Session 1: Annual SID Business Meeting  
Tuesday, May 23 / 8:00 – 8:20 am / Concourse Hall 151-153

Session 2: Opening Remarks / Keynote Addresses  
Tuesday, May 23 / 8:20 – 10:20 am / Concourse Hall 151-153  
Chair: Seonki Kim, Sungkyunkwan University, Suwon, South Korea

2.1:  
**Keynote Address 1:** The Warring States Era of Display Technologies  
Paul Peng, CEO, AU Optronics Corp., Hsinchu, Taiwan, ROC

2.2:  
**Keynote Address 2:** Enabling Rich and Immersive Experiences in Virtual and Augmented Reality  
Clay Bavor, Vice President of Virtual Reality, Google, Inc., Mountain View, CA, USA

2.3:  
**Keynote Address 3:** Humanizing the Autonomous Car Experience  
Sanjay Dhawan, President, Connected Services, Harman International, Stamford, CT, USA

Session 3: OLED Devices I (OLEDs)  
Tuesday, May 23, 2017 / 11:10 am - 12:30 pm / Room 515A  
Chair: Yasunori Kijima, Huawei Technologies Co. Ltd.  
Co-Chair: Yifan Zhang, Apple, Inc.

3.1:  
**Invited Paper:** 3-Stack 3-Color White OLEDs for 4K Premium OLED TV  
Chang-Wook Han, LG Display Co., Ltd., Gyeonggi-do, South Korea

3.2:  
**Invited Paper:** Color-on-Demand – Color-Tunable OLEDs for Lighting and Displays  
Malte Gather, University of St. Andrews, St. Andrews, UK

3.3:  
**Invited Paper:** Influence of Vacuum-Chamber Impurities on OLED Degradation  
Hiroshi Fujimoto, Fukuoka i3-Center for Organic Photonics and Electronics Research, Fukuoka, Japan

3.4:  
**Invited Paper:** Ultra-Wide-Color-Gamut OLED display Using a Deep-Red Phosphorescent Device with High Efficiency, Long Lifetime, Thermal Stability, and Absolute BT.2020 Red Chromaticity  
Shunsuke Hosoumi, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Session 4: AR/VR Invited Session I (Augmented Reality and Virtual Reality)  
Tuesday, May 23, 2017 / 11:10 am - 12:30 pm / Room 515B  
Chair: Achin Bhowmik, Intel Corp.  
Co-Chair: Nikhil Balram, Google, Inc.

4.1:  
**Invited Paper:** Mobile AR in Your Pocket with Google Tango†  
Johnny Lee, Google, Mountain View, CA USA

4.2:  
**Invited Paper:** Project Alloy: An All-In-One Virtual and Merged Reality Platform  
Dimitri Diakopoulos, Intel Corporation, Santa Clara, CA, USA

4.3:  
**Invited Paper:** Optimizing Virtual Reality User Experience through Adaptive Focus Displays and Gaze Tracking Technology  
Robert Konrad, Stanford University, Stanford, CA USA

4.4:  
**Invited Paper:** An End-To-End Virtual Reality Live Streaming Solution  
Uma Jayaram, Intel Corporation, Santa Clara, CA, USA

Session 5: Flexible/Stretchable/Wearable Displays (Wearable Displays / e-Paper and Flexible Displays)  
Tuesday, May 23, 2017 / 11:10 am - 12:30 pm / Room 502A  
Chair: Bo-Ru (Paul) Yang, Sun Yat-Sun University, Guangzhou, P. R. China  
Co-Chair: Chao-Yuan Chen, Jiangsu Hecheng Display Technology

5.1:  
**Invited Paper:** Booming Flexible Applications Enabled by AMOLED Technologies  
Yu-Hsin Lin, AU Optronics Corp., Hsinchu, Taiwan, ROC

5.2:  
**Invited Paper:** Ultra-Thin Stretchable Oxide TFTs and AMOLEDs  
Seong-Deok Ahn, ETRI, Daejeon, South Korea

5.3:  
**Distinguished Paper:** Power Savings through State Retention in IGZO-TFT AMOLED Displays for Wearable Applications  
Soeren Steudel, imec, Leuven, Belgium

5.4:  
**Stretchable Oxide TFTs for Wearable Electronics**  
Jin-Jang, Kyung Hee University, Seoul, South Korea

5.5:  
**Late-News Paper/ Distinguished Paper:** The First 9.1” Stretchable AMOLED Display based on LTPS Technology  
Jong-Ho Hong, Samsung Display Co., Ltd., Yongin-Si, South Korea

Session 6: Quantum-Dot LEDs I (Emissive Displays)  
Tuesday, May 23, 2017 / 11:10 am - 12:30 pm / Room 502B  
Chair: Chang Hee Lee, Seoul National University  
Co-Chair: Jin Jang, Kyung Hee University
Poopathy Kathirgamanathan, Brunel University, London, U.K.

6.2: **Invited Paper:** Key Challenges towards the Commercialization of Quantum-Dot LEDs  
Lei Qian, TCL Research Group, Shenzhen, P. R. China

6.3: **Quantum-Dot LEDs: Problems and Prospects**  
Paul Holloway, NanoPhotonica, Alachua, FL, USA

6.4: **Influence of Hole-Transporting Layer Thickness on Quantum-Dot LEDs**  
Xiaolong He, BOE Technology Group Co., Ltd., Beijing, China

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**Session 7: Advanced Integrated Circuits (Active-Matrix Devices)**  
Tuesday, May 23, 2017 / 11:10 am - 12:30 pm / Room 501

Chair: Kazuyoshi Omata, Konica Minolta  
Co-Chair: Takashi Nakamura, Japan Display Inc.

7.1: **Invited Paper:** Application of Low-Frequency Clock Signals to Gate Driver Circuits  
Chih-Lung Lin, National Cheng Kung University, Tainan, Taiwan, ROC

7.2: **Design of Highly Reliable Depletion-Mode a-IGZO TFT Gate Driving Circuit for 31-in. 8K x 4K 287-ppi TFT-LCD**  
Long-Qiang Shi, Shenzhen China Star Optoelectronics Technology Co., Ltd., Guangdong, China

7.3: **An Ultra-Low-Power ESL a-IGZO TFT Gate Driver Using a Novel Bootstrap Technique**  
Shengdong Zhang, Peking University, Shenzhen, P. R. China

7.4: **Invited Paper:** Internal-Compensation-Type OLED Display Using High-Mobility Oxide TFTs  
Yong Ho Jung, LG Display Co., Ltd., Gyeonggi-do, South Korea

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**Session 8: Materials and Devices for Lighting (Lighting)**  
Tuesday, May 23, 2017 / 11:10 am - 12:30 pm / Room 503

Chair: Marina Kondakova, OLEDWorks  

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**Session 9: Advanced Driving Circuits I (Display Electronics)**  
Tuesday, May 23, 2017 / 11:10 am - 12:40 pm / Room 518

Chair: Oh-Kyong Kwon, Hanyang University  
Co-Chair: Seung-Woo Lee, Kyung Hee University

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**Session 10: OLED Devices II (OLEDs)**  
Tuesday, May 23, 2017 / 2:00 pm - 3:20 pm / Room 515A

Chair: Hitotsu Koma, Idemitsu Kosan Co., Ltd.  
Co-Chair: Sven Zimmermann, Novaled GmbH

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**Session 11: AR/VR Invited Session II (Augmented Reality and Virtual Reality)**  
Tuesday, May 23, 2017 / 2:00 - 3:20 pm / Room 515B

Chair: Nikhil Balram, Google, Inc.  
Co-Chair: Achin Bhowmik, Intel Corp.

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Session 12: Wearable Sensors and Materials (Wearable Displays / e-Paper and Flexible Displays)
Tuesday, May 23, 2017 / 2:00 - 3:20 pm / Room 502A
Chair: Yong Taek Hong, Seoul National University
Co-Chair: Jang Lin Chen, DTC/ITRI
12.1: Invited Paper: Stretchable Transparent Electrodes Based on Silver Nanowires
Qibing Pei, University of California at Los Angeles, Los Angeles, CA, USA
Tsuyoshi Sekitani, Osaka University, Ibaraki, Japan
12.3: Smart Fabrics Functionalized by Liquid Crystals
John West, Liquid Crystal Institute, Kent State University, Kent, OH, USA
12.4: Composition Optimization of Transparent-Glass Fabric Reinforced Siloxane Hybrid (GFRHybrimer) Films for Thermally Stable Flexible-Display Substrate Film
Young-Woo Lim, KAIST, Daejeon, South Korea

Session 13: Quantum-Dot LEDs II (Emissive Displays)
Tuesday, May 23, 2017 / 2:00 - 3:20 pm / Room 502B
Chair: Ioannis Kymissis, Columbia University
Co-Chair: Poopath Kathirgamanathan, Brunel University
Changhee Lee, Seoul National University, Seoul, South Korea
13.2: Reduction of Efficiency Roll-Off for Quantum-Dot LEDs by Using an Optimized Shell Layer
Jin Jang, Kyung Hee University, Seoul, South Korea
13.3: Top-Emitting Quantum-Dot LEDs with All the p-i-n Functional layers Deposited by Solution Processes
Yihin Jiang, The Hong Kong University of Science and Technology, Kowloon, Hong Kong
13.4: Invited Paper: Charge-Generation Junction for Quantum-Dot LEDs
Jin Jang, Kyung Hee University, Seoul, South Korea

Session 14: Solution-Based TFTs (Active-Matrix Devices)
Tuesday, May 23, 2017 / 2:00 - 3:20 pm / Room 501
Chair: Hsing-Hung Hsieh, Polyera Taiwan Corp.
Co-Chair: Junho Song, Samsung Display Co., Ltd.
14.1: Large-Area Processing of Solution-Type Metal Oxide in TFT Backplanes and Integration in Highly stable OLED Displays
Marko Mariakovic, Evonik Resource Efficiency GmbH, Marl, Germany
Kuan-Hsien Liu, AU Optronics Corp., Hsinchu, Taiwan, ROC
14.3: High-Performance Organic-TFT Circuits Fabricated by All-Printing Technology on Flexible Plastic Substrates
Yasuyoshi Mishima, Japan Advanced Printed Electronics Technology Research Association, Tsukuba, Japan
14.4: Late-News Paper: Self-Pattern Process of InZnO Thin-Film Transistors without Photosensitive Additives
Hyun Jae Kim, Yonsei University, Seoul, South Korea

Session 15: Materials and Devices for Display and Lighting (Lighting / OLEDs)
Tuesday, May 23, 2017 / 2:00 - 3:20 / Room 503
Chair: Marina Kondakova, OLEDWorks
Co-Chair: Michael Weaver, Universal Display Corp.
15.1: Invited Papers: White OLEDs for Displays and Lighting
Junji Kido, Yamagata University, Yonezawa, Japan
15.2: Invited Paper: Status and Opportunities for Phosphorescent OLED Lighting
Michael Hack, Universal Display Corp., Ewing, NJ, USA
15.3: Invited Paper: Integrated Plastic Substrates for OLED Lighting
Whitney Gaynor, Sinovia Technologies, Foster City, CA, USA
15.4: Invited Paper: Transparent Ultra-Barrier Films for OLED Devices
Ravi Prasad, Vitriflex, San Jose, CA, USA

Session 16: Advanced Driving Circuits II (Display Electronics)
Tuesday, May 23, 2017 / 2:00 - 3:20 pm / Room 518
Chair: Taesung Kim, Samsung Electronics Co., Ltd.
Co-Chair: Richard McCartney, Pixel Scientific, Inc.
16.1: Low-Power Oxide-Semiconductor Display System
Yoshiyuki Kikowaka, Semiconductor Energy Laboratory Co., Ltd, Kanagawa, Japan
16.2: Cost-Effective Driver-IC Architecture Using a Low-Power Memory Interface for Mobile-Display Application
Moon-Sang Hwang, Samsung Display Co., Ltd., Gyeonggi-do, South Korea
16.3: A Fast TFT Threshold-Voltage Sensing Method Based on Iterative Feedback
Jianhong Fu, Shenzhen China Star Optoelectronics Technology Co., Ltd, Shenzhen, China
16.4: Invited Paper: Acquiring Longer Lifetime for AMOLED Displays with Digital Aging Compensation
Chihao Xu, Saarland University, Saarbruecken, Germany
Session 17: Flexible Substrates and Materials (Display Materials and Processes / e-Paper and Flexible Displays)
Tuesday, May 23, 2017 / 3:40 - 5:00 pm / Room 515A
Chair: Ruicing Ma, Universal Display Corp.
Co-Chair: Norihisa Kobayashi, Chiba University
17.1: Invited Paper: Foldable Touch AMOLED Display with a Plastic Window and Optical Enhancement
Kuang-Jung Chen, ITRI, Hsinchu, Taiwan, ROC
17.2: Invited Paper: Flexible Hard Coating for Foldable Display Cover Plastic Film
Byeong-Soo Bae, KAIST, Daejeon, South Korea
17.3: Towards Flexible Glass: Ultra-Thin Glass with Tight Dimensional Tolerance and High Strength Achieved by Ion Exchange
Fung He, SCHOTT Glass Technologies (Suzhou) Co., Ltd., Suzhou, China
17.4: Ultra-Thin Chemically Strengthened Cover Glass for Foldable Devices
Shusaku Akiba, Asahi Glass Co., Ltd., Tokyo, Japan

Session 18: AR/VR (Augmented Reality and Virtual Reality / Liquid-Crystal Technology / OLEDs)
Tuesday, May 23, 2017 / 3:40 - 5:20 pm / Room 515B
Chair: Akihiro Mochizuki, I-CORE Technology, LLC
Co-Chair: Michael Wittek, Merck KGaA
Amal Ghosh, eMagin Corp., Hopewell Junction, NY, USA
18.2: Invited Paper: Liquid Crystal Lenses in Augmented Reality
Yi-Hsin Lin, National Chiao Tung University, Hsinchu, Taiwan, ROC
18.3: Invited Paper: A Switchable Light-Field Display for Mobile Applications
David Fattal, LEA, Inc., Menlo Park, CA, USA
18.4: Invited Paper: Digital Modulation on a Microdisplay and Spatial Light Modulator
Chen Wang, Jasperdisplays Corp., Hsinchu, Taiwan, ROC
18.5: A 1058-ppi 4K Ultra-High-Resolution and high-aperture LCD with Transparent Pixels Using OS/OC Technology
Saisumi Kawashima, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Session 19: Micro-LED Displays (Wearable Displays / Emissive Displays)
Tuesday, May 23, 2017 / 3:40 - 5:20 pm / Room 502A
Chair: Qun Yan, Fuzhou University
Co-Chair: Ioannis Kymissis, Columbia University
19.1: Invited Paper: Micro-LED Microdisplays by Integration of III-V LEDs with Silicon TFTs
Vincent Lee, Lumino, Inc., New York, NY, USA
Hongxiong Jiang, Texas Tech University, Lubbock, TX, USA
Yongtaek Hong, Seoul National University, Seoul, South Korea
19.4: Invited Paper: Emissive Displays with Transfer-Printed Microscale Inorganic LEDs
Christopher Bower, X-Celeprint, Inc., Research Triangle Park, Raleigh, NC, USA
19.5: Invited Paper: Low-Cost Micro-LED Displays for All Applications
Reza Chaji, VueReal Inc., Waterloo, ON, Canada
Francois Templier, CEA-LETI and III-V Lab, Grenoble, France

Session 20: Perovskite Quantum-Dot Materials (Display Materials and Processes / Emissive Displays)
Tuesday, May 23, 2017 / 3:40 - 5:00 pm / Room 502B
Chair: Poopath Kathirgamanathan, Brunel University
Co-Chair: Ion Bitu, Apple, Inc.
20.1: Invited Paper: Solution-Processable Luminescent Nanomaterials for Display, Lighting, and Beyond
Yafie Dong, University of Central Florida, Orlando, FL, USA
20.2: Mixed-Cation Perovskite LEDs with High Luminance and High Current Efficiency
Bing Xu, Southern University of Science and Technology, Shenzhen, P. R. China
20.3: A Greener Method to Synthesize Br-Rich Inorganic Cesium-Lead-Bromine Perovskite Nanocrystals for High-Brightness LEDs
Peizhao Liu, China Star Optoelectronics Technology Co., Ltd., Wuhan, P. R. China
20.4: High-Efficiency Perovskite QLED Achieving BT.2020 Green Chromaticity
Tomoya Hirose, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Session 21: Reliability of Oxide TFTs (Active-Matrix Devices)
Tuesday, May 23, 2017 / 3:40 - 5:00 pm / Room 501
Chair: Hyun Jae Kim, Yonsei University
Co-Chair: James Chang, Apple, Inc.
21.1: Development of a 55-in. 4K UHD OLED TV Employing an Internal Gate IC with High-Reliability and Short-Channel IGZO TFTs
Ji Yong Oh, OLED TV Panel Group, LG Display Co., Gyeonggido, South Korea
21.2: Highly Reliable Amorphous IGZTO TFTs with Back-Channel-Etch Structure
Xin-Hong Lu, BOE Technology Group Co., Ltd, Beijing, P. R. China
21.3: Reliability of Coplanar Oxide TFTs: Analysis and Improvement
Ju-Heyuck Baeck-Ju, LG Display Co., Ltd., Gyeonggido, South Korea
21.4: Distinguished Paper: Experimental Decomposition of Positive-Bias-Temperature Stress-Induced Instability in Self-Aligned Coplanar InGaZnO TFTs and Its Modeling Based on Multiple Stretched-Exponential Functions
Dae Hwan Kim, Kookmin University, Seoul, South Korea

Session 22: Impact of Lighting (Lighting)
Tuesday, May 23, 2017 / 3:40 - 5:00 pm / Room 503
Chair: Marina Kondakova, OLEDForeks
Co-Chair: Mike Lu, Acuity Brands Lighting
22.1: Invited Paper: Biological Effects of Light: Can Self-luminous Displays Play a Role?
Mariana Figueiro, Rensselaer Polytechnic Institute, Troy, NY, USA
Konstantinos Papamichael, University of California at Davis, Davis, CA, USA
Kees Teunissen, Philips Lighting Research Europe, Eindhoven, The Netherlands

Session 23: HDR and Image Processing (Display Electronics)
Tuesday, May 23, 2017 / 3:40 - 5:00 pm / Room 518
Chair: Wei Yao, Apple, Inc.
Co-Chair: Ya Hsiang Tai, National Chiao Tung University
23.1: HDR Imaging by Generating Multi-Exposures from a Single Image for HDR/LDR Displays
Jae Sung Park, INMC, Seoul National University, Seoul, South Korea
23.2: An Adaptive Image Contrast Enhancement Using a Multi-Scale Histogram Representation
Yufeng Jin, Shenzhen China Star Optoelectronics Technology Co., Ltd., Shenzhen, China
23.3: A Histogram-Based Method for Dynamic-Range Expansion
Yan Han, BOE Technology Group Co., Ltd., Beijing, P. R. China
23.4: Invited Paper: Depth from Asymmetric Defocus Using Color-Filtered Aperture
Yusuke Moriuchi, Toshiba Corp., Kawasaki, Japan

Session 24: Flexible/Foldable AMOLED Displays I (e-Paper and Flexible Displays)
Wednesday, May 24, 2017 / 9:00 - 10:20 / Room 515A
Chair: Simon Kang, Apple, Inc.
Co-Chair: Kevin Gayhagan, Corning Incorporated
Junichi Koezuka, Semiconductor Energy Laboratory Co., Ltd., Tochigi, Japan
Ming-Ting Lee, AU Optronics Corp., Hsinchu, Taiwan, ROC
24.3: An 8.34-in. 1058-ppi 8K x 4K Flexible OLED Display
TomoYao, South China University of Technology, Guangzhou, P. R. China

Session 25: Quantum-Dot and Micro-LED Displays (Emissive Displays)
Wednesday, May 24, 2017 / 9:00 - 10:20 am / Room 515B
Chair: Tomokazu Shiga, The University of Electro-Communications
Co-Chair: John Van Derlofske, 3M
Masaki Hasegawa, Merck Performance Materials, Kanagawa, Japan
25.2: Wide-Color-Gamut Display Based on Ultrastable Perovskite: Polymer Films and Red QDs/Phosphors
Juan He, University of Central Florida, Orlando, FL, USA
25.3: WITHDRAWN
25.4: Investigation and improvement of 10-µm Pixel-Pitch GaN-Based Micro-LED Arrays with Very High Brightness
François Oliver, CEA-LETI, \textcopyright\textsuperscript{3}\textsuperscript{m} University of Grenoble, France
25.5: Distinguished Student Paper: Fully Integrated Active-Matrix Programmable UV and Blue Micro-LED Display System-on-Panel (SoP)
Ke Zhang, Sun Yat-Sen University, Guangzhou, P. R. China

Session 26: Future of Automotive Displays and HMI (Automotive/Vehicle Displays)
Wednesday, May 24, 2017 / 8:30 - 10:20 am / Room 502A
Chair: Philippe Coni, THALES Avionics
Co-Chair: Panos Konstantopoulos, Jaguar Land Rover Ltd.
26.1: Invited Paper: Effects of Visual Motion and Viewing Conditions on Visually Induced Motion Sickness
Hiroyasu Ujike, Human Informatics Research Institute, AIST, Tsukuba, Japan
26.2: Invited Paper: Recent Advances in HMI for Automotive Aftermarket Applications
Liu Ren, Bosch Research North America, Palo Alto, CA, USA
Stephane Van Belle, Valeo, Annemasse, France
David Barat, PSA Group, Vélizy-Villacoublay, France
Session 27: Fast-Switching LCDs I (Liquid-Crystal Technology)
Wednesday, May 24, 2017 / 9:00 - 10:20 am / Room 502B
Chair: Takahiro Ishinabe, Tohoku University
Co-Chair: Michael Wand, LC Vision, LLC
27.1: Submillisecond-Response Nematic LC for Wearable Displays
Haiwei Chen, University of Central Florida, Orlando, FL, USA
27.2: Novel Photo-Polymer Stabilization of Nano-Phase-Separated LCs with Fast Response
Toru Fujisawa, DIC Corp., Saitama, Japan
27.3: 2D Confinement of LCs with Virtual Walls for a Fast-Response LCD
Tae-Hoon Yoon, Pusan National University, Busan, South Korea

Session 28: High-Resolution Active-Matrix Displays (Active-Matrix Devices)
Wednesday, May 24, 2017 / 9:00 - 10:20 am / Room 501
Chair: Kenichi Takatori, NLT Technologies, Ltd.
Co-Chair: Johan Bergquist, Semiconductor Energy Laboratory Co. Ltd.
28.1: Invited Paper: Effect of the Channel-Defining Layer on Vertical Oxide TFTs in Ultra-High-Resolution Display
Sang-Hee Park, KAIST, Daejeon, South Korea
28.2: Distinguished Paper: Toward Submicron Oxide TFTs for Digital Holography
Ji Hun Choi, ETRI, Daejeon, South Korea
Kei Kimura, Sony Corp., Kanagawa, Japan
28.4: Late-News Paper: An Ultra High Density 1.96-inch UHD 2250-pixel Display
Hyun Sup Lee, Samsung Display, Yongin-si, South Korea

Session 29: Aerial Displays (Display Systems)
Wednesday, May 24, 2017 / 9:00 - 10:20 am / Room 503
Chair: Satoshi Ouchi, Hitachi, Ltd.
Co-Chair: Sergei Yakovenko, Apple, Inc.
29.1: An Aerial Display: Passing through a Floating Image Formed by Retro-Reflective Reimaging
Hayato Kikuta, Mitsubishi Electric Corp., Kyoto, Japan
29.2: An Aerial Autostereoscopic Display Using Time-Division Multiplexing Parallax Barrier
Hayato Takahashi, University of Tsukuba, Tsukuba, Japan
29.3: A Floating Image for a Ultra-High-Resolution Display Device Using Integral Photography Theory
Lei Niu, Shanghai Tianma Microelectronics Co. Ltd., Shanghai, P. R. China

Session 30: Advanced Laser Processing (Display Materials and Processes / Display Manufacturing)
Wednesday, May 24, 2017 / 9:00 - 10:20 am / Room 518
Chair: Chi Woo Kim, Seoul National University
Co-Chair: Ion Bita, Apple, Inc.
30.1: Invited Paper: A New Spot-Beam-Based Laser-Crystallization Method for Producing Advanced AMOLED Displays
James Im, Columbia University, New York, NY, USA
30.2: The Crystallization Monitor: Enabling Accurate Metrology of Excimer-Laser-Annealed Si Films
Paul van der Wilt, Coherent LaserSystems GmbH & Co. KG, Goettingen, Germany
30.3: Deciphering ELA via Transient Reflectance Analysis
Vernon Wong, Columbia University, New York, NY, USA
30.4: Characterization of Si Thin Films Doped by Wet-Chemical Laser Processing
Akira Suwa, Kyushu University, Fukuoka, Japan

Session 31: Flexible/Foldable AMOLED Displays II (e-Paper and Flexible Displays)
Wednesday, May 24, 2017 / 10:40 - 12:00 pm / Room 515A
Chair: Kyung Cheol Choi, KAIST
Co-Chair: Jennifer Lin, AU Optronics Corp.
31.1: Invited Paper: Novel Technologies for Flexible Displays and Electronics
Chen-Chu Tsai, ITRI, Taiwan, ROC
31.2: FTIR Analysis and Mechanical Simulation of TFE to Achieve Excellent Flexibility of Encapsulation of AMOLED Displays
Ji Yi Chiou, Innovation Institute of Industrial Technology, Fuzhou, P. R. China
31.3: Gas-Barrier Adhesive Sheet as a Face-Sealing Encapsulation for Flexible OLEDs
Kenta Nishijima, LINTEC Corp., Saitama, Japan
31.4: Late-News Paper: Challenges and Progress of Small Bending Radius Foldable AMOLED Display Module Technology
Li Lin, Kunshan New Flat Panel Display Technology Center Co., Ltd., Kunshan, P.R. China

Session 32: Quantum Dots on an LED Chip (Emissive Displays)
Wednesday, May 24, 2017 / 10:40 am - 12:00 pm / Room 515B
Chair: John Van Derlofske, 3M
Co-Chair: Seth Coe-Sullivan, QD Vision, Inc.
32.1: On-Chip Quantum Dots for Wide-Color-Gamut Displays
Juanita Kurtin, Pacific Light Technologies, Portland, OR, USA
32.2: Distinguished Student Paper: Quantum-Dot/Siloxane Composite Film Exceptionally Stable against Heat and Moisture
Hwea Yoon Kim, KAIST, Daejeon, South Korea
32.3: Stability Enhancement of LED Based on Quantum Dots through Atomic Layer Deposition
Session 33: Automotive Curved Display and Testing Methodology (Automotive/Vehicle Displays)
Wednesday, May 24, 2017 / 10:40 - 12:00 pm / Room 502A
Chair: Peter Knoll, University of Karlsruhe
Co-Chair: Karlheinz Blankenbach, Pforzheim University
33.1: *Invited Paper:* Metrological Challenges of Curved Displays
Martin Wolf, Instrument Systems, München, Germany
33.2: Development of Free-Form Curved IPS-LCDs Using Stress-Retardation Analysis for Automotive Applications
Se-Hong Park, LG Display Co., Ltd., Gyeonggi-do, South Korea
33.3: Display-Panel Certification System for the Vehicle Industry
Kjell Brunstrom, Acreo Swedish ICT AB, Sweden
33.4: The Impact of Mechanical Stresses on Light Leakage in Curved LCDs
Raymond Greene, Corning Incorporated, Corning, NY, USA

Session 34: Fast-Switching LCDs II (Liquid-Crystal Technology)
Wednesday, May 24, 2017 / 10:40 - 12:00 pm / Room 502B
Chair: Linghui Rao, Microsoft
Co-Chair: Philip Bos, Kent State University
34.1: *Invited Paper:* Can LCDs Outperform OLED Displays in Motion-Picture Response Time?
Shin-Tson Wu, University of Central Florida, Orlando, FL, USA
34.2: *Invited Paper:* Novel Four-Transistor Pixel Circuit Using Source-Follower Structure for Field-Sequential-Color Blue-Phase LCDs
Norio Sugiura, AU Optronics Corp., Hsinchu, Taiwan, ROC
34.3: New Blue-Phase Liquid-Crystal Optimized for Color-Sequential Displays
Yuge Huang, University of Central Florida, Orlando, FL, USA
34.4: Figure of Merit for Optimizing the Performance of Uniform Lying Helix Cholesteric Liquid Crystals
Guanjun Tan, University of Central Florida, Orlando, FL, USA

Session 35: Novel Active-Matrix Techniques (Active-Matrix Devices)
Wednesday, May 24, 2017 / 10:40 - 12:00 pm / Room 501
Chair: Kalluri Sarma, Honeywell, Inc.
Co-Chair: Mike Hack, Universal Display Corp.
35.1: *Invited Paper:* Carbon-Nanotube TFTs and Vertically Gated OLEDs
Huaping Li, Atom Nanoelectronics, Inglewood, CA, USA
35.2: *Invited Paper:* Field-Coupled TFTs for Emerging Non-Display Applications
Kai Wang, Sun Yat-Sun University, Guangzhou, P. R. China
35.3: High-Resolution and Low-Power-Consumption Hybrid Display
Ryo Hatsumi, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan
35.4: *Invited Paper:* Physics-Based Design Tools: Key to Organic and Oxide-Based TFT Technology Innovation
Ahmed Nejim, Silvaco Europe, Ltd., Cambridgeshire, UK

Session 36: Projection: Solid-State Illumination (Display Systems)
Wednesday, May 24, 2017 / 10:40 - 12:00 pm / Room 503
Chair: David Eccles, Rockwell Collins
Co-Chair: Fujito Okamura, NEC Corp.
36.1: *Invited Paper:* The Revolution in Solid-State Light Sources in Projection
Matthew Brennesholtz, Brennesholtz Consulting, Pleasantville, NY, USA
Michael Perkins, Christie Digital Systems, Kitchener, Ontario, Canada
36.3: Improvement of Light-Extraction Efficiency of a Laser-Phosphor Light Source
Hiroti Morita, Sony Corp., Kanagawa, Japan

Session 37: OLED Material Thermal Evaporation (Display Manufacturing)
Wednesday, May 24, 2017 / 10:40 - 12:00 pm / Room 518
Chair: Tian Xiao, CBRITE, Inc.
Co-Chair: Robert Visser, Applied Materials
Jong Kab Park, AP Systems Corp., Hwasung, South Korea
37.2: Plane Source Evaporation Techniques for Super-Ultra-High-Resolution Flexible AMOLED Displays
Changhun Hwang, OLEDON, Seoul, South Korea
37.3: Low Thermal Expansion and Fine-Pitch Metal Masks Fabricated via Invar Fe–Ni Alloy Electroforming for Large Fine-Pitch OLED Displays
Tomio Nagayama, Kyoto Municipal Institute of Industrial Technology and Culture, Kyoto, Japan
37.4: A Novel Magnet-Array Design for Solving Mask Deformation
Jian Xu, Tianma Microelectronics Co., Ltd., Shanghai, P. R. China

Session 38: e-Paper and Reflective Displays (e-Paper and Flexible Displays)
Wednesday, May 24, 2017 / 3:30 - 4:50 pm / Room 515A
Chair: Zheng Cui, Chinese Academy of Sciences
Co-Chair: Keisuke Hashimoto, E Ink Holdings
38.1: Invited Paper: Recent Progress in Flexible Video e-Paper Display Based on Electro-Fluidic Technology
Guofu Zhou, South China Normal University, Guangzhou, P. R. China
38.2: eWriter with Eraser Functionality
Clinton Braganza, Kent Displays, Inc., Kent, OH, USA
38.3: Research on Full-Color Flexible Electrophoretic e-Paper with Interfacial Engineering and Transferring Process
Bo-Ru Yang, Sun Yat-Sen University, Guangzhou, P. R. China
38.4: Solid-State Reflective Displays (SRD) Utilizing Ultra-Thin Phase-Change Materials
Ben Broughton, Bodle Technologies, Ltd., Oxford, UK

Session 39: Quantum-Dot Materials (Display Materials and Processes / Emissive Displays)
Wednesday, May 24, 2017 / 3:30 - 4:50 pm / Room 515B
Chair: Seth Coe-Sullivan, QD Vision, Inc.
39.1: Invited Paper: Thick-Shelled Quantum Dots for Display Applications
Ray-Kuang Chiang, Far East University, Taiwan, Taiwan, ROC
39.2: Invited Paper: GE RadiantRed Technology & TriGain Phosphors (Mn4+ doped Fluorides) for Wide Color Gamut Displays & Lighting
James Murphy, GE, Niskayuna, NY, USA
39.3: Patternable Color-Conversion Films Based on Thick-Shell Quantum Dots
Jiu-Yi Lien, National Tsing Hua University, Hsinchu, Taiwan, ROC
39.4: Invited Paper: Innovation in Heavy-Metal-Free Quantum-Dot Display Technology
Nigel Pickett, Nanoco Technologies, Ltd., Manchester, UK

Session 40: Automotive Materials (Automotive/Vehicle Displays / Display Materials and Processes)
Wednesday, May 24, 2017 / 3:30 - 4:50 pm / Room 502A
Chair: Yan Li, Shanghai Jiao Tong University
Co-Chair: Philippe Coni, THALES Avionics
40.1: Invited Paper: High-Thermal-Stability OLEDs
Noel Giebink, The Pennsylvania State University, University Park, PA, USA
40.2: Characterization of Anti-Sparkle Film for Automotive Applications
Paul Weindorf, Visteon Corp., Van Buren Twp., MI, USA
40.3: The Development of UV Curable Optically Clear Silicone Adhesives for Automotive Displays
Ju Young Yook, Dow Corning, Chungcheongbuk-do, South Korea
40.4: The Development of a Moth-Eye Anti-Reflective Surface for Sunlight-Readable Flexible Displays
Guannan Tan, University of Central Florida, Orlando, FL, USA

Session 41: Alignment I (Liquid-Crystal Technology)
Wednesday, May 24, 2017 / 3:30 - 4:50 pm / Room 502B
Chair: Hoi-Sing Kwok, Hong Kong University of Science & Technology
Co-Chair: Koichi Miyachi, JSR Corp.
41.1: Strong Effect of Azodye Layer Thickness on RM-Stabilized Photooalignment
Philip Bos, Liquid Crystal Institute, Kent State University, Kent, OH, USA
41.2: Phase Separation of Photooaligned Polyimide Blends for Robust Reliability
Han Jin Ahn, LG Display Co., Ltd., Gyeonggi-do, South Korea
41.3: Novel PI-Less Vertical-Alignment Technology Using Hydrogen Bonding of Non-Ionic Amphiphiles
Jun Hyup Lee, Myongji University, Yongin, South Korea
41.4: Microscale Pattern Polarized Emission from Semiconductor Nanorods by Photo-Induced Alignment Technology
Wanlong Zhang, Hong Kong University of Science and Technology, Kowloon, Hong Kong

Session 42: New Applications of Oxide TFTs (Active-Matrix Devices)
Wednesday, May 24, 2017 / 3:30 - 4:50 pm / Room 501
Chair: Norbert Fruehauf, University of Stuttgart
Co-Chair: Sang Hee Park, KAIST
42.1: Development of Cu BCE-Structure IGZO TFT for a High-ppi 31-in. 8K x 4K GOA LCD
Shi-Min Ge, Shenzhen China Star Optoelectronics Technology Co., Ltd., Guangdong, P. R. China
42.2: Low-Power-Consumption 8K LCD with an Oxide-Semiconductor/Oxide-Conductor Pixel (Transparent Pixel)
Manabu Sato, Semiconductor Energy Laboratory Co., Ltd., Tochigi, Japan
42.3: Late-News Paper: Development of a Hybrid Array Technology of Crystalline IGZO and LTPS TFTs
Jia-Yong Ye, AU Optronics Corporation, Hsinchu, Taiwan, ROC
42.4: Late-News Paper: Chemical Stability Improvement in IGZO Using Selective Laser Annealing System
Tetsuya Goto, Tohoku University, Sendai, Japan

Session 43: Digital-Signage Optics (Digital Signage / Display Systems)
Wednesday, May 24, 2017 / 3:30 - 4:50 pm / Room 503
Chair: K. Käläntär, Global Optical Solutions
Co-Chair: Masaru Suzuki, Rohm and Haas Electronic Materials
43.1: Invited Paper: Display Technology Trends in Digital Signage
Samantha Phenix, Planar, Beaverton, OR, USA
43.2: Development of a Zero-Bezel Display Utilizing a Waveguide Image-Transformation Element
Sejin Lee, LG Display Co., Ltd., Gyeonggi-do, South Korea
43.3: Pixel-Structure Evaluation Regarding See-Through Image Quality for Transparent Displays: A Study Based on Diffraction Calculation and Full-Reference Image-Quality Assessment  
Zong Qin, National Chiao Tung University, Hsinchu, Taiwan, ROC  

43.4: A Low-Cost Multitouch Spherical Display: Hardware and Software Design  
Thomas Crespel, Inria, Bordeaux, France  

Session 44: Flexible and OLED Display Manufacturing (Display Manufacturing)  
Wednesday, May 24, 2017 / 3:30 - 4:50 pm / Room 518  
Chair: Toshiaki Arai, JOLED, Inc.  
Co-Chair: Wei Lung Liau, AU Optronics Corp.  
44.1: Invited Paper: Photolithography as an Enabler of AMOLED Displays beyond 1000 ppi  
Pawel Malinowski, Leuven, Belgium  
44.2: Separation Process using Commercially Available Polyimide or Acrylic with Linear Laser  
Satoru Idojiri, Semiconductor Energy Laboratory Co., Ltd., Tochigi, Japan  
44.3: Novel COP Optical Film with Durability for Flexible Displays  
KyoSuKe InoSe, ZeOn Corp., Toyama, Japan  
44.4: Late-News Paper: Development of a Novel Dye-Type Polarizer for Organic Light-Emitting Diodes  
Norio Koma, Polatechno Co., Ltd., Joetsu, Japan  

Session 45: OLED Materials I (Display Materials and Processes / OLEDs)  
Thursday, May 25, 2017 / 9:00 - 10:20 am / Room 515A  
Chair: Denis Kondakov, DuPont Displays  
Co-Chair: Ion Bita, Apple, Inc.  
45.1: Invited Paper: Advanced Molecular Design for Blue Thermally Activated Delayed Fluorescence (TADF) Emitters  
Chihaya Adachi, Kyushu University, Fukuoka, Japan  
45.2: Invited Paper: Highly Efficient Acridine-Based TADF Emitters  
Ken-Tsung Wong, National Taiwan University, Taipei, Taiwan, ROC  
45.3: Invited Paper: Recent Progress in Highly Efficient Blue TADF Emitter Materials for OLED Displays  
Thomas Baumann, Cynora GmbH, Bruchsal, Germany  
45.4: Approaches for Attaining Short Exciton Lifetime in Thermally Activated Delayed Fluorescence Emitters  
Jang Hyuk Kwon, Kyung Hee University, Seoul, South Korea  

Session 46: Novel Technology for AR and VR (Display Systems / Augmented Reality and Virtual Reality)  
Thursday, May 25, 2017 / 9:00 - 10:20 am / Room 515B  
Chair: Achin Bhowmik, Intel Corp.  
Co-Chair: Nikhil Balram, Google, Inc.  
46.1: Dual-Layer High-Dynamic-Range Head-Mounted Display  
Hong Hua, The University of Arizona, Tucson, AZ, USA  
46.2: Distinguished Paper: Dynamic Real-World Objects in Augmented- and Virtual-Reality Applications  
Thomas Ehmer, Fraunhofer Heinrich Hertz Institute, Berlin, Germany  
46.3: High-Contrast-Ratio Electrochromic Light-Shutter Device for Optical See-Through-Type Head-Mounted Display  
Jang Hyuk Kwon, Kyung Hee University, Seoul, South Korea  
46.4: Distinguished Student Paper: Perspective Correct Occlusion-Capable Augmented-Reality Displays Using Cloaking Optics Constraints  
Quinn Smithwick, Disney Research, Glendale, CA, USA  

Session 47: Automotive Lighting and Systems (Automotive/Vehicle Displays)  
Thursday, May 25, 2017 / 9:00 - 10:20 am / Room 502A  
Chair: Karlheinz Blankenbach, Pforzheim University  
Co-Chair: Liu Ren, Robert Bosch Research  
47.1: Invited Paper: Automotive Interior Design, Information Technologies, and Ambient Lighting  
Robert Islele, BMW, Fürstenfeldbruck, Germany  
47.2: Invited Paper: The impact of Flexible OLED on Design and User Experience  
Takatoshi Tsugimura, Konica Minolta, Inc., Tokyo, Japan  
47.3: Distinguished Student Paper: Development of Active-Matrix LCD for Use in High-Resolution Adaptive Headlights  
Christiane Reinert-Weiss, University of Stuttgart, Stuttgart, Germany  
47.4: Invited Paper: Development of a Fast-Response Low-Latency Real-Time Camera and Display System for Automotive Application  
Kazunori Yamaguchi, Japan Display Inc., Ebina, Japan  

Session 83: Alignment II (Liquid-Crystal Technology)  
Thursday, May 25, 2017 / 9:00 - 10:20 am / Room 502B  
Chair: Koichi Miyachi, JSR Corp.  
Co-Chair: Hoi-Sing Kwok, Hong Kong University of Science & Technology  
83.1: Late-News Paper: Electro-optic Characteristic of OZ-IPS LCD Utilized an Application Type Zero Anchoring Material  
Osamu Sato, LG Display Co., Ltd., Tokyo, Japan  
83.2: Late-News Paper: Investigation of Transmittance Dependence Upon Pre-Tilt Angle in Ultra-Violet Induced Vertical Alignment  
Yuichiro Yamada, Rolic Technologies Ltd., Allschwil, Switzerland  
83.3: Late-News Paper: A Novel High Reactive and High Reliable Monomer for Polymer-Sustained-Alignment Liquid Crystal Displays  
Yuichi Inoue, DIC Corporation, Saitama, Japan
Session 48: Topics in Display Measurement (Display Measurement)
Thursday, May 25, 2017 / 9:00 - 10:20 am / Room 503
Chair: Michael Becker, Display-Messtechnik & Systeme
Co-Chair: Thomas Fiske, Microsoft
48.1: Invited Paper: Spectral Sensing with Computed Tomography Imaging Spectrometry
Ralf Habel, Disney Animation, Toluca Lake, CA, USA
48.2: WITHDRAWN
48.3: Relationship between Directional and Hemispherical-Diffuse Spectral Reflectance of Electrophoretic e-Paper Displays
Dirk Hertel, E Ink Corp., Billerica, MA, USA
48.4: Selective Scattering of PDLC and Its Application in OLED Displays
Deng-Ke Yang, Liquid Crystal Institute, Kent State University, Kent, OH, USA

Session 49: In-Cell Touch (Touch and Interactive Displays)
Thursday, May 25, 2017 / 9:00 - 10:20 am / Room 518
Chair: John Zhong, Apple, Inc.
Co-Chair: Willelm Den Boer, Guardian Industries
49.1: A Novel Pixel-Structure Design with High Transmittance
Xiaona Liu, Beijing BOE Display Technology Co., Beijing, China
49.2: Design of a Si:H Bidirectional Gate-Driven Circuit Using Time-Division Driving Method for In-Cell-Touch AMLCDs
Chih-Lung Lin, National Cheng Kung University, Tainan, Taiwan, ROC
49.3: In-Cell Active Touch Circuit Using a-Si TFTs for a Large-Sized Panel
Chou Jia, National Chiao Tung University, Hsinchu, Taiwan, ROC

Session 50: OLED Materials II (OLEDs)
Thursday, May 25, 2017 / 10:40 am - 12:00 pm / Room 515A
Chair: Michael Weaver, Universal Display Corp.
Co-Chair: Chihaya Adachi, Kyushu University
50.1: Invited Paper: Recent Advances in Measuring and Understanding the Influence of Molecular Alignment on the Light-Extraction Efficiency of OLEDs
Malte Gather, University of St. Andrews, St. Andrews, UK
50.2: Invited Paper: Highly Efficient Phosphorescent OLEDs Using Exciplex Forming Hosts
Jang-Joo Kim, Seoul National University, Seoul, South Korea
50.3: Invited Paper: Blue-Emitting Square Planar Metal Complexes for Displays and Lighting Applications
Jian Li, Arizona State University, Tempe, AZ, USA
50.4: High-Performance Pyrimidine-Based TADF Emitters Realizing Pure-Blue—to–Green Emission with an EQE of 25%
Hisahiro Sasabe, Yamagata University, Yamagata, Japan

Session 51: Emerging Applications: AR/VR (Augmented Reality and Virtual Reality / Emerging Applications)
Thursday, May 25, 2017 / 10:40 am - 12:00 pm / Room 515B
Chair: William Cummings, Microsoft
Co-Chair: Rasjesh Dighde, Microsoft
51.1: Invited Paper: True 3D Realization of a See-Through Head-Mounted Display with Complex Amplitude Modulation
Qisun Guo, Beijing BOE Display Technology Co., Beijing, P. R. China
51.2: A Multi-Image-Plane Display Based on Polymer-Stabilized Cholesteric Texture
Yun-Han Lee, University of Central Florida, Orlando, FL, USA
51.3: A Multi-Plane Optical See-Through Head-Mounted Display with Reverse-Mode PSLC
Shixin Liu, Shanghai Jiao Tong University, Shanghai, P. R. China
51.4: Near-to-Eye Display for Vision Correction with Large FOV
Yishi Wu, Shanghai Jiao Tong University, Shanghai, P. R. China
51.5: Light Guide with Stair Micromirror Structure for Augmented-Reality Glasses
Jaeyeol Ryu, Samsung R&D Institute Russia, Moscow, Russian Federation

Session 52: Automotive Visual Performance (Automotive/Vehicle Displays)
Thursday, May 25, 2017 / 10:40 am - 12:00 pm / Room 502A
Chair: Panos Konstantopoulos, Jaguar Land Rover, Ltd.
Co-Chair: Rambo Jacoby, Nvidia
52.1: Invited Paper: Driving Forces: How the Mobility of Tomorrow Influences Technologies of Today
Nadine Langguth, Merck KGaA, Darmstadt, Germany
52.2: Invited Paper: Quantum-Dot-Based Wide-Color-Gamut TFT-LCDs for Automotive Applications
Rashmi Rao, West Bloomfield, MI, USA
52.3: Anti-Reflective and Anti-Clare Surface Treatment on Cover Glass for Auto-Interior Applications
Antoine Lesuffleur, Corning Incorporated, Painted Post, NY, USA
52.4: Long-Lived Thermally Stable Blue OLED Achieving BT.2020 Color Gamut
Naouki Hashimoto, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Session 53: LCD Materials (Liquid-Crystal Technology / Display Materials and Processes)
Thursday, May 25, 2017 / 10:40 am - 12:00 pm / Room 502B
Chair: Matthew Sousa, 3M
Co-Chair: Yukito Saitoh, FUJIFILM Corp.
53.1: Invited Paper: Coatable Optical Films for Advanced Displays
Eduardo Beltran-Gracia, Merck Chemicals Ltd., Southampton, UK
Session 54: 3D - Holographic (Display Systems)  
Thursday, May 25, 2017 / 10:40 am - 12:00 pm / Room 501  
Chair: Brian Schowengerdt, University of Washington  
Co-Chair: W. Lee Hendrick, Rockwell Collins Optonics  
54.1: Laser-Speckle Reduction Using Nanoparticle-Embedded Liquid Crystals  
Kai-Han Chang, Liquid Crystal Institute, Kent State University, Kent, OH, USA  
54.2: Invited Paper: Holographic Display and Its Applications  
Hong-Seok Lee, Samsung Advanced Institute of Technology, Samsung Electronics, Suwon, South Korea  
54.3: Lensless Holographic 3D Display Based on Fast-Calculated Computer-Generated Hologram  
Chenliang Chang, Nanjing Normal University, Nanjing, China  
54.4: Invited Paper: Projection-Type Holographic 3D Display  
Koki Wakanami, National Institute of Information and Communications Technology, Tokyo, Japan

Session 55: High-Dynamic-Range Display Measurement (Display Measurement)  
Thursday, May 25, 2017 / 10:40 am - 12:00 pm / Room 503  
Chair: Stephen Atwood, Azonix Corp.  
Co-Chair: Marja Salmimaa, Nokia Technologies  
55.1: Invited Paper: Prediction of Overall HDR Quality by Using Perceptually Transformed Display Measurements  
Anustup Choudhury, Dolby Laboratories, Sunnyvale, CA, USA  
55.2: On the Complexities of Metrology for HDR Displays  
Joe Miseli, JVM Research, San Bruno, CA, USA  
55.3: Invited Paper: Delivering Content for HDR Displays  
Harald Brendel, Arnold & Richter Cine Technik, Muenchen, Germany

Session 56: Integrated Fingerprint Sensing (Touch and Interactive Displays)  
Thursday, May 25, 2017 / 10:40 am - 12:00 pm / Room 518  
Chair: Patrick Worfolk, Synaptics  
Co-Chair: Martin Grauntheran, Apple, Inc.  
56.1: Novel Cover Glass for Fingerprint Authentication  
Masao Ozeki, Asahi Glass Co., Ltd., Tokyo, Japan  
56.2: Optical Touch Screen Integrated with Fingerprint Recognition  
Zhicheng Ye, Shanghai Jiao Tong University, Shanghai, P. R. China  
56.3: A 500-dpi Transparent On-Glass Capacitive Fingerprint Sensor  
Hyunseok Hwang, Yonsei University, Seoul, South Korea

Session 57: OLED Materials III (OLEDs)  
Thursday, May 25, 2017 / 1:30 - 2:50 pm / Room 515A  
Chair: Sven Zimmermann, Novaled GmbH  
Co-Chair: Chris Brown, Kateeva  
57.1: Invited Paper: Ink-Jet Printed OLED Displays  
Edgar Boehm, Merck KGAa, Darmstadt, Germany  
57.2: Invited Paper: Latest Development of High-Performance OLED Material Suitable for Printing  
Takeshi Yamada, Sumitomo Chemical Co., Ltd., Tsukuba, Japan  
57.3: Invited Paper: Solution-Processed Electron-Transporting Layer and Interface Characterization in OLED Displays  
Yong-Jin Pu, Yamagata University, Yonezawa, Japan  
57.4: Demonstration of Efficient Green OLEDs with High Color Purity  
Taku Oono, NHK Science & Technology Research Laboratories, Tokyo, Japan

Session 58: Advantage of Near-to-Eye Displays (Applied Vision / Augmented Reality and Virtual Reality)  
Thursday, May 25, 2017 / 1:30 - 2:50 pm / Room 515B  
Chair: Yi-Pai Huang, National Chiao Tung University  
Co-Chair: Sakuichi Ohtsuka, Kagoshima University  
58.1: Invited Paper: New Developments in Video Coding towards an Immersive Visual Experience  
Seishi Takamura, NTT Corp., Kanagawa, Japan  
58.2: Color-Appearances Comparison between Head-Mounted Displays and Monitors  
Youngshin Kwak, UNIST, Ulsan, South Korea  
58.3: Optical Simulation of a Light-Field Display for Correcting Farsighted Vision  
Sung-Min Jung, LG Display Co., Ltd., Gyeonggi-do, South Korea  
58.4: Enhancing Note Taking and Review Processes Using an Interactive Dual-Input and Dual-Display Interface  
Sakuichi Ohtsuka, Kagoshima University, Kagoshima, Japan

Session 59: Automotive HUD / HMD (Automotive/Vehicle Displays / Display Systems / AR/VR)  
Thursday, May 25, 2017 / 1:30 - 2:50 pm / Room 502A
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<td><strong>Chair:</strong> Rashmi Rao, Harman International</td>
<td><strong>Co-Chair:</strong> Haruhiko Okumura, Toshiba Corp.</td>
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<td>59.1: <strong>Invited Paper:</strong> Recent Advances in Head-Mounted Light-Field Displays</td>
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<tr>
<td>Hong Hua, University of Arizona, Tucson, AZ, USA</td>
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<td>59.2: <strong>Distinguished Paper:</strong> Development of a 3D HUD Using a Tunable Bandpass Filter for Wavelength Multiplexing</td>
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<tr>
<td>Philippe Coni, THALES Avionics SAS, Mergny, France</td>
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<td>59.3: Using Liquid Crystal-on-Silicon (LCOS) for Automotive Head-Up Displays</td>
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<td>Liangyu Shi, Hong Kong University of Science and Technology, Kowloon, Hong Kong</td>
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<td>59.4: A Proposal for Automotive Multi-Depth Head Up Display Using MEMS Scanning Lasers</td>
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<td>Jung Ho-on Seo, Hyundai MOBIS, Youngin, South Korea</td>
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<td>59.5: <strong>Invited Paper:</strong> The Holographic Future of Head-Up Displays</td>
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<td>Brian Mullins, Daqri Holographics, Knowlhill, Milton Keynes, United Kingdom</td>
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<td><strong>Chair:</strong> Shintson Wu, University of Central Florida</td>
<td><strong>Co-Chair:</strong> Ki Chul Shin, Samsung Display Co., Ltd.</td>
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<td>60.1: High-Dynamic-Range LCDs with Pixel-Level Local Dimming</td>
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<tr>
<td>Huiwei Chen, University of Central Florida, Orlando, FL, USA</td>
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<td>60.2: Improving LCD Contrast Ratio by Modifying Metal Layout Design</td>
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<td>Li Chen, Shenzhen China Star Optoelectronics Technology Co., Ltd., Shenzhen, P. R. China</td>
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<td>60.3: High-Contrast IPS Mode Using Dichroic-Dye Liquid Crystal</td>
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<tr>
<td>Soo In Jo, LG Display Co., Ltd., Gyeonggi-do, South Korea</td>
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<th>Session 61: 3D - Light Field and Autostereoscopic Displays (Display Systems)</th>
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<td><strong>Chair:</strong> Shinichi Uehara, Asahi Glass Co., Ltd.</td>
<td><strong>Co-Chair:</strong> Jaep Hyeung Park, Inha University</td>
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<td>61.1: <strong>Invited Paper:</strong> Light-Field-Display Architecture and the Challenge of Synthetic Light-Field Radiance Image Rendering</td>
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<tr>
<td>Thomas Burnett, FoVI 3D, Austin, TX, USA</td>
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<td>61.2: Smooth-Motion-Parallax Glassless 3D Screen System Using Linear Blending of Viewing Zones and Spatially Imaged Iris Plane</td>
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<td>Motohiro Makiguchi, NTT Service Evolution Laboratories, Kanagawa, Japan</td>
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<td>61.3: Glasses-Free 2D/3D Switchable Display Using a Trapezoidal Light-Extraction (TLE) Film on the Light-Guide Plate</td>
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<tr>
<td>Jin-Ho Lee, Samsung Advanced Institute of Technology (SAIT), Samsung Electronics, Suwon, South Korea</td>
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<td><strong>Chair:</strong> Thomas Fiske, Microsoft</td>
<td><strong>Co-Chair:</strong> Stephen Atwood, Azonix Corp.</td>
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<td>62.1: <strong>Invited Paper:</strong> Progress toward the ECDM2 Display Measurements Standard</td>
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<td>Joe Miseli, JVM Research, San Bruno, CA, USA</td>
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<td>62.2: <strong>Invited Paper:</strong> Measurement of Visual Resolution of Display Screens</td>
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<td>Michael Becker, Display-Messtechnik &amp; Systeme, Rottenburg am Neckar, Germany</td>
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<td>62.3: Recent Achievements in IEC TC 110, Electronic Display Devices: Reflecting Fast-Moving Markets</td>
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<td>62.4: <strong>Invited Paper:</strong> Consideration of Display Metrology for HDR and WCG Standards Based on Real Content</td>
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<tr>
<td>Yongmin Park, LG Display Co., Ltd., Gyeonggi-do, South Korea</td>
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<td><strong>Chair:</strong> Deuk Su Lee, LG Display Co., Ltd.</td>
<td><strong>Co-Chair:</strong> Steven Bathiche, Microsoft</td>
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<td>63.1: A Stack of Bendable Touch Sensors with Silver Nanowire for Flexible AMOLED Display Panels</td>
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<tr>
<td>Zhen Liu, BOE Technology Group Co., Ltd., Beijing, P. R. China</td>
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<td>63.2: A Novel Touch-Control Method with Partial Scanning for LCD, OLED, and Hybrid Displays Using an Oxide Semiconductor</td>
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<td>Kei Takahashi, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan</td>
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<td>63.3: Capacitive Touch Sensor Using a-IGZO TFTs for Flexible AMOLED Displays</td>
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<td>Jin-Jang, Kyung Hee University, Seoad, South Korea</td>
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<td>64.1: Modeling the Mechanical Performance of a Foldable Display Panel Bonded by Optically Clear Adhesives</td>
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<td>Fay Salmon, 3M Software, St Paul, MN, USA</td>
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<td>64.2: Ink-Jet-Printing of High-Index Zirconia Nanocomposite Materials</td>
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<td>Peter Guschl, Pixelligent Technologies, Baltimore, MD, USA</td>
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<td>64.3: Fracture Mechanisms for AMOLED Panels in Handheld Devices</td>
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<tr>
<td>Alexander Chen, Corning Advanced Technology Center, Taipei, Taiwan, ROC</td>
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| Session 65: AR/VR Display Measurement (Display Measurement / Augmented Reality and Virtual Reality) |  |
Thursday, May 25, 2017 / 3:10 - 4:30 pm / Room 515B  
**Chair:** Udo Krueger, TechnoTeam  
**Co-Chair:** Marja Salmimaa, Nokia Technologies

**65.1: Distinguished Paper:** Photometric and Colorimetric Measurements of Near-to-Eye Displays  
John Penczek, University of Colorado, Boulder, and NIST, Boulder, CO, USA

**65.2:** Optical Attachment to Measure Both Eye-Box/FOV Characteristics for AR/VR Eyewear Displays  
Katsutoshi Tsurutani, Konica Minolta, Osaka, Japan

**65.3:** Spectroradiometric Measurements of Near-to-Eye and Head-Up Displays  
Richard Austin, Gamma Scientific, San Diego, CA, USA

**65.4:** Novel Methods for Measuring VR/AR Performance Factors for OLED Displays/LCDs  
Kimmo Jokinen, OptoFidelity Oy, Tampere, Finland

**Session 66: Emerging Electronic Materials (Display Materials and Processes)**  
Thursday, May 25, 2017 / 3:10 - 4:30 pm / Room 502A  
**Chair:** Ion Bite, Apple, Inc.  
**Co-Chair:** Andriy Romanyuk, Glas Troesch AG

**66.1:** Invited Paper: High-Mobility Flexible 2D Multilayer MoS2 TFTs on Solution-Based Polyimide Substrates  
Sunkook Kim, Kyung Hee University, Gyeonggi-do, South Korea

**66.2:** Printed Carbon-Nanotube TFTs and Their Application in OLED Backplane Circuits  
Jiarwen Zhao, Suzhou Institute of Nanotech and Nano-Bionics, Chinese Academy of Sciences, Suzhou, P. R. China

**66.3:** A High-Reliability PEDOT:PSS/Graphene Transparent Electrode for LCDs  
Tao Hu, Shenzhen China Star Optoelectronics Technology Co., Ltd., Shenzhen, P. R. China

**66.4:** Invited Paper: High-Dielectric Capacitive Materials for High-Linearity Multi-Point Pressure-Sensing Touch Controls  
Johnson Hou, Uneo, Inc., New Taipei City, Taiwan, ROC

**Session 67: Wide Color Gamut (Liquid-Crystal Technology / Emissive Displays)**  
Thursday, May 25, 2017 / 3:10 - 4:30 pm / Room 502B  
**Chair:** Joun-Ho Lee, LG Display Co., Ltd.  
**Co-Chair:** Shui Chih Lien, TCL Group

**67.1:** Invited Paper: Environmentally Friendly Quantum Dots for Display Applications  
Hyosook Jung, SAIT, Samsung Electronics, Suwon, South Korea

**67.2:** Invited Paper: Ambient Processing of Quantum-Dot Photoresists for Emissive Displays  
Charlie Hotz, Nanosys, Inc., Milpitas, CA, USA

**67.3:** Wide-Viewing-Angle Band-Pass Reflective Polarizer for Wide-Color-Gamut LCDs  
Takahiro Ishinabe, Tohoku University, Sendai, Japan

**67.4:** Wide-Color-Gamut LCDs with Vivid-Color LED Technology  
David Wyatt, PixelDisplay Inc., San Jose, CA, USA

**Session 68: Emerging Applications (Emerging Applications)**  
Thursday, May 25, 2017 / 3:10 - 4:30 pm / Room 501  
**Chair:** Gary Jones, Nanoquantum Corp.  
**Co-Chair:** Susan Jones, Nulumin Corp.

**68.1:** A 3D Augmented-Reality Training System for Endoscopic Surgery  
Rong Wang, Institute of Automation, Chinese Academy of Sciences, Beijing, P. R. China

**68.2:** Distinguished Student Paper: Quantum-Dot LEDs (QLEDs) for Photomedical Applications  
Hao Chen, University of Central Florida, Orlando, FL, USA

**68.3:** Late-News Paper: Phosphors for Discrete Codes to Facilitate Recycling  
Paul Harris, Brunel University London, Uxbridge, United Kingdom

**Session 69: Digital Signage: Visual Quality (Digital Signage)**  
Thursday, May 25, 2017 / 3:10 - 4:30 pm / Room 503  
**Chair:** Gary Feather, NanoLumens

**69.1:** Invited Paper: Fine-Pitch Image Quality on LED Video Screens  
Jorge Perez Bravo, NanoLumens, Inc., Peachtree Corners, GA, USA

**69.2:** Novel Approaches for Reducing Luminance Gap between Adjacent Modules in OLED Video-Wall System  
Bongseok Kang, LG Display Co., Ltd., Gyeonggi-do, South Korea

**69.3:** New Multiplexing Method for Quasi-Static and Artifact-Free Color LED Matrix Displays  
Pierre Boher, ELDIM, Herouville, France

**69.4:** Active Backplane Design for Digital Video Walls  
Douglas Dykaar, DifTek Lasers, Inc., Waterloo, Ontario, Canada

**Session 70: Touch Materials (Touch and Interactive Displays / Display Materials and Processes)**  
Thursday, May 25, 2017 / 3:10 - 4:30 pm / Room 518  
**Chair:** Bob Senior, Canatu, Ltd.  
**Co-Chair:** Reiner Mauch, Schott AG

**70.1:** MOVED TO P.241

**70.2:** ZnO Nanorod Array Fabricated on Conductive and Transparent Gallium-Doped ZnO Substrates for Sensing Applications in Displays  
Chaoyang Li, Kochi University of Technology, Kami, Japan

**70.3:** Preparation and Characterization of Polymer-Alumina Hybrid Hard Coatings with High Hardness on Plastic Substrates  
Kwan Young Han, Dankook University, Chungnam-do, South Korea
Session 71: OLED Displays I (OLEDs)
Friday, May 26, 2017 / 9:00 - 10:20 am / Room 515A
Chair: Chang-Wook Han, LG Display Co., Ltd.
Co-Chair: J. J. Lih, AU Optronics Corp.
71.1: Invited Paper: The Challenges of Flexible OLED Display Development
Shan-Chen Gao, BOE Technology Group Co., Ltd., Beijing, P. R. China
71.2: New Technology for Improving the Blackness of OLED TVs
Hyun-Jong Noh, LG Display Co., Ltd., Gyeonggi-do, South Korea
71.3: Curved Kawara-Type Multidisplay Combined with an OLED Device for BT.2020 Color Gamut
Daiki Nakamura, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan
71.4: Uniformity Study on High-Resolution OLED Display Fabricated by Ink-Jet-Printing Process
Peng-Yu Chen, AU Optronics Corp., Hsinchu, Taiwan, ROC

Session 72: Light-Field Displays for AR and VR (Display Systems / AR/VR)
Friday, May 26, 2017 / 9:00 - 10:20 am / Room 515B
Chair: Nikhil Balram, Google, Inc.
Co-Chair: Brian Schowengerdt, University of Washington
72.1: Distinguished Student Paper: An Integral-Imaging-Based Head-Mounted Light-Field Display Using a Tunable Lens and Aperture Array
Hong Hua, The University of Arizona, Tucson, AZ, USA
72.2: A High-Resolution Near-to-Eye Light-Field Display with Fast Reconstruction Speed
Mai Li, Zhejiang University, Hangzhou, P. R. China
72.3: Design Investigation of Tunable Liquid-Crystal Lens for Virtual-Reality Displays
Afsoon Jamali, Kent State University, Liquid Crystal Institute, Kent, OH, USA
72.4: Switchable Lens Based on Cycloidal Diffractive Waveplate for AR and VR Applications
Yun-Han Lee, University of Central Florida, Orlando, FL, USA

Session 73: New LCDs I (Liquid-Crystal Technology)
Friday, May 26, 2017 / 9:00 - 10:20 am / Room 502B
Chair: Gang Xu, Huawei
Co-Chair: Jenn Jia Su, AU Optronics Corp.
73.1: A Liquid-Crystal Lenticular Lens with High Cell Gap for Naked-Eye 3D Displays
Chun Ge Yuan, Shenzhen China Star Optoelectronics Technology Co., Ltd., Shenzhen, P. R. China
73.2: Invited Paper: Active Switching LCP-Based Microlens Arrays for 3D Display and Imaging Applications
Hak-Rin Kim, Kyungpook National University, Daegu, South Korea
73.3: A 3-msec Response-Time Full-Phase-Modulation 1080p LCoS SLM for Dynamic 3D Holographic Displays
Jhou-Pu Yang, National Chiao Tung University, Hsinchu, Taiwan, ROC
73.4: Late-News Paper: Wavelength-Independent Electrically Tunable Microlens Array with a Chiral Nematic Liquid Crystal
Kai-Han Chang, Liquid Crystal Institute, Kent State University, Kent, OH, USA

Session 74: Digital Signage: Emerging Applications (Digital Signage / Emerging Applications)
Friday, May 26, 2017 / 9:00 - 10:20 / Room 501
Chair: Adi Abileah, Adi - Displays Consulting LLC
Co-Chair: Gary Feather, NanoLumens
74.1: Invited Paper: Development of Advanced 1 mm x 1 mm LED SMD for Fine-Pitch LED Signage
Jovani Torres, Cree, Gilroy, CA, USA
74.2: Development of a Novel Reflective Display System with Multi-Primary Color for Digital Signage
Tatsuya Yata, Japan Display Inc., Kanagawa, Japan
74.3: Development of New Error-Diffusion Dithering Method for Reflective Memory-In-Pixel (MIP) LCDs
Tadafumi Ozaki, Japan Display Inc., Kanagawa, Japan
74.4: Large-Pixel Reflective-Color Display for Outdoor Applications
Zhong Ji, Hangzhou Yuanse Technologies, Ltd., Zhejiang, P. R. China

Session 75: Perception-Based Video Optimization (Applied Vision)
Friday, May 26, 2017 / 9:00 - 10:20 am / Room 503
Chair: James Larimer, ImageMetrics LLC
Co-Chair: Youn Jin Kim, Huawei Technologies Co., Ltd.
75.1: Invited Paper: Perceptual Issues of Streaming Video
Alan Bovik, The University of Texas at Austin, Austin, TX, USA
75.2: Invited Paper: Large-Scale Subjective Evaluation of Display Stream Compression
Robert Allison, York University, Toronto, Ontario, Canada
75.3: Reducing Glare from Reflected Highlights in Mobile and Automotive Displays
Gregory Ward, IRYStec, Inc., Berkeley, CA, USA

Session 76: Advanced Manufacturing and Metrology (Display Manufacturing)
Friday, May 26, 2017 / 9:00 - 10:20 am / Room 518
Chair: Greg Gibson, nTact
Co-Chair: Joerg Winkler, Plansee SE
76.1: **Invited Paper:** Optimization of Applied Materials Pivot Array Coater for Metal-Oxide Semiconductor Layers  
John Busch, Applied Materials, Inc., Santa Clara, CA, USA

76.2: **Field-Effect Transistor with CAC/CAAC-OS Double-Layer Structure for Diversion of Gen 8–10.5 a-Si Production Lines**  
Kenichi Okazaki, Semiconductor Energy Laboratory Co., Ltd., Tochigi, Japan

76.3: **Distinguished Paper:** Viewing-Angle-Switching Device Based on an Array of Optical Micro-Rods Incorporated in Electrophoretic Material Systems  
Hiroshi Tanabe, NLT Technologies, Ltd., Kawasaki, Japan

76.4: **Invited Paper:** Inline Electron-Beam-Review (EBR) Accelerates Yield Ramp-Up of Advanced Displays  
Xuena Zhang, Applied Materials, Santa Clara, CA, USA

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**Session 77: OLED Displays II (OLEDs)**  
Friday, May 26, 2017 / 10:40 am - 12:00 pm / Room 515A

**Chair:** Tariq Ali, eMagin Corp.  
**Co-Chair:** Yasunori Kijima, Huawei Technologies Co., Ltd.

77.1: **Invited Paper:** Ultra-Low Power OLED Microdisplay for Extended Battery Life in Near-to-Eye Displays  
Uwe Vogel, Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Dresden, Germany

77.2: **Invited Paper:** Probing the Thermal Stability of OLEDs with Neutrons  
Paul Burn, The University of Queensland, Brisbane, Australia

77.3: A High-Image-Quality OLED Display for Large-Sized and Premium TVs  
Hong-Jae Shin, LG Display Co., Ltd., Gyeonggi-do, South Korea

77.4: A 2.78-in. 1058-ppi Ultra-High-Resolution OLED Hybrid Display Using Oxide-Semiconductor/Oxide-Conductor (OS/OC) Pixels (Transparent Pixel) Achieving a High Aperture Ratio  
Kohei Tokuyama, Semiconductor Energy Laboratory, Kanagawa, Japan

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**Session 78: Optimizing Image Quality for VR (Display Systems / Augmented Reality and Virtual Reality)**  
Friday, May 26, 2017 / 10:40 am - 12:00 pm / Room 515B

**Chair:** W. Lee Hendrick, Rockwell Collins Optronics  
**Co-Chair:** Achin Bhowmik, Intel Corp.

78.1: The Study of Motion-Blur Behavior in the Strobe Backlight LCD for Virtual-Reality Applications  
Chang-Hung Li, AU Optronics Corp., Hsinchu, Taiwan, ROC

78.2: The Optimum Display for Virtual Reality  
Jinwoo Kim, Samsung Display Co., Ltd., Gyeonggi-do, South Korea

78.3: Reduction of Screen-Door Effect with Diffractive Film for Virtual-Reality and Augmented-Reality Displays  
Joseph Yang, 3M Co., St Paul, MN, USA

78.4: Screen-Door-Effect Mitigation and Its Quantitative Evaluation in VR Displays  
Jounghun Cho, Samsung Electronics Co., Ltd., Gyeonggi-do, South Korea

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**Session 79: New LCDs II (Liquid-Crystal Technology)**  
Friday, May 26, 2017 / 10:40 am - 12:00 pm / Room 502B

**Chair:** Philip Chen, National Chiao Tung University  
**Co-Chair:** Seung Hee Lee, Chonbuk National University

79.1: **Invited Paper:** New Liquid Crystals for Light-Guiding Application: From Automotive Headlights to Adaptive Indoor Lighting  
Owain Parri, Merck KGaA, Darmstadt, Germany

79.2: A New Mirror LCD Technology  
Mengjie Wang, Beijing BOE Display Technology Co., Beijing, P. R. China

79.3: WITHDRAWN

79.4: **Late-News Paper:** Highly Transparent LCD Using New Scattering-Type Liquid Crystal with Field Sequential Color Edge Light  
Kentaro Okuyama, Japan Display Inc., Ebina, Japan

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**Session 80: Emerging Technologies (Emerging Applications)**  
Friday, May 26, 2017 / 10:40 am - 12:20 pm / Room 501

**Chair:** Ian Underwood, University of Edinburgh  
**Co-Chair:** Adi Abileah, Adi - Displays Consulting LLC

80.1: When is the Best Time to Switch Modes of Light-Adaptable Displays for Lower Power and Better Visibility?  
Seung-Woo Lee, Kyung Hee University, Seoul, South Korea

80.2: Evaluation of Displays and HMI for the Internet of Things (IoT)  
Karlheinz Blankenbach, Pforzheim University, Pforzheim, Germany

80.3: Design of Spatial Light Modulator on Glass Using Oxide TFTs with Lower Off-State Current  
Jae-Eun Pi, ETRI, Daejeon, South Korea

80.4: Study on Flat Speaker Direct Driving of a Flat OLED Display: Using a Stereo Exciter Speaker  
Hyungwoo Park, Soongsil University, Seoul, South Korea

80.5: WITHDRAWN

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**Session 81: Visual Quality of HDR Displays (Applied Vision)**  
Friday, May 26, 2017 / 10:40 am - 12:00 pm / Room 503

**Chair:** Jennifer Gille, Qualcomm  
**Co-Chair:** David Hoffman, Samsung Display Co.

81.1: WITHDRAWN

81.2: Visual Quality of a Global-Dimming Backlight for a High-Contrast Liquid-Crystal Panel for High-Dynamic-Range Displays  
Wei Xiong, Samsung Display Co., San Jose, CA, USA

81.3: Reproducing High-Dynamic-Range Contents Adaptively Based on Display Specifications  
Ruidong Zhu, University of Central Florida, Orlando, FL, USA
81.4: Image-Quality Evaluation of HDR Displays
Haisong Xu, Zhejiang University, Hangzhou, P. R. China

Session 82: Glass Substrates and Components (Display Manufacturing)
Friday, May 26, 2017 / 10:40 am - 12:00 pm / Room 518
Chair: Bradley Bowden, Corning Incorporated
Co-Chair: Yukio Endo, Asahi Glass Co., Ltd.

82.1: Distinguished Paper: Glass Substrates for Microdisplays
Kazutaka Hayashi, Asahi Glass Co., Ltd., Yokohama, Japan

82.2: Glass Substrate with TGV(Thru Glass Via) Manufacturing Technology for Display Electronics
Satoru Kuramochi, Dai Nippon Printing Co., Ltd., Chiba, Japan

82.3: 3.9-mm Ultra-Slim Curved TV Having a Glass Light-Guide Plate
Jian-Yu Chang, Shenzhen China Star Optoelectronics Technology Co., Ltd., Shenzhen, P. R. China

82.4: Mechanics of Ultra-Slim TV Sets with a Glass Light-Guide Plate
Steve Burdette, Corning Incorporated, Corning, NY, USA

Poster Session
Thursday, May 25 / 5:00 – 8 pm / Petree Hall

Active-Matrix Devices

P.1: Fabrication of a Short-Channel Oxide TFT Utilizing the Resistance-Reduction Phenomenon in In-Ga-Sn-O
Mitsuru Nakata, NHK Science & Technology Research Laboratories, Tokyo, Japan

P.2: Self-Aligned InGaZnO TFT with NH3 Plasma-Treated Source/Drain Regions
Jiangbo Chen, BOE Technology Group Co., Ltd., Beijing, P. R. China

P.3: Effect of Light-Shielding Metal on the Performance of a-IGZO TFTs with a Self-Aligned Top-Gate Structure
Mian Zeng, China Star Optoelectronics Technology Co., Ltd., Shenzhen, P. R. China

P.4: TCAD Simulation of Hydrogen-Diffusion-Induced Bias-Temperature Instability in a-IGZO TFTs
Sung-Won Kong, Silvaco, Inc., Santa Clara, CA, USA

P.5: Reduction of Mura Defects by Controlling the Mechanism of Negative-Bias Thermal Illumination Stress of Amorphous-Oxide TFTs
Xiaona Xu, BOE Technology Group Co., Ltd., Beijing, China

P.6: The Effect of Buffer Layers on the Electrical Characteristics and Stability of Self-Aligned Top-Gate IGZO TFTs
Yi-Da Ho, AU Optronics Corp., Hsinchu, Taiwan, ROC

P.7: A 65-in. 8K LCD and OLED Display Using Cloud-Aligned Composite Oxide-Semiconductor (CAC-OS) FETs
Kazunori Watanabe, Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

P.8: Photocurrent Characteristics of Amorphous MgInO TFTs
Shengdong Zhang, Peking University, Shenzhen, P. R. China

P.9: Parylene/Al2O3 Double-Layer Passivated Amorphous-InGaZnO TFTs
Shengdong Zhang, Peking University, Shenzhen, P. R. China

P.10: High-Density Plasma-Sputtered InZnO TFTs Fabricated by Back-Channel Etching on a FlexiZle Polyimide Substrate
Song Haeng Cho, ETRI, Daejeon, South Korea

P.11: Effects of Calcium Doping on Zinc-Oxide TFTs
Wen Yu, Peking University, Beijing, P. R. China

P.12: Extraction of Sub-Gap Density of States for Deteriorated Oxide-Semiconductor TFTs
Katsumi Abe, Silvaco Japan Co., Ltd., Kyoto, Japan

P.13: Quantitative Analysis and Deconvolution of Subgap States in a-InGaZnO
Keisuke Ide, Tokyo Institute of Technology, Yokohama, Japan

P.14: Prevention of Indium Segregation in BCE-Type InGaZnO TFTs with Titanium Source/Drain
Jong Hyun Seo, Seoul, South Korea

P.15: Prediction Method for Device Instability in a-InGaZnO TFTs under Positive Gate Biases and Thermal Stresses
Using TCAD Simulation
Jin-Young Kim, Silvaco Korea Co., Ltd., Seoul, South Korea

P.16: Implementation of TCAD Simulation of a-IGZO Corbino TFTs for AMOLED Applications
Ji-Ung Han, Silvaco Korea Co., Ltd., Seoul, South Korea

P.17: Mutual Interaction of Voltages between the Top Gate and Bottom Gate of a-IGZO TFTs
Pengfei Gu, BOE Technology Group Co. Ltd., Beijing, China

P.18: Nitrogen-Doped InGaZnO TFTs Capped with Molybdenum-Doped ZnO UV-Shield Layers
Chengyuan Dong, Shanghai Jiao Tong University, Shanghai, P. R. China

P.19: Suppression of Light-Induced Instability of BCE InGaZnO Transistors and Panel Flicker Improvement for a 32-in. 8K x 4K LCDs
Long-Qiang Shi, Shenzhen China Star Optoelectronics Technology Co., Ltd., Guangdong, P. R. China

P.20: Optimization of N2O Plasma Treatment for High Performance and Stability of Self-Aligned Top-Gate a-IZO TFTs
Won-Seok Lee, Silvaco Korea Co., Ltd., Seoul, South Korea

P.21: The Effect of Thermal Annealing Sequence on the Performance of Self-Aligned Top-Gate a-IGZO TFTs
Shengdong Zhang, Peking University, Shenzhen, P. R. China

P.22: Splice Model for Detection of Dynamic Threshold-Voltage Shift During Failure Analysis of Oxide-TFT-Based AMD Gate Drivers
Ting-Yu Hsu, AU Optronics Corp., Hsinchu, Taiwan, ROC

P.23: A Narrow-Bezel a-Si TFT-LCD with a Vertical Gate-Line-in-Pixel Structure
Takafumi Hashiguchi, Mitsubishi Electric Corporation, Kumamoto, Japan
P.28: Robust Gate-Driven Design with ESL IGZO TFTs Using a Stacked Buffer Structure  
Congwei Liao, Peking University, Shenzhen, P. R. China

P.29: Flexible Gate Driver for Bendable AMOLED Display with Homojunction Oxide TFTs  
Jin Jang, Kyung Hee University, Seoul, South Korea

P.30: Novel V<sub>th</sub> Compensating LTPS Pixel Circuit for AMOLED Displays  
Keiichi Sano, Fordley Hong Kong Ltd., Hong Kong

P.31: New Pixel Circuit Using Constant Charging Current to Achieve High Driving Voltage for Blue-Phase LCDs  
Chih-Lung Lin, National Cheng Kung University, Tainan, Taiwan, ROC

P.32: Light Shielding Layers Enabled Full Swing Multi-Layer MoS2 Inverters for the Application of Photodetectors  
Sung Hun Jin, Incheon National University, Incheon, South Korea

P.33: High-Performance and Large-Area Metal Chalcogenide Semiconductors by Sol-Gel Method  
Sung-Min Kwon, Chung-Ang University, Seoul, South Korea

P.221: Late-News Poster: Indium Gallium Zinc Oxide Based Phototransistor for Visible Light Detection by Stacking Solution Processed Defective Oxide Layer  
Hyun Jae Kim, Yonsei University, Seoul, South Korea

P.222: Late-News Poster: Fabrication of Nitrocellulose Based Organic Material as a Gate Dielectric Layer for Oxide Thin-Film Transistor  
Hyun Jae Kim, Yonsei University, Seoul, South Korea

Applied Vision

P.34: Compare and Model Multi-Level Stereoscopic 3D Visual Fatigue Based on EEG  
Danli Wang, Chinese Academy of Sciences, Beijing, P. R. China

P.35: Evaluation of Perceived See-Through Level for Transparent OLED Displays  
Chang-Mo Yang, Inha University, South Korea

P.36: Evaluation of the Fatigue of the Influence of Blue Light from an LCD, Low-Blue-Light LCD, and an OLED Display  
Bo-Sang Kim, Korea University, Seoul, South Korea

P.37: A Study on the Correlation between the Human Visual System and the Contrast Modulation in a UHD Display Resolution  
Yoonjung Kim, Ewha Color Design Research Institute, Seoul, South Korea

P.216: Late-News Poster: Reproduction of Perceptual Reality in Standard-Dynamic-Range (SDR) Environments Using High-Dynamic-Range (HDR) Images Compressed by Global Tone Mapping  
Sakichi Ohitsuka, Kagoshima University, Kagoshima, Japan

Automotive/Vehicular Displays

P.39: Simulation of Anti-Glare Cover Glass Using Fourier Optics Consistent with Sparkle and Other Visual Performances  
Masanobu Ishikawa, Asahi Glass Co. Ltd., Yokohama, Japan

P.40: High-Performance Curved Free-Form Automotive Displays  
Qing Ma, BOE Technology Group Co., Ltd., Beijing, P. R. China

P.41: Development of High-Luminance Curved Backlight Modules for Automotive Display Applications  
Jun Ho Kim, Sungkyunkwan University, Suwon, South Korea

P.42: Advances in UV-Curing Silicone Optical Bonding Resins Designed for High-Reliability Automotive and Curved-Display Applications  
Liting Fang, Tianma Microelectronics Co., Ltd., Xiamen, China

Display Electronics

P.43: New Active Multiplexer Driving for Large-Sized NMOS LTPS-TFT Display  
Peng-Bo Xi, AU Optronics Corp., Hsinchu, Taiwan, ROC

P.44: Driving Methods for High Charging and Discharging Ratio of Pixels in Ultra-High-Resolution LCDs  
BoGun Seo, LG Display Co., Ltd., Gyeonggi-do, South Korea

P.45: Gate Driver Circuit with Pre-Bootstrapping Using Organic TFTs  
Chin Hee Kim, Sungkyunkwan University, Suwon, South Korea

P.46: An Oxide-Semiconductor Technology-Based Display Controller Suitable for an OS Display Comprising a Non-Volatile Scan Register for Display-Parameter Setting  
Shintaro Harada, Semiconductor Energy Laboratory Co. Ltd., Kanagawa, Japan

P.47: A Gate Driver Circuit with a-IGZO TFTs for an 8-in. QXGA TFT-LCD Panel  
Chun-Ta Wu, AU Optronics Corp., Hsinchu, Taiwan, ROC

P.48: An Oxide-Semiconductor FET-Based Low-Power Level Shifter Combined with OS LSI Technology-Based Display-Controller COG for a Low-Power OS Display System  
Hirotoshi Inoue, Semiconductor Energy Laboratory Co. Ltd., Kanagawa, Japan

P.49: New RGBW Mapping Algorithm for High-Image-Quality LCDs  
Biao Pan, Wuhan China Star Optoelectronics Technology Co., Ltd., Wuhan, P. R. China

P.50: Development of Multilevel Memory Consisting of Oxide TFTs  
Seung-Woo Lee, Kyung Hee University, Seoul, South Korea

P.51: Analysis of Flicker-Enhancement Results Using Polarity MUX  
Mincheul Kim, LG Display Co., Ltd., Gyeonggi-do, South Korea

P.52: A Fibonacci-Like Charge Pump and Its Current-Drive-Capacity Enhancement for Display-Driven ICs  
Dedong Ding, Peking University, Shenzhen, P. R. China

P.53: A Novel Pixel Circuit Providing Expanded Input Voltage Range for OLEDoS Microdisplays  
Binjie Liu, Peking University, Shenzhen, China

P.54: A High-Voltage Analog Adder Based on a Class-B Amplifier for the Source Driver of an AMOLED External Compensation Scheme  
Shengdong Zhang, Peking University, Shenzhen, China

P.236: A Coupling of Crossing Lines between MIPI and Touch Signals  
Sang Kook Kim, Samsung Display Co., Ltd., Yongin, South Korea

P.237: Late-News Poster: Single Package DC/DC Converter for Tablet OLED
Display Manufacturing

P.55: Development of a High-Resolution Display with ES- and BCE-Type Oxide TFTs
Bo-Liang Yeh, AU Optronics Corp., Taoyuan, Taiwan, ROC

Hongyuan Xu, Shenzhen China Star Optoelectronics Technology Co., Shenzhen, P. R. China

P.57: Back-Channel-Contamination-Induced a-Si TFT Deterioration During the Manufacturing Process
Younes Ley, Shenzhen China Star Optoelectronics Technology Co., Ltd., Shenzhen, P. R. China

P.58: Fabrication of Flexible Transparent Electrodes by Using Field-Assisted Nanowire Chaining
Makhshid Sam, University of Victoria, Victoria, British Columbia, Canada

P.59: Analysis of Ink-Jet-Printing Mura in the PI Film on TFT-LCDs
Guoqing Ma, Beijing BOE Display Technology Co., Ltd., Beijing, P. R. China

P.60: The Use of a Black Sealant in a Narrow Bezel Design
Ji-Won Lim, LG Display Co. Ltd., Gyeonggi-do, South Korea

P.61: Evaluation of a High-Sensitivity PAC Material to Improve Aligner Lens Mura
Youngho Na, LG Display Co. Ltd., Gyeonggi-do, South Korea

P.62: Non-Destructive Patterning Process of Transparent Graphene Electrodes
Kang Guo, Beijing BOE Technology Group Co., Beijing, P. R. China

P.63: Lower Reflective TFT Materials and Technology Innovation
Shoukuo Wang, Beijing BOE Display Technology Co., Ltd., Beijing, P. R. China

P.64: The Property Differences of Copper Thin Films Deposited by One-Step and Multi-Step DC Magnetron Sputtering Technique
Hui Xia, Shenzhen China Star Optoelectronics Technology Co., Shenzhen, P. R. China

P.65: Application of Large-Curvature LCDs and Glass-Fracture Analysis
Jiaxin Li, Shenzhen China Star Optoelectronics Technology Co., Shenzhen, P. R. China

P.66: Study on the Stress Deformation in the Border Zone of an LCD Panel
Wei Zhang, BOE Hefei Optoelectron Technology Co., Ltd., Hefei, P. R. China

P.67: An Analytical Method of Small-Sized Module Waving Based on the Finite-Element Simulation
Bingchuan Zhang, Wuhan China Star Optoelectronics Technology Co., Ltd., Wuhan, P. R. China

P.68: Analysis and Solution of Horizontal Line Defect Occurring During Reliability Testing in a 55-in. UD TFT-LCD TV with a-Si Integrated Gate-Driven Technology
Li Mei Zeng, Shenzhen China Star Optoelectronics Technology Co., Ltd., Shenzhen, P. R. China

P.69: Leaked Light Field: A Design Method for Using Natural Materials as the Display Surface
Kazuki Takazawa, University of Tsukuba, Tsukuba, Japan

P.70: Single-Array Nozzle Source Method for Homogeneous Mixed Organic Thin Film and Low Shadow Mask in 6GH AMOLED Mass Production
Sungmoon Kim, YAS Co., Ltd., Gyeonggi-do, South Korea

P.71: Cost Analysis of a-Si and Organic-Semiconductor-Based TFT Backplanes for FPDs
Charles Amnis, IHS Markit, Kyoto, Japan

P.72: Invar Fe-Ni Alloy Metallization by Electroless Plating for TFTs
Takayo Yamamoto, Kyoto Municipal Institute of Industrial Technology and Culture, Kyoto, Japan

P.73: A Novel Substrate Material for Low-Cost-Complexible Flexible Backplane Manufacturing
Adrian Avendano-Bolvair, ARES Materials, Inc., Dallas, TX, USA

P.74: Optically Clear DLC for Protecting Electronic Displays
Liu Min, Demtech, Santa Clara, CA, USA

P.75: Mechanical Reliability of Curved Display Panels
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