



University of Stuttgart  
Eurodisplay 2022



# **Eurodisplay 2022**

**September 19<sup>th</sup> 2022 – September 23<sup>rd</sup> 2022**

**University of Stuttgart  
Germany**

## **Preliminary Program**

*The information given here is preliminary and subject to change. Please check for updates from time to time*

*Last change: September 1<sup>st</sup> 2022*



## Sponsors and Exhibitors:



Fraunhofer Institute for Organic  
Electronics, Electron Beam and  
Plasma Technology FEP



higher color fidelity



KONICA MINOLTA



TechnoTeam  
Bildverarbeitung GmbH

TRUMPF



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EUROLCDs



FLUXiM



# Monday

## Workshop - Sputtering and Lithography

19. Sep. 22, 08:00 AM - 19. Sep. 22, 12:00 PM

## Lunch Break

19. Sep. 22, 12:00 PM - 19. Sep. 22, 01:00 PM

## Workshop - Orientation layer

19. Sep. 22, 01:00 PM - 19. Sep. 22, 07:00 PM

# Tuesday

## Workshop - Cell assembly

20. Sep. 22, 08:00 AM - 20. Sep. 22, 12:00 PM

## Lunch Break

20. Sep. 22, 12:00 PM - 20. Sep. 22, 01:00 PM



## **Workshop - Vacuum filling**

20. Sep. 22, 01:00 PM - 20. Sep. 22, 07:00 PM

## **Wednesday**

### **Registration Desk open**

21. Sep. 22, 08:30 AM - 21. Sep. 22, 10:30 AM

### **Welcome Remarks**

21. Sep. 22, 10:15 AM - 21. Sep. 22, 10:30 AM, Room V 47.03

### **Keynote Session**

21. Sep. 22, 10:30 AM - 21. Sep. 22, 12:00 PM, Room V 47.03

*Chair: Patrick Schalberger*

*Co-Chair: Norbert Fruehauf*

#### **K-1: Future Automotive Displays: Tec, Vision & Trends**

10:30 AM Volker Reinhold, Mercedes-Benz AG

#### **K-2: Recent Challenges in OLED Material Development**

11:15 AM Christof Pflumm, Merck KGaA



## Lunch Break

21. Sep. 22, 12:00 PM - 21. Sep. 22, 01:00 PM

## Session 1 - Emerging Technologies 1

21. Sep. 22, 01:00 PM - 21. Sep. 22, 02:25 PM, Room V 47.03

*Chair: Mamoru Furuta*

*Co-Chair: Martin Römhild*

### **1-1: Letter Reproduction from Incomplete Image to Complete Image by Neuromorphic System using LSI Neurons and MOSFET Synapses**

01:00 PM Mutsumi Kimura, Ryukoku University

### **1-2: *Invited*: Building Active Matrix By Additive Manufacturing (BAMBAM)**

01:20 PM Hugues Lebrun, Aledia, France

### **1-3: Direct-View Lightfield Displays Using Micro-optic Elements**

01:45 PM Rohan Kundu, Institute for Applied Physics, Friedrich-Schiller-University, Jena, Germany

### **1-4: Electro-optical characterization of electrophoretic light modulator**

02:05 PM Anatolie Mitioglu, eLstar Dynamics

## Session 2 - Manufacturing

21. Sep. 22, 02:30 PM - 21. Sep. 22, 03:30 PM, Room V 47.03

*Chair: Filip Granek*

*Co-Chair: Holger Baur*



## **2-1: Optimization of Total Light Transmittance for AR/VR Displays by Use of Silica Based Thin Films**

02:30 PM Ainars Ozols, EuroLCDs

## **2-2: Influence of Gas Composition during IGZO-Deposition for different TFT Structures and Introduction of IGZO Double Layers**

02:50 PM Florian Kleber, Institute for Large Area Microelectronics and Research Center SCoPE, University of Stuttgart

## **2-3: TRUMPF Industrial Laser Solutions for flexible OLED and FPD Manufacturing**

03:10 PM Michael Lang, TRUMPF Laser- und Systemtechnik GmbH

## **Coffee Break**

21. Sep. 22, 03:30 PM - 21. Sep. 22, 04:00 PM

## **Poster Session**

21. Sep. 22, 03:30 PM - 21. Sep. 22, 05:30 PM

### **P-1: Performance Enhancement of Indium Oxide Thin Film Transistor using Al<sub>2</sub>O<sub>3</sub> and SiO<sub>2</sub> Buffer Layers with Trench Structure by means of Plasma Enhanced Atomic Layer Deposition and Application for Flexible Device**

Youngjun Im, KAIST

### **P-2: Hydrogen Assisted Mechanism of Abnormal Threshold Voltage Negative Shifting of Oxide TFTs under Positive Bias Temperature Stress**

Seong-In Cho, KAIST



**P-3: Enhanced water vapor barrier property and long-term stability of PECVD-based silicon nitride encapsulation film through H<sub>2</sub> supplement**

Jingyu Kim, KAIST

**P-4: Surface Treatment for Hydrophilization of Polytetrafluoroethylene using Atmospheric-pressure Plasma by Argon Gas with Water-Ethanol Vapor**

Yuki Takino, Graduate School of Engineering, Kochi University of Technology

**P-5: ZnO Thin Films Synthesized by Mist Chemical Vapor Deposition for Self-Clean Surface Application**

Taiki Terakura, Kochi University of Technology

**P-6: Fabrication of Transparent and Conductive Oxide Films for Well-arranged Growth of ZnO Nanorods**

Ryusei Yamashita, Kochi University of Technology

## Thursday

### Welcome

22. Sep. 22, 08:55 AM - 22. Sep. 22, 09:00 AM, Room V 47.03

### Welcome

22. Sep. 22, 08:55 AM - 22. Sep. 22, 09:00 AM, Room V 47.05



## Session 3 - Active Matrix and TFT

22. Sep. 22, 09:00 AM - 22. Sep. 22, 10:30 AM, Room V 47.03

*Chair: Mutsumi Kimura*

*Co-Chair: Florian Kleber*

### **3-1: Solid-State-Laser Annealing (SLA) Enhancing OLED Display Technology**

09:00 AM Sebastian Geburt, Innovaent GmbH

### **3-2: High Gain Operational Amplifier Using Enhancement and Depletion Mode a-IGZO TFTs**

09:20 AM Yannick Schellander, Institute for Large Area Microelectronics and Research Center SCoPE, University of Stuttgart

### **3-3: High Performance MEMS Shutter Display with Metal Oxide Thin Film Transistors**

09:40 AM Sheikh Abdullah Al Nusayer, Institute for Large Area Microelectronics and Research Center SCoPE, University of Stuttgart

## Session 4 - Emerging Technologies 2

22. Sep. 22, 09:00 AM - 22. Sep. 22, 10:30 AM, Room V 47.05

*Chair: Alex Henzen*

*Co-Chair: Marc Wilke*

### **4-1: Effects of surface alignment conditions on the polarization properties of blue-phase liquid crystals**

09:00 AM Sumanyu Chauhan, Huawei Munich Research Center

### **4-2: Ultrasound Transducer on Flexible Substrate for Mid-Air Haptic and Touch Application**

09:20 AM Yongbin Jeong, IMEC, Leuven, 3001, Belgium

### **4-3: *Invited*: Integration of Through Glass Via Interconnects within Thin Film Transistor Active Matrix Backplanes**





09:40 AM Rajesh Vaddi, Corning Research & Development Corporation,  
Corning NY

**4-4: *Invited*: Exploring the potential of illumination by holographic projection in active 3D Imaging**

10:05 AM Ian Underwood, University of Edinburgh; School of Engineering

## Coffee Break

22. Sep. 22, 10:30 AM - 22. Sep. 22, 11:00 AM

## Session 5 - OLED

22. Sep. 22, 11:00 AM - 22. Sep. 22, 12:30 PM, Room V 47.03

*Chair: Armin Wedel*

*Co-Chair: Yannik Schellander*

**5-1: Accelerated Lifetime Testing and Degradation Mechanisms of a Blue TADF OLED**

11:00 AM Simon Züfle, Fluxim AG

**5-2: Emissive microdisplays: The quest for  $\mu$ LED frontplane technology - as seen from an OLED and CMOS backplane perspective**

11:20 AM Uwe Vogel, Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP

**5-3: Digital twins of OLEDs: Predicting the impact of molecular properties on device performance**

11:40 AM Tobias Neumann, Nanomatch GmbH

**5-4: Accelerating OLED R&D with Digital Twins**

12:00 PM Siebe van Mensfoort, Simbeyond B.V.

## **Session 6 - Modern Displays**

22. Sep. 22, 11:00 AM - 22. Sep. 22, 12:30 PM, Room V 47.05

*Chair: Karlheinz Blankenbach*

*Co-Chair: Holger Baur*

### **6-1: The Study for the Optimum Curvature of Gaming Monitor considering Game Performance**

11:00 AM Yoojin Kang, LG display Co., Ltd

### **6-2: Switchable Privacy Device for Modern Laptops**

11:20 AM Timothy Large, Microsoft (UK) Ltd

### **6-3: Challenges in Uniformity and Defect Measurements of Curved Displays**

11:40 AM Kedar Sathaye, Konica Minolta Sensing Europe

### **6-4: A 0.9-inch Native 8K LCOS microdisplay and its SLM applications**

12:00 PM Koichi Amari, Stuttgart Laboratory2, R&D Center, Sony Europe B.V., Stuttgart, Germany

## **SID-ME Chapter General Meeting**

22. Sep. 22, 12:30 PM - 22. Sep. 22, 01:00 PM, Room V 47.05

## **Lunch Break**

22. Sep. 22, 12:30 PM - 22. Sep. 22, 01:30 PM



## Session 7 - Quantum Dots

22. Sep. 22, 01:30 PM - 22. Sep. 22, 03:00 PM, Room V 47.03

*Chair: Chaoyang Li*

*Co-Chair: Florian Kleber*

### **7-1: Giant Shell Quantum Dots for color conversion and as active material in QLEDs**

01:30 PM Jan Niehaus, Fraunhofer CAN

### **7-2: Application of InP/GaP/ZnSeS Quantum Dots in Electrohydrodynamic Jet Printing for Electroluminescence Devices.**

01:50 PM Jiyong Kim, Fraunhofer Institute for Applied Polymer Research

### **7-3: *Invited*: Progress in Quantum Dots for Display Technologies - Materials and Processing**

02:10 PM Armin Wedel, Fraunhofer Institute for Applied Polymer Research, Potsdam, Germany

## Session 8 - Display Metrology and Application

22. Sep. 22, 01:30 PM - 22. Sep. 22, 03:00 PM, Room V 47.05

*Chair: Ian Underwood*

*Co-Chair: Yannik Schellander*

### **8-1: A Circuit Modeling Method of OLED On-Cell Touch Panels Including the Touch Objects for Full-Frame Touch Simulation**

01:30 PM Seung-Hun Choi, Korea University

### **8-2: Digital Video's Limitations are Impeding the Market Transition from 4K to 8K Displays. Modulated Analog Video Is the Way Forward!**

01:50 PM Alex Henzen, HYPHYUSA

### **8-3: Reproducibility and Sensitivity Experiments of Display-MTF using ILMDs with Fixed Focus Macroscopic Lenses**



02:10 PM Ingo Rotscholl, TechnoTeam Bildverarbeitung GmbH

**8-4: Immersive Multiuser VR Displays Based on LED-Technique with six different views**

02:30 PM Steffen Hergert, xCave Technology GmbH

**Social Event: Visit of Mercedes Benz Museum including Dinner**

22. Sep. 22, 03:40 PM - 22. Sep. 22, 09:00 PM

## Friday

### Welcome

23. Sep. 22, 08:55 AM - 23. Sep. 22, 09:00 AM, Room V 47.03

### Session 9 - Novel Applications

23. Sep. 22, 09:00 AM - 23. Sep. 22, 10:00 AM, Room V 47.03

*Chair: Takahiro Ishihara*

*Co-Chair: Marc Wilke*

**9-1: Smart Window by Nano-Pigments in Asymmetric Patterns**

09:00 AM Yonghyeon Lee, Seoul National University of Science and Technology

**9-2: Fit for purpose: Flexible electronic design from devices to systems**



09:20 AM Radu A. Sporea, Advanced Technology Institute, University of Surrey

### **9-3: 3D Pupil Tracking Using a Stereo Camera**

09:40 AM Can Oguz, Koc University

## **Session 10 - Automotive**

23. Sep. 22, 10:10 AM - 23. Sep. 22, 10:50 AM, Room V 47.03

*Chair: Hugues Lebrun*

*Co-Chair: Marc Wilke*

### **10-1: *Invited*: Augmented Reality in Automotive: HUD vs. Transparent Displays vs. Video-AR**

10:10 AM Karlheinz Blankenbach, Pforzheim University Display Lab

### **10-2: Automotive Displays - LCDs vs. OLEDs: Merits and Shortcomings**

10:35 AM Faraz Bhatti, Pforzheim University Display Lab

## **Coffee Break**

23. Sep. 22, 10:50 AM - 23. Sep. 22, 11:20 AM

## **Session 11 - Emerging Technologies 3**

23. Sep. 22, 11:20 AM - 23. Sep. 22, 12:50 PM, Martin Römhild V 47.03

*Chair: Radu Sporea*

*Co-Chair: NN*



**11-1: *Invited*: Ultra-Precise Deposition for the Fabrication of Next-Generation OLED, MicroLED, and QD-LED Displays**

11:20 AM Filip Granek, XTPL SA, Stablowicka 147, 54-066 Wroclaw, Poland

**11-2: *Invited*: Material Innovation for Future Stretchable Displays**

11:45 AM Takahiro Ishinabe, Department of Electronic Engineering, Graduate School of Engineering, Tohoku University

**11-3: Annealing Temperature Effects on the Growth and Photoluminescence of Nanostructured ZnO Thin Film Phosphor**

12:10 PM Chaoyang Li, Kochi University of Technology

**11-4: A Reflection Model for LCDs under Daylight**

12:30 PM Ramazan Ayasli, Saarland University, Saarbrücken, Germany

**Lunch**

23. Sep. 22, 01:00 PM - 23. Sep. 22, 02:00 PM

**Farewell: Farewell Event at Cannstatter Wasen Beer Festival**

23. Sep. 22, 05:00 PM - 23. Sep. 22, 09:00 PM



## List of Authors

Amari, Koichi

6-4

An, Jun-Yeol

8-1

Ayasli, Ramazan

11-4

Bantounos, Konstantinos

4-4

Baur, Holger

1-2

Baur, Holger

3-3

Becker, Sören

7-1

Bhatti, Faraz

10-2

Blankenbach, Karlheinz

10-2

Blankenbach, Karlheinz

10-1

Blülle, Balthasar

5-1

Boeffel, Christine

7-3

Boeffel, Christine

7-2

Brenet, Simon

1-2

Brown, Justin

1-2

Brüning, Robert

1-3

Bürner, Julian

11-4

Chare, Christopher

4-2

Chauhan, Sumanyu

4-1

Cho, Seong-In

P-2

Choi, Hyung Seok

7-3

Choi, Seung-Hun

8-1

Choi, Yoon-Kyung

8-1

Cuypers, Dieter

4-1

Dannberg, Peter

1-3

David, David

4-2

De Nolf, Kim

1-2

De Smet, Herbert

4-1

Dolde, Manfred

8-4

Fecioru, Alin

1-2

Fediai, Artem

5-3

Fiaczyk, Karolina

11-1

Fitriani, Sukma

P-4

Fruehauf, Norbert

2-2, 3-2, 3-3, 1-2

Fuchs, Emmanuel

1-2

Furuta, Hiroshi

P-4

Gadola, Arno

5-1

Gadzalinska, Jolanta

11-1

Garner, Sean

4-3

Ge, Ge

3-2

Geburt, Sebastian

3-1

Gensler, Manuel

7-2, 7-3



Gijsenbergh, Pieter

4-2

Gomez , David

1-2

Gottardi, Stefano

5-4

Gradzka-Kurzaj, Iwona

11-1

Granek, Filip

11-1

Gürtler, Roland

8-3

Hatta, Akimitsu

P-4

Hauenstein, Christoph

5-4

Henzen, Alex

8-2

Heo, Seonggil

9-1

Heremans, Paul

4-2

Hergert, Steffen

8-4

Hudson, Daniel

5-1

Im, Youngjun

P-1

Ishinabe, Takahiro

11-2

Iwasaki, Daichi

11-3

Jenatsch, Sandra

5-1

Jeong, Yongbin

4-2

Kahlert, Hans-Juergen

3-1

Kang, Yoojin

6-1

Kanungo, Mandakini

4-3

Kim, Jingyu

P-3

Kim, Jiyong

7-2, 7-3

Kim, Si-Woo

8-1

Kim, Yohan

7-3

Kim, Yohan

7-2

Kimura, Mutsumi

1-1

Kleber, Florian

2-2, 3-3

Kosior, Lukasz

11-1

Kowalczewski, Piotr

11-1

Kroepke, Stefan

7-2

Krüger, Udo

8-3

Kundu, Rohan

1-3

Kuseyri, Resit

9-3

Kwon, Hyeokjun

6-1

Lahri, Asmita

6-2

Lang, Michael

2-3

Large, Timothy

6-2

Lazarev, Grigory

4-1

Lebrun, Hugues

1-2

Lee, Don Gyou

6-1

Lee, Hyemin

9-1

Lee, Hyung-Min

8-1

Lee, Jae-Youl

8-1

Lee, Yonghyeon

9-1





Levesque, Daniel	9-3
4-3	Okoro, Chukwudi
Li, Chaoyang	4-3
P-5, P-6, 11-3	Ouyang, Yunyi
Lim, Kyongho	3-2
6-1	Ozols, Ainars
Linina, Elza	2-1
2-1	Paddock, Barry
Lotter, Judith	4-3
8-3	Park, Sang-Hee
Lysien, Mateusz	P-1, P-2, P-3
11-1	Park, Tae-Yong
Mahakalkar, Kalyani	6-1
2-2	Pflumm, Christof
MASSARD, Romaric	K-2, 5-1
1-4	Rammeloo, Stijn
Mazumder, Prantik	1-2
4-3	Reinhold, Volker
Meitl , Matt	K-1
1-2	Richter, Bernd
Mitioglu, Anatolie	5-2
1-4	Richter, Johannes
Miyamae, Yoshinori	3-1
1-1	Rotscholl, Ingo
Molloy, Simon	8-3
8-2	Ruhstaller, Beat
Mueller, Ralf	5-1
3-1	Sathaye, Kedar
Nakashima, Yasuhiko	6-3
1-1	Schalberger, Patrick
Nakonechnyi, Igor	3-2, 3-3
1-2	Schellander, Yannick
Neumann, Tobias	3-2
5-3	Schlicke, Hendrik
Niehaus, Jan	7-1
7-1	Schmidt, Maxim
Nusayer, Sheikh Abdullah Al	11-4
3-3	Schneider, Ludovic
Obermueller, Simon	11-1
3-2	Schöneich, Cerstin
Ock, JongHwan	1-3
6-1	Schreiber, Peter
Oelschläger, Antje	1-3
1-3	Sem, Stefano
Oguz, Can	5-1



Shibata, Yosei	1-2
11-2, 11-2	Vogel, Uwe
Smeeton, Tim	5-2
4-4	Wahle, Markus
Sporea, Radu A.	4-1
9-2	Walravens, Willem
Steegmüller , Ulrich	1-2
1-2	Wartenberg, Philipp
Strunk, Timo	5-2
5-3	Wedel, Armin
Swiderek , Dariusz	7-2, 7-3
1-2	Wenzel, Wolfgang
Symalla, Franz	5-3
5-3	Wiatrowska, Aneta
Takino, Yuki	11-1, 1-2
P-4	Willem , Patrick
Tamura, Mitsuo	1-2
1-1	Winter, Marius
Terakura, Taiki	2-2, 3-2
P-5	Witczak, Lukasz
Thau, Simone	11-1
1-3	Xu, Sascha
Torun, Engin	11-4
5-4	Yajima, Hideki
Tünnermann, Andreas	P-4
1-3	Yamashita, Ryusei
Underwood, Ian	P-6
4-4	Yilmaz, Cemalettin
Vaddi, Rajesh	9-3
4-3	Yoon, Hyunsik
van Eersel, Harm	9-1
5-4	Zabels, Roberts
van Mensfoort, Siebe	2-1
5-4	Züfle, Simon
van Rijswijk, Tom	5-1
1-4	5-1
Vetsuypens, Arnaut	



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