

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) |

[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)

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| 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) |

[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)

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| 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) |

[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)

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| 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) |

[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, and J. Mütze, 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, and Serpil Gonen Williams (Pixelligent Technologies LLC, USA)

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| Session Title: | 05. Display Circuits & Driving Technologies |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room E (302) |

[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), Chanhyung Yoo, Nari Kim (Samsung Electronics, Korea), and Seung-Woo Lee (Kyung Hee Univ., Korea)

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

TBA

Shengdong Zhang (Peking Univ., China)

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|-----------------------|---|
| 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) |

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

Ultra-Flexible Proximity Sensors and High-Resolution Electrostatic Imaging Using Floating Extended-Gate Organic Transistors

Hiroyuki Matsui (Yamagata Univ., Japan)

[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)

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Session Title: 07. Metamaterials for Display

Session Date: August 21 (Wed.), 2024

Session Time: 09:00-10:35

Session Room: Room G (401)

[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

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)

[G07-4]

10:05-10:20

High-Resolution Active Pixel based on Low-Loss Metasurfaces

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

[G07-5]

10:20-10:35

Terahertz Chiral Metasurface based on Kirigami Structure for Controlling Circular Dichroism

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

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| Session Title: | 08. Future Micro-LED Pixel Technology |
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| Session Time: | 09:00-10:35 |
| Session Room: | Room H (402) |

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

New Opportunities of Micro-LED Display

Kyoseop Choo (Chengdu Vistar Display, China)

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

Patterning Quantum Dot Color Conversion Layers

Dieter Cuypers, Harindra Kumar Kannoja, 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)

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|-----------------------|---|
| 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) |

[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)

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| Session Title: | 10. Special Session II: High Resolution Frontplane Technologies for XR II |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:10 |
| Session Room: | Room B (Halla B) |

[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)

[B10-4] 11:55-12:10

Color-Tunable Phosphorescent Organic Light-Emitting Diodes with Various Semi-Transparent Intermediate Electrodes for High-Resolution Displays

Yeonsu Hwang and Hyunkoo Lee (Sookmyung Women's Univ., Korea)

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|-----------------------|---|
| 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) |

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

TBA

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)

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Session Title: 12. Novel Holographic Displays

Session Date: August 21 (Wed.), 2024

Session Time: 10:50-12:10

Session Room: Room D (301)

[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)

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| Session Title: | 13. Display Systems for High-Performance XR |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:25 |
| Session Room: | Room E (302) |

[E13-1] [Featured] 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)

[E13-4] [Invited] 12:00-12:25

TBA

Masayuki Kozuka (Panasonic Corp., Japan)

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Session Title: 14. Free Form Factor : Backplane

Session Date: August 21 (Wed.), 2024

Session Time: 10:50-12:15

Session Room: Room F (303)

[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 Nati'l Univ., Korea)

[F14-4]

11:45-12:00

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

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

[F14-5]

12:00-12:15

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)

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| Session Title: | 15. Emerging Materials for Display |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:15 |
| Session Room: | Room G (401) |

[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)

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| Session Title: | 16. Micro-LED Manufacturing Technology |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 10:50-12:20 |
| Session Room: | Room H (402) |

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

Micro-LED Display with MoS₂ Backplane TFT

Jong-Hyun Ahn (Yonsei Univ., Koera)

[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)

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| Session Title: | 17. Emerging QD Technologies |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room A (Halla A) |

[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. td., 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)

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| Session Title: | 18. OLED Devices I : Future Perspectives (Advancements and Challenges) |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:30 |
| Session Room: | Room B (Halla B) |

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

HLCT-Type Acceptor Molecule-Based Exciplex System for Highly Efficient Solution-Processable OLEDs with Suppressed Efficiency Roll-Off

Yafei Wang (Changzhou Univ., China)

[B18-4] **10:15-10:30**

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)

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Session Title: 19. TFT Based Functional Devices

Session Date: August 22 (Thu.), 2024

Session Time: 09:00-10:20

Session Room: Room C (Samda)

[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

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

Cu/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-II Baek, Ji-Won Kim, and Sung-Hun Jin (Incheon Nat'l Univ., 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) |

[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)

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|-----------------------|---|
| 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) |

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

Challenges for Measuring Display Halation

John Penczek (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)

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Session Title: 22. Free Form Factor : Frontplane

Session Date: August 22 (Thu.), 2024

Session Time: 09:00-10:25

Session Room: Room F (303)

[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]

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 Acrylates and Silicones Laminating Material

Seung-A Lee (WACKER Chemical Korea, Korea)

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| Session Title: | 23. Display Component/Systems for Next Generation Display |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room G (401) |

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

Perovskite Superlattices for Near Infrared Light-Emitting Diodes

Maria Vasilopoulou (Nat'l Center for Scientific Research Demokritos, Greece)

[G23-3] 09:50-10:05

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)

[G23-4] 10:05-10:20

High-Performance Microsupercapacitor for Micro LEDs Display Capability

Thi Huyen Nguyen, Jeongho Lee, Dawoon Lee, Yongjun Song, Gaeun Park, and Jaekyun Kim (Hanyang Univ., Korea)

[G23-5] 10:20-10:35

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)

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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) |

[H24-1] [Invited] 09:00-09:25

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)

[H24-2] [Invited] 09:25-09:50

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)

[H24-3] 09:50-10:05

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)

[H24-4] 10:05-10:20

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)

[H24-5] 10:20-10:35

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)

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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) |

[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

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

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| 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) |

[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

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| 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) |

[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. of Rennes, 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)

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| Session Title: | 28. Joint Session I |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:20 |
| Session Room: | Room D (301) |

[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)

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| 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) |

[E29-1] [Featured] 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)

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| Session Title: | 30. Joint Session II |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:20 |
| Session Room: | Room F (303) |

[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-Younghg 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)

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| Session Title: | 31. Optoelectronic Devices for Display |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:10 |
| Session Room: | Room G (401) |

[G31-1] [Invited] 11:00-11:25

Chalcogenide Phase-Change Materials for Display and Computing

Wen Zhou (Xi'an Jiaotong Univ., China)

[G31-2] 11:25-11:40

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)

[G31-3] 11:40-11:55

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)

[G31-4] 11:55-12:10

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)

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| Session Title: | 32. Microscale Lighting Materials for Display Applications |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 11:00-12:35 |
| Session Room: | Room H (402) |

[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), and Xiaoliang Mo (Fudan Univ., China)

[H32-5] 12:20-12:35

Identification and Precise Regulation of Longevity Gene Responsible for Robust Blue TADF Materials

Qing-yu Meng and Juan Qiao (Tsinghua Univ., China)

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| Session Title: | 33. Fundamentals of QLEDs |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:20 |
| Session Room: | Room A (Halla A) |

[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)

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| Session Title: | 34. OLED Materials I : Advances in Emitting Materials |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:30 |
| Session Room: | Room B (Halla B) |

[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] 16:25-16:40

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)

[B34-3] [Invited] 16:40-17:05

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] 17:05-17:30

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)

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| Session Title: | 36. Holography |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:45 |
| Session Room: | Room D (301) |

[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)

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| Session Title: | 37. Soft Sensors and Actuators for Interactive Display I |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:40 |
| Session Room: | Room E (302) |

[E37-1] [Featured] 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)

[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

Large-Area, Untethered, Metamorphic, and Omnidirectionally Stretchable Multiplexing Self-Powered Triboelectric Skins

Ying-Chih Lai (Nat'l Chung Hsing Univ., Taiwan)

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

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)

[E37-5] 17:25-17:40

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)

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| Session Title: | 38. LC XR Devices |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:35 |
| Session Room: | Room F (303) |

[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)

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| Session Title: | 39. AI & Computational Technologies I |
| Session Date: | August 22 (Thu.), 2024 |
| Session Time: | 16:00-17:20 |
| Session Room: | Room G (401) |

[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

Thermal Reflow Simulation for Display Manufacturing

Ildar Khisamitov and Juergen Preuninger (Synopsys, Germany)

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

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

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

[G39-4] [Invited] 16:55-17:20

OLED Material Screening with Machine Learning: Calibrate Low-Quality Data for High-Accuracy Molecular Property Predictions

Janghwan Lee, Shuhui Qu, Cheolwoo Park, and Qisen Cheng (Samsung Display Co., Ltd. America Lab., USA)

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| 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) |

[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)

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| 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) |

[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)

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| Session Title: | 42. OLED Materials II : Advances in Blue Emitting Materials |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room B (Halla B) |

[B42-1] [Invited] **09:00-09:25**

TBA

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

[B42-2] **09:25-09:40**

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] [Invited] **09:40-09:55**

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

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

[B42-4] [Invited] **09:55-10:20**

High-Efficiency Organic Light-Emitting Materials with Narrowband Emission

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

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Session Title: 43. Emerging TFT Devices

Session Date: August 23 (Fri.), 2024

Session Time: 09:00–10:25

Session Room: Room C (Samda)

[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

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)

[C43-5]

10:10–10:25

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)

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| Session Title: | 44. Immersive Media Processing |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room D (301) |

[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 Mizushina (Tokushima Univ., & JVCKENWOOD Corp., 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)

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| Session Title: | 45. Soft Sensors and Actuators for Interactive Display II |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:35 |
| Session Room: | Room E (302) |

[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, Dongeun Jin, and Yongtaek Hong (Seoul Nat'l Univ., Korea)

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

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

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

[E45-5] **10:20-10:35**

Flexible Sensors for Healthcare and Robotics

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

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| Session Title: | 46. LC Applications |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:30 |
| Session Room: | Room F (303) |

[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 Nanomaterial

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)

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| Session Title: | 47. AI & Computational Technologies II |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:20 |
| Session Room: | Room G (401) |

[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)

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| Session Title: | 48. Printing Technology |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 09:00-10:05 |
| Session Room: | Room H (402) |

[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)

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| Session Title: | 50. OLED Devices II : Future Perspectives (Innovations in OLED Technology) |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:10 |
| Session Room: | Room B (Halla B) |

[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)

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| 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) |

[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)

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| Session Title: | 52. 3D & Spatial Dipsplay |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:15 |
| Session Room: | Room D (301) |

[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 Aecessibility in AI-Based AR Glasses Docent Service

Sunghee Ahn (HongIk Univ., Korea)

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| Session Title: | 53. Bio-Integrated Optoelectronic Sensors |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:05 |
| Session Room: | Room E (302) |

[E53-1] [Invited] 10:40-11:05

TBA

Jong-Mo Seo (Seoul Nat'l Univ., Korea)

[E53-2] 11:05-11:20

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

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

[E53-3] 11:20-11:35

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)

[E53-4] 11:35-11:50

Plant-Integrated Electronics

Jae Joon Kim and Jaehyun Kim (ETRI, Korea)

[E53-5] 11:50-12:05

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

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

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| Session Title: | 54. LC Smart Films & Materials |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:15 |
| Session Room: | Room F (303) |

[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)

[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 Byoungwan 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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| Session Title: | 55. AI & Computational Technologies III |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:10 |
| Session Room: | Room G (401) |

[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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| Session Title: | 56. TFT Manufacturing |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 10:40-12:05 |
| Session Room: | Room H (402) |

[H56-1] [Featured] **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)

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| Session Title: | 57. QLED Devices |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:35 |
| Session Room: | Room A (Halla A) |

[A57-1] [Featured] 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 Polyme

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)

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| Session Title: | 58. OLED Materials III : Emitting Materials and New Emission Mechanisms in OLEDs |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:40 |
| Session Room: | Room B (Halla B) |

[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] **14:25-14:40**

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)

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| | |
|-----------------------|--|
| Session Title: | 59. Circuit Design and Implementations of TFT |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:25 |
| Session Room: | Room C (Samda) |

[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)

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| Session Title: | 60. Novel AR/VR/MR Displays |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:30 |
| Session Room: | Room D (301) |

[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

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)

[D60-4] 14:15-14:30

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)

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|-----------------------|---|
| Session Title: | 61. Biomedical/Neural Applications |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:10 |
| Session Room: | Room E (302) |

[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, Hyunjoon J. Lee, and Kyung Cheol Choi (KAIST, Korea)

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|-----------------------|------------------------|
| Session Title: | 62. LC Phenomena |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:40 |
| Session Room: | Room F (303) |

[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)

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| Session Title: | 63. AI & Computational Technologies IV |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 13:10-14:30 |
| Session Room: | Room G (401) |

[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

Gaussian Transistor for Weight Learning of Bayesian Neural Network for Over confident Solution

Subin Lee, Yeo Eun Kim (Gachon Univ., Korea), Amit Ranjan Trivedi (Univ. of Illinois at Chicago, USA), and Hocheon Yoo (Gachon Univ., Korea)

[G63-3] 13:50-14:05

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)

[G63-4] [Invited] 14:05-14:30

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)

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|-----------------------|---|
| 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) |

[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)

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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)

[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)

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|-----------------------|---|
| 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) |

[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)

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| Session Title: | 67. Fundamental Studies on FTF Devices |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:15 |
| Session Room: | Room C (Samda) |

[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 Techapiesanchaorenkij (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)

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| 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) |

[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)

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Session Title: 69. Flexible Biomedical Devices

Session Date: August 23 (Fri.), 2024

Session Time: 14:50-16:10

Session Room: Room E (302)

[E69-1] [Invited]

14:50-15:15

TBA

L. Jay Guo (Univ. of Michigan, Ann Arbor, 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)

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| Session Title: | 70. LC Elastomers |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:20 |
| Session Room: | Room F (303) |

[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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| Session Title: | 71. AI & Computational Technologies V |
| Session Date: | August 23 (Fri.), 2024 |
| Session Time: | 14:50-16:10 |
| Session Room: | Room G (401) |

[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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| 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) |

[H72-1] [Invited] 14:50-15:15

The Advanced Inkjet Technology: Smart Inkjet Printhead (SIP4.0)

Yoshinori Domae (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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| Session Title: | P1. Poster Session 1 |
| Session Date: | August 21 (Wed.), 2024 |
| Session Time: | 13:20-14:50 |
| Session Room: | Event Hall (1F) |

[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)

[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)

[P1-012]

Direct Coating of Transparent and Wear-Resistant Coating on Ultra-Thin Glass for Flexible Cover Windows

Yong-Cheol Jeong (KITECH, 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)

[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)

[P1-020]

Silicone-Driven Lithography Exceeding 10,000 ppi for Anti-Pixel Crosstalk Micro-OLEDs

Hyukmin Kweon (Hanyang Univ., Korea), Seonkwon Kim (Yonsei Univ., Korea), Borina Ha (Hanyang Univ., Korea), Seunghan Lee (Sogang Univ., Korea), Soyeon Lee, Jiyeon Ha (Hanyang Univ., Korea), Minsu Kang (Yonsei Univ., Korea), Seung Hwan Roh, Moon Sung Kang (Sogang Univ., Korea), Jeong Ho Cho (Yonsei Univ., Korea), and Do Hwan Kim (Hanyang 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

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