



PROCEEDINGS



International Conference and Exhibition

# SIA VISION 2021

Vehicle and Infrastructure Safety  
Improvement in Adverse Conditions

17 - 18 MARCH 2021

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**Hector Fratty,**  
Conference Chair,  
Driving Vision News

## The Tall Challenges Of SIA VISION 2021

The SIA VISION 2018 congress was highly satisfactory: the congress had taken place in an admirable manner with 27 exhibitions, 31 conferences, a panel discussion bringing together the greatest experts, and above all more than 600 participants from 24 countries on four continents—a growth of more than 20%. It was a terrific success, and the target for the subsequent 2020 congress was very ambitious, to build on that growth.

Then came the pandemic and forced a change of plans. But the ambition remains the same, even though the congress was shifted from an in-person Autumn 2020 event to an online event. So how does that work? How do we keep our targets and goals despite such a major shift? Here's how: we carefully adjusted the time schedule of the program to allow participants all over the world to follow the congress as conveniently as possible – we will start later in the morning and will stop earlier in the afternoon, from the European perspective. We've made the conference in two parallel sessions.

We've enticed Marie Gautier-Melleray, the French Interministerial Delegate for Road Safety, to open the congress together with future Valeo CEO Christophe Perillat. We've organised a panel discussion to talk about challenges, benefits, and drawbacks of sensor integration into headlamps and front ends, with four top experts: Stellantis ADAS Research and Innovation expert Matthieu Dabek; Valeo ADAS CTO Joachim Mathes, Volvo Cars Exterior Lighting Technical Leader Paul-Henri Matha, and Marelli Automotive Lighting's VP of Research and Development, Andrea Stella.

And—best of all—we've convinced all the originally-scheduled speakers to present their lectures as expected! So our ambitious targets are the same, and we fully expect to meet them with a grand, successful VISION 2021 that will serve the entire Lighting & DA communities.

We are glad to (virtually) see you there!

Enjoy the conference & networking opportunities.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'H Fratty'.

## COMMITTEES

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Hector FRATTY, DRIVING VISION NEWS

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# INNOVATIVE LIGHTING SOLUTIONS

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Marelli Automotive Lighting is one of worldwide leading vendors of headlamps, rear lamps and lighting electronics. Our expertise in intelligent light systems makes us the partner of choice for innovative vehicle lighting and future sensor-based solutions for automated driving. With plants in 16 countries on 5 continents we are always close to our customers.



## PROGRAMME 17 MARCH 2021

08:00 > OPENING OF THE PLATFORM // FEW TIPS FOR THE ATTENDEES

### OPENING PLENARY SESSION

09:45 > **Welcome Introduction**  
Frédéric CHARON, Chief Executive, *Société des Ingénieurs de l'Automobile*

09:50 > **Opening address by the SIA VISION Conference Chair**  
Hector FRATTY, *Driving Vision News*

09:55 > **KEYNOTE SPEECH**  
Marie GAUTIER-MELLERAY - Interministerial Delegate for Road Safety, *French Government*

10:10 > **KEYNOTE SPEECH**  
Christophe PERILLAT - Associate CEO, *Valeo*

### SESSION 1 • HEADLAMP TECHNOLOGIES Chairman: Paul-Henri MATHA, Volvo Cars

10:30 > **How the expansion of lighting and the integration of sensors will change vehicles perception and near field communication**  
Benoit REISS & Benoist FLEURY, *Valeo*

10:50 > **High definition pixelated-LED-based headlamp modules: major challenges and state-of-the-art development methods**  
Reza LARIMIAN, *ZKW Group*

11:10 > **The head and taillamp concepts of the new BMW 5 Series**  
René ÜBLER, *BMW*

11:30 > **Phabulops: Freeform micro-optics for automotive applications**  
Benjamin WILLEKE, *HELLA*

11:50 > **RENAULT LED Front Lighting for Economic Vehicles**  
François BEDU, *Groupe RENAULT*

12:10 > **PANEL DISCUSSION • SESSION 1**

12:40 > VIRTUAL LUNCH BREAK

### SESSION 2 • ADB TECHNOLOGIES Chairman: Christophe LE LIGNE, Valeo

14:00 > **Mockup and Demonstrator of a High Resolution Active Pixel-LED headlamp with 100k Pixel Performance**  
Stefan GROETSCH, *OSRAM*

14:20 > **A strategy for the integration of ADB headlamps and HD headlamps**  
Whilk GONCALVES, *Stellantis*

14:40 > **MEMS Laser Head Lamp**  
Yuto KANBE, *Stanley Electric Co.*

15:00 > **Detection rate of projected light signals by lighting condition and activation modes**  
Yuichi SHIBATA, *Koito*

15:20 > **PANEL DISCUSSION • SESSION 2**

15:40 > VIRTUAL COFFEE BREAK

### ROUND TABLE

16:10 > **Challenges, benefits and drawbacks of Sensors integration in the Headlamp & Front End**  
**Moderator: Gilles LE CALVEZ, VALEO**  
Matthieu DABEK - ADAS Expert Research & Innovation Department, *Stellantis*  
Joachim MATHES - CTO, *Valeo*  
Paul-Henri MATHA - Technical leader Exterior lighting, *AB Volvo*  
Andrea STELLA - VP Research and Development, *Marelli Automotive Lighting*

### CLOSING SESSION DAY 1 Chairman: Hector FRATTY, SIA VISION Conference Chairman

16:55 > **Closing remarks Day 1 by the Conference Chairman**  
Hector FRATTY, *Driving Vision News*

17:05 > END OF DAY 1 LECTURES • NETWORKING AFTERNOON

## PROGRAMME 18 MARCH 2021

08:00 > OPENING OF THE PLATFORM • IMPORTANT NOTIFICATION DAY 2	
<b>OPENING PLENARY SESSION</b> Chairman: Hector Fratty, SIA VISION Conference Chairman	
KEYNOTE SPEECH	
09:40 >	Fifty years of road safety worldwide with the Human in the loop: from prevention of failures to resilience assessment Stéphane BUFFAT, Director, <i>Le LAB</i>
<b>SESSION 3 • LIGHTING COMMUNICATION FUNCTIONS</b> Chair- man: Wolfgang HUHN, <i>Driving Vision News</i>	
<b>SESSION 4 • EXPANDING SENSORS VISIBILITY</b> Chairman: Benazouz BRADAÏ, <i>Valeo</i>	
10:00 >	Priorities in realizing safety relevant improvements in light performance Rainer NEUMANN, <i>Varroc Lighting Systems</i>
10:20 >	Contrast Requirements of Road Projections for Situational Awareness: Field tests versus Virtual Reality testing Sheherazade AZOUIGUI, <i>ELS Chair / Institut d'Optique Graduate School</i>
10:40 >	Benefits of Adaptive Driving Beam Headlights for Visibility of Road Pavement Markings John D. BULLOUGH, <i>Lighting Research Center</i>
11:00 >	Micro-LED and Matrix-LED, a hybrid light source architecture for high resolution headlighting Mark URLAUB, <i>Lumileds</i>
11:20 >	Digital light for safety and communication Michael KRUPPA & Stephan BERLITZ, <i>AUDI</i>
11:40 >	<b>PANEL DISCUSSION • SESSION 3</b>
11:40 >	<b>PANEL DISCUSSION • SESSION 4</b>
12:10 > VIRTUAL LUNCH BREAK	
<b>SESSION 5 • STYLING &amp; SAFETY</b> Chairman: Jean-Paul RAVIER, <i>Driving Vision News</i>	
<b>SESSION 6 • DEVELOPMENT &amp; ARCHITECTURE</b> Chairman: Matthieu DABEK, <i>Stellantis</i>	
13:30 >	Hip but Risky? New studies about the influence of small light emitting areas on headlamp glare Christian SCHMIDT, <i>Hella</i>
13:50 >	Visionary technology for new possibilities in headlight styling Gerald BOEHM, <i>ZKW Group</i>
14:10 >	How thin can a lighting module be VS. eye safety? Arnaud PERROTIN, <i>Valeo</i>
14:30 >	A Study on New MLA Design Method for Headlamps Hyunsoo LEE, <i>Hyundai Mobis</i>
14:50 >	<b>PANEL DISCUSSION • SESSION 5</b>
14:50 >	<b>PANEL DISCUSSION • SESSION 6</b>
15:10 > VIRTUAL COFFEE BREAK	
<b>SESSION 7 • SIGNAL LAMP TECHNOLOGIES</b> Chairman: Jean-François DACQUAY, <i>Groupe Renault</i>	
<b>SESSION 8 • SYSTEM ADAS</b> Chairwoman: Caroline ROBERT-LANDRY, <i>ZF Group</i>	
15:40 >	Quantitative study of vehicle-pedestrian interactions: Towards pedestrian-adapted AV2P communication through the extended signalisation Guoqin ZANG, <i>ELS &amp; Laboratoire Hubert Curien / Institut d'Optique Graduate School</i>
16:00 >	Floating light sculptures Thorsten HORNUNG, <i>ODELO</i>
16:20 >	Behaviour of automated vehicles in critical situations with pedestrians - Accident prevention through additional light signals Timo SINGER, <i>TU Darmstadt</i>
16:40 >	<b>PANEL DISCUSSION • SESSION 7</b>
16:40 >	<b>PANEL DISCUSSION • SESSION 8</b>
<b>CONGRESS CLOSING SESSION</b>	
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