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Shunpei Yamazaki, *Semiconductor Energy Laboratory Co., Ltd.*
Kou Chang Huang, *Powerchip Semiconductor Manufacturing Corporation*
Hiroshi Yoshida, *Powerchip Semiconductor Manufacturing Corporation*
Min Cheng Chen, *Powerchip Semiconductor Manufacturing Corporation*
Ming Han Liao, *National Taiwan University*
Shou Zen Chang, *Powerchip Semiconductor Manufacturing Corporation*

32-2: **An Optical Compensation Scheme for High ppi AMOLED Display** (Page 381)
Ying Han, *Hefei BOE Joint Technology Co., Ltd.*
Mingyi Zhun, *Hefei BOE Joint Technology Co., Ltd.*
Yicheng Lin, *BOE Technology Group Co., Ltd.*
Zhengliang Li, *BOE Technology Group Co., Ltd.*
Pan Xu, *Hefei BOE Joint Technology Co., Ltd.*
Jiayu He, *BOE Technology Group Co., Ltd.*
Rui Huang, *BOE Technology Group Co., Ltd.*
Lirong Wang, *Hefei BOE Joint Technology Co., Ltd.*
Zhiqiang Dong, *Hefei BOE Joint Technology Co., Ltd.*
Yu Wang, *Hefei BOE Joint Technology Co., Ltd.*
Xing Zhang, *Hefei BOE Joint Technology Co., Ltd.*
Wei Quan, *Hefei BOE Joint Technology Co., Ltd.*
Chengyuan Luo, *Hefei BOE Joint Technology Co., Ltd.*
Tianji Li, *Hefei BOE Joint Technology Co., Ltd.*
Donghui Zhao, *Hefei BOE Joint Technology Co., Ltd.*
Yi Chen, *BOE Technology Group Co., Ltd.*
Fei Yang, *BOE Technology Group Co., Ltd.*
Guang Yan, *BOE Technology Group Co., Ltd.*
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Jianwei Yu, *Hefei BOE Joint Technology Co., Ltd.*
Xue Dong, *BOE Technology Group Co., Ltd.*
Tangxiang Wang, *BOE Technology Group Co., Ltd.*

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Yuki Okamoto, *Semiconductor Energy Laboratory Co. Ltd.*
Minato Ito, *Semiconductor Energy Laboratory Co. Ltd.*
Hiroki Inoue, *Semiconductor Energy Laboratory Co. Ltd.*
Toshihiko Saito, *Semiconductor Energy Laboratory Co. Ltd.*
Yusuke Komura, *Semiconductor Energy Laboratory Co. Ltd.*
Shoki Miyata, *Semiconductor Energy Laboratory Co. Ltd.*
Kouhei Toyotaka, *Semiconductor Energy Laboratory Co. Ltd.*
Takanori Matsuzaki, *Semiconductor Energy Laboratory Co. Ltd.*
Tatsuya Onuki, *Semiconductor Energy Laboratory Co. Ltd.*
Hidetomo Kobayashi, *Semiconductor Energy Laboratory Co. Ltd.*
Kentaro Sugaya, *Semiconductor Energy Laboratory Co. Ltd.*
Takahiro Fujie, *Semiconductor Energy Laboratory Co. Ltd.*
Yutaka Okazaki, *Semiconductor Energy Laboratory Co. Ltd.*
Ryota Hodo, *Semiconductor Energy Laboratory Co. Ltd.*
Yuichi Yanagisawa, *Semiconductor Energy Laboratory Co. Ltd.*
Masahiro Wakuda, *Semiconductor Energy Laboratory Co. Ltd.*
Tsutomu Murakawa, *Semiconductor Energy Laboratory Co. Ltd.*

Shinya Sasagawa, *Semiconductor Energy Laboratory Co. Ltd.*
Hitoshi Kunitake, *Semiconductor Energy Laboratory Co. Ltd.*
Daiki Nakamura, *Semiconductor Energy Laboratory Co. Ltd.*
Takaaki Nagata, *Semiconductor Energy Laboratory Co. Ltd.*
Shinya Fukuzaki, *Semiconductor Energy Laboratory Co. Ltd.*
Tomoya Aoyama, *Semiconductor Energy Laboratory Co. Ltd.*
Hajime Kimura, *Semiconductor Energy Laboratory Co. Ltd.*
Shih-Ci Yen, *Powerchip Semiconductor Manufacturing Corporation*
Chuan-Hua Chang, *Powerchip Semiconductor Manufacturing Corporation*
Wen-Hsiang Hsieh, *Powerchip Semiconductor Manufacturing Corporation*
Hiroshi Yoshida, *Powerchip Semiconductor Manufacturing Corporation*
Min-Cheng Chen, *Powerchip Semiconductor Manufacturing Corporation*
Ming-Han Liao, *National Taiwan University*
Shou-Zen Chang, *Powerchip Semiconductor Manufacturing Corporation*
Shunpei Yamazaki, *Semiconductor Energy Laboratory Co. Ltd.*

32-4: **Metal-Oxide Thin-Film Transistors with 0.1um Channel Length Formed by Self-Aligned Nanogap Patterning** (Page 388)
Chihun Sung, *Electronics and Telecommunications Research Institute*
Sooji Nam, *Electronics and Telecommunications Research Institute*
Sung Haeng Cho, *Electronics and Telecommunications Research Institute*

Session 33: Printed OLED

Chair: Sven Zimmermann, *Novaled GmbH*
Co-Chair: Denis Kondakov, *DuPont*

33-1: **All-Inkjet-Printed AMOLED Display with Improved Efficiency and Lifetime** (Page 391)
Sehun Kim, *Samsung Display Co., Ltd.*
Taeheon Kang, *Samsung Display Co., Ltd.*
Heunggyu Kim, *Samsung Display Co., Ltd.*
Hyeran Mun, *Samsung Display Co., Ltd.*
Youngmo Koo, *Samsung Display Co., Ltd.*
Jaekook Ha, *Samsung Display Co., Ltd.*
Changhee Lee, *Samsung Display Co., Ltd.*

33-2: ***Invited Paper*: Flexible OLED Displays with Inkjet Printing Technology** (Page 395)
Weiran Cao, *Shenzhen China Star Optoelectronics Semiconductor Display Technology Co., Ltd.*
Jinchuan Li, *Shenzhen China Star Optoelectronics Semiconductor Display Technology Co., Ltd.*
Xiang-Long Li, *Shenzhen China Star Optoelectronics Semiconductor Display Technology Co., Ltd.*
Yunxi Li, *Shenzhen China Star Optoelectronics Semiconductor Display Technology Co., Ltd.*

33-3: ***Invited Paper*: Research and Applications of Inkjet Printing for OLED Mass Production** (Page 398)
Valerie Gassend, *Kateeva, Inc.*
Christopher R. Hauf, *Kateeva, Inc*
Jianglong Chen, *Kateeva, Inc.*

Session 34: High Dynamic Range LCDs

Chair: Jenn Jia Su, *Adviser*
Co-Chair: Thomas Fiske, *Microsoft*

34-1: **Novel Liquid-Crystal Display Mode SUVA4 and SUVA5 with Double Photoalignment Technology for High-Definition Display** (Page 402)
Fan Li, *BOE Technology Group Co., Ltd.*
Zhi-gang Wang, *BOE Technology Group Co., Ltd.*
Lin Peng, *BOE Technology Group Co., Ltd.*
Yong Zhang, *BOE Technology Group Co., Ltd.*
Hai-bin Han, *BOE Technology Group Co., Ltd.*
Peng Zhou, *BOE Technology Group Co., Ltd.*
Makoto Kambe, *BOE Technology Group Co., Ltd.*

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Yuanhao Sun, *BOE MLED Technology Co.,Ltd.*
Jiawei Zhao, *BOE MLED Technology Co.,Ltd.*
Junjie Ma, *BOE MLED Technology Co.,Ltd.*
Yicheng Lin, *BOE MLED Technology Co.,Ltd.*
Chao Tian, *BOE MLED Technology Co.,Ltd.*
Lingyun Shi, *BOE MLED Technology Co.,Ltd.*
Haiwei Sun, *BOE MLED Technology Co.,Ltd.*

34-3: **High-Contrast Research of 4K ADS TV Technology** (Page 410)
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Kai Wang, *Hefei BOE Display Technology Co., Ltd.*
Liangliang Jiang, *Hefei BOE Display Technology Co., Ltd.*
Heng Zhang, *Hefei BOE Display Technology Co., Ltd.*
Yajun Li, *Hefei BOE Display Technology Co., Ltd.*
Xiaobin Li, *Hefei BOE Display Technology Co., Ltd.*

Yinhu Huang, *Hefei BOE Display Technology Co., Ltd.*
Byung-cheon Lim, *Hefei BOE Display Technology Co., Ltd.*
Zhangtao Wang, *Hefei BOE Display Technology Co., Ltd.*
Xibin Shao, *Hefei BOE Display Technology Co., Ltd.*

34-4: ***Invited Student Paper*: UBplus/UB-FFS – Premium Performance for Liquid-Crystal TV and IT Displays** (Page 414)
Lawrence Huang, *Merck Display Materials Co., Ltd., Shanghai, China, an affiliate of Merck KGaA, Darmstadt, Germany*
Sven Christian Laut, *Merck KGaA Darmstadt, Germany*
Grace Wang, *Merck Display Materials Co., Ltd., Shanghai, China, an affiliate of Merck KGaA, Darmstadt, Germany*
Ji-Hun Jung, *Merck Display Materials Co., Ltd., Shanghai, China, an affiliate of Merck KGaA, Darmstadt, Germany*
Peter Zhao, *Merck Display Materials Co., Ltd., Shanghai, China, an affiliate of Merck KGaA, Darmstadt, Germany*

34-5: ***Invited Paper*: C-PS-VA – Innovative LC Materials Enabling Super-High Transmittance for High-Resolution Displays** (Page 417)
Susan Chuang, *Merck Performance Materials Ltd., Taoyuan, Taiwan, an affiliate of Merck KGaA, Darmstadt, Germany*
Fred Chen, *Merck Performance Materials Ltd., Taoyuan, Taiwan, an affiliate of Merck KGaA, Darmstadt, Germany*
Ray Chou, *Merck Performance Materials Ltd., Taoyuan, Taiwan, an affiliate of Merck KGaA, Darmstadt, Germany*
Joseph Hsieh, *Merck Performance Materials Ltd., Taoyuan, Taiwan, an affiliate of Merck KGaA, Darmstadt, Germany*
Randy Lin, *Merck Performance Materials Ltd., Taoyuan, Taiwan, an affiliate of Merck KGaA, Darmstadt, Germany*
Zoe Chen, *Merck Performance Materials Ltd., Taoyuan, Taiwan, an affiliate of Merck KGaA, Darmstadt, Germany*

34-6: ***Invited Paper*: High Image Quality in 8K TV LCDs with Negative LC** (Page 420)
Dongchuan Chen, *BOE Technology Group Co.*
Jianhua Huang, *BOE Technology Group Co.*
Xibin Shao, *BOE Technology Group Co.*
Yanping Liao, *BOE Technology Group Co.*
Zhangtao Wang, *BOE Technology Group Co.*
Seungmin Lee, *BOE Technology Group Co.*
Hongming Zhan, *BOE Technology Group Co.*
Yuanhui Guo, *BOE Technology Group Co.*
Lei Guo, *BOE Technology Group Co.*
Liangliang Jiang, *BOE Technology Group Co.*
Lifeng Lin, *BOE Technology Group Co.*
Yingying Qu, *BOE Technology Group Co.*
Dan Wang, *BOE Technology Group Co.*
Yinhu Huang, *BOE Technology Group Co.*
Yujie Gao, *BOE Technology Group Co.*
Baoqiang Wang, *BOE Technology Group Co.*

Session 35: Halo Measurements

Chair: Frank Rochow, *Tianma Japan, Ltd.*
Co-Chair: Kalluri Sarma, *Display Technology Consulting*

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Karlheinz Blankenbach, *Pforzheim University*
Faraz Bhatti, *Pforzheim University*

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Han Byul Lim, *Samsung Display Co., Ltd.*
Hyunah Suh, *Samsung Display Co., Ltd.*
Hyeyoung Ha, *Samsung Display Co., Ltd.*
Hyosun Kim, *Samsung Display Co., Ltd.*
Young-Jun Seo, *Samsung Display Co., Ltd.*
Jaejoong Kwon, *Samsung Display Co., Ltd.*
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35-3: **Measurement Method of Halo: Halo Length, Angular Halo** (Page 432)
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Hyosun Kim, *Samsung Display*

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Young-Jun Seo, *Samsung Display*
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Changhee Lee, *Samsung Display*

35-4: ***Student Paper*: Systematic Comparisons of Display Performances Including Halo Effect** (Page 436)
Zhiyong Yang, *University of Central Florida*
En-Lin Hsiang, *University of Central Florida*
Yizhou Qian, *University of Central Florida*
Shin-Tson Wu, *University of Central Florida*

Session 36: Novel Processes & MicroOptics

Chair: Fang-Cheng Lin, *Apple, Inc.*
Co-Chair: Jim Zhuang, *Meta*

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Philip J. W. Hands, *University of Edinburgh*
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Daisy K. E. Dickinson, *University of Edinburgh*
Stephen M. Morris, *University of Oxford*
Jia-De Lin, *University of Oxford*

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Bing Shen, *BrightView Technologies*
Kenneth L. Walker, *BrightView Technologies*
Matthew Pope, *BrightView Technologies*

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Ryosuke Yamazaki, *Dow Toray Co., Ltd.*
Kouichi Ozaki, *Dow Toray Co., Ltd.*
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Shinichi Yamamoto, *Dow Toray Co., Ltd.*
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Casey Kang, *Corning Incorporated*
Alejandro Aguilar, *Corning Incorporated*
Sang-Mook Lee, *Corning Incorporated*
Chao Yu, *Corning Incorporated*
Chengshuai Li, *Corning Incorporated*
Robert Sharps, *Corning Incorporated*
Markus Rawert, *Temicon GmbH*
Oliver Humbach, *Temicon GmbH*
Janine Brommert, *Temicon GmbH*
Han Zhang, *Temicon GmbH*
Martin Klasen, *Temicon GmbH*

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Chair: Yifan (Evan) Peng, *Stanford University*
Co-Chair: Zong Qin, *Sun Yat-Sen University*

37-1: ***Invited Paper*: Advances in Neural Holographic Displays for Virtual and Augmented Reality** (Page 454)
Manu Gopakumar, *Stanford University*
Yifan Peng, *Stanford University*
Suyeon Choi, *Stanford University*
Jonghyun Kim, *Stanford University & NVIDIA, Santa Clara, CA*
Gordon Wetzstein, *Stanford University*

37-2: ***Invited Paper*: Enabling Augmented-Reality Near-Eye and Head-Up Displays with Neural Holography** (Page 458)
Suyeon Choi, *Stanford University*
Yifan (Evan) Peng, *Stanford University*
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Jonghyun Kim, *Stanford University & NVIDIA*
Gordon Wetzstein, *Stanford University*

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Zhao-Song Li, *Beihang University*
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37-4: ***Student Paper*: Depth-Enhanced 2D/3D Switchable Display Based on Integral Imaging** (Page 466)
Qiang Li, *Sichuan University*
Huan Deng, *Sichuan University*
Fei-Yan Zhong, *Sichuan University*
Wei He, *Sichuan University*
Feng-Bin Rao, *Sichuan University*

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Yunhee Kim, *Samsung Electronics Co., Ltd.*
Hoon Song, *Samsung Electronics Co., Ltd.*
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Chilsung Choi, *Samsung Electronics Co., Ltd.*
Kanghee Won, *Samsung Electronics Co., Ltd.*
Young Kim, *Samsung Electronics Co., Ltd.*
Jong-Young Hong, *Samsung Electronics Co., Ltd.*
Yongkyu Kim, *Samsung Electronics Co., Ltd.*
Geeyoung Sung, *Samsung Electronics Co., Ltd.*
Younghun Sung, *Samsung Electronics Co., Ltd.*
Kichul Kim, *Samsung Electronics Co., Ltd.*
Hong-Seok Lee, *Samsung Electronics Co., Ltd.*

Session 38: Micro-LEDs I

Chair: Chris Bower, *X Display Company*
Co-Chair: Jonathan Steckel, *ST Microelectronics*

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Atsushi Nishikawa, *ALLOS Semiconductors GmbH*
Alexander Loesing, *ALLOS Semiconductors GmbH*
Burkhard Slischka, *ALLOS Semiconductors GmbH*

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Joseph Flemish, *Lumileds, LLC*
Robert Armitage, *Lumileds, LLC*
Zhongmin Ren, *Lumileds, LLC*
Wouter Soer, *Lumileds, LLC*
Hossein Lotfi, *Lumileds, LLC*
Theodore Chung, *Lumileds, LLC*
Rajiv Pathak, *Lumileds, LLC*
Hee Jin Kim, *Lumileds, LLC*
Brendan Moran, *Lumileds, LLC*
Willem Sillevis Smitt, *Lumileds, LLC*
Jia Cheng Tan, *Lumileds Singapore Pte Ltd*
Yongxiang Melvin Tio, *Lumileds Singapore Pte Ltd*
Reich Distor, *Lumileds Singapore Pte Ltd*
Shimin Lim, *Lumileds Singapore Pte Ltd*
Kheng Boo Lim, *Lumileds Singapore Pte Ltd*
Anant Vaidyanathan, *Lumileds, LLC*
Oleg Shchekin, *Lumileds*

38-4: ***Invited Paper*: Inline Screening Known Good Die (KGD) Mapping for MicroLEDs** (Page 481)
John C. Robinson, *KLA Corporation*

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Chair: Stephen Atwood, *Consultant*
Co-Chair: Karlheinz Blankenbach, *Pforzheim University*

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Alain Bouchard, *E Ink Corporation*
Ryan Kruse, *E Ink Corporation*
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Edward F. Kelley, *KELTEK Research*
Euan Smith, *42 Technology Ltd.*

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Xiaochuan Chen, *BOE Technology Group Co., Ltd.*
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Session 40: OLED Devices I

Chair: Yasunori Kijima, *Huawei Technologies Japan K.K.*
Co-Chair: Larry Liao, *Soochow University*

Session 41: Stretchable High-Resolution Displays

Chair: David Hermann, *Seoul National University*
Co-Chair: Jeong-Ik Lee, *ETRI*

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Jangyeol Yoon, *Samsung Display Co., Ltd.*
Sangwoo Kim, *Samsung Display Co., Ltd.*
Jun Hyeong Park, *Samsung Display Co., Ltd.*
Gyujeong Lee, *Samsung Display Co., Ltd.*
Hosik Shin, *Samsung Display Co., Ltd.*
Jiwon Lee, *Samsung Display Co., Ltd.*
Dong Chul Shin, *Samsung Display Co., Ltd.*
Jong-Ho Hong, *Samsung Display Co., Ltd.*
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Haeyoon Jung, *LG Display Co., Ltd*
Chan Il Park, *LG Display Co., Ltd*
Moon Bae Gee, *LG Display Co., Ltd*
Myungsung Kim, *LG Display Co., Ltd*
Weonseo Park, *LG Display Co., Ltd*
Byungjoon Rhee, *LG Electronics Co., Ltd*
Yoonho Choi, *LG Electronics Co., Ltd*
Joon-Young Yang, *LG Display Co., Ltd*
Chang-Dong Kim, *LG Display Co., Ltd*
Sang Hoon Jung, *LG Display Co., Ltd*
Yong-Min Ha, *LG Display Co., Ltd*
Sooyoung Yoon, *LG Display Co., Ltd*

41-3: ***Invited Paper*: High Resolution Stretchable Micro-LED Displays** (Page 521)
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Shu-Te Ho, *AU Optronics Corporation*
Wen-Ting Wang, *AU Optronics Corporation*
Chia-Kai Chen, *AU Optronics Corporation*
Ching-Fei Yang, *AU Optronics Corporation*
Cheng-Wei Jiang, *AU Optronics Corporation*
Chih-Hung Wu, *AU Optronics Corporation*

Wei-Jen Su, *AU Optronics Corporation*
Hong-Sian Chi, *AU Optronics Corporation*
Shin-Ru Lin, *AU Optronics Corporation*
Wei-Lun Hung, *AU Optronics Corporation*
Yi-Wei Tsai, *AU Optronics Corporation*
Chang-Chan Wu, *AU Optronics Corporation*
Ching-Yao Shih, *AU Optronics Corporation*
Yung-Hsiang Lan, *AU Optronics Corporation*
Shih-Liang Lin, *AU Optronics Corporation*
Yi-Da Ho, *AU Optronics Corporation*
Yi-Fu Ou, *AU Optronics Corporation*
Chih-Yu Yu, *AU Optronics Corporation*
Wen-Hui Lee, *AU Optronics Corporation*
Yen-Huei Lai, *AU Optronics Corporation*
Hong-Shen Lin, *AU Optronics Corporation*
Wan-Tsang Wang, *AU Optronics Corporation*
Yu-Chieh Lin, *AU Optronics Corporation*

41-4: ***Invited Paper*: A 200ppi Oval Shape Stretchable AMOLED Display** (Page 524)
Pinfan Wang, *BOE Technology Group Co., Ltd.*
Zunqing Song, *BOE Technology Group Co., Ltd.*
Bingwei Wang, *BOE Technology Group Co., Ltd.*
Haoran Wang, *BOE Technology Group Co., Ltd.*
Hejin Wang, *BOE Technology Group Co., Ltd.*
Zheng Liu, *BOE Technology Group Co., Ltd.*
Shiming Shi, *BOE Technology Group Co., Ltd.*
Dawei Wang, *BOE Technology Group Co., Ltd.*

Session 42: Light Field Displays

Chair: Brian Schowengerdt, *University of Washington*
Co-Chair: Shinichi Uehara, *AGC, Inc.*

42-1: ***Invited Paper*: High-Resolution Light-Field AR at Comparable Computing Cost to Stereo 3D** (Page 526)
Tomas Sluka, *CREAL*

42-2: **Spatial Resolution-Tripled Integral Imaging Light-Field Displays with No Loss of Angular Resolution by Recombining Subpixels with Zero Sampling Error** (Page 528)
Wenchao Yang, *Sun Yat-Sen University*
Yunfan Cheng, *Sun Yat-Sen University*
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Bo-Ru Yang, *Sun Yat-Sen University*
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42-3: **Real-Time Rendering for Integral-Imaging Light-Field Displays Based on a Voxel-Pixel Lookup Table** (Page 533)
Quanzhen Wan, *Sun Yat-Sen University*
Yuqing Qiu, *Sun Yat-Sen University*
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Yuqing Qiu, *Sun Yat-Sen University*
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Ziyi Wu, *Sun Yat-Sen University*
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Bo-Ru Yang, *Sun Yat-Sen University*
Zong Qin, *Sun Yat-Sen University*

Session 43: Micro-LEDs II

Chair: Francois Templier, *CEA-LETI*
Co-Chair: Larry Weber, *Consultant*

43-2: **Low Efficiency Attenuation and Stable Monochromaticity for Non-Polar m-Plane Micro Light-Emitting Diodes (MicroLEDs)** (Page 541)
Yibo Liu, *Hong Kong University of Science and Technology*
Feng Feng, *Hong Kong University of Science and Technology*
Ke Zhang, *Hong Kong University of Science and Technology*
Ka-Wah Chan, *Shenzhen Sitan Technology Co., Ltd.*
Zhaojun Liu, *Southern University of Science and Technology*
Hoi Sing Kwok, *Hong Kong University of Science and Technology*

Session 44: E-Paper Display Technologies and Applications

Chair: Norihisa Kobayashi, *Chiba University*
Co-Chair: Shin-Tson Wu, *University of Central Florida*

Session 45: OLED Devices II

Chair: Nicholas Thompson,, *Universal Display Corporation*
Co-Chair: Ji Ho Baek, *LG Display*

Session 46: Wearable and Skin-Like Displays

Chair: Xiaojun Guo, *Shanghai Jiao Tong University*
Co-Chair: Yong Taek Hong, *Seoul National University*

46-1: ***Student Paper*: High-Performance Fiber-Based Red OLEDs and TFTs for Truly Wearable Textile Displays** (Page 577)
Yong Ha Hwang, *Korea Advanced Institute of Science and Technology (KAIST)*
Chan Young Kim, *Korea Advanced Institute of Science and Technology (KAIST)*
Seong Uk Kong, *Korea Advanced Institute of Science and Technology (KAIST)*
Kyung Cheol Choi, *Korea Advanced Institute of Science and Technology (KAIST)*

46-2: ***Invited Paper*: Strip-Helix-Fiber Architecture for Stretchable TFTs and Circuits** (Page 581)
Arokia Nathan, *University of Cambridge*
Jun Yu, *Shandong University*
Chen Jiang, *Tsinghua University*
Hanbin Ma, *Tsinghua University*

46-3: ***Invited Paper*: Skin-Like Organic Optoelectronic System for Real-Time Heart-Rate Monitoring** (Page 585)
Youngjun Yun, *Samsung Electronics*
Yeongjun Lee, *Stanford University*
Jong Won Chung, *Samsung Electronics*
Gae Hwnag Lee, *Samsung Electronics*
Hyunbum Kang, *Samsung Electronics*
Joo-Young Kim, *Samsung Electronics*
Sung-Gyu Kang, *Samsung Electronics*
Ji Young Jung, *Samsung Electronics*
Yasutaka Kuzumoto, *Samsung Electronics*
Sangah Gam, *Samsung Electronics*
Suk Gyu Hahm, *Samsung Electronics*
Yongtaek Hong, *Seoul National University*
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Jaeyoung Yoon, *Seoul National University*
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Session 47: Automotive Display Optimizations

Chair: David Hermann, *Volvo Car Corporation AB*
Co-Chair: Eric Margulies, *Universal Display Corporation*

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Seungwan Kim, *Samsung Electronics Co., Ltd.*
Deoksoo Park, *Samsung Electronics Co., Ltd.*
Byoungju Song, *Samsung Electronics Co., Ltd.*
Sanghoon Lee, *Samsung Electronics Co., Ltd.*

47-2: **Monocular Depth Perception Enhancement Based on Joint Shading/Contrast Model and Motion Parallax (JSM)** (Page 596)
Seungchul Ryu, *Faurecia Irystec Inc.*
Hyunjin Yoo, *Faurecia Irystec Inc.*
Tara Akhavan, *Faurecia Irystec Inc.*

47-3: **Electromagnetic Compatibility Problem Analysis of Flexible Vehicle Organic-light Emitting Display** (Page 600)
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Xing Huang, *Chengdu BOE Optoelectronics Technology Co., Ltd.*
Qiang Li, *Chengdu BOE Optoelectronics Technology Co., Ltd.*
Cheng-Jie Zhao, *Chengdu BOE Optoelectronics Technology Co., Ltd.*
Yu-Dan Shui, *Chengdu BOE Optoelectronics Technology Co., Ltd.*
Hui Zhao, *Chengdu BOE Optoelectronics Technology Co., Ltd.*
Zheng-De Lai, *Chengdu BOE Optoelectronics Technology Co., Ltd.*
You-Xiong Feng, *Chengdu BOE Optoelectronics Technology Co., Ltd.*

47-4: **Color Acceptability Threshold for Mixed Display Technology Automotive Cockpit** (Page 604)
Pooshpanjan Roy Biswas, *Technocentre Renault & ENTPE*
Dominique Dumortier, *ENTPE*
Herve Drezet, *Technocentre Renault*
Marie-Laure Avenel, *Technocentre Renault*

Session 48: LTPO Technology

Chair: Chiwoo Kim, *APS Holdings*
Co-Chair: Jae-Hoon Lee, *Samsung Display Co*

48-1: **Solid-State Laser Crystallization for Poly-Si TFTs and Their Applications** (Page 608)
Hiroshi Tanabe, *Tianma Japan, Ltd.*
Hideki Obata, *Tianma Japan, Ltd.*
Ken-ichi Hayashi, *Tianma Japan, Ltd.*
Keita Hamada, *Tianma Japan, Ltd.*
Isao Shoji, *Tianma Japan, Ltd.*

Shigeru Mori, *Tianma Japan, Ltd.*

48-2: ***Invited Paper*: Advanced LTPO Technology for CMOS Driving** (Page 612)
Kook Chul Moon, *Gachon University*
Hwarim Im, *Sungkyunkwan University*
Sara Hong, *Sungkyunkwan University*
Yong-Sang Kim, *Sungkyunkwan University*

48-3: ***Invited Paper*: Fiber-Laser Processing of Si and IGZO Films for Advanced AMOLED Displays on Gen 8 Substrates** (Page 616)
James S. Im, *Columbia University*
Ruobing Song, *Columbia University*
Jayoung Park, *Columbia University*
Nikita Lisenko, *Columbia University*
Bonan Shen, *Columbia University*
Alexander Killips, *Columbia University*
Adithya P. Nair, *Columbia University*

48-4: **LTPO Technology Development for Enhanced Display Performance: Image Sticking Phenomena, Circuit Operation, and Backplane Process Integration** (Page 620)
Daeyoun Cho, *Samsung Display Co., Ltd*
Jiho Moon, *Samsung Display Co., Ltd*
T.-Y. Khim, *Samsung Display Co., Ltd*
Y.-T. Choi, *Samsung Display Co., Ltd*
Jongwoo Park, *Samsung Display Co., Ltd*

Session 49: Light Manipulation for VR/AR Optics

Chair: Nikhil Balram, *Mojo Vision Inc.*
Co-Chair: Jean-Pierre Guillou, *Apple, Inc.*

49-1: ***Distinguished Student Paper*: Gaze-Matched Pupil Steering Maxwellian-View Augmented-Reality Display** (Page 624)
Junyu Zou, *University of Central Florida*
Lingshan Li, *GoerTek Electronics*
Shin-Tson Wu, *University of Central Florida*

49-2: ***Student Paper*: Holographic Near-Eye Display with Expanded Eyebox Based on Exit Pupil Scanning** (Page 628)
Xinxing Xia, *Shanghai University*
Weisen Wang, *Shanghai University*
Yunqing Guan, *Singapore Institute of Technology*
Furong Yang, *Shanghai University*
Xinghua Shui, *Shanghai University*
Huadong Zheng, *Shanghai University*
Banghua Yang, *Shanghai University*
Yingjie Yu, *Shanghai University*

49-3: **Building a Predictive Model for Contrast Ratio of Folded Optic Lens Systems for Virtual Reality** (Page 632)
Bing Hao, *3M Company*
Timothy Wong, *3M Company*
John Le, *3M Company*
David Aastuen, *3M Company*
Art Kotz, *3M Company*
David Rosen, *3M Company*
Kayla McGrath, *3M Company*
Susan Kent, *3M Company*

49-4: **Thin and Lightweight Head-Mounted Displays with Polarized Laser Backlights and Holographic Optics** (Page 636)
Shinichi Komura, *Japan Display Inc.*
Koichi Okuda, *Japan Display Inc.*
Hiroaki Kijima, *Japan Display Inc.*

49-5: **Fast-Response Pancharatnam-Berry Phase LC Lens for AR Display** (Page 640)
Shuxin Liu, *Shanghai Jiao Tong university*
Yan Li, *Shanghai Jiao Tong university*
Yikai Su, *Shanghai Jiao Tong university*

Session 50: Micro-LED Displays I

Chair: Khaled Ahmed, *Intel Corporation*
Co-Chair: Ioannis Kymissis, *Columbia University*

50-1: ***Invited Paper*: Designs and Manufacturing Processes for MicroLED Displays in Handsets, Smartwatches, and Personal Computers.** (Page 644)
Matthew A. Meitl, *X Display Company (XDC) Inc.*
Murat Ozbas, *X Display Company (XDC) Inc.*

Imre Knausz, *X Display Company (XDC) Inc.*
Sophia Fox, *X Display Company (XDC) Inc.*
Andrew Pearson, *X Display Company (XDC) Inc.*
Nikhil Jain, *X Display Company (XDC) Inc.*
Erich Radauscher, *X Display Company (XDC) Inc.*
Sal Bonafede, *X Display Company (XDC) Inc.*
Clint Meyer, *X Display Company (XDC) Inc.*
Chris Verreen, *X Display Company (XDC) Inc.*
John Lynch, *X Display Company (XDC) Inc.*
Ben Keller, *X Display Company (XDC) Inc.*
Carl Prevatte, *X Display Company (XDC) Inc.*
Christopher A. Bower, *X Display Company (XDC) Inc.*

50-2: ***Invited Paper*: Why Does the Road to High-Volume Production of MicroLED Displays Pass Through the Semiconductor Industry?** (Page 648)
Makarem A Hussein, *LuxNour Technologies*
Nabil Elsayed, *LuxNour Technologies*

50-3: **Status of MicroLED Mass-Transfer Processes and Equipment** (Page 650)
Eric H. Virey, *Yole Developpement*
Zine Bouhamri, *Yole Developpement*

50-4: ***Invited Paper*: Development of MicroLED Display Technology and Applications** (Page 654)
Ying-Tsang (Falcon) Liu, *PlayNitride Display Co., Ltd.*
Yun-Li Li, *PlayNitride Display Co., Ltd.*

Session 51: Large and Tiled Display Technologies

Chair: K. Käläntär, *Global Optical Solutions*
Co-Chair: Shin-Tson Wu, *University of Central Florida*

51-1: **Method to Suppress Tiled Display Seam Visibility** (Page 658)
Shenping Li, *Corning Research & Development Corporation*
Alexander L Cuno, *Corning Research & Development Corporation*
Sean M Garner, *Corning Research & Development Corporation*
Dongkeun Shin, *Corning Technology Center Korea*
Hong Yoon, *Corning Technology Center Korea*
Seungyong Park, *Corning Technology Center Korea*
Kyungjin Lee, *Corning Technology Center Korea*
Daeyoun Kim, *Corning Technology Center Korea*
Goo-Soo Lee, *Corning Technology Center Korea*

51-2: **Glass Solution for Zero Border Design (ZBD) TVs: Advantages and Prevention of Border Light Leakage** (Page 662)
Tzu-ling Niu, *Corning Incorporated*
Chi-Hsiang Yang, *Corning Incorporated*
Wei-Shin Chen, *Corning Incorporated*
Bor-Kai Wang, *Corning Incorporated*
Xiang-Dong Mi, *Corning Incorporated*
Hsuan-Yu Teng, *Corning Incorporated*
Andy Sullivan, *Corning Incorporated*
Tomohiro Ishikawa, *Corning Incorporated*

51-3: **65-in. Splicing Screen Adapted to a Wide Temperature Range and High Brightness** (Page 666)
Xipeng Wang, *Hefei BOE Display Technology Co., Ltd.*
Wei Zhang, *Hefei BOE Display Technology Co., Ltd.*
Yinhu Huang, *Hefei BOE Display Technology Co., Ltd.*
Byung Cheon Lim, *Hefei BOE Display Technology Co., Ltd.*
Zhangtao Wang, *Hefei BOE Display Technology Co., Ltd.*
Xibin Shao, *Hefei BOE Display Technology Co., Ltd.*

51-4: **Design, Measurements, and Evaluation of Exterior Displays for Autonomous Cars** (Page 669)
Nadine Nowak, *Pforzheim University*
Karlheinz Blankenbach, *Pforzheim University*

Session 52: OLED Displays I

Chair: Yifan Zhang, *Apple, Inc.*
Co-Chair: Sangmoo Choi, *Google LLC*

52-1: *Invited Paper*: Technical Progress of OLED Displays for Premium TVs (Page 673)
Hong-Jae Shin, *Large Display Business Unit*
Soo-Hong Choi, *Large Display Business Unit*
Seong-Hwan Hong, *Large Display Business Unit*
Chang-Hoon Lee, *Large Display Business Unit*
Du-Hwan Oh, *Large Display Business Unit*
Sung-Joon Bae, *Large Display Business Unit*
Tae-Shick Kim, *Large Display Business Unit*
Hong-Sung Song, *Large Display Business Unit*
Han-Seop Kim, *Large Display Business Unit*
Chang-Ho Oh, *Large Display Business Unit*

52-2: Ultrawide-Color Gamut, Low-Power Consumption White OLEDs for Large 8K OLED TV (Page 677)
Juanjuan You, *Hefei BOE Joint Technology Co., Ltd.*
Bin Bo, *Hefei BOE Joint Technology Co., Ltd.*
Chang-Yen Wu, *Hefei BOE Joint Technology Co., Ltd.*
Linlin Wang, *Hefei BOE Joint Technology Co., Ltd.*
Yongqi Shen, *Hefei BOE Joint Technology Co., Ltd.*
Wenfeng Song, *Hefei BOE Joint Technology Co., Ltd.*
Guang Yan, *BOE Technology Group Co., Ltd.*
Li Sun, *Hefei BOE Joint Technology Co., Ltd.*
Wei Quan, *Hefei BOE Joint Technology Co., Ltd.*
Donghui Yu, *Hefei BOE Joint Technology Co., Ltd.*
Xiang Wan, *Hefei BOE Joint Technology Co., Ltd.*
Xinxin Wang, *Hefei BOE Joint Technology Co., Ltd.*
Huai-Ting Shih, *Hefei BOE Joint Technology Co., Ltd.*
Zhongyuan Wu, *Hefei BOE Joint Technology Co., Ltd.*
Jianwei Yu, *Hefei BOE Joint Technology Co., Ltd.*

52-3: Enhanced Viewing-Angle Performance of an Advanced WRGB OLED Technology (Page 681)
Don Gyou Lee, *LG Display Co., Ltd.*
JungHyun Ham, *LG Display Co., Ltd.*
SungJin Kim, *LG Display Co., Ltd.*
SeonMee Lee, *LG Display Co., Ltd.*
SeRi Oh, *LG Display Co., Ltd.*
DongWoo Kang, *LG Display Co., Ltd.*
BuYeol Lee, *LG Display Co., Ltd.*
SooYoung Yoon, *LG Display Co., Ltd.*

52-4: Novel Polarizer-Free OLED Structure with High Optical Gain (Page 685)
Jongbeom Hong, *Samsung Display*
Gunshik Kim, *Samsung Display*
Choongyoul Im, *Samsung Display*
Youngjun Yoo, *Samsung Display*
Younho Han, *Samsung Display*
Seungin Baek, *Samsung Display*
Yongjo Kim, *Samsung Display*

52-5: A Color Gamut Mapping Method Using an OLED Display Model (Page 688)
Deoksoo Park, *Samsung Electronics Co., Ltd.*

Hoseok Shin, *Samsung Electronics Co., Ltd.*
Byoungju Song, *Samsung Electronics Co., Ltd.*
Seungwan Kim, *Samsung Electronics Co., Ltd.*
Joohyuk Yum, *Samsung Electronics Co., Ltd.*

Session 53: Foldable Displays

Chair: Yifan Zhang, *Apple, Inc.*
Co-Chair: Sangmoo Choi, *Google LLC*

53-1: Foldable Display Architecture Technique Depending on Wide Temperature Range and Folding Curvature (Page 692)
Min-Ho Lee, *LG Display*
Se-Jin Jang, *LG Display*
Byoung-Har Hwang, *LG Display*
Tae-hyoung Kwak, *LG Display*
Jeom-Jae Kim, *LG Display*
SooYoung Yoon, *LG Display*

53-2: Analysis of the Advantages of a Water-Drop Shape Foldable Display (Page 696)
Shiming Shi, *BOE Technology Group Co., Ltd.*
Zhao Li, *BOE Technology Group Co., Ltd.*
Xiaofei Luo, *BOE Technology Group Co., Ltd.*
Wenxiu Zhu, *BOE Technology Group Co., Ltd.*
Song Zhang, *BOE Technology Group Co., Ltd.*
Dawei Wang, *BOE Technology Group Co., Ltd.*
Shuang Du, *BOE Technology Group Co., Ltd.*
Tao Wang, *BOE Technology Group Co., Ltd.*
Xuekai Yang, *BOE Technology Group Co., Ltd.*

53-3: Worldwide First Real Borderless and High-Resolution MicroLED Display (Page 700)
Tin Kang, *AU Optronics Corp.*
Tsung-Ying Ke, *AU Optronics Corp.*
Zih-Shuo Huang, *AU Optronics Corp.*
Kun-Long Hsieh, *AU Optronics Corp.*
Yu-Ling Lin, *AU Optronics Corp.*
Fu-Jung Chen, *AU Optronics Corp.*
Yi-Shao Li, *AU Optronics Corp.*
Wei-Chih Chen, *AU Optronics Corp.*
Chia-Ting Hsieh, *AU Optronics Corp.*
Hsiu-Hua Wang, *AU Optronics Corp.*
Chan-Jui Liu, *AU Optronics Corp.*
Wei-Ting Lin, *AU Optronics Corp.*
Chun-Cheng Cheng, *AU Optronics Corp.*
Yen-Huei Lai, *AU Optronics Corp.*
Wan-Tsang Wang, *AU Optronics Corp.*
Yu-Chieh Lin, *AU Optronics Corp.*

Fu-Jung Chen, *AU Optronics Corp.*
Yi-Shao Li, *AU Optronics Corp.*
Wei-Chih Chen, *AU Optronics Corp.*
Chia-Ting Hsieh, *AU Optronics Corp.*
Hsiu-Hua Wang, *AU Optronics Corp.*
Chan-Jui Liu, *AU Optronics Corp.*
Wei-Ting Lin, *AU Optronics Corp.*
Chun-Cheng Cheng, *AU Optronics Corp.*
Yen-Huei Lai, *AU Optronics Corp.*
Wan-Tsang Wang, *AU Optronics Corp.*
Yu-Chieh Lin, *AU Optronics Corp.*

Session 54: HUD and Transparent Automotive Displays

Chair: David Hermann, *Volvo Car Corporation AB*.
Co-Chair: Haruhiko Okumura, *Toshiba Corporation*

54-1: ***Invited Paper*: AR in an Automobile: 3D AR-HUD** (Page 704)
Eunyoung Jeong, *Naver Labs*
Junho Jeon, *Naver Labs*
Sujung Kim, *Naver Labs*
Jae Won Cha, *Naver Labs*

54-2: **A Measurement-Based Image Compositing for 3D Head-Up Display** (Page 708)
Akinori Sato, *Kyocera Corporation*
Ayuki Hayashishita, *Kyocera Corporation*
Kaoru Kusafuka, *Kyocera Corporation*

54-3: **Reduced Solar-Loading Using Micro-Mirror Array in Automotive HUD** (Page 712)
Kenneth Li, *Optonomous Technologies Inc.*

54-4: ***Distinguished Student Paper*: Low-Diffraction Transparent µLED Displays with Optimized Pixel Structure** (Page 715)
Qian Yang, *University of Central Florida*
Zhiyong Yang, *University of Central Florida*
Yi-Fen Lan, *AU Optronics Corp.*
Shin-Tson Wu, *University of Central Florida*

54-5: **Consideration of Image Distance on Cognitive Tunneling with Augmented-Reality Head-Up Displays** (Page 719)
Joseph Pullukat, *NS North America/Nippon Seiki*
Ethan To, *NS North America/Nippon Seiki*

Session 55: Advanced Manufacturing Process Technologies

Chair: Joerg Winkler, *PLANSEE SE*
Co-Chair: Tian Xiao, *NEXT Biometrics Inc.*

55-1: **Deposition of Conductive and Insulating Materials at Micrometer Scale for Display-Component Prototyping** (Page 723)
Mateusz Łysień, *XTPL SA & Polish Academy of Sciences*
Łukasz Witczak, *XTPL SA*
Jolanta Gadzalińska, *XTPL SA*
Iwona Grądzka-Kurzaj, *XTPL SA*
Ludovic Schneider, *XTPL SA*
Aneta Wiatrowska, *XTPL SA*
Karolina Fiączyk, *XTPL SA*
Piotr Kowalczewski, *XTPL SA*
Filip Granek, *XTPL SA*

55-2: **Roll-to-Plate Nanoimprint Lithography as Etching Mask Creating Large-Area Structured Surfaces** (Page 727)
Jan Matthijs ter Meulen, *Morphotonics B.V.*
L. W. (Pim) Veldhuizen, *Morphotonics B.V.*
Danielle A. C. van der Heijden, *Morphotonics B.V.*
Erhan Ercan, *Morphotonics B.V.*
Bram J. F. Titulaer, *Morphotonics B.V.*

55-3: **Development of Low-Temperature Metal Dry-Etching Equipment via ECR Plasma Source** (Page 729)
Chiwoo Kim, *APS Research*
Jae Hoon Jung, *APS Holdings*
Jin Nyoung Jang, *APS Research*
Jong Hwa Lee, *APS Research*
Kiro Jung, *APS Research*
Ho-Won Yoon, *Korea University*
Sangheon Lee, *Korea University*
Donghoon Kim, *Korea University*
Mun-Pyo Hong, *Korea University*
Sang-Gab Kim, *Samsung Display*

Soo Ouk Jang, *Korea Institute of Fusion Energy*

Session 56: System Architectures for VR/AR/MR

Chair: W. Hendrick, *Collins Aerospace*
Co-Chair: Brian Berkeley, *Highlight Display, LLC*

56-1: **Novel Optical Structure of OLED Panel for Immersive and Seamless VR** (Page 733)
Kwang Soo Bae, *Samsung Display*
Minjeong Oh, *Samsung Display*
Gun Hee Kim, *Samsung Display*
Sang Hwan Cho, *Samsung Display*
Sung-Chan Jo, *Samsung Display*

56-2: **A Distraction-Free Display System Using Embedded Asynchronous Time Warp** (Page 736)
Wook Hong, *RAONTECH Inc.*
Sanghyun Park, *RAONTECH Inc.*
Hokwon Kim, *RAONTECH Inc.*
Joon Goo Lee, *RAONTECH Inc.*

56-3: **New Ultra Low-Power High Brightness Microdisplays Enabling Broad Applications** (Page 740)
Philipp Wartenberg, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Andreas Fritscher, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Stephan Brenner, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Bernd Richter, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Simone Lenk, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Martin Rolle, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Judith Baumgarten, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Karsten Fehse, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Christian Schmidt, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*
Uwe Vogel, *Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP*

Session 57: Micro-LED Displays II

Chair: Ioannis Kymissis, *Columbia University*
Co-Chair: Jonathan Steckel, *ST Microelectronics*

57-1: **ActiveHogel Light-Field Display: An Application of Next-Generation µLED Pixels** (Page 744)
Thomas Burnett, *FoVI^{3D}*
Kyle Roman, *FoVI^{3D}*

57-3: **MicroLED Display Integration on 300mm Advanced CMOS Platform** (Page 748)
Soeren Steudel, *MICLEDI Microdisplays BV*
Johan Vertommen, *MICLEDI Microdisplays BV*
Emmanuel Le Boulbar, *MICLEDI Microdisplays BV*
Giuseppe Buscemi, *MICLEDI Microdisplays BV*
Lars Bach, *MICLEDI Microdisplays BV*
Stefaan Van Huylenbroeck, *imec*
Hariharan Arumugam, *imec*
Douglas Charles La Tulipe, *imec*
Joeri De Vos, *imec*
Andy Miller, *imec*
Haris Osman, *imec*
Kenneth June Rebibis, *imec*

57-4: ***Invited Paper*: Progress on Key Innovations in Direct-View µLED Display Manufacturing** (Page 752)
Mingwei Zhu, *Applied Materials, Inc.*
Hou T. Ng, *Applied Materials, Inc.*
Sivapackia Ganapathiappan, *Applied Materials, Inc.*
Zhiyong Li, *Applied Materials, Inc.*
Robert Visser, *Applied Materials, Inc.*
Nag Patibandla, *Applied Materials, Inc.*

Session 58: Smart Windows

Chair: Abhishek Srivastava, *Hong Kong University of Science & Technology*
Co-Chair: Karlheinz Blankenbach, *Pforzheim University*

58-1: ***Invited Paper*: LC Dynamic Glazing – The Window Becomes a Pixel and the Façade a Giant Display** (Page 754)
Michael Grund, *Merck KGaA*
Céline Glipa, *eyrise B.V.*
Jens Osterodt, *Merck KGaA*
Peter-Paul Michiels, *eyrise B.V.*

58-2: **ELM: A Revolutionary New Smart Glass Technology** (Page 757)
Romaric Massard, *eLstar Dynamics*
Anthony Slack, *eLstar Dynamics*

58-3: **Switchable Liquid-Crystal Phase Grating with Rainbow-Free Hazy States** (Page 760)
Chin-An Lin, *AU Optronics Corporation*
Kun-Cheng Tien, *AU Optronics Corporation*
Chien-Huang Liao, *AU Optronics Corporation*

58-4: **Factors Affecting the Thermal Performance of Dye-doped Liquid Crystal Smart Window** (Page 764)
Zhan Li, *Beijing BOE Sensor Technology Co., Ltd.*
Xiaoqian Ju, *Beijing BOE Sensor Technology Co., Ltd.*
Chuncheng Che, *Beijing BOE Sensor Technology Co., Ltd.*
Zhi Hou, *Beijing BOE Sensor Technology Co., Ltd.*
Chunlei Wang, *Beijing BOE Sensor Technology Co., Ltd.*
Yuansheng Zang, *Hefei BOE Optoelectronics Technology Co., Ltd.*
Juan Chen, *Beijing BOE Sensor Technology Co., Ltd.*
Yue Li, *Beijing BOE Sensor Technology Co., Ltd.*
Sikai Zhang, *Beijing BOE Sensor Technology Co., Ltd.*
Xuebo Zhang, *Beijing BOE Sensor Technology Co., Ltd.*
Ying Wang, *Beijing BOE Sensor Technology Co., Ltd.*
Shuai Xu, *Beijing BOE Sensor Technology Co., Ltd.*
Deshen Zhai, *Beijing BOE Sensor Technology Co., Ltd.*
Peng Liang, *Beijing BOE Sensor Technology Co., Ltd.*
Changyin Wang, *Beijing BOE Sensor Technology Co., Ltd.*
Xiaolong Wu, *Beijing BOE Sensor Technology Co., Ltd.*

Session 59: OLED Displays II

Chair: DZ Peng, *Tianma*
Co-Chair: Yuan-Chun Wu, *China Star Optoelectronics*

59-1: ***Invited Paper*: Scaling Down of OLED Pixels Enabled by Photolithography** (Page 768)
Tung-Huei Ke, *imec*
Arjun Singh, *FUJIFILM Electronic Materials*
Firat Tankut, *imec*
Erwin Vandenplas, *imec*
Marc Ameys, *imec*
Pawel Malinowski, *imec*
Jan Genoe, *imec*
Paul Heremans, *imec*

59-2: ***Invited Paper*: High-Color-Gamut Organic Light-Emitting Diode Microdisplay for Augmented-Reality/Virtual-Reality Devices** (Page 772)
Dae Hyun Ahn, *Electronics and Telecommunications Research Institute*
Jin-Wook Shin, *Electronics and Telecommunications Research Institute*
Kukjoo Kim, *Electronics and Telecommunications Research Institute*
Chul Woong Joo, *Electronics and Telecommunications Research Institute*
Hyunsu Cho, *Electronics and Telecommunications Research Institute*
Sukyung Choi, *Electronics and Telecommunications Research Institute*
Byoung-Hwa Kwon, *Electronics and Telecommunications Research Institute*
Gi Heon Kim, *Electronics and Telecommunications Research Institute*
Chun-Won Byun, *Electronics and Telecommunications Research Institute*
Nam Sung Cho, *Electronics and Telecommunications Research Institute*
Jeong-Ik Lee, *Electronics and Telecommunications Research Institute*
Soobin Shim, *Sookmyung Women's University*
Jinha Ryu, *Sookmyung Women's University*
Hyunkoo Lee, *Sookmyung Women's University*
Hyoc Min Youn, *Dongjin Semichem Co., Ltd.*
Young Jae An, *Dongjin Semichem Co., Ltd.*
Jin Sun Kim, *Dongjin Semichem Co., Ltd.*
Jeong Hwan Lee, *RAONTECH*
Hokwon Kim, *RAONTECH*
Minseok Kim, *RAONTECH*
Chan-mo Kang, *Electronics and Telecommunications Research Institute*

59-3: **A Thin, Transparent Encapsulation Film with Excellent Gap-filling Performance for Ultra-High-Resolution OLEDs via Vapor-phase Deposited Polymeric Layer** (Page 776)
Byeong Gyu Roh, *LG Display Co. LTD.*
Han Il Kim, *LG Display Co. LTD.*
Seung Chul Park, *LG Display Co. LTD.*
Ji Ho Baek, *LG Display Co. LTD.*
Yong Cheon Park, *KAIST*
Youson Kim, *KAIST*
Sung Gap Im, *KAIST*

59-4: **Premium Black for Large White OLED** (Page 780)
Ga-ram Hong, *LG Display Co., Ltd.*
Jung Hyun Ham, *LG Display Co., Ltd.*
Chung Sun Lim, *LG Display Co., Ltd.,*
Sang Min Lee, *LG Display Co., Ltd.*
Tae Rim Lee, *LG Display Co., Ltd.*
Han Seop Kim, *LG Display Co., Ltd.*
Chang Ho Oh, *LG Display Co., Ltd.*

Session 60: E-Paper Technologies

Chair: Makoto Omodani, *Tokyo Denki University*
Co-Chair: Keisuke Hashimoto, *E Ink Holdings*

60-1: ***Distinguished Paper*: Electrophoretic E-Paper Device with Stretchable, Washable, and Rewritable Functions** (Page 784)
Zhiguang Qiu, *Sun Yat-Sen University*
Simu Zhu, *Sun Yat-Sen University*
Hao Lu, *Sun Yat-Sen University*
Yifan Gu, *Sun Yat-Sen University*
Ziyi Wu, *Sun Yat-Sen University*
Gaofan Zhang, *Sun Yat-Sen University*
Boru Yang, *Sun Yat-Sen University*

60-2: **Image-Plane Separation Artifacts in Multi-Layer Color-Reflective Displays** (Page 788)
Alex Henzen, *South China Normal University & Shenzhen Liquid Light Technology Co., Ltd. & Shenzhen Guohua Optoelectronics Tech. Co., Ltd.*
Dong Yuan, *South China Normal University*
Yuanyuan Guo, *Shenzhen Guohua Optoelectronics Tech. Co., Ltd.*

60-3: ***Invited Paper*: Active-Matrix Digital Microfluidics System for Single-Cells Manipulation** (Page 791)
Dongping Wang, *Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences*
Siyi Hu, *Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences*
Hanbin Ma, *Guangdong ACXEL Micro & Nano Tech Co., Ltd.*

Session 61: Novel Large-Area Automotive Displays

Chair: Casey Kang, *Corning Incorporated*
Co-Chair: Eric Margulies,*Universal Display Corporation*

61-1: ***Invited Paper*: OLED Technology for Automotive Display Applications** (Page 794)
Tomasz Tarnowski, *Mercedes - Benz AG*
Markus Kreuzer, *Mercedes - Benz AG*
Robert Haidenthaler, *Mercedes - Benz AG*
Markus Aichholz, *Mercedes - Benz AG*
Matthias Pohl, *Mercedes - Benz AG*
Achim Pross, *Mercedes - Benz AG*

61-2: ***Invited Paper*: ShyTech Displays - High-Resolution Displays Hidden Behind Decorative Surfaces** (Page 798)
Juergen Baethis, *Continental Automotive GmbH*
Kai Hohmann, *Continental Automotive GmbH*

61-3: ***Invited Paper*: Switchable Privacy Mode Applied to Automotive Displays** (Page 802)
Zhi Peng Zhang, *BOE Optoelectronics Technology Co., Ltd.*
Yue Zhai, *BOE Optoelectronics Technology Co., Ltd.*
Xiao Qiao Dong, *BOE Optoelectronics Technology Co., Ltd.*
Si Te Cai, *BOE Optoelectronics Technology Co., Ltd.*
Yoon DK, *BOE Optoelectronics Technology Co., Ltd.*
Qing Ma, *BOE Optoelectronics Technology Co., Ltd.*
Rui Han, *BOE Optoelectronics Technology Co., Ltd.*
Jie Yu, *BOE Optoelectronics Technology Co., Ltd.*
Dong Cui, *BOE Optoelectronics Technology Co., Ltd.*
Yuan Zhu, *BOE Optoelectronics Technology Co., Ltd.*

61-4: **Display Visual Security: From Laptop Privacy to No Driver Distraction for Automotive Passenger Infotainment** (Page 804)
Graham J. Woodgate, *Rain Technology Research Ltd.*
Michael G. Robinson, *Rain Technology*
Jonathan Harrold, *Rain Technology Research Ltd.*
Benjamin C. Ihas, *Rain Technology*
Robert A. Ramsey, *Rain Technology*

Session 62: Innovative Glass Substrates and Processing

Chair: Andriy Romanyuk, *Glas Troesch AG*
Co-Chair: Kazutaka Hayashi, *AGC, Inc.*

62-1: **Large-Area Ion Implantation Source for Production of Anti-Reflection Surfaces in Glass and Sapphire Substrates** (Page 808)
Alexander Welsh, *Malachite Technologies, Inc.*
Robert Weiss, *Malachite Technologies, Inc.*
David Brown, *Malachite Technologies, Inc.*
Nicholas White, *Albion Systems*

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Frederik Bachhuber, *SCHOTT AG*
Ruediger Sprengard, *SCHOTT AG*
Matthias Jotz, *SCHOTT AG*
Clemens Ottermann, *SCHOTT AG*
Stefan Weidlich, *SCHOTT AG*
Bianca Schreder, *SCHOTT AG*
Lenka Deneke, *SCHOTT AG*
Olaf Claussen, *SCHOTT AG*
Zhengyang Lu, *Schott Glass Technologies*
Alex Wang, *Schott Glass Technologies*
Congshan Wan, *Schott Glass Technologies*

62-3: ***Distinguished Paper*: High, Precise Laser Glass Cutting for Future Displays** (Page 815)
Woohyun Jung, *Samsung Display*
Hyungsik Kim, *Samsung Display*
Alexander Voronov, *Samsung Display*
Sunggyu Park, *Samsung Display*
Jekil Ryu, *Samsung Display*
SeongHo Jeong, *Samsung Display*
Cheol Lae Roh, *Samsung Display*

62-4: **Investigation of the Influence of Film Stress on Glass Strength** (Page 819)
Wencheng Hu, *HeFei BOE Photoelectric Technology Co., Ltd.*
Zhengwei Zhu, *HeFei BOE Photoelectric Technology Co., Ltd.*
Sheng Wang, *HeFei BOE Photoelectric Technology Co., Ltd.*
SeungKyu Lee, *HeFei BOE Photoelectric Technology Co., Ltd.*
Man Wang, *HeFei BOE Photoelectric Technology Co., Ltd.*
Jianwei Ni, *HeFei BOE Photoelectric Technology Co., Ltd.*

Session 63: Emerging Approaches for AR/VR/MR

Chair: Ian Underwood, *University of Edinburgh*
Co-Chair: Soon-Gi Park, *LetinAR*

63-1: ***Distinguished Student Paper*: Microsecond High-Contrast Continuous 2.25π Phase Modulation Based on Non-Linear Kerr Effect of VADHFLC** (Page 823)
Zheng-Nan Yuan, *Hong Kong University of Science and Technology*
Zhi-Bo Sun, *Hong Kong University of Science and Technology*
Xin-Yi Yu, *Hong Kong University of Science and Technology*
Ming Cheng, *Hong Kong University of Science and Technology*
Yue-chu Cheng, *Hong Kong University of Science and Technology*
An-ran LI, *HKUST*
Valerii Vashchenko, *Hong Kong University of Science and Technology*
Hoi-Sing Kwok, *Hong Kong University of Science and Technology*
Abhishek K. Srivastava, *Hong Kong University of Science and Technology*

63-2: **Research on Stray Light Affecting the Imaging of Fresnel Lens in Virtual-Reality Equipment** (Page 827)
Haitao Huang, *BOE Technology Group Co., Ltd.*
Ruijun Dong, *BOE Technology Group Co., Ltd.*
Na Han, *BOE Technology Group Co., Ltd.*
Jiarong Bai, *BOE Technology Group Co., Ltd.*
Yulong Wu, *BOE Technology Group Co., Ltd.*
Ke Li, *BOE Technology Group Co., Ltd.*
Chenru Wang, *BOE Technology Group Co., Ltd.*
Zhanshan Ma, *BOE Technology Group Co., Ltd.*
Lili Chen, *BOE Technology Group Co., Ltd.*
Hao Zhang, *BOE Technology Group Co., Ltd.*

63-3: ***Student Paper*: High-Directivity Emitting Pixel Devices for Advanced Display Applications** (Page 830)
Po-Jui Chen, *National Taiwan University*
Chi-Jui Chang, *National Taiwan University*
Wei-Kai Lee, *National Taiwan University*
Zih-Rou Cyue, *National Taiwan University*
Li-Yu Yu, *National Taiwan University*
Hoang Yan Lin, *National Taiwan University*
Guo-Dung J. Su, *National Taiwan University*

Chung-Chia Chen, *Applied Materials, Inc.*
Wan-Yu Lin, *Applied Materials, Inc.*
B. Leo Kwak, *Applied Materials, Inc.*
Robert Jan Visser, *Applied Materials, Inc.*
Chung-Chih Wu, *National Taiwan University*

63-4: **A Novel Real-Time Full-Color 3D Holographic (Diffractive) Video Capture, Processing, and Transmission Pipeline Using Off-the-Shelf Hardware** (Page 833)
Ankur Samanta, *R42 Institute*
Gregor Mackenzie, *R42 Institute*
Tyler Rathkamp, *R42 Institute*
Adrian Cable, *R42 Institute*
Darran Milne, *VividQ*
Andrzej Kaczorowski, *VividQ*
Ronjon Nag, *R42 Institute*

Session 64: Mini-LED BLU for HDR Display

Chair: K. Käläntär, *Global Optical Solutions*
Co-Chair: Daming Xu, *Apple Inc*

64-1: **Local Dimming Technology of Scene Adaptation for Massive MiniLED** (Page 837)
Xitong Ma, *BOE Technology Group Co., Ltd.*
Shuguo Zhang, *BOE Technology Group Co., Ltd.*
Ran Duan, *BOE Technology Group Co., Ltd.*
Congrui Wu, *BOE Technology Group Co., Ltd.*
Xian Wang, *BOE Technology Group Co., Ltd.*
Lihua Geng, *BOE Technology Group Co., Ltd.*
Tao Li, *BOE Technology Group Co., Ltd.*

64-2: **Ultra-Thin RGB-MiniLED Direct Back Light for High-End Professional Liquid-Crystal Displays** (Page 841)
Xianqin Meng, *BOE Technology Group Co., Ltd.*
Xiaochuan Chen, *BOE Technology Group Co., Ltd.*
Weiting Peng, *BOE Technology Group Co., Ltd.*
Shunhang Zhang, *BOE Technology Group Co., Ltd.*
Wei He, *BOE Technology Group Co., Ltd.*
Shuang Sun, *BOE Technology Group Co., Ltd.*
Wei Wang, *BOE Technology Group Co., Ltd.*
Pengxia Liang, *BOE Technology Group Co., Ltd.*
Qiaofeng Tan, *Tsinghua University*
Xue Dong, *BOE Technology Group Co., Ltd.*

64-3: **Patterned Glass Diffuser for MiniLED Count Reduction** (Page 845)
Xiang-Dong Mi, *Corning Incorporated*
Donglei Li, *BOE Technology Group Co., Ltd.*
Jie Gao, *BOE Technology Group Co., Ltd.*
Xiaofei Xu, *BOE Technology Group Co., Ltd.*
Haiwei Sun, *BOE Technology Group Co., Ltd.*
Lily Jia, *BOE Technology Group Co., Ltd.*
Songfeng Han, *Corning Incorporated*
Chengshuai Li, *Corning Incorporated*
Kirk R. Allen, *Corning Incorporated*
Wei Yi, *Corning Incorporated*
Kaihui Chen, *Corning Incorporated*
James F. Lamacchia, *Corning Incorporated*
Elfren Elvenia, *Corning Incorporated*
Michael X. Ouyang, *Corning Incorporated*
Tzu-Ling Niu, *Corning Incorporated*
Guanglei Du, *Corning Incorporated*
Horst Schreiber, *Corning Incorporated*

64-4: ***Student Paper*: MiniLED Driving Circuit with Power-Saving Mechanism for Use in LCD Backlight Module** (Page 849)
Sung-Chun Chen, *National Cheng Kung University*
Chieh-An Lin, *National Cheng Kung University*
Cheng-Rui Lu, *National Cheng Kung University*
Chia-En Wu, *AU Optronics Corp.*
Jia-Tian Peng, *AU Optronics Corp.*
Chih-Lung Lin, *National Cheng Kung University*

64-5: **Glass Circuit Board for MiniLED Backlight of LCD** (Page 853)
Young-suk Lee, *CTCK (Corning Technology Center Korea)*
Joon-soo Kim, *CTCK (Corning Technology Center Korea)*
Byung-doo Moon, *CTCK (Corning Technology Center Korea)*
Toru Nakamura, *CJKK (Corning Japan K. K.)*
Hyung-soo Moon, *CTCK (Corning Technology Center Korea)*

Session 65: Machine Learning for Image Enhancement

Chair: Chaohao Wang, *Apple Inc.*
Co-Chair: Mainak Biswas, *Google*

65-1: **Deep Learning-Enabled Image Content Adaptive Driving Algorithm for Field-Sequential Color LCDs with MiniLED Backlight** (Page 857)
Guowei Zou, *Sun Yat-Sen University*
Zeyu Wang, *Sun Yat-Sen University*
Wenchao Yang, *Sun Yat-Sen University*
Bo-Ru Yang, *Sun Yat-Sen University*
Zong Qin, *Sun Yat-Sen University*

65-2: **A Light and Fast Branched Neural Network Using Perceptual Optimization for High-Quality Visual Restoration of UDC images** (Page 861)
Jaihyun Koh, *Samsung Display*
Jangho Lee, *Seoul National University*
Junghoon Kim, *Samsung Display*
Youngwook Yoo, *Samsung Display*
Bonghyun You, *Seoul National University*
Sungroh Yoon, *Seoul National University*

65-3: ***Invited Paper*: Deep Learning-Based Image Enhancement for HDR Imaging** (Page 865)
Ye-In Park, *Sogang University*

Jou Won Song, *Sogang University*
Suk-Ju Kang, *Sogang University*

65-4: **Foveated Super-Resolution Network for Virtual-Reality Head-Mounted Displays** (Page 869)
Hyoungsik Nam, *Kyung Hee University*
Hangyeol Kang, *Kyung Hee University*
Hyeonseong Cho, *Kyung Hee University*

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Keuk Jin Jeong, *Samsung Display Co., Ltd.*
Myunghun Lim, *Samsung Display Co., Ltd.*
Min Kang, *Samsung Display Co., Ltd.*
Yougwoo Lee, *Samsung Display Co., Ltd.*
Yongjo Kim, *Samsung Display Co., Ltd.*

Session 66: OLED Materials I

Chair: Chihaya Adachi, *Kyushu University*
Co-Chair: Changwoong Chu, *Samsung Display Company*

66-1: ***Invited Paper*: Hole-Transport Materials – Key Enablers for Future OLED Display Evolution** (Page 877)
Jens Engelhart, *Merck KGaA*
Elvira Montenegro, *Merck KGaA*
Rachel Tuffin, *Merck KGaA*
You-Hyun Kim, *Merck KGaA*
Martin Kraska, *Merck KGaA*
Leo Weegels, *Merck KGaA*
Falk May, *Merck KGaA*
Joachim Kaiser, *Merck KGaA*

66-2: ***Invited Paper*: Delayed Fluorescence from Energetically Inverted Singlet and Triplet Excited States for Efficient Organic Light-Emitting Diodes** (Page 881)
Naoya Aizawa, *RIKEN Center for Emergent Matter Science (CEMS) & Osaka University*
Daigo Miyajima, *RIKEN Center for Emergent Matter Science (CEMS)*
Yong-Jin Pu, *RIKEN Center for Emergent Matter Science*

66-3: **Active Learning for the Design of Novel OLED Materials** (Page 885)
Hadi Abroshan, *Schrödinger Inc.*
Anand Chandrasekaran, *Schrödinger Inc.*
Paul Winget, *Schrödinger Inc.*
Yuling An, *Schrödinger Inc.*
Shaun Kwak, *Schrödinger Inc.*
Christopher T. Brown, *Schrödinger Inc.*
Tsuguo Morisato, *Schrödinger Inc.*
Mathew D. Halls, *Schrödinger Inc.*

66-4: **Understanding the Electron Injection/Transport Mechanism in OLEDs by Using a Superbase as Electron Injection Layer** (Page 889)
Tsubasa Sasaki, *NHK Science & Technology Research Laboratories*
Taku Oono, *NHK Science & Technology Research Laboratories*
Takuya Okada, *NHK Science & Technology Research Laboratories*
Munehiro Hasegawa, *Nippon Shokubai Co., Ltd.*
Katsuyuki Morii, *Nippon Shokubai Co., Ltd.*

Takahisa Shimizu, *NHK Science & Technology Research Laboratories*
Hirohiko Fukagawa, *NHK Science & Technology Research Laboratories*

Session 67: Flexible Displays

Chair: Arokia Nathan, *Darwin College, University of Cambridge*
Co-Chair: Jennifer Lin, *AU Optronics Corp.*

67-1: **Comparison of In-Folding and Out-Folding Stress on Electrical Performance of Poly-Si TFTs on Polyimide Substrate for Foldable AMOLED Display** (Page 893)
Mohammad Masum Billah, *Kyung Hee University*
Abu Bakar Siddik, *Kyung Hee University*
Dongjin Kim, *Kyung Hee University*
Suhui Lee, *Kyung Hee University*
Young Jo Cho, *Kyung Hee University*
Md Hasnat Rabbi, *Kyung Hee University*
Jin Jang, *Kyung Hee University*

67-2: ***Invited Paper*: Organic Thin-Film Transistor Flexible Hybrid Integration for Low-Power Ubiquitous Sensor Systems** (Page 897)
Xiaojun Guo, *Shanghai Jiao Tong University*
Bang Ouyang, *Shanghai Jiao Tong University*
Yawen Song, *Shanghai Jiao Tong University*
Lei Han, *Shanghai Jiao Tong University*
Li'ang Deng, *Shanghai Jiao Tong University*

67-3: **Predicting the Impact Resistance of Flexible Display Panels Based on Mo Thin-Film Residual Stress** (Page 900)
Jung Hwa Park, *Samsung Display Co., Ltd.*
Jincheol Jang, *Samsung Display Co., Ltd.*
Jaehan Lee, *Samsung Display Co., Ltd.*
Myeongkyu Park, *Samsung Display Co., Ltd.*
Nari Ahn, *Samsung Display Co., Ltd.*

67-4: **Research on Design and Lamination of 180° Curly CG** (Page 903)
Yang Yang, *BOE OLED R&D Center*
Mengyuan Pang, *BOE OLED R&D Center*
Liqiang Chen, *BOE OLED R&D Center*
Weifeng Zhou, *BOE OLED R&D Center*
Dawei Wang, *BOE OLED R&D Center*

Session 68: Displays and Visual Performance

Chair: Jennifer Gille, *Consultant*
Co-Chair: Youngshin Kwak, *Ulsan National Institute of Science and Technology*

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Yan Jin, *LG Display*
Seungwon Yoo, *LG Display*
Jaehong Kim, *LG Display*
Hee Eun Lee, *LG Display*
Junwoo Jang, *LG Display*
Woongjin Seo, *LG Display*
Jang Jin Yoo, *LG Display*
Don Gyou Lee, *LG Display*

68-2: **Considering the Effects of Display Persistence on Eye Movements and Readability in Virtual Reality** (Page 910)
Xiuyun Wu, *Reality Labs at Meta & University of British Columbia*
T. Scott Murdison, *Reality Labs at Meta*

68-3: **Importance of Individual Adaptation in Visually Fidelitous Dynamic-Range Compression from HDR to SDR Images** (Page 914)
Saki Iwaida, *Kagoshima Clinical Engineering College*
Yuichiro Orita, *Kagoshima University*
Shoko Hira, *Kagoshima University*
Masayuki Kashima, *Kagoshima University*
Sakuichi Ohtsuka, *International College of Technology*

68-4: **A Text Legibility Improvement Method for OLED Devices** (Page 918)
Hyunkyung Song, *Samsung Display Co., Ltd*
Takeshi Kato, *Samsung Display Co., Ltd*
Wonbok Lee, *Samsung Display Co., Ltd*
Hyesang Park, *Samsung Display Co., Ltd*
Jongwoong Park, *Samsung Display Co., Ltd*

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Chair: Robert Visser, *Applied Materials*
Co-Chair: Toshiaki Arai, *JOLED Inc*

69-1: **Inkjet-Printable Optically Clear Silicone Resin for Display Fabrication** (Page 922)
Ju Young Yook, *Dow Silicone Korea Co., Ltd.*
Jo Gunn, *Dow Silicone Korea Co., Ltd.*
Minkyu Kyeong, *Dow Silicone Korea Co., Ltd.*
Hyochul Kim, *Dow Silicone Korea Co., Ltd.*
Deokgu Kim, *Dow Silicone Korea Co., Ltd.*
Yoojun Park, *Dow Silicone Korea Co., Ltd.*

69-2: **A Universal Method for the Lamination of Arbitrary Stretchable Substrate Pairs without Compromising the Elastic Properties of the Substrates** (Page 926)
Kihoon Jeong, *Korea Advanced Institute of Science and Technology (KAIST)*
Yujin Lee, *Korea Advanced Institute of Science and Technology (KAIST)*
Youson Kim, *Korea Advanced Institute of Science and Technology (KAIST)*
Hyeonwoo Mun, *Korea Advanced Institute of Science and Technology (KAIST)*
Ki-Uk Kyung, *Korea Advanced Institute of Science and Technology (KAIST)*
Sung Gap Im, *Korea Advanced Institute of Science and Technology (KAIST)*

69-3: ***Invited Paper*: Opportunities for High-Performance Display Manufacturing Enabled by OTFTs Using an 80°C Maximum Process Temperature** (Page 929)
Simon Ogier, *SmartKem Ltd.*
Dan Sharkey, *SmartKem Ltd.*
Alejandro Carreras, *SmartKem Ltd.*
Steven Tsai, *SmartKem Ltd.*

69-4: **Collimating and Recycling Linear Evaporation Source for AMOLED Mass Production** (Page 933)
Sungmoon Kim, *DepoLab*
Daejoon Chi, *DepoLab*
Taekgi Lee, *DepoLab*
Gyoung O Ko, *DepoLab*

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Chair: Gary Jones, *Nanoquantum Corporation*
Co-Chair: Akihiro Mochizuki, *I-CORE Technology, LLC*

70-1: ***Distinguished Student Paper*: Foveated Imaging by Polarization Multiplexing for Compact Near-Eye Displays** (Page 937)
Kun Yin, *University of Central Florida*
Ziqian He, *University of Central Florida*
Lingshan Li, *Goertek Electronics*
Shin-Tson Wu, *University of Central Florida*

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Jian Gao, *BOE*
Sen Ma, *BOE*
Tao Hong, *BOE*
Pengxia Liang, *BOE*

70-3: ***Invited Paper*: High-Resolution Light-Field VR LCD** (Page 945)
Yung-Hsun Wu, *Innolux Corp.*
Chuan-Chung Chang, *Coretronic Corp.*
Yu-Shih Tsou, *Innolux Corp.*
Yi-Chien Lo, *Coretronic Corp.*
Chia-Hao Tsai, *Innolux Corp.*
Chih-hung Lu, *Coretronic Corp.*
Chiu-Lien Yang, *Innolux Corp.*
Fu-Ming Chuang, *Coretronic Corp.*

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Chair: David Eccles, *Salt Lake City*
Co-Chair: Hidekazu Hatanaka, *Ushio, Inc.*

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Takuya Ozaki, *Nichia Corporation*
Eiichiro Okahisa, *Nichia Corporation*
Shingo Masui, *Nichia Corporation*
Tomoya Yanamoto, *Nichia Corporation*
Shin-ichi Nagahama, *Nichia Corporation*

71-2: ***Invited Paper*: High-Power Red Laser Diodes for Display Applications** (Page 953)
Satoshi Kawanaka, *USHIO Inc.*
Seiji Kitamura, *USHIO Inc.*
Shintaro Miyamoto, *USHIO Inc.*
Manabu Hashizume, *USHIO Inc.*
Kazuaki Yano, *USHIO Inc.*
Masato Hagimoto, *USHIO Inc.*

71-3: **Static Laser Phosphor for Projectors with Rotating Tilted Mirror** (Page 957)
Kenneth Li, *Optonomous Technologies Inc.*
Y. P. Chang, *Taiwan Color Optics, Inc.*
Lion Wang, *Taiwan Color Optics, Inc.*
Andy Chen, *Taiwan Color Optics, Inc.*
W. H. Cheng, *National Chung Hsing University*
Pin Han, *National Chung Hsing University*
C. N. Liu, *National Chung Hsing University*

71-4: **Laser-Phosphor Light Source Using Compound Reflectors for Projection Display** (Page 960)
Kenneth Li, *Optonomous Technologies Inc.*
Y. P. Chang, *Taiwan Color Optics, Inc.*

Session 72: Machine Learning for Failure and Artifact Detection

Chair: Hyoungsik Nam, *Kyung Hee University*
Co-Chair: Robert Visser, *Applied Materials*

72-1: **In-Line Mura Detection Using Convolutional Neural Network in Display Manufacturing** (Page 963)
Satoru Tomita, *Japan Display Inc.*
Prarinya Siritanawan, *Japan Advanced Institute of Science and Technology*
Kazunori Kotani, *Japan Advanced Institute of Science and Technology*

72-2: **A Proposal for Image-Compression Algorithm for Display Test Images** (Page 967)
Hao Tang, *Jingce Electronics USA*
Jiakun Liu, *University of California at Berkeley*
Gang Xu, *Jingce Electronics USA*

72-3: **Deep Learning-Based Visual-Defect Detection in Noisy and Imbalanced Data** (Page 971)
Qisen Cheng, *Samsung Display America Lab*
Shuhui Qu, *Samsung Display America Lab*
Janghwan Lee, *Samsung Display America Lab*

72-4: ***Invited Paper*: Synthetic Defect Generation for Display Front-of-Screen Quality Inspection: A Survey** (Page 975)
Shancong Mou, *Georgia Institute of Technology*
Meng Cao, *Apple*
Zhendong Hong, *Apple*
Ping Huang, *Apple*
Jiulong Shan, *Apple*
Jianjun Shi, *Georgia Institute of Technology*

Session 73: OLED Materials II

Chair: Jang Hyuk Kwon, *Kyung Hee University*
Co-Chair: Hitoshi Kuma, *Idemitsu Kosan Co., Ltd.*

73-1: ***Invited Paper*: Decoration Strategy in Para Boron Position: An Effective Way to Achieve Ideal Multi-Resonance Emitters** (Page 979)
Lian Duan, *Tsinghua University*

73-2: ***Invited Paper*: High-Efficiency Organic Light-Emitting Diodes Based on Purely Organic Emitters** (Page 982)
Xiaomei Peng, *South China University of Technology*
Shi-Jian Su, *South China University of Technology*

73-3: ***Student Paper*: Achieving Deep-Blue Color in Diboron-Embedded Multi-Resonance Thermally Activated Delayed-Fluorescence Emitter for Narrowband OLEDs** (Page 986)
Kenkera Rayappa Naveen, *Kyung Hee University*
Hyuna Lee, *Kyung Hee University*
Ramanaskanda Braveenth, *Kyung Hee University*
Ki joon Yang, *Kyung Hee University*
Soon Jae Hwang, *Kyung Hee University*
Jang Hyuk Kwon, *Kyung Hee University*

73-4: **Novel Materials and Structures for High Efficiency and Long Lifetime Green Phosphorescent OLEDs in Automotive Applications** (Page 990)
Soojung Youn, *Samsung Display*
Hyein Jeong, *Samsung Display*
Jungjin Yang, *Samsung Display*

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Chair: Kyung Cheol Choi, *KAIST*
Co-Chair: Simon Kang, *Apple*

74-1: **31-in. Flexible Printed OLED TV Display Technology: It's TV Mobiles** (Page 993)
Jueng Gil (James) Lee, *Guangdong Juhua Printed Display Technology Co. Ltd.*
Zhuo Gao, *Guangdong Juhua Printed Display Technology Co. Ltd.*
Dong Fu, *Guangdong Juhua Printed Display Technology Co. Ltd.*
Xiaolin Yan, *Guangdong Juhua Printed Display Technology Co. Ltd.*

Session 75: HDR and Color

Chair: Sakuichi Ohtsuka, *International College of Technology*
Co-Chair: David Hoffman, *Google*

Session 76: Narrow Border Technologies

Chair: Greg Gibson, *nTact*
Co-Chair: Seok-Lyul Lee, *AU Optronics Corp.*

Kaihong Ma, *Hefei BOE Joint Technology Co., Ltd*
Fei yang, *Hefei BOE Joint Technology Co., Ltd*
Yongqian Li, *Hefei BOE Joint Technology Co., Ltd*
Huaiting Shih, *Hefei BOE Joint Technology Co., Ltd*
Jianwei Yu, *Hefei BOE Joint Technology Co., Ltd*
Xue Dong, *BOE Technology Group Co.*

76-3: ***Invited Paper*: Slim MiniLED Backlight for HDR-Compatible Mobile Displays** (Page 1031)
Hisashi Watanabe, *Sharp Display Technology Corporation*
Takeshi Masuda, *Sharp Display Technology Corporation*
Hirotoshi Yasunaga, *Sharp Display Technology Corporation*
Atsuyuki Tanaka, *Sharp Display Technology Corporation*
Kenji Takase, *Sharp Display Technology Corporation*

76-4: ***Invited Paper*: Innovation Solutions that Lead to AMLED Technologies** (Page 1035)
Minghua Xuan, *Beijing BOE Display Technology Co., Ltd.*
Xiaochuan Chen, *Beijing BOE Display Technology Co., Ltd.*
Guangcai Yuan, *Beijing BOE Display Technology Co., Ltd.*
Dan Wang, *Beijing BOE Display Technology Co., Ltd.*
Xue Dong, *Beijing BOE Display Technology Co., Ltd.*

POSTER SESSIONS

Wen-Rei Guo, *AU Optronics Corporation*
Chih-Lung Lin, *National Cheng Kung University*

P-6: ***Student Poster*: 2,731ppi OLED Display with Low Power Consumption and Wide Viewing Angle Using OS/Si VLSI Process Technology** (Page 1059)
Kiyotaka Kimura, *Semiconductor Energy Laboratory Co., Ltd.*
Yuki Tamatsukuri, *Semiconductor Energy Laboratory Co., Ltd.*
Hideaki Shishido, *Semiconductor Energy Laboratory Co., Ltd.*
Hidetomo Kobayashi, *Semiconductor Energy Laboratory Co., Ltd.*
Toshiyuki Isa, *Semiconductor Energy Laboratory Co., Ltd.*
Toshihiko Takeuchi, *Semiconductor Energy Laboratory Co., Ltd.*
Hitoshi Kunitake, *Semiconductor Energy Laboratory Co., Ltd.*
Hajime Kimura, *Semiconductor Energy Laboratory Co., Ltd.*
Shunpei Yamazaki, *Semiconductor Energy Laboratory Co., Ltd.*

P-7: ***Student Poster*: AMOLED Pixel Circuit for Strain Compensation in Stretchable Display** (Page 1063)
Jimin Kang, *Seoul National University*
Kyeong-Soo Kang, *Seoul National University*
Ji-Hwan Park, *Seoul National University*
Soo-Yeon Lee, *Seoul National University*

P-8: **Analysis of Degradation Mechanism of Oxide Semiconductor FETs with High Tolerance to Intense NBTIS** (Page 1066)
Yasuharu Hosaka, *Semiconductor Energy Laboratory Co., Ltd.*
Toshimitsu Obonai, *Semiconductor Energy Laboratory Co., Ltd.*
Masayoshi Dobashi, *Semiconductor Energy Laboratory Co., Ltd.*
Tomonori Nakayama, *Semiconductor Energy Laboratory Co., Ltd.*
Yukinori Shima, *Semiconductor Energy Laboratory Co., Ltd.*
Masakatsu Ohno, *Semiconductor Energy Laboratory Co., Ltd.*
Shunpei Yamazaki, *Semiconductor Energy Laboratory Co., Ltd.*

P-9: ***Student Poster*: Two-Mode PWM Driven Micro-LED Displays with Dual-Gate Metal-Oxide TFTs** (Page 1070)
Jia Fu, *Peking University*
Congwei Liao, *Peking University*
Hezi Qiu, *Peking University*
Shuang Jin, *TCL China Star Optoelectronics Technology Co. Ltd.*
Jiangbo Yao, *TCL China Star Optoelectronics Technology Co. Ltd.*
Limei Zeng, *TCL China Star Optoelectronics Technology Co. Ltd.*
Xin Zhang, *TCL China Star Optoelectronics Technology Co. Ltd.*
Shengdong Zhang, *Peking University*

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Xin Zheng, *Peking University*
Congwei Liao, *Peking University*
Shuang Jin, *TCL*
Jiangbo Yao, *TCL*
Limei Zeng, *TCL*
Xin Zhang, *TCL*
Shengdong Zhang, *Peking University*

P-11: **Effects of Ar Dilution on N2O/SiH4 PECVD for the Growth of Silicon-Oxide Thin Films with Improved Breakdown Voltage Characteristics** (Page 1078)
Aram Kim, *LG Display*
Bokyoung Lee, *LG Display*
Hyeona Kim, *LG Display*
Jungho Bang, *LG Display*
Seung Hee Nam, *LG Display*
Kwon-Shik Park, *LG Display*
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