

# Editorial

## Lighting And Photonics Communities: A Winning Relationship

Established in 2003, EPIC (European Photonics Industry Consortium) is the leading industry association promoting the sustainable development of organisations working in the photonics field. We've described and reported on this association which publishes market and technology reports, organises technical workshops and B2B roundtables, supports EU funding proposals, advocacy and lobbying, education and training activities, standards and roadmaps, and pavilions at exhibitions.

It is crucial for the automotive lighting community to be in active, cooperative contact with the photonics community, for reciprocally beneficial knowledge and innovation. Put another way, when the photonics community will understand lighting needs and challenges, they'll bring new ideas, approaches, and perspectives to meeting these needs and conquering these challenges.

A fine example is the online session organized by EPIC last week, dedicated to ADAS. It shows these two benefits very well. This week we bring you a summary of two lectures at the event, one from Audi to present the automakers' needs concerning lighting communication, and one from Novasonic presenting their innovative sensor and headlamp cleaning technique. Take a look and listen—this is a taste of the future with lighting and photonics communities working toward mutual benefit!

Sincerely yours



DVN PRESIDENT

# In Depth Lighting Technology

## EPIC-DVN: Two Examples of Win-Win Relationship



Last week, DVN and EPIC—the organisation of over 550 photonics companies—put on an online session dedicated to ADAS. Here we look at two of the presentations and provide time-indexed links directly to them; either of these links can be followed to view the entire 2.5-hour event.

### Audi's Reschke on Lighting Communication



Audi development engineer Johannes Reschke [spoke](#) about AV lighting communication with road users. He explained that the lighting communication Audi development engineer Johannes Reschke [spoke](#) about AV lighting communication with road users. can be done by the front, sides, and rear of the car to warn pedestrians, cyclists and other drivers and to advertise and advise that a car is driving autonomously. The information can be preset by LED lights and by symbol displays; Audi's in-house experimentation finds better recognition with symbol displays. As to the colour of the lights, Audi did a survey wherein respondents said white and yellow are preferred over violet.



CURRENT DIGITAL OLED IN THE Q5



FUTURE DIGITAL OLED CONCEPT

Reschke also spoke on the future of lighting, with digital OLED started in the eTron and now in the Q5, and under aggressive active development to get its benefits of high contrast, precision, and multiple addressable segments.

### **PiezoWipe to clean sensors and lamps**



Boris Kobrin, founder and CEO of Innovasonic, [presented](#) his company's "PiezoWipe", an integrated ultrasonic cleaning technology able to keep sensors, cameras, and headlamps perfectly clean in any weather condition.

The technology uses cleaning solution and transparent piezoelectric ultrasonic transducer meshes integrated with glass or plastic lenses or sensor covers. No mechanical scraping or heating is required, so the system does the job with low energy consumption.

Competitive Technologies/ Advantages	INNOVASONIC – Integrated ultrasonic cleaning	3M, BASF, Merck, Aculon, NEI, etc.- "easy-to-clean coatings"	Pilkington, Saint Gobain, PPG, etc. - "self-cleaning coatings"	Continental, Waymo, Goodyear, Ficoso, etc. - wipers and robots
Reliability & Efficiency	High	Low	Low	Low
Active self-cleaning	Yes	No	No	Yes
Localized cleaning	Yes	No	No	No
Energy consumption	Low	No	No	High
Cost	Moderate	High	High	Moderate

PIEZOELECTRIC ADVANTAGES

The development was done with the French research institute CEA-Leti and the first prototype will be available shortly (within weeks), then Novasonic will approach automakers and their suppliers.

# Lighting News

## Top Technology Players Confirmed at DVN-I Workshop

LIGHTING NEWS



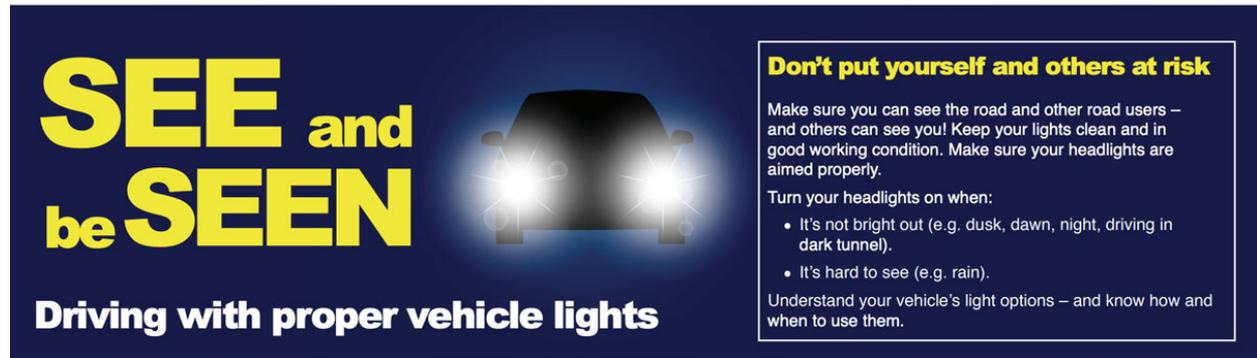
The DVN Interior Workshop participant roster is shaping up nicely with confirmed speakers from the likes of Covestro, EPIC, Faurecia, ISELED, Marelli, Osram-Continental, Recticel, Valeo, Texas Instrument, and many startups.

This first-of-its-kind online event will be an outstandingly valuable conference and expo with the rubric **New Technologies for Car Interior & Mobility**. Within today's revolution of ACES (autonomous, connected, electric, and shared) vehicles, mobility use cases are changing drastically. Car interiors are becoming a new product differentiator, allowing drivers and occupants to do a much wider range of activities in the car: relaxing, working, phoning, reading, watching movies...the car becomes a mobile lounge. And that, in turn, means extensive rethinking of how cars are built and configured, as it's a break from the many years during which cars were designed, for example, around drivers and passengers seated in narrowly defined positions and either driving, or just doing nothing.

With another batch of confirmation to be announced soon, the conference will cover all emerging technology you need to embrace to better understand what is the car interior of the future. [Sign up here!](#)

# Transport Canada Publishes Car Light Usage Guide

## LIGHTING NEWS



**SEE and be SEEN**

**Driving with proper vehicle lights**

**Don't put yourself and others at risk**

Make sure you can see the road and other road users – and others can see you! Keep your lights clean and in good working condition. Make sure your headlights are aimed properly.

Turn your headlights on when:

- It's not bright out (e.g. dusk, dawn, night, driving in dark tunnel).
- It's hard to see (e.g. rain).

Understand your vehicle's light options – and know how and when to use them.

In a couple of months, new provisions in Canada Motor Vehicle Safety Standard № 108 will take effect to try to cut down on "phantom cars" driving around after dark with only DRLs and no side or rear lights on.

Back in 2017 we [reported](#) on Transport Canada's efforts toward these new requirements. Starting this September, new vehicles in Canada will have to turn the tail lights on when the DRLs are on, or turn the tail lights on automatically when it gets dark out, or keep the instrument panel dark until the driver manually switches on the full nighttime lights. Because the new requirements won't apply to existing vehicles,

Transport Canada have published a [chart](#) with show-and-tell information on what the various lighting-related switch and telltale icons mean and when the car's various lights should be switched on and off. They've also put up a [see-and-be-seen website](#) containing relevant information intended for drivers.

# SEE and be SEEN



## Don't put yourself and others at risk

Make sure you can see the road and other road users – and others can see you! Keep your lights clean and in good working condition. Make sure your headlights are aimed properly.

Turn your headlights on when:

- It's not bright out (e.g. dusk, dawn, night, driving in dark tunnel).
- It's hard to see (e.g. rain).

Understand your vehicle's light options – and know how and when to use them.

## Driving with proper vehicle lights

SYMBOL	FUNCTION	ILLUSTRATION	INFORMATION
	Master light switch	Manually selects the different lighting options of your vehicle.	
	Daytime running lights	Makes vehicle more visible during the day.	
	Headlight lower beam (low beam, passing beam, dipped beam)	Lights up the road just in front of your vehicle.	
	Headlight upper beam (high beam, driving beam, main beam)	Lights up a longer distance, allowing you to see far down a dark road.	
	Automatic upper beam	Automatically switches off upper beam when there is oncoming traffic or when there is a vehicle ahead.	
	Automatic headlights	Automatically switches headlights and marking lights on or off according to the amount of light outside the vehicle.	
	Front fog lights	Provides better view of the road in fog, as they have a wide beam pattern to light up the road directly in front of your vehicle.	
	Rear fog lights	Makes your vehicle more visible to drivers behind you in fog, as they are brighter than tail lights.	
	Marking lights	Activates front position lights, rear position lights (tail lights), side marker lights and licence plate lights.	

[www.tc.gc.ca/SEEandbeSEEN](http://www.tc.gc.ca/SEEandbeSEEN)

# Covestro, Neste in Eco-Plastics Pact

LIGHTING NEWS



Covestro and mineral oil company Neste are forming a strategic alliance to promote the use of sustainable raw materials in plastics production, with a particular focus on the production of polycarbonates.

The alliance aims in the short term to replace several thousand tonnes of fossil raw materials used in the production of polycarbonates with more sustainable raw materials which will be produced by Neste using renewable hydrocarbons made entirely from renewable raw materials such as waste oils and fats. Covestro can then use these precursors to produce polymers.

"By transforming our production, we are helping important industrial sectors such as the automotive and electronics industries achieve greater sustainability and reduce the dependence on crude oil," said Covestro CEO Markus Steilemann.

# Ford Bronco Looks Ahead to the Past

## LIGHTING NEWS



Ford have unveiled their new Bronco and Bronco Sport SUVs. The design harks back to the popular truck-based utility vehicle of the same name, introduced in 1965 with 7-inch round headlamps and vertical taillights. The 2021 models have...round headlamps and vertical taillights! But this time round, they're packed with LED technology.



The LED headlamps are standard equipment, and they don't use the miniature rectangular optics that have found favour with Ford stylists (but not with IIHS headlight testers) on most of Ford's other truck models. Instead they use a horizontally divided big round shape, with the low beam produced by the upper reflector and the high beam by the lower one.



Tail lights are box-style items with multilayer design. And in between, it looks like the various models and trim packages will add a variety of lights on the sides, not to mention auxiliary forward lighting for going off-road (or at least looking like one might go off-road, even if it's only at the grocery store parking lot).

# New CT4-V Bears Cadillac's Newest Lights, ADAS

## LIGHTING NEWS



The newest version of Cadillac's CT4-V sparkles with all-LED exterior lighting, with the brand's traditional vertical taillamps evoking Cadillac's high tailfins of the late 1950s as well as vertical DRLs up front, with LED headlamps inboard.

Standard technology includes a high-definition rear-vision camera, front collision alert and pedestrian braking, and safety alert signals that vibrate the driver's seat and appear on the HUD.

Optional equipment includes lane-change alert, advanced adaptive cruise control, enhanced automatic emergency braking, reverse automatic braking and rear cross-traffic alert with a screen arrow pointing at the direction an approaching vehicle is coming from during reversing manoeuvres.

# New Euro-Chinese BMW e-CUV: Lighting & ADAS Suite

## LIGHTING NEWS



The new BMW iX3 electric vehicle was developed in Europe and will be made in China.

BMW boss Oliver Zipse unveiled it in a virtual studio last week. It is the first BMW to be produced exclusively in China, also for export to other markets including Germany starting next year, though Chinese sales are expected to begin later this year.



### In the front

- Base Version: Full LED headlights with cornering light.
- High Version: Icon Adaptive LED Headlights

The turn indicators is positioned above the characteristic LED DRL, which emit their light from three-dimensional light tubes, typical of a BMW.

Furthermore, they also features BMW Selective Beam (ADB or glare free high beam), the bend lighting and cornering lights allow for adaptive light distribution with increased side illumination for city driving..



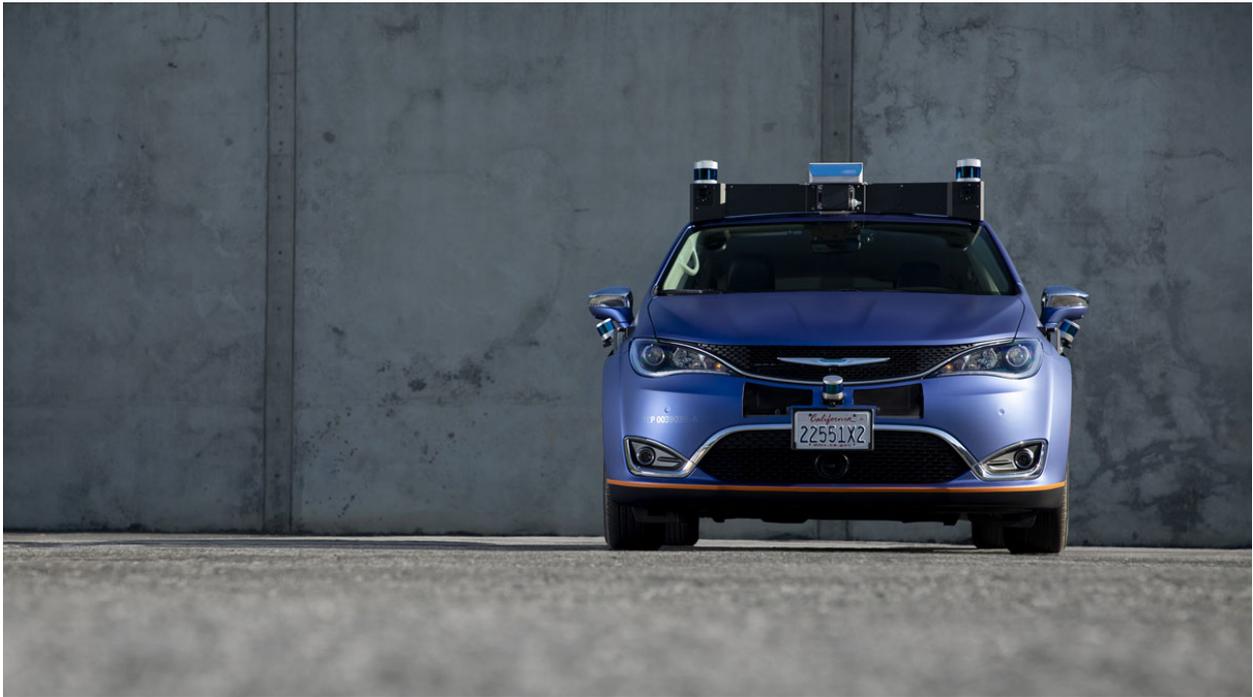
**In the rear**

The sculptural, three-dimensional fully LED rear lights are standard. All Lights are well known from the "standard" X3

# Driver Assistance News

## Aurora's New Self-Drive Lidar Sensor

DRIVER ASSISTANCE NEWS



Self-driving technology startup Aurora have a new lidar sensor developed in-house, called FirstLight. It's been under testing and development on Aurora's vehicles to help the perception system to see and track objects farther, faster, and with greater precision.



Aurora acquired lidar company Blackmore last year for the latter company's expertise in FMCW (frequency-modulated constant-wave) lidar technology. With it, Aurora say they can determine the location of objects and precisely measure their velocity at the same time using the Doppler Effect.

Compared to conventional AM (amplitude-modulated) lidar system, FMCW lidars can see even low-reflectivity targets beyond 300 metres. Aurora's FMCW lidar operates in the 1550-nm wavelength band, allowing the sensors to broadcast stronger light pulses while still meeting eye safety standards.

# Mobileye Starts Testing Self-Driving Vehicles in Germany

## DRIVER ASSISTANCE NEWS



In July 2020, Mobileye announced that Germany's independent technical service provider, TÜV Süd, had awarded it an automated vehicle testing permit. It allows the company to drive its test vehicles in real-world traffic on all German roads at speeds up to 130 kilometers per hour. Mobileye is starting testing in Munich and also plans testing in other parts of Germany.

Mobileye received an automated vehicle testing permit recommendation from the independent technical service provider TÜV SÜD. As one of the leading experts in the field of safe and secure automated driving, TÜV SÜD enabled Mobileye to obtain approval from German authorities by validating the vehicle and functional safety concepts of Mobileye's AV test vehicle. This allows Mobileye to perform AV testing anywhere in Germany, including urban and rural areas as well as the Autobahn at regular driving speed of up to 130 kilometers per hour. The AV testing in Germany in real-world traffic is starting now in and around Munich.

The new permit will allow Mobileye to demonstrate to the global automotive industry and partners the safety, functionality and scalability of its unique self-driving system (SDS) for MaaS and consumer autonomous vehicles. The Mobileye SDS is comprised of the industry's most advanced vision sensing technology, True Redundancy with two independent perception sub-systems, crowd-sourced mapping in the form of Road Experience Management™ (REM™) and its pioneering Responsibility-Sensitive Safety (RSS) driving policy.

Although the first tests of AVs using Mobileye's SDS will be completed in Munich, the company plans to also perform AV testing in other parts of Germany. In addition, Mobileye expects to scale open-road testing in other countries before the end of 2020.

# General News

## Over 13 Million Vehicles Recalled This Year... So Far

### GENERAL NEWS



More than 13 million vehicles have been recalled globally by their between 1 January and 13 July of this year. Toyota have the highest number of recalls this year at about 3.95 million, followed by Ford at 2.9 million; Volvo are № 3 with 2.8 million, and then Fiat Chrysler at 1.74 million. Honda come in fifth with about 1.4 million recalls. Kia's next with 244,000 recalls, followed by Hyundai at 207,000. Nissan had 49,000 recalls, and Mazda had 24,000 in that time period. Then comes VW at 16,000; Tesla at 15,000...Bentley at 6,000 (how many vehicles did Bentley make in 2020?), and BMW a relatively paltry 3,800.

Vehicle recalls are issued when the manufacturer or authorities establishes that a vehicle poses an unreasonable safety risk or doesn't comply with regulations. Manufacturers are required to fix the problem and/or compensate the owner to whatever degree is stipulated by local law.

# Merged PSA-FCA Declare Their New Name

GENERAL NEWS

# STELLANTIS

The merger of Fiat Chrysler Automobiles and PSA Group will result in a company known as Stellantis.

The automakers said the name "will be used exclusively at the group level, as a corporate brand" and that the names and the logos of the group's constituent brands will remain unchanged.

The name is explained as being rooted in the Latin word *stello*, which refers to stars (though commentators have been tweeting that the new name sounds like a medication). No logo has yet been shown, but the companies say it's coming. "The name's Latin origins pay tribute to the rich history of its founding companies while the evocation of astronomy captures the true spirit of optimism, energy and renewal driving this industry-changing merger," the companies said in a statement.

Stellantis will be the world's fourth-largest automaker; the merger is expected to be complete in the first quarter of next year.