

SID VEHICLE DISPLAYS & INTERFACES 2021

28th ANNUAL SYMPOSIUM & EXPO

PROGRAM

September 28-29, 2021

Burton Manor Conference Center, Livonia, MI

TUESDAY, SEPTEMBER 28, 2021

7:30 am – 5:00 pm REGISTRATION OPEN

Supported by  **Henkel**

7:30 – 8:30 am BREAKFAST

Supported by  **eldim**

8:35 – 8:45 am Welcoming Remarks

Silviu Pala, *Automotive Display, Southfield, MI, US*

9:00 am – 5:00 pm TABLETOP EXHIBITS OPEN

8:45 – 9:30 am KEYNOTE ADDRESS

Automotive Augmented Reality: User Experience and Enabling Technology

Kai-Han Chang and Thomas Seder

Vehicle Systems Research Lab, General Motors Research and Development, MI, US

9:30 – 10:00 am REFRESHMENT BREAK (Exhibit Hall)

Supported by  **eldim**

SESSION 1: AUTOMOTIVE MARKET (10:00 – 11:00 am)

Co-Chairs: Silviu Pala, *Automotive Display, Southfield, MI, US*

Michael Boyd, *Yazaki North America, Canton, MI, US*

10:00 – 10:20 am INVITED ADDRESS

1.1 **The Evolution of Displays in Automotive**

Kyle Davis, *IHS Markit, Southfield, MI, US*

10:20 – 10:40 am INVITED ADDRESS

1.2 **Automotive Touch Screen, Display, ADAS, Touchless Control,
Smart Windows and EV Battery Market**

Jennifer Colegrove, *Touch Display Research, Inc., Santa Clara, CA, US*

10:40 – 11:00 am INVITED ADDRESS

1.3 **The Display Industry Post Pandemic**

Bob O'Brien, *Display Supply Chain Consultants, Ann Arbor, MI, US*

SESSION 2: EXHIBITOR PRESENTATIONS (11:00 am – 12:45 pm)

Co-Chairs: Bruce Banter, *Tech-D-P Inc., Northville, MI, US*
Eric Miciuda, *Continental Corporation, Auburn Hills, MI, US*

12:45 – 2:00 pm **LUNCH**
Supported by **SHARP®**

SESSION 3: NEW DISPLAY SOLUTIONS (2:00 – 3:00 pm)

Co-Chairs: David Lambert, *Panasonic, Farmington Hills, MI, US*
Jerzy Kanicki, *University of Michigan, Ann Arbor, MI, US*

2:00 – 2:20 pm **An Automotive Display Driver IC with Embedded Local Dimming
3.1 and 10-bit Color Depth**
Cheng-Chih Deno Hsu, Himax Technologies, HsinChu City, Taiwan

2:20 – 2:40 pm **Design and Operation of Front Passenger Infotainment Displays
3.2 without Driver Distraction**
Graham J. Woodgate and Jonathan Harrold, RealD ME, Oxford, UK
*Michael G. Robinson, Benjamin C. Ihas, Robert A. Ramsey,
RealD ME, Boulder, CO, US*

2:40 – 3:00 pm **Invisible Pillar - Dynamic Content, Far Focused, Sunlight Rejecting
3.3 Vehicle Pillar Display System**
*Nelson R. Mino and William Hutchinson, Thomas Global Systems LLC,
Irvine, CA, US*

SESSION 4: DISPLAY METROLOGY (3:00 – 3:40 pm)

Co-Chairs: Kimberly Peiler, *OSRAM Opto Semiconductors, Inc., Novi, MI, US*
Michael Koch, *Denso, Southfield, MI, US*

3:00 – 3:20 pm **Current Standardization Efforts and Measurement Procedures of
4.1 German Flat Panel Forum (DFF) for Automotive OLED Displays**
K. Blankenbach and F. Bhatti, Display Lab Pforzheim University, Pforzheim, Germany
M. Stuetzel, SemsoTec, Garching, Germany
M. Pohl, BHTC, Lippstadt, Germany
*S. Proemmel, Yanfeng Technology, Neuss, Germany I. Rotscholl,
TechnoTeam, Ilmenau, Germany*
O. Bader, OB-Consulting, Warthausen, Germany
D. Schaffer, Dexerials Europe, Frankfurt, Germany

3:20 – 3:40 pm **Photometric Robotics for Fast and Precise Human-Centered
4.2 Automotive Display Metrology**
Jason Aaron Adams, *Vision USA Inc., Orlando, FL, US*
Ingo Rotscholl and Udo Krüger, *TechnoTeam Bildverarbeitung GmbH,
Ilmenau, Germany*

4.3 **WITHDRAWN**

3:40 – 4:20 pm **REFRESHMENT BREAK (Exhibit Hall)**
Supported by  **eldim**

SESSION 5: TOUCH HMI and DRIVER/INTERFACE (4:20 pm – 5:20 pm)

Co-Chairs: Bruce Banter, *Tech-D-P Inc., Northville, MI, US*
Drew Harbach, *Peterbilt Motors, Denton, TX, US*

4:20 – 4:40 pm **Rethinking Touch HMI Controls for Automotive Displays and
5.1 Smart Surfaces**
Kevin Klein, *Tanvoas, Inc., Chicago, IL, US*

4:40 – 5:00 pm **Touch Technology for Automotive Applications Including
5.2 Linear Correlating Infrared**
Robert D. McCulloch, *A D Metro, Ontario, Canada*

5:00 – 5:20 pm **A New Touch Sensor for Driver and Passenger Identification
5.3**
Gerald Morrison, Dan Van Ostrand, Steve Sedaker,
SigmaSense LLC, Austin, TX, US

5:20 – 6:05 pm **TUTORIAL on Micro-LEDs for Automotive Displays**

6:15 – 9:00 pm **OPTIONAL NETWORKING DINNER AT BURTON MANOR**
Additional Charge (See Registration Desk)

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VOTE FOR BEST IN SHOW

Your vote and opinion count!

We value your input and need you to participate in today's Best in Show voting in the exhibit hall at Vehicle Displays & Interfaces 2021.

Please go to <https://www.surveymonkey.com/r/VH21BIS>

The survey provides a list of all the exhibitors, and we would appreciate you voting on the **one** that most deserves the Best of Show award in your opinion. Please vote by close of show on **Tuesday, September 28, 2021**. Thank you for your participation.

The Best in Show award is intended to honor the most significant advances in automotive display and HMI technology presented by exhibitors during this show. This competition is open to all exhibitors on the show floor. The criteria for judgement are:

- a. Timeliness and significance to the automotive display industry of the products, prototypes, processes, and technologies exhibited.
- b. Creative use of audio, visual, or other effects to present and highlight the new material.

PLEASE COMPLETE THE ONLINE FORM BY THE END OF THE FIRST DAY (TUESDAY, SEPTEMBER 28, 2021). Visit the registration desk if you are unable to access the online form.

Virtual Content for Vehicle Displays & Interfaces 2021

The organizing committee for Vehicle Displays & Interfaces 2021 would like to thank all our attendees, presenters, and exhibitors. We are grateful to come together once more for our annual event in Detroit.

The presentations from the symposium as well as the virtual booths from exhibitors who were not able to travel to Detroit will be available online to registered attendees during the first week of October.

Log-in details will be e-mailed Monday, October 4, 2021.

WEDNESDAY, SEPTEMBER 29, 2021

7:30 am – 12:00 pm **REGISTRATION OPEN**

Supported by  **Henkel**

7:30 – 8:30 am **BREAKFAST**

Supported by  **eldim**

8:45 – 9:00 am **Local SID Chapter Awards**

Bob O'Brien, *Display Supply Chain Consultants, Ann Arbor, MI, US*

Silviu Pala, *Automotive Display, Southfield, MI, US*

9:00 am – 2:00 pm **TABLETOP EXHIBITS OPEN**

SESSION 6: PROJECTION and HEAD-UP DISPLAYS (9:00 – 11:00 am)

Co-Chairs: Ross Maunders, *Stellantis, Auburn Hills, MI, US*

Dan Cashen, *Continental Automotive Group, Auburn Hills, MI, US*

9:00 – 9:20 am **Improving Holographic Image Quality with a Piston-Mode Spatial Light Modulator**
6.1

Kai-Han Chang, *General Motors, R&D, Warren, MI, US*

9:20 – 9:40 am **3D AR-HUD Displays with Pupil Tracking and Rendering Engine**
6.2

Hakan Urey, *CY Vision, San Jose, CA*

9:40 – 10:00 am **Turn Any Window into a Bright, Colorful Display: Smart Glass Films and Projector Design Considerations for Automotive Windshield Designs**
6.3

Ross Schneider and Michael Firth, *Texas Instruments, Dallas, TX, US*

10:00 – 10:20 am **VideowindoW Automotive Application**
6.4

Remco Veenbrink, *VideowindoW, Delft, Netherlands*

10:20 – 10:40 am **Application of a Fully Transparent Photoluminescent Display on Vehicle Glazing and Interior Surfaces**
6.5

Ted Sun, Leonard Sun, Bolt Cheng, *Sun Innovations, Inc., Fremont, CA, US*

10:40 – 10:00 am **Consideration of Image Distance on Cognitive Tunneling with Augmented Reality Head Up Displays**
6.6

Joseph Pullukat and Ethan To, *NS North America/Nippon Seiki, Troy, MI, US*

11:00 – 11:15 am **REFRESHMENT BREAK (Exhibit Hall)**

Supported by  **eldim**

SESSION 7: PANEL DISCUSSION on Future Displays for Future EV (11:15 am – 12:00 pm)

11:15 am – 12:00 pm Moderator: Bob O'Brien, *Display Supply Chain Consultants, Ann Arbor, MI, US*
Participants: Members of government, academia, industry

12:00 am – 1:00 pm **LUNCH**

Supported by **SHARP**

SESSION 8: MATERIALS, FILMS AND COATINGS (1:00 – 3:00 pm)

Co-Chairs: Kai-Han Chang, *General Motors Global R&D, Pontiac, MI, US*

1:00 – 1:20 pm **Introduction of Novel Particle-Arrayed ACF for Fine Pitch Connection**
8.1 Daisuke Hanai, *Dexerials Corporation, Shimotsuke-shi, Japan*

1:20 – 1:40 pm **Material & Process of Structural Bonding for Automotive Displays**
8.2 Penny Yi Pan, *Henkel China Investment Co., Ltd., Shanghai, China*

1:40 – 2:00 pm **Digitization of Light and the Trends on Automotive Exterior Lighting**
8.3 Richard Nguyen and Kimberly Peiler, *ams OSRAM, Novi, MI, US*
Ulrich Kizak, *ams OSRAM, Regensburg, Germany*

2:00 – 2:20 pm **Expanded Capabilities of High-Performance Optically Clear Adhesives**
8.4 **Enable Options for Automotive Displays**
Ryan Eismín, Olivier Wang, Shingo Amari, Guido Timmermanns,
Abel Ebongue, *3M, Saint Paul, MN, US*

2:20 – 2:40 pm **High Refractive Index Silicone OCRs for Automotive Display Applications**
8.5 Thomas Gadda, *PiBond, Espoo, Finland*

2:40 – 3:00 pm **New Modeling: How Advanced Light Control Film Improves**
8.6 **Design Flexibility and Vehicle Safety**
John VanDerlofske, Jincy Jose, Matt Philippi, *3M, St. Paul, MN, US*