Chen, Chih-Hao Chang (Yuan Ze Univ., Taiwan), Pratima Yadav, Sunil Madagyal, Aniket Chaudhari, and Atul Chaskar (Inst. of Chemical Tech., India)

[P2-155]

Dependence of Efficiency and Uniformity of the Curved Light Guide Plate on the Curvature Studied by for Optical Simulation

Seong Min Park and Jae Hyeon Ko (Hallym Univ., Korea)

[P2-156]

Analysis of Thermal Degradation of Green Phosphorescent Molecules using Charge Induced Spectroscopy

Tae-Ho Yang, Hye-Ri Joe, Jin-Sun Heo, Yun-Seok Choi, Jonghee Lee, and Jae-Hyun Lee (Hanbat Nat'l Univ., Korea)

[P2-157]

Highly Stable Ligand-Controlled Red/Green Perovskite Nanocrystals-Siloxane Hybrids Enabling Full-Color Color-Converting Layer

Yongmin Shin, Somin Park (KAIST, Korea), Junho Jang (KERI, Korea), and Byeong-Soo Bae (KAIST, Korea)

[P2-158]

Ligand Modification for Enhanced Performance of Metal Halide Perovskite Nanocrystals in Light-Emitting Diodes

Yurim Mo (KRICT & Sungkyunkwan Univ., Korea), Gwang-Il Kim, Jaemin Lee, Sungho Choi, and Seon Joo Lee (KRICT, Korea)

[P2-159]

Development of Organic Emitters with Inverted Singlet and Triplet Excited States

Youngnam Lee, Jiyun Kim (Seoul Nat'l Univ., Korea), Soohyeon Lee, Eunji Sim (Yonsei Univ., Korea), and Jong-In Hong (Seoul Nat'l Univ., Korea)

[P2-160]

Environment-Benign Red I-III-VI Type Quinary Quantum Dots with Narrow Band-Edge Emissivity

Seong Min Park (Hongik Univ. & KETI, Korea), Yuri Kim, Yubeen Kong, Hyo-Jin Yeo, Hyun-Min Kim (Hongik Univ., Korea), Kyoungwon Park (KETI, Korea), and Heesun Yang (Hongik Univ., Korea)

[P2-161]

Performance Enhancement of Blue ZnSeTe Quantum Dot Light-Emitting Diodes Enabled by Sulfur Moiety-Derived ZnMgO Electron Transport Layer

Yang-Hee Kim, Sin Won Choi, Yongwoo Kim, Hyungmin Yang, Dae-Yeon Jo, and Heesun Yang (Hongik Univ., Korea)

[P2-162]

Development of Metal-Based Interlayer Incorporated Charge Generation Layer for Efficient Tandem Organic Light Emitting Device

Yo-Han Suh, Geunhyuck Ji, Il-Gu Kim, Ho-Chang Yang, Yeong Gwon Jeong, and Seung Hyun Lee (KETI, Korea)

[P2-163]

Synthesis and Evaluation of n-Type Multiresonance Host Material Containing Tetraphenylsilane Substituted at Different Positions

Kyung Min Park, Tae Hoon Ha, Jeong Yeol Yoo, and Chil Won Lee (Dankook Univ., Korea)

[P2-164]

Roll-off Variation in Hyperfluorescence Device Efficiency via Suppression of Dexter Energy Transfer and Triplet-Triplet Annihilation in TADF Sensitizers

Jun Sung Lee, Tae Hoon Ha, Jeong Yeol Yoo, and Chil Won Lee (Dankook Univ., Korea)

[P2-165]

Thermally Activated Delayed Fluorescence Sensitizer for High Förster Energy Transfer Efficiency in Blue Hyperfluorescent Organic Light-Emitting Diodes

Yerin Choi, Tae Hoon Ha, Jeong Yeol Yoo, and Chil Won Lee (Dankook Univ., Korea)

[P2-166]

Liquid Crystal-Based Carbon Quantum Dots for UV-Vis Light Shutter

Mangesh D. Patekari, Archana Ramadas, Jayakiran Vutti, Mengdi Fu, MinSu Kim, and Seung Hee Lee (Jeonbuk Nat'l Univ., Korea)

[P2-167]

The Effect of Patterned Quantum Dot Films on the Optical Properties of White LEDs Studied by Optical Simulation and Experiment

Seung Chan Hong, Eunkei Baek, Sohee Kim, Jaehyeong Yoo, Seong Min Park, and Jae Hyeon Ko (Hallym Univ., Korea)

[P2-168]

Trimodal Interactive Display via Direct Capacitive Coupling in Wireless Stand Alone Systems

Jioh Yoo, Jihye Jang, Taebin Kim, Jong Woong Park, and Cheolmin Park (Yonsei Univ., Korea)

[P2-169]

Efficient Blue Fluorescent OLED with a New Anthrance Derivate

Tien-Lung Chiu (Yuan Ze Univ., Taiwan), Jiun-Haw Lee (Nat'l Taiwan Univ., Taiwan), Audrius Bučinskis (Kaunas Univ. of Tech., Lithuania), and Pavel Arsenyan (Latvian Inst. of Organic Synthesis, Latvia)

[P2-170]

Tailoring Phase Distribution for Color-Stable Blue Quasi-2D Perovskite Light-Emitting Diodes

Eunha Park, Seungmin Shin, and Himchan Cho (KAIST, Korea)

[P2-171]

Pendant Engineering in Multiple-Resonance TADF Emitters for Blue Phosphor-Sensitized-Fluorescent Organic Light-Emitting Diodes

Jeong-Yeol Yoo, Tae Hoon Ha, Chil Won Lee, and Byung Doo Chin (Dankook Univ., Korea)

[P2-172]

Study of Device Efficiency and Lifetime Variation with the Number of Deuterium-Substituted Donors in 2,3,4,5-Penta(Carbazol-9-yl)Benzonitrile

Da Yeon Shin, Tae Hoon Ha, Jeong Yeol Yoo, and Chil Won Lee (Dankook Univ., Korea)

[P2-173]

Long-Lived Inverted InP QLED Assisted with Phosphorescent Host-Dopant System

Nisha Vergineya S, Truong Thi Thuy, and Jang Hyuk Kwon (Kyung Hee Univ., Korea)

[P2-174]

Highly Pure Green Multi-Resonance Type Fluorescence Materials for Phosphor-Sensitized Organic Light Emitting Diodes

Kyeong Min Lee, Hae Ung Kim (Kyung Hee Univ., Korea), Tae Hoon Ha, Seung Wan Kang, and Jeong Yeol Yoo (Dankook Univ., Korea)

[P2-175]

Water Resistant, Highly Dispersed, and Highly Emissive Perovskite Composite for Display Applications

Sundararajan Parani, Jeong-Bin Park, Sahul Hameed Syed Ali, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P2-176]

Facile Encapsulation Method of Halide Perovskite using Low Melting Temperature Polymer

JungHyeon Yoo, SeokBin Kwon (Sungkyunkwan Univ., Korea), SeungHee Choi, YoungHyun Song (KOPTI, Korea), and DaeHo Yoon (Sungkyunkwan Univ., Korea)

[P2-177]

Optical Sensor Design for High-Accuracy Angle-of-Arrival (AOA) Detection by using Diffraction-Optical Elements (DOE)-Based Lens

Keun Bum Lee, Kyu Kwan Park, and Hyoung Won Baac (Sungkyunkwan Univ., Korea)

[P2-178]

Spiking Neurons from Metal Oxide/Fluoropolymer/Small Molecules Heterojunction Negative Transconductance N-Shape Switching Transistors

Juhyung Seo, Seungme Kang, and Hocheon Yoo (Gachon Univ., Korea)

[P2-179]

Flexible CPI-Based Dual-Color Switching OLED for Utilization in Optogenetics Tools

Junhee Sim, Somin Lee, and Kyung Cheol Choi (KAIST, Korea)

[P2-180]

Design of Multi-Channel Laser-Generated Focused Ultrasound System for Biomedical Applications

Kyu Kwan Park and Hyoung Won Baac (Sungkyunkwan Univ., Korea)

[P2-181]

Kirigami-Patterned Transparent Stretchable Multilayer Electrode for Attachable Heater

Seojin Kim, Yuhwa Bak, Yeji Shin, Youngwoo Kim, Minjun Choi, Eousik Cho, SangJik Kwon, and Yongmin Jeon (Gachon Univ., Korea)

[P2-182]

Stretchable Quantum Dots Organic Light Emitting Diodes for Wearable Photomedicine Applications

In Ho Kim, Young Woo Kim, Seo Hyeon Kim, Eou-Sik Cho, Sang Jik Kwo, and Yongmin Jeon (Gachon Univ., Korea)

[P2-183]

Ultrasonic Microsphere Differentiation Technique using Laser-Generated Focused Ultrasound-Induced Back-Scattered Signal Analysis

Burcak Guner and Hyoung Won Baac (Sungkyunkwan Univ., Korea)

[P2-184]

Stretchable Circuits using Metal-Based Stretchable Electrodes Patterned by Screen-Printing

Duhyoung Gong (Dong-A Univ., Korea), Sunhyung Koo (Sookmyung Women's Univ. & KAIST, Korea), Bongjun Kim (Sookmyung Women's Univ., Korea), Seunghyup Yoo (Sookmyung Women's Univ. & KAIST, Korea), and Hanul Moon (Dong-A Univ., Korea)

[P2-185]

Low Molecular Weight Hydrophobic Alcohol-Assisted Gelation for the Creation of 3D Nanoporous Pectin Xerogels

Young Ho Yoo, Dabin Lee (Chung-Ang Univ., Korea), Yeol Kyo Choi (Lehigh Univ., USA), and Juhyun Park (Chung-Ang Univ., Korea)

[P2-186]

Stretchable Organic-Inorganic Hybrid Dry Electrodes for ECG Sensors with Long-Term Skin Stability

Taeyeon Oh, Hansu Kim, and Sungjun Park (Ajou Univ., Korea)

[P2-187]

Artificial Synaptic Behaviors Depending on Anions of Polymer-Electrolyte-Gated Transistors

Yoonseok Song, Jun-Gyu Choi, and Sungjun Park (Ajou Univ., Korea)

[P2-188]

Highly Durable and Waterproof Conductive Fibers for Bio-Signal Tracking

Hansu Kim, Taeyeon Oh, Hyeongbeom Lee, and Sungjun Park (Ajou Univ., Korea)

[P2-189]

Laser-Cut Vertical-via Hole OECTs with High Density Array Integration

Hyeongbeom Lee, Inho Lee, Jonghyun Won, Seokhyun Baek, Hansu Kim, and Sungjun Park (Ajou Univ., Korea)

[P2-190]

Vertical Stacked Organic Photodiode for Selective Light Recognition

Jaebin Jeong, Jae-Hyun Kim, and Sungjun Park (Ajou Univ., Korea)

[P2-191]

Advancing Miniaturized Biosensors with Organic Electrochemical Transistors on Microfibers

Jonghyun Won, Inho Lee, Hyeongbeom Lee, and Sungjun Park (Ajou Univ., Korea)

imiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-192]

A Novel Method For Reducing Crosstalk In Organic Optical Biosensors

Chan-hwi Kang, Dongho Choi, and Seunghyup Yoo (KAIST, Korea)

[P2-193]

Vehicle PPG Sensor with Flexible Waveguide and NIR-Selective OPD

Jae-Hyun Kim, Jaekwang Seu, and Sungjun Park (Ajou Univ., Korea)

[P2-194]

Solution Processed Quaternary High-k Oxide Dielectrics for Bias-Stress-Stable Oxide Thin Film Transistors

Seokhyeon Baek, Jun-Gyu Choi, and Sungjun Park (Ajou Univ., Korea)

[P2-195]

Enhanced Performance of Organic Electrochemical Transistors for Skin Interfaced Sensors using Vertical-Corbino Structures

Inho Lee, Hyeongbeom Lee, Jonghyun Won, and Sungjun Park (Ajou Univ., Korea)

[P2-196]

Ultra-Low Cost, Simple Process, Single Layer ITO-Free AgNO₃-Doped PEDOT:PSS Anode for Next-Generation Flexible Perovskite Light-Emitting Diodes

Gyeong Hwan Lee, Hyun Woo Kim, Min Seong Kim, Jae Min Myeong, and Ki Jun Yu (Yonsei Univ., Korea)

[P2-197]

High Resolution Fingerprint Display with the Novel Separator for Leakage Current Reduction

Go een Jeong, Kwang Soo Bae, Gun Hee Kim, and Yongjo Kim (Samsung Display Co., Ltd., Korea)

[P2-198]

Nano Structure Gas Sensor Using AAO Device for VOCs

Sehyuk Yeom, Sanghoon Jung, Jae-Sung Lee, Byoung-ho Kang, and Wang-Hoon Lee (GERI, Korea)

[P2-199]

Biodegradable and Stretchable Triboelectric Nanogenerator for Human-Machine Interactive System

Yong-Jin Park, Min Sub Kwak, Yonggi Kim, Jae Joon Kim, and Hyunhyub Ko (UNIST, Korea)

[P2-200]

Low Energy Modulated Multi-Layered Artificial Synapse based on Hyperstable Double Network of Biopolymers

Yoojin Chang, Sangyun Na, Yun Goo Ro, Cheolhong Park, Seokhee Jeong, Yong-Jin Park, Min Sub Kwak, Jeeyoon Kim, and Hyunhyub Ko (UNIST, Korea)

[P2-201]

Hybrid Ionic Polymer Actuator with Ion Transport-Accelerating Particle for Soft Haptic Feedback

Minjeong Kim, So Young Kim, Hanbin Choi, and Do Hwan Kim (Hanyang Univ., Korea)

[P2-202]

A Comprehensive Skin-Attachable Auditory Sensing Device for Real-Time IoT Applications

Kang Hyuk Cho and Kilwon Cho (POSTECH, Korea)

[P2-203]

Direct Skin-Adherable Soft Strain Sensor based on Non-Toxic Surfactant

Donghyung Shin, Haechan Park, Myeonghyeon Na, Daeun Kim, Euna Kim, Sehyun Kim, Donghyun Lee, and Kyoseung Sim (UNIST, Korea)

[P2-204]

Fully Soft Schottky Diodes for Skin-Interfaced Electronic Devices

Sehyun Kim, Donghyung Shin, Haechan Park, Yeeun Kim, Myeonghyeon Na, Daeun Kim, and Kyoseung Sim (UNIST, Korea)

[P2-205]

Iontronic Tactile Sensors with Ion Diffusing P/N Charged Layers for Enhanced Piezoelectric Performances

Haryeong Cho, Young-Ryul Kim, and Hyunhyub Ko (UNIST, Korea)

[P2-207]

Gas Sensitivity Performance of Solution-Processed IZO TFTs and Organic-Inorganic Hybrid Bilayer Structure for CO₂ Detection

Dongwook Kim, Seullee Lee, Taehui Kim, Sehyun Heo, Sooyoun Shin, Youngjun Yun, and Jaehoon Park (Hallym Univ., Korea)

[P2-208]

Flexible Ionic Laser-Induced Graphene for Iontronic Devices

So Young Kim, Ji Hong Kim (Hanyang Univ., Korea), Kyeong Nam Kim (DGIST, Korea), Hayoung Oh, and Do Hwan Kim (Hanyang Univ., Korea)

[P2-209]

Flexible Pressure Sensors and Sensor Arrays with Controlled Sensitivity vs. Pressure Range Trade-off Relation

Sehwan Park (Dong-A Univ., Korea), Haechang Lee (KIST, Korea), Jiyun Park, Dongsik Jung (Dong-A Univ., Korea), Bongjun Kim (Sookmyung Women's Univ., Korea), and Hanul Moon (Dong-A Univ. & KIST, Korea)

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

[P2-210]

Self-Powered Sweat-Responsive Structural Color Sensing Display

Taebin Kim, Jihye Jang, Jioh Yoo, Jong Woong Park, and Cheolmin Park (Yonsei Univ., Korea)

[P2-211]

Fully Rubbery Mechanoreceptor Inspired by Human Skin

Taekwon Kim and Hyunseok Shim (Pusan Nat'l Univ., Korea)

[P2-212]

Bilayer Pizoionic Sensors for Enhanced Detection of Dynamic, Static, and Directional Forces with Self-Healing Capabilities

Young-Ryul Kim, Haryeong Cho, and Hyunhyub Ko (UNIST, Korea)

[P2-213]

High-Resolution Multifunctional Stretchable Displays for the User Interactive Synesthesia Display

Jisu Yoo, Gwang Heon Lee, and Moon Kee Choi (UNIST, Korea)

[P2-214]

Photo-Induced Negative Differential Resistance Behaviors through Heterostructure between Metal Oxide and Organic Semiconductors

Gyeongho Lee (KICET & Korea Univ., Korea), Youngmin Han (Gachon Univ., Korea), Yeong Jae Kim (KICET, Korea), and Hocheon Yoo (Gachon Univ., Korea)

[P2-215]

Advancements in Stretchable Conductive Adhesives (SCA) for Wearable Technologies

Jun-Young Jeon (KIST, Korea) and Heesuk Kim (KIST & UST, Korea)

[P2-216]

Ultrathin Cellulose-Based Flexible Pressure Sensor Bonded by Silane Treatment

Dong Keon Lee, Jinsu Yoon, Hyukju Go, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[P2-217]

Advanced Multiform Shape Bandings for Deformable Devices Using Piezoelectric Actuators

Ji Yoon Park, Jun Hyuk Shin, and Su Seok Choi (POSTECH, Korea)

[P2-218]

Improving Speaker Response of Piezoelectric Panel Speakers by Changing the Shape of the Frame

Inpyo Hong and Su Seok Choi (POSTECH, Korea)

[P2-219]

Bidirectional Wavelength-Tunable Structural Colors Using Stretchable Chiral Photonic Elastomers on Multi-Modal Soft Actuators

Seungmin Nam, Wontae Jung, Jun Hyuk Shin, and Su Seok Choi (POSTECH, Korea)

[P2-220]

Multi-Level Resistance Bi-Axial Strain Sensor for Stretchable Electronics

Sun Min Song, Won Kyung Min, Hye Jin Son, Ji Yeong Park, Moon Ho Lee, Dong Hyun Choi, Beom Soo Kim, and Hyun Jae Kim (Yonsei Univ., Korea)

[P2-221]

Multi Gesture Motions Sensing Using Piezoelectric Responses

Dongjun Kim, Jun Hyuk Shin, and Su Seok Choi (POSTECH, Korea)

[P2-222]

Synthesis and Mechanism Studies of Silver-Gold Sulfide Nanocrystals

Jisu Kwon and Sungjee Kim (POSTECH, Korea)

[P2-223]

Extremely Low-Tellurium Contained ZnSeTe Blue Quantum Dot Light-Emitting Diodes with Super-Narrow Bandwidth

Seongwoo Cho (KITECH & Sungkyunkwan Univ., Korea), Sung Nam Lim, Shin Ae Song, Kiyong Kim (KITECH, Korea), Sohee Jeong (Sungkyunkwan Univ., Korea), and Ju Young Woo (KITECH, Korea)

[P2-224]

Indium Arsenide Nanoclusters: Their Conversion Pathway and Functionality as Quantum Dot Synthetic Precursors

Jibin Shin, Mahnmin Choi, Eunhye Cho, and Sohee Jeong (Sungkyunkwan Univ., Korea)

[P2-225]

High-Efficiency Permeable-Source Quantum Dot Light-Emitting Transistors

Seungmin Shin (KAIST, Korea), Kyung-geun Lim (KRISS, Korea), and Himchan Cho (KAIST, Korea)

[P2-226]

Enhanced Performance of Quantum Dot Light-Emitting Devices Using Butylated Hydroxytoluene-Treated Quantum Dots

Jae-Sung Lee, Byoung-Ho Kang, Sang-Hoon Jung, Se-Hyuk Yeom, and Wang-Hoon Lee (GERI, Korea)

[P2-227]

Synthesis of Red CdSe/ZnSeS Core-Shell QDs with High-Efficiency and Extremely Narrow Full-width at Half Maximum

Byoung-Ho Kang, Jaesung Lee, Sanghoon Jung, Sehyuk Yeom, and Wanghoon Lee (GERI, Korea)

[P2-228]

Prolonged Reaction Time-Derived Enhanced Optical Properties in Blue-Emitting Perovskite Nanocrystals

Yeongcheol Kim (KITECH & Hanyang Univ., Korea), Sung Nam Lim, Shin Ae Song, Kiyong Kim (KITECH, Korea), Seunghyun Lee (Hanyang Univ., Korea), and Ju Young Woo (KITECH, Korea)

[P2-229]

The Chemistry of Indium Phosphide Magic Sized Clusters: Synthesis, Doping, and Evolution

Yongju Kwon, Jaeho Ban, and Sungjee Kim (POSTECH, Korea)

[P2-230]

Hydrothermal Synthesis of SnO₂ Nanoparticles for Electron Transport Layer in Quantum Dot Light-Emitting Diode

Yong Il Kim (Sungkyunkwan Univ. & Samsung Display Co., Ltd., Korea), Woon Ho Jung, Yong Woo Kwon, and Jaehoon Lim (Sungkyunkwan Univ., Korea)

[P2-231]

Integration of Quantum-Dot Light Emitting Diodes and α -ITZO Thin-Film Transistors

Uiseok Jung and Jaekyun Kim (Hanyang Univ., Korea)

[P2-232]

Exploring the Effects of Metal Halide Treatment on InP Quantum Dots

Bokyeong Sohn, Jaehwan Lee, and Himchan Cho (KAIST, Korea)

[P2-233]

Understanding the QD/ETL Interface in Different Device Structures

Beomsoo Chun and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

[P2-234]

All-Solution Processable Top-Emitting InP QLEDs

Youngwoo Jeon (Kwangwoon Univ., Korea), Soobin Sim (Sookmyung Women's Univ., Korea), Doyoon Shin, Wan Ki Bae (Sungkyunkwan Univ., Korea), Hyunkoo Lee (Sookmyung Women's Univ., Korea), and Hyunho Lee (Kwangwoon Univ., Korea)

[P2-235]

Analysis of Electrostatic Discharge (ESD) Damage in Quantum Dot Light-Emitting Diodes: From Pixel to System-Level

Hansol Choi (Kwangwoon Univ., Korea), Suwoon Lee (Seoul Nat'l Univ. of Science and Tech., Korea), Doyoon Shin, Wan Ki Bae (Sungkyunkwan Univ., Korea), Hyung-Jun Song (Seoul Nat'l Univ. of Science and Tech., Korea), and Hyunho Lee (Kwangwoon Univ., Korea)

[P2-236]

Enhanced Luminescence of Quantum Dots by Ink Design for Electron Transport Layers: Molecular Dynamics Simulation and Experimental Study

Gyehyun Park, Sanghee Yu, Sehun Kim, Gyubong Kim, Hoilim Kim, Yun-hyuk Ko, Wonjun Park, Chulsoon Park, Dongwoo Shin, and Junghwan Lim (Samsung Display Co., Ltd., Korea)

[P2-237]

Reducing Electron Leakage by Controlling the Deposition Rate in Inverted QLEDs

Minjun Kim and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

[P2-238]

Degradation of InP Quantum Dot Light-Emitting Diodes under Pulsed Current Driving

Minhyung Lee and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

[P2-239]

Optimizing the Charge Generation Layers for InP Tandem Quantum Dot Light-Emitting Diodes

Yeongmin Moon, Ahyoung Hong, and Jeonghun Kwak (Seoul National Univ., Korea)

[P2-240]

Selective Organic/Inorganic Hybrid Iodine Ligands for Red-Emitting CsPb(Br, I)₃ Perovskite Nanocrystals

Ja Yeon Kim (KRICT & Korea Univ., Korea), Semin Ko, Seon Joo Lee, Jaemin Lee, Sun Jin Yun (KRICT, Korea), Soong Ju Oh (Korea Univ., Korea), and Sungho Choi (KRICT, Korea)

[P2-241]

High-Density Quantum Dot Color Conversion Films by Ligand Modification and Dispersants

Yonghyeok Choi and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[P2-242]

Enhancing Light Harvesting of Photovoltaics with Ternary Lead Chalcogenide Quantum Dots

Yongwoo Jeon, Seohee Park (KITECH & Sungkyunkwan Univ., Korea), Sung Nam Lim, Shin Ae Song, Kiyong Kim (KITECH, Korea), Sohee Jeong (Sungkyunkwan Univ., Korea), and Ju Young Woo (KITECH, Korea)

[P2-243]

Photomultiplication-Driven Inverted Structure Quantum Dots Upconversion Infrared Devices

Seongkeun Oh (Korea Univ., Korea), Suk-Young Yoon, Heesun Yang (Hongik Univ., Korea), and Soong Ju Oh (Korea Univ., Korea)

[P2-245]

Photolithographic Quantum Dot Patterning Using Ar Plasma-Induced Polymerization and Photoresist Mask

Mina Kim, Boram Kim, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[P2-246]

Fluorine Surface Dipole Effects of Red InP Quantum Dots on Emissive Characteristics

Goo-Min Park, Hyun-Min Kim, Donghyeok Shin, Dae-Yeon Jo, and Heesun Yang (Hongik Univ., Korea)

[P2-247]

Impacts of Halides on Growth Behaviors and Optical Characteristics of Ag-In-Ga-S Quantum Dots

Yuri Kim (Hongik Univ., Korea), Seong Min Park (Hongik Univ. & KETI, Korea), Seunghyeok Ryu, Hyo-Jin Yeo (Hongik Univ., Korea), Kyoungwon Park (KETI, Korea), and Heesun Yang (Hongik Univ., Korea)

[P2-248]

Effect of Alternating-Current Operation on Quantum Dot Light-Emitting Diodes Employing Inorganic Hole Transport Layer

Hak June Lee, Jin Su Park, Jeong Woo Park, Dongju Jung, Doyoon Shin, Jaemin Lim, Seongbin Im, Sejong Min, Jae Seung Lee, Jong Ah Chae (Sungkyunkwan Univ., Korea), Donghyo Hahm (Sungkyunkwan Univ., Korea & LANL, USA), and Wan Ki Bae (Sungkyunkwan Univ., Korea)

[P2-249]

Tailoring Interfacial Structure of Green AgInGaS₂/AgGaS₂ Core/Shell Nanocrystals

Seongkyung Park, Byongjae Kim, and Jaehoon Lim (Sungkyunkwan Univ., Korea)

[P2-250]

Efficient Quantum Dots Light-Emitting Diodes based on PVP-Capped ZnO Nanoparticles as Electron Transport Layer

Sanghoon Jung, Byoungho Kang, Jaesung Lee, Sehyuk Yeom, and Wanghoon Lee (GERI, Korea)

[P2-252]

ALD-Based Multinary Metal Oxide Electron Transport Layer for Quantum Dot Light-Emitting Diodes

Hyo Geun Lee (Hanyang Univ. & Sungkyunkwan Univ., Korea), Yong Woo Kwon, Woon Ho Jung (Sungkyunkwan Univ., Korea), Hyeonjun Lee (KAIST, Korea), Min Seok Kim (Hanyang Univ., Korea), Doh. C. Lee (KAIST, Korea), Jaehoon Lim (Sungkyunkwan Univ., Korea), and Seong-Yong Cho (Hanyang Univ., Korea)

[P2-253]

Degeneracy Lifted Photophysical Characteristics from Symmetry Broken Zincblende Heterostructured Quantum Dots

Jeong Woo Park, Sejong Min, Dongju Jung, Jong Ah Chae, Hak June Lee, Doyoon Shin, Jaemin Lim, Seongbin Im, Jin Su Park, and Wan Ki Bae (Sungkyunkwan Univ., Korea)

[P2-254]

Improved Light Extraction Efficiency of Quantum dot Color Conversion Layer by Island Encapsulation

Sang Youn Lee (KITECH & Korea Univ., Korea), Chun Sakong (ChemE Inc., Korea), Byeong-Kwon Ju (Korea Univ., Korea), and Kwan Hyun Cho (KITECH, Korea)

[P2-255]

All Inkjet-Printed Quantum Dot Light-Emitting Diodes with Cross-Linkable TFB to Diminish Layer Mixture

Jonghyun Choi (Korea Univ. & KITECH, Korea), Byeong-Kwon Ju (Korea Univ., Korea), Youngwoong Kim, and Kwan Hyun Cho (KITECH, Korea)

[P2-256]

Engineered Surface Chemistry and Electronic Structure of NiMgO Nanocrystals for Efficient All-Inorganic Quantum Dot Light-Emitting Diodes

Woon Ho Jung (Sungkyunkwan Univ., Korea), Tae Hwan Park (KIST, Korea), Hyeonjun Lee (KAIST, Korea), Mahnmin Choi, Sohee Jeong (Sungkyunkwan Univ., Korea), Gyu Weon Hwang (KIST, Korea), Doh Chang Lee (KAIST, Korea), and Jaehoon Lim (Sungkyunkwan Univ., Korea)

[P2-257]

Improving Performance of Quantum Dot Light-Emitting Diode through PMA Doped PEDOT:PSS Hole Injection Layer

Eunyong Seo, Kyung Jae Lee (Gyeongsang Nat'l Univ., Korea), Jeong Ha Hwang (Sungkyunkwan Univ., Korea), Dong Hyun Kim (Gyeongsang Nat'l Univ., Korea), Jaehoon Lim (Sungkyunkwan Univ., Korea), and Donggu Lee (Gyeongsang Nat'l Univ., Korea)

[P2-258]

Enhanced Lifetime of Quantum Dot Light-Emitting Diode Using Ultra-Thick Multi-Layer Hole Transport Layer with PMA and VNPB Alternating Stacked Structure

Dong Hyun Kim (Gyeongsang Nat'l Univ., Korea), Jeong Ha Hwang (Sungkyunkwan Univ., Korea), Eunyong Seo, Kyung Jae Lee (Gyeongsang Nat'l Univ., Korea), Jaehoon Lim (Sungkyunkwan Univ., Korea), and Donggu Lee (Gyeongsang Nat'l Univ., Korea)

[P2-259]

Effect of Core Dimension on Optical Gain Characteristics of CdSe/ZnSe Core/Shell Quantum Dots

Sejong Min, Jeong Woo Park, Hak June Lee, Doyoon Shin, Jaemin Lim, Dongju Jung, Jong Ah Chae, Seongbin Im, Jin Su Park, Jae Seung Lee, and Wan Ki Bae (Sungkyunkwan Univ., Korea)

[P2-260]

Engineering Zinc Oxide Nanocrystal Electronic Properties for Enhanced Operational Stability in Quantum Dot-Light Emitting Diodes

Hyojin Ahn (Konkuk Univ. & Sungkyunkwan Univ., Korea), Woon Ho Jung, Yong Woo Kwon, and Jaehoon Lim (Sungkyunkwan Univ., Korea)

[P2-261]

Enhanced Ga-Doping in Blue-Emitting InGaP Quantum Dots: Reactivity of Gallium Precursors

Taewan Kim, Hyeonjun Lee, and Doh C. Lee (KAIST, Korea)

[P2-262]

Reversible and Electrotunable Assembly/Disassembly of Plasmonic Nanoparticles

Taeyong Ha and Sungjee Kim (POSTECH, Korea)

[P2-263]

Enhanced Emission of Perovskite Quantum Dots by Using Polyetheramine Co-Ligand

Jeong-Bin Park, Sundararajan Parani, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P2-265]

Electrobrightening of Quantum Dots Achieved by Surface State Filling in Electroluminescent Devices

Hyeonjun Lee (KAIST, Korea), Yong Woo Kwon (Sungkyunkwan Univ., Korea), Gui-Min Kim (KAIST, Korea), Jaehoon Lim (Sungkyunkwan Univ., Korea), and Doh C. Lee (KAIST, Korea)

[P2-266]

Enhancing the Performance of InP-Based Quantum Dot Light-Emitting Diodes with CBP Mixed Emissive Layer

Hyeong Jin Kim and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

[P2-267]

Fabrication of Quantum Dot Color Conversion Layer with ZnS Nanoparticles by Inkjet-Printing for Efficient Light Emission

Min Su Lee, Yoon-Jeong Choi, Young Jun Lee, Jeong-Yeol Yoo, and Byung Doo Chin (Dankook Univ., Korea)

[P2-268]

Solvent-Dependent Photoluminescence of Ti_3C_2 MXene Quantum Dot Synthesized by Solvothermal Method

Seungyeon Son, Nam Ju Kam, Sang-yong Lee, and Jeong In Han (Dongguk Univ., Korea)

[P2-269]

Morphological and Surface Control of Metal-Chalcogenide Nanocrystals through Cation Exchange

Yoonbin Shin and Sungjee Kim (POSTECH, Korea)

[P2-270]

Compositionally Engineered $\text{PbS}_{1-x}\text{Se}_x$ Ternary Quantum Dots Active in Short Wavelength Infrared Region

Seohee Park, Yongwoo Jeon (KITECH & Sungkyunkwan Univ., Korea), Sung Nam Lim, Shin Ae Song, Kiyong Kim (KITECH, Korea), Sohee Jeong (Sungkyunkwan Univ., Korea), and Ju Young Woo (KITECH, Korea)

[P2-271]

Organic-Inorganic Hybrid Functional Layer for Enhanced Hole Injection in Quantum Dot Light Emitting Diodes

Jeong Ha Hwang (Sungkyunkwan Univ., Korea), Eunyong Seo, Dong Hyun Kim, Kyung Jae Lee (Gyeongsang Nat'l Univ., Korea), Yeongho Choi, Yong Woo Kwon, Jaehoon Lim (Sungkyunkwan Univ., Korea), and Donggu Lee (Gyeongsang Nat'l Univ., Korea)

[P2-272]

Synthesis of Arylamine-Based Polymer HTMs for Perovskite-Light Emitting Diodes by Changing Their Chemical Structure and Alignment of Energy Level

Chan Bin Park (KRICT & Univ. of Science and Tech., Korea), Gwang-il Kim, Hyejin Na (KRICT, Korea), Seon Joo Lee (KRICT & Univ. of Science and Tech., Korea), Sungho Choi (KRICT, Korea), and Jaemin Lee (KRICT & Univ. of Science and Tech., Korea)

[P2-273]

Core Position Dependent Control of Circular Dichroism in CdSe/CdS Dot-In-Rod

Yujin Kim and Doh C. Lee (KAIST, Korea)

[P2-274]

Improvement of Film Efficiency of InP/ZnSe/ZnS Quantum Dots with Thick-ZnS Shell Using Reactive Sulfur Precursor

Kangwoo Lee, Yonghyeok Choi, Jinseop Yoon, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[P2-275]

Wetting Properties Engineering via Surface Energy and Chemical Composition for Quantum Dot Light-Emitting Diode by Inkjet Printing Process

Yoon-Jeong Choi, Ji Eun Kim, Hee Ju Kang, and Byung Doo Chin (Dankook Univ., Korea)

[P2-276]

Enhanced Charge Separation in InP Quantum-Dot/ITZO Hybrid Phototransistor through Ligand Exchange

Siyun Kim, Ji Hyeon Woo, Seong-yong Cho, and Jaekyun Kim (Hanyang Univ., Korea)

[P2-277]

Atomic Layer Deposition of ZnO on CsPbBr₃ Perovskite Quantum Dots for Low Turn-on Voltage Light-Emitting Diodes

Min Ju Kim (Hanyang Univ., Korea), Ju Young Woo (KITECH, Korea), and Seong-Yong Cho (Hanyang Univ., Korea)

[P2-278]

Predicting the Luminance Decay Curves of Quantum Dot Light-Emitting Diodes with Machine Learning

Jaekwon Kim and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

[P2-279]

Quantum Dot Light Emitting Diodes Utilizing Hole Injection Layer of Nickel Oxide Nanoparticles Functionalized by Self-Assembled Monolayer

Hyojun Lim, Thi Huong Thao Dang, Nayoon Lee, Sunwoo Jin, Van Khoe Vo, Hyeun Lim, Heewon Jang, Dayoung Choi, Joon-Hyung Lee, Byoung-Seong Jeong, and Young-Woo Heo (Kyungpook Nat'l Univ., Korea)

[P2-280]

Design Strategies for Flexible Quantum Dot Light-Emitting Diodes

Kyunghoon Lee (DGIST, Korea), Jisu Yoo, Moon Kee Choi (UNIST, Korea), and Jiwoong Yang (DGIST, Korea)

[P2-281]

Enhanced Quantum-Dots Light Emitting Diodes Efficiency through Improved Charge Balance Using Doped NiO Nanoparticles as the Hole Injection Layer

Nayoon Lee, Van Khoe Vo, Hyojun Lim, Thi Huong Thao Dang, Heewon Jang, Dayoung Choi, Byoung Seong Jeong, Joon-Hyung Lee, and Young-Woo Heo (Kyungpook Nat'l Univ., Korea)

[P2-282]

Improving Broadband Detection of QD/IGZO Heterojunction Phototransistor by Mixing Different Sizes of Quantum Dots

Jinwook Oh and Jae Kyeong Jeong (Hanyang Univ., Korea)

[P2-283]

Synthesis and Characterization of New Polymeric Hole-Transporting Materials for Red-Emissive Perovskite Quantum-Dot Light-Emitting Diodes

Hyejin Na, Hyeon Woo Jeong, Seungmin Baek, Seon Joo Lee, Sungho Choi, and Jaemin Lee (KRICT, Korea)

[P2-284]

ZnMgO Nanoparticles via Ultrasonic-Assisted Synthesis for InP-Based QD-LEDs

Hyeonseung Ban (Hanyang Univ., Korea), Yeongho Choi (Sungkyunkwan Univ., Korea), Hyo Geun Lee (Hanyang Univ., Korea), Woon Ho Jung, Jaehoon Lim (Sungkyunkwan Univ., Korea), and Seong-Yong Cho (Hanyang Univ., Korea)

[P2-285]

Synthesis Blue Emissive Te-Doped ZnSe Quantum Dots Using Trioctylphosphine Treatment Zn Oleate

Jinchul Park, Boram Kim, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[P2-286]

Investigating the Origin of Positive Aging Effects in Quantum Dot Light-Emitting Diodes

Yeyun Bae (Pusan Nat'l Univ., Korea), Kangsuk Yoon (Kyonggi Univ., Korea), Jaeyeop Lee, Kyoungeun Lee (Pusan Nat'l Univ., Korea), Jiwan Kim (Kyonggi Univ., Korea), and Jeongkyun Roh (Pusan Nat'l Univ., Korea)

[P2-287]

Improved Performance of All-Solution-Processed InP Quantum-Dot Light-Emitting Diodes based on an Inverted Structure

Heejae Roh, Kyoungeun Lee, Jaeyeop Lee, Yeyun Bae, Chaegwang Lim, and Jeongkyun Roh (Pusan Nat'l Univ., Korea)

[P2-288]

Utilizing Thiophene-Based Polymers as Hole Transport Layers in Colloidal AgBiS₂ Nanocrystal Optoelectronics

Jeongeun Kim and Se-woong Baek (Korea Univ., Korea)

[P2-289]

Large Colloidal Quantum Dot with High Absorption Coefficient for UV-Vis-IR Broadband Photodetector

Seoryeon Jeong (Korea Univ., Korea), Donggyu Lee (Seoul Nat'l Univ., Korea), and Se-Woong Baek (Korea Univ., Korea)

[P2-290]

Colloidal Quantum Dot-Based Avalanche Photodetector

Seo Young Lee, Dongeon Kim, Min-Jae Si, and Se-woong Baek (Korea Univ., Korea)

[P2-291]

Enhancing Luminescence Efficiency of InAs Core-Shell Quantum Dots through Surface Passivation

Minjung Yang and Se-Woong Baek (Korea Univ., Korea)

[P2-292]

Image Processing for Model Performance Optimization

Nakun Lim, Hyunchul Oh, and Binna Oh (Samsung Display Co., Ltd., Korea)

[P2-293]

Multicore-Fiber Based Birdbath Type Augmented Reality Head-Mounted Display to Alleviate Wearing Discomfort

Do-Hun Baek, Jae-Sang Lee, Seong-Hyeon Cho, Woo June Choi, and Young-Wan Choi (Chung-Ang Univ., Korea)

[P2-294]

Application of Aerial Display for AR Digital Cosmetics That Do Not Cause Glare to the Viewer

Mayu Adachi, Shiro Suyama, and Hirotsugu Yamamoto (Utsunomiya Univ., Japan)

[P2-295]

Measurement of Aquatic Image Position With Stereoscopic Cameras

Hiroki Takatsuka, Ryosuke Ichikawa, Shiro Suyama, and Hirotsugu Yamamoto (Utsunomiya Univ., Japan)

[P2-296]

Measuring Object Size by Use of Floating Aerial Scale with AIRR

Azu Murakami, Ryosuke Ichikawa, Hiroki Takatsuka, Toru Iwane, Shiro Suyama, and Hirotsugu Yamamoto (Utsunomiya Univ., Japan)

[P2-298]

Silver Mesh-Patterned Top Electrode via Electrohydrodynamic (EHD) Printing Method for Transparent Quantum-Dot Light Emitting Diode (QLED)

Jong Ho Park, Suyoun Kim, Yeeun Jeong, Wonjune Yi, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[P2-299]

Stretchable Electrodes for the Future Island-Structure Display

Yoon Jae Moon, Jiyeong Kong, Heuseok Kang, and Kyung-Tae Kang (KITECH, Korea)

[P2-300]

Enhancing In₂O₃ Thin Film Quality via ALD Multi-Dose Technique

Hwayoung Kim (KAIST, Korea), Jong Beom Ko (Hanbat Nat'l Univ., Korea), and Sang-Hee Ko Park (KAIST, Korea)

[P2-301]

High Mobility IZO Thin Film Transistor based on SiO₂-Al₂O₃ Super-Cycled Using Plasma Enhanced Atomic Layer Deposition

Sunghwan Park, Hwayoung Kim, and Sang-Hee Ko Park (KAIST, Korea)

[P2-302]

Thermal Stability and Performance Enhancement of Laminated OLED

Dong-Heon Yoo and Cheol-Hee Moon (Hoseo Univ., Korea)

[P2-303]

Inorganic–Organic Hybrid Materials (ORMOCER®)- a Versatile Material Class for Challenges in Display Technology

Gerhard Domann, Jürgen Clade, and Daniela Collin (Fraunhofer Inst. for Silicate Research, Germany)

[P2-304]

A Study on Numerical Simulation of the New Piezo Inkjet Print Head and Structure Parameter Optimization to Improve Droplet Volume and Velocity

Si-Ung Kim and Kwan-Young Han (Dankook Univ., Korea)

[P2-305]

Water-Based Electrochemical Delamination Method for Strain Reduction During Delamination Process of Stretchable Devices

Minkyun Kang, Jinsu Yoon, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[P2-306]

Optimization of Hole Transport Layer and Bottom Electrode for Deformable Quantum-Dot Light Emitting Diode via Solution Processing

Suyoun Kim, Jong Ho Park, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[P2-307]

Mitigating Hydrogen Infiltration and Residual Solvent Effects in Oxide TFTs on Transparent Polyimide Substrates

Seung Min Lee (LG Display Co., Ltd. & Yonsei Univ., Korea), Jaeman Jang, I Sak Lee, Young Nam Lee, Eui-Doo Do, Yong Min Ha (LG Display Co., Ltd., Korea), and Hyun Jae Kim (Yonsei Univ., Korea)

[P2-308]

Ni-Based Elastic Metal Alloy Dry Etching for High Resolution Stretchable AMOLED at Low Temperature

Donghoon Kim, Jaewan Park, and Munpyo Hong (Korea Univ., Korea)

[P2-309]

Low-Voltage Upconversion Organic Light-Emitting Diodes with Solution-Processed Donor/Acceptor Layers via Vertical Phase Separation

Moeto Okuda, Takashi Kobayashi (Osaka Metropolitan Univ., Japan), Hiroyoshi Naito (Osaka Metropolitan Univ. & Ritsumeikan Univ., Japan), and Takashi Nagase (Osaka Metropolitan Univ., Japan)

[P2-310]

A Study on Dry Etching of SiC under Inductively Coupled Plasma-Reactive Ion Etching with Chlorine Based Etching Gas System

Sooseong Lee (Korea Univ., Korea), Youngku Jin (Advanced Material Transfer Evaluation Center, Korea), Donghoon Kim, Jaewan Park (Korea Univ., Korea), and Munpyo Hong (Korea Univ. & Advanced Material Transfer Evaluation Center, Korea)

[P2-311]

2D-3D Conversion Display Using Microlens Array and Liquid Crystal

Sun-Kuk Kim (Sungkyunkwan Univ., Korea), Yu-Kyung Lee (Samsung Display Co., Ltd., Korea), and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P2-312]

Polarized CCTV Camera based on Twisted Nematic (TN) and Electrically Controlled Birefringence (ECB) Liquid Crystal Mode

Hyeon-Sik Ahn, Seong-Min Lim, Nakyung Lee, and Yoonseuk Choi (Hanbat Nat'l Univ., Korea)

[P2-313]

Donor-Acceptor Type Bifunctional Molecules with Hybridized Local and Charge-Transfer Excited State for Blue Organic Light-Emitting Diodes

Khushbu Patel (Sungkyunkwan Univ., Korea), Hakjun Lee (Hongik Univ., Korea), Seung Chan Kim (Sungkyunkwan Univ., Korea), Yeonju Jeong, Taekyung Kim (Hongik Univ., Korea), and Jun Yeob Lee (Sungkyunkwan Univ., Korea)

[P2-314]

Oxidation Suppression of Lead Free Tin Perovskite Red Light Emitting Diodes Using Additives

Hee-Seung Lee, Seung-Ho Pi, and Jung-Yong Lee (KAIST, Korea)

[P2-315]

Defect-Controlled Ligand Exchange for High-Efficiency Perovskite Quantum Dot LEDs

Seyun Lee, Minju Choi, and Jung-Yong Lee (KAIST, Korea)

[P2-316]

Investigation of the Thermal Dissipation Characteristics of the Small-Sized-LED Package

Chae-Yeon Kim, Do-Yeon Lyu, and Cheol-Hee Moon (Hoseo Univ., Korea)

[P2-317]

Design of Deep Blue Organic Light Emitting Diodes Employing Phosphorescent Pt Complex Emitters

Da In Kim (Gyeongsang Nat'l Univ., Korea), Hee Won Son, Min Chul Suh (Kyung Hee Univ., Korea), and Yun-Hi Kim (Gyeongsang Nat'l Univ., Korea)

[P2-318]

Fabrication and Characteristics of CsPbBr₃ Thin Film via Thermal Vacuum Evaporation Method

Van Khoe Vo, Nayoon Lee, Hyo-Jun Lim, Dang Thi Huong Thao, and Young-Woo Heo (Kyungpook Nat'l Univ., Korea)

[P2-319]

Intramolecular Locking Effect for Multifunctional Emitters and Its Application to Non-Doped Organic Light-Emitting Diodes

Taehyun Kim and Taiho Park (POSTECH, Korea)

[P2-320]

Self-Powered and Skin-Conformal Biosensors based on Ultra-Thin GaAs Solar Cells Integrated with Organic Electrochemical Transistors

Jun-Gyu Choi, Dongjoon Shin, Inho Lee, and Sungjun Park (Ajou Univ., Korea)

[P2-321]

A Facile Route to Fabricate Flexible Dot Patterns and its Evaluation as Dual Lambertian Reflective Optical Diffuser

IMiD 2024

The 24th International Meeting on Information Display
August 20-23, 2024 / ICC Jeju, Jeju, Korea

Sunhyung Koo (KAIST, Korea), Duhyoung Gong, Hanul Moon (Dong-A Univ., Korea), and Seunghyup Yoo (KAIST, Korea)

[P2-322]

All-Solution Processed Skin-Conformable Stretchable Strain Sensor based on Multi-Size Biocompatible Nanomaterials

Sanghyun Bae, Hayun Kim, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[P2-323]

All-Solution Processed Nano-Crack Generation Engineering of Polydimethylsiloxane Embedded Silver Nanowire Networks for Highly Sensitive and Stable Strain Gauge

Che-a-Young Lee, Hyukju Go, Hanul Kim, Dongju Jang, Hayun Kim, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

[P2-324]

Improvement of Inverted QD-LED Efficiency through PVK: TCTA Doping Using Green Solvents

Su-Hyeon Lee, Jae-In Yoo, Sung-Cheon Kang, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P2-325]

All-Solution Processed Inverted Quantum-Dot Light Emitting Diodes with Double Hole-Transport Layer Using Same Solute

Jeong-Beom Kim, Su-Hyeon Lee, Hyo-Bin Kim, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P2-326]

Improvement of Hole Conductivity of Hole Injection Layer Using Green Solvent 'Cyrene' for All Solution Processed QD-LEDs

Young-Jae Ko, Jung-Beom Kim, Hyo-Bin Kim, and Jang-Kun Song (Sungkyunkwan Univ., Korea)

[P2-327]

Optimizing the Device Performance of Top-Emitting Quantum Dot Light-Emitting Diodes

through Post-Annealing

Soojeong Yim and Jeonghun Kwak (Seoul Nat'l Univ., Korea)

[P2-328]

Synthesis of Colloidal InSb Quantum Dots and Their Application in 1500 nm Short Wavelength Infrared Photodetectors

Hyo-Jin Hwang, Ki-Cheol Kim, Hyo-Geun Kwon, and Sang-Wook Kim (Ajou Univ., Korea)

[P2-329]

Quantum Dot-Based Three-Stack Tandem Near-Infrared-to-Visible Optoelectric Upconversion Devices

Tae Hyun Kwon, Hyeon Bin Kim, Dong Gil Kwak (Sogang Univ., Korea), Donghyo Hahn (Sungkyunkwan Univ., Korea), Seongju Yoo, Bongsoo Kim (UNIST, Korea), Wan Ki Bae (Sungkyunkwan Univ., Korea), and Moon Sung Kang (Sogang Univ., Korea)

[P2-330]

Pure Metallic Properties and Remarkable Electrical Conductivity Increase from Semiconducting Colloidal Nanocrystals by Cation Exchange for Solution-Processable Optoelectronic Applications

Hyo-Geun Kwon and Sang-Wook Kim (Ajou Univ., Korea)

[P2-331]

Enhanced Stability and Highly Bright Electroluminescence of AgInZnS/CdS/ZnS Quantum Dots through Complete Isolation of Core and Shell via a CdS Interlayer

Ki-Cheol Kim, Hyo-Jin Hwang, Hyo-Geun Kwon, and Sang-Wook Kim (Ajou Univ., Korea)

[P2-332]

Porous Electrodes Fabricated by Colloidal Lithography and Their Application to Quantum Dot-Based Multifunctional Devices

Kyoungeun Lee (Pusan Nat'l Univ., Korea), Jiyeon Oh (Pusan Nat'l Univ. & KITECH, Korea), Hoyoung Cho, Moohyun Kim, Yeyun Bae (Pusan Nat'l Univ., Korea), Woon Ho Jung, Jaehoon Lim (Sungkyunkwan Univ., Korea), Hanchul Cho (KITECH, Korea), and Jeongkyun Roh (Pusan Nat'l Univ., Korea)

[P2-333]

Quantum Dot Polymer Composite for Improving the Stability of Cd-Free Quantum Dots

Keon Woo Kim (Pusan Nat'l Univ., Korea), Jaehwan Ko (Seoul Nat'l Univ., Korea), Jae Seung Lee (Sungkyunkwan Univ., Korea), Hyung-Jun Song (Seoul Nat'l Univ., Korea), Wan Ki Bae (Sungkyunkwan Univ., Korea), and Byeong Guk Jeong (Pusan Nat'l Univ., Korea)

[P2-334]

Synthesis of GaAs Nanocrystals for Visible Light Emitter

Dae Yun Kim, Yeong Uk Kim, and Byeong Guk Jeong (Pusan Nat'l Univ., Korea)

[P2-335]

Synthesis of Quantum Dot with High Efficiency and Narrow Emission Spectra

Yeong Uk Kim and Byeong Guk Jeong (Pusan Nat'l Univ., Korea)

[P2-336]

Enhanced Outcoupling of Quantum Dot Light-Emitting Diodes by Adhearable Microlens Arrays

Jiyoon Oh (Pusan Nat'l Univ. & KITECH, Korea), Kyoungun Lee, Jinpyo Jeong, Yeyun Bae, Chaegwang Lim, Jaeyeop Lee (Pusan Nat'l Univ., Korea), Woon Ho Jung, Jaehoon Lim (Sungkyunkwan Univ., Korea), Hanchul Cho (KITECH, Korea), and Jeongkyun Roh (Pusan Nat'l Univ., Korea)

[P2-337]

Co-Doping on NiO Hole Injection Layer by Sputtering Method in Green Quantum-Dot Light-Emitting Devices

Dang Thi Huong Thao, Hyo-Jun Lim, Hee-Won Jang, Na-Yoon Lee, Hye-Eun Lim, Da-Young Choi, Joon-Hyung Lee, Byoung-Seong Jeong, and Young-Woo Heo (Kyungpook Nat'l Univ., Korea)

[P2-338]

Enhanced Performance of Quantum Dot Light-Emitting Diodes with Tin Doped ZnO as Electron Transport Layers

Juwon Park, Jaeyeop Lee, Jeongkyun Roh, and Byeong Guk Jeong (Pusan Nat'l Univ., Korea)