



## Editorial

### DVN US Workshop: Building Up To Great Success

The DVN US Workshop comes soon: 21-22 September at the Hyatt Place Hotel in Novi, Michigan. That timing puts it in parallel with Motor Bella, as NAIAS has been rebranded to focus more broadly on mobility.

All prevailing Covid safety measures in effect in Michigan will be applied, and the conference and expo spaces will be safely laid out for hundreds of in-person attendees to benefit from the full docket of lectures, presentations, and exhibitions.

Travel restrictions will prevent some would-be participants attending in person, so we have arranged for online attendance in real time or in a replay mode to account for time zones, via our [DVN US Workshop online platform](https://international-workshop.b2b-wizard.com/expo/) at: <https://international-workshop.b2b-wizard.com/expo/>.

Registration for online attendance only is [HERE](https://www.drivingvisionnews.com/boutique/workshops/dvn-us-workshop-21-22-september-2021-only-for-online-attendance/) at: <https://www.drivingvisionnews.com/boutique/workshops/dvn-us-workshop-21-22-september-2021-only-for-online-attendance/>

The whole international DVN team are doing our best to make a big success of the event. I and the rest of the European and UK contingent hope to be able to come to the States, but in case those travel restrictions are not lifted, the American DVN team members and experts are lined up.

So we are confident the Workshop will be a grand success. The gorgeous Hyatt Place Hotel & Suburban Collection Showplace where the event will take place in Novi are

waiting for all of us. The theme—safety—is crucial, and the information and ideas shared at the event will make real contributions to decrease traffic fatalities in America and in the rest of the world. Don't forget to REGISTER for in person attendance [HERE](https://www.drivingvisionnews.com/boutique/workshops/dvn-workshop-21-22-september-2021/) at: <https://www.drivingvisionnews.com/boutique/workshops/dvn-workshop-21-22-september-2021/>

Reminder: DVN Gold member Companies with up-to-date susbcription get ONE free entrée, Platinum member companies get 3. Please ask for your Coupon Code at [Sberner@drivingvisionnews.com](mailto:Sberner@drivingvisionnews.com)

Sincerely yours



W. Frally  
DVN CEO

# In Depth Lighting Technology

## On the Docket at the DVN US Workshop

**DVN**

**DVN NOVI**  
US WORKSHOP

21 - 22  
SEPT. 2021

HOW TO SAVE LIVES IN NIGHTTIME TRAFFIC?

**MICHAEL HAMM**  
Manager Development  
Headlamps  
Audi

**PAUL-HENRI MATHA**  
Technical leader  
Exterior lighting  
Volvo

**MICHAEL LARSEN**  
Exterior Lighting  
Technical Leader  
General Motors

MORE INFO AND REGISTRATION: [www.drivingvisionnews.com](http://www.drivingvisionnews.com)

There will be thirty-two lectures presented at the DVN Workshop, starting with an overview of the safety situation on the roads, particularly how darkness affects crash risk, and how to improve the figures. We will welcome top experts in this domain, including **Michael Flannagan** from UMTRI, **John Bullough** from Mount Sinai-Icahn School of Medicine, and **Matthew Brumelow** from IIHS. These experts will explain why and how headlamps are the primary main source of visibility illumination for drivers at night, when crash rates are several times higher than during the day—and the implications of that link as we all strive to improve car lights in a difficult regulatory environment.

Lighting managers from **Audi, Volvo, GM, Ford, and Jaguar Land Rover** will explain what they've achieved and what remains to be done to improve safety—for a prime example, getting ADB onto American roads. Michael Hamm will show that more than six million ADB-equipped cars of over 140 models have racked up around 25 billion kilometres without a single field recall or regulatory investigation of any ADB malfunction, and yet the US, the world's № 2 auto market, remains the only country in the world where ADB is prohibited by law.

A session focusing on safety technologies will include lectures by experts from **Marelli-AL, Valeo, Varroc Lighting Systems, Hella, and Koito-NAL**. These speakers will explain how digital and HD lighting allows communication with other drivers, pedestrians, and cyclists, and the effect on safety for vulnerable road users.

The 4<sup>th</sup> session involves the vehicle interior, an increasingly important domain to enhance safety by the likes of driver monitoring systems. There'll be high-content lectures presented by knowledgeable experts from **Ansys, Radiant Vision Systems, Grupo Antolin, Xperi and Eyeris**.

Regulatory topics are an eagerly-demanded specialty of DVN Workshops, and this time the 5<sup>th</sup> session will cover harmonisation of technical requirements as a means to speed the deployment of safety innovations. Expert presenters and panellists will include former GTB President and current DVN Senior Regulatory Advisor **Geoff Draper**; GTB Vice President and Osram regulatory maven **Bart Terburg**; GTB Secretary and GRE SLR Working Group expert **Davide Puglisi**; **Wang Wei** from SMVIC; GTB Scientific Group Chair and Strategy Group Co-Chair **Rainer Neumann** from Varroc Lighting; **John Bullough** from Mount Sinai Icahn School of Medicine; UMTRI's **Michael Flannagan**; former Audi Lighting Director and current DVN Senior Advisor **Wolfgang Huhn**, former director of Audi Lighting and now Senior advisor at DVN, and General Motors Exterior Lighting Technical Leader **Michael Larsen**.

The two last sessions will cover light source innovations and technology enablers for safety at night. Lecture topics will including status and trends of LED, OLED, matrix, and  $\mu$ LED technology from **AMS Osram**, **Kyocera SLD Laser**, **Lumileds**, **Everlight**, **Samsung**, **TI**, **AML Systems**, **Docter Optics**, **Covestro**, and **LMT**.

## ADAS demonstrations

Sensor equipment achievements of six companies will be presented in two demonstrator-cars, thanks to VSI Labs, a technology research company who examine the building blocks for autonomous vehicle technologies. The two cars will showcase innovations by



- [Aeye](#) (deterministic, configurable lidar with 1km range through windshield)
- [AVL](#) (Digital Ground Truth pod for highly accurate data recording)
- [BrightWay Vision](#) (Near IR Gated Camera system with high classification confidence in challenging scenes or weather)
- [Compal](#) (Camera-based IR/RGB Object/Action Detection software)
- [FLIR](#) (Thermal IR system for high reliability pedestrian detection)

Four additional companies' technologies on board the silver vehicle cannot readily be demonstrated in the DVN Workshop static setting as they would require road driving demonstrations:

- [Crystal Rugged](#) (high performance computer for ADAS/AD development)

- [NIRA Dynamics](#) (embedded software solution for measuring dynamic road surface friction vital for ADAS/AD applications)
- [Trimble RTX](#) (positioning device using RTX correction signals to improve the absolute positioning of a vehicle)
- [Ushr](#) (high definition maps to improve the performance of ADAS/AD)

It will be a great opportunity to better know these companies and what they bring to AV and lighting.

# Lighting News

## IAA Auto-show: New Products, New Concepts

### LIGHTING NEWS



The IAA auto-show took place Sept. 7-12 in Munich for the first time.

**Audi A6 e-Tron Concept**, Audi's expansion of its e-Tron range of electric cars isn't slowing down. It's introduced the new A6 e-Tron Concept, a preview of a new all-electric variant of the A6 saloon, coming into production reality in 2023.



The sleek design allows single rear light bar filled with OLED elements brings a 3D effect

**BMW** previewed the **BMW i Vision Circular**, a compact BMW for the year 2040 that is focused squarely on sustainability and luxury. It has black lamps which show a DRL graphic when lit.



**Mercedes-Benz** presented **EQE sedan**, the electric version of the E-Class.



**Porsche** debuted a "future-oriented" concept, The next vision has now arrived with the Porsche Mission R: with this study of an all-electric GT racing car, the pioneer of sustainable mobility is revealing what customer motorsports could look like in the future.



**Renault** revealed **Megane-e** which will be launched in early 2022. The car features a brand-new lighting signature. DRLs appear to extend beyond the headlamps and continue their path up to the side air vents on the shield. In the rear, numerous laser-cut micro-optic fibres laid in criss-crossing lines create an intriguing 3D-like shimmer effect. ADB headlamps are made using six reflective panels.



**Volkswagen** debuted the **VW ID Life crossover-styled concept**, a city car-size EV which includes LED matrix headlight system.



More information on IAA and the production cars launched these 4 month in the report DVN will publish next week.

# Apple Car: Exterior Sign Screens

## LIGHTING NEWS



An Apple car could be equipped with LED screens all over the vehicle to tell other drivers what the self-driving system is doing.

Apple's on-again/off-again vehicle, currently thought to be under active development, may take a whack at the problem of cluing other traffic participants in to what the vehicle will do next. A human driver, even seen just in silhouette or only by their driving micro-actions (such as by looking over their shoulder or edging over in the direction of an intended lane change or turn), gives off numerous clues as to what they're about to do. Without a human driver, these contextual clues go away.

A recently-granted Apple patent claims "A passenger vehicle operable in an autonomous mode, comprising: vehicle controls that control steering, acceleration, and braking for the passenger vehicle; a light-based device that emits light; and control circuitry that operates the passenger vehicle in the autonomous mode in which the control circuitry autonomously drives the passenger vehicle using the vehicle controls, wherein the control circuitry adjusts the light-based device to display an image on an exterior of the passenger vehicle in response to operating the passenger vehicle in the autonomous mode".

This can include more detailed braking information, the relative speed of the car to another following behind, countdown timers for actions, and other messages. They can be text, but also could consist of graphics and video. Less safety-crucial messages could also be displayed—welcome, farewell, charging status, and other suchlike.

# We've Had White LEDs for 25 Years Now!

## LIGHTING NEWS



Nichia, established in 1956 to produce chemicals, quickly evolved to become one of the world's largest phosphor manufacturers.

In 1993, Nichia commercialised the first high-output blue LEDs. These, together with the company's decades' worth of phosphor expertise, allowed Nichia to create a giant breakthrough: in 1996, they put Yttrium Aluminum Garnet phosphor in front of blue LEDs to produce the first white LEDs.

Perhaps the white LED's most important contribution to society is a quicker path to carbon neutrality by dint of its reduced energy usage compared to other light sources. Other benefits include compactness and the resultant versatility: long lifetime, and freedom from hazardous materials such as mercury.

Many applications have benefited from white LEDs and could not have been created without Nichia's invention, including smartphones, thin LCD TVs, polyvalent LED headlamps, LED light bulbs, and lighting systems with dimming and colour tuning.

# High Style, High Tech in New DS Concept

## LIGHTING NEWS



The DS Aero Sport Lounge concept faces the world with a new light signature, with a refined version of DS' Matrix LED Vision system combining matrix and swivelling light elements. They are accompanied by DRLs made up of two rows of LEDs on each side. 150 LEDs populate the entire system; 98 for the DRLs and 52 for the headlighting. Beyond the brand-identifying vertical light signature, the DRLs present a new welcome animation with high-tech style.

Stylistic "DS wings" link the headlamps to the grille, a two-part structure with diamond-point patterns in progressive sizes emerging from a three-dimensional grid. With a new generation of thinner projectors, matrix beam and dynamic bending light technologies are brought together to serve a distinctive and unique identity with three LED modules on each side. The innermost provides the crossover function; the central swivels through an angle of  $33.5^\circ$  to light the road edges and guide the driver's eye in curves, and the outboard matrix module works for the road function, itself divided into fifteen segments that turn on and off independently, depending on the driving environment detected.

ADB? Yes, of course! It's driven by a camera in the upper part of the windscreen, and provides seeing distance of nearly 300 metres without glare.

# Boomerang-Rang-Rang: New Kia Sportage Has New DRLs

## LIGHTING NEWS



Kia Europe has revealed the new Europe-specific Sportage, carefully designed to establish new benchmarks across the SUV segment there. The exterior establishes new design boundaries, giving it dramatic presence thanks in large part to futuristic boomerang-shaped LED DRLs which create solid boundary lines for the striking Matrix LED headlamps.



The rear lamps, with their dominant J-hook element providing the tail light function, have been crafted to look inlaid into the body with fine precision. They're connected to each other by a slim horizontal line to widen the car's apparent stance.

Find more information in the next DVN Report on IAA and the new models launched and revealed this past quarter.

# LESS Is More

## LIGHTING NEWS



Dr. Yann Tissot is co-founder and CEO of LESS (for **L**ight **E**fficient **S**ystem**S**), a Swiss-based company providing innovative fibre-based lighting solutions. Here's an excerpt of what he's recently told Milestone Magazine and IHS Markitt:

"The company is definitely booming, despite the fact we were slowed down by Covid. We started bootstrapping early before getting investors onboard in the first market, which is the inspection lighting market, where we managed to be profitable. Our growth plan is focussed on an additional segment, the automotive lighting business, which came to us. Now we're increasing our investment in industrialisation and production ramp up. We view automotive as the right vector for our growth in terms of turnover and STE. At the moment we are doubling the number of employees in the company every year, we plan to reach several hundred in the next five years.

" L.E.S.S. developed a novel lighting technology based on our proprietary nano-active fiber that enables the manufacturing of innovative automotive lighting with almost unlimited design options, low weight, and optimised power consumption. Our customers can integrate and reshape signal lightings on the side, on the back and on the front of the car with a high degree of freedom in terms of intensity, uniformity, and precision.

"In the lighting field, many actors need to be federated together around the OEMs in order to make an innovation a success. This long and heavy process is challenging for startups that need to develop a long-term view and financial health. Fortunately, being already profitable in another market (inspection lighting) allowed us to position ourselves as a fast-growing tier-2 with a solid history and a bright future. We took [the] benefit from this situation to build strong customer relationships with both tier-1 suppliers and OEMs and are structuring our company around the automotive operations so that we can deliver in quality, value, and time.

"If you compare us to other companies on a pure innovation level, we deliver lighting that is unmatched in its brightness and thinness – it also offers our customers a design

feature they can't get anywhere else. The efficiency and weight (lack of) our products offer are incomparable, our technology is game-changing. On top of this, as a tier-2 supplier, we are far more qualified than most others.

"LESS is a member of Swiss Cleantech and we're very proud to have been distinguished and to actively contribute to the reduction of energy consumption thanks to the unique nano-active fibre tech we have developed. Our versatile lighting technology offers state-of-the-art, safe, flexible, and reliable products that use less energy than those currently on the market. The loan guaranteed by the Technology Fund is supporting us and accompany our strong growth, particularly in the transformation of the automotive sector, and the high demands in terms of quality and volume that it entails.

# U.S. Traffic Deaths Jump Alarming: +10% in Q1

## LIGHTING NEWS



New data shows a sustained increase in U.S. traffic deaths. NHTSA estimates some 8,730 people died in car crashes in the first three months of 2021 which is an increase of over ten per cent. For all of 2020, U.S. traffic deaths rose seven per cent to 38,680 —the highest yearly total since 2007—even though Americans drove 13 per cent fewer miles and the vehicles on the roads in 2020 were safer than ever before. The early 2021 deaths were also the highest in a first quarter since 2007.

Cathy Chase, President of Advocates for Highway and Auto Safety, says "The surge in motor vehicle crash fatalities must serve as an urgent call to action for Congress and the Biden Administration. Requirements and performance standards for proven vehicle safety technology could be saving tens of thousands of lives each year. The needless deaths on our roads must—and can—be stopped".

And National Transportation Safety Board chairwoman Jennifer Homendy says the rising number of U.S. traffic deaths is a "terrible situation" that needs to be comprehensively addressed.

As has long been the case, more people are hurt and killed in traffic after dark, despite vastly fewer people driving at night than during the day. The DVN US Workshop in US on 21-22 September will focus on how to decrease nighttime traffic fatalities.

# ZKW's Mexico Plant Grows Again

LIGHTING NEWS



ZKW are expanding their plant at Silao, Mexico by another 21,000 m<sup>2</sup>, increasing the production area to a total of 35,000 m<sup>2</sup>. In addition, the company plan to hire over 600 new employees, to expand their staffing levels to 1,600 by 2023.

The plant produces headlamps and auxiliary lamps for OEMs including BMW, Ford, Freightliner, General Motors, Mercedes Benz, Navistar and Volvo. The planned production volume is 2.2 million units per year.

The expanded plant will have 13 assembly lines, a mezzanine floor for subassembly processes, a department for optic lenses, and an automated logistics centre including a Tornado mini loading crane system. CEO Oliver Schubert says "We will not only increase our production area, but also improve our efficiency, effectiveness and sustainability. Further growth is the goal in the medium term".

# Driver Assistance News

## Fluctuating Fortunes: Lidar Makers' Financial Results

DRIVER ASSISTANCE NEWS



Several lidar technology developers listed on US stock markets recently have posted quarterly financial results showing big losses. Aeva, Luminar, Ouster, Innoviz, and Velodyne all burned through large amounts of cash. That's to be expected at these companies' stages of development, but can't help being concerning nevertheless.

**AEye** have just completed their latest special-purpose acquisition company listing, and in the coming months three more such deals are anticipated from Amazon-linked Aurora Innovation, Cepton, and Quanergy.

**Aeva**, who unlike their peers are pursuing FMCW (frequency-modulated continuous-wave) lidar technology, said their quarterly sales rose to USD \$2.6m, though their operating loss for the period skyrocketed to nearly \$25m. However, their balance sheet currently shows around half a billion dollars worth of liquid assets, giving them financial headroom to fully develop their complex products.

**Luminar** ran up an operating loss of \$44m in the quarter, but with over half a billion dollars in cash and other liquid assets following the SPAC, they aren't sweating.

**Ouster's** quarterly sales—\$7.4m worth—was a sharp rise over a year ago, and they now expect to post full-year revenues of around \$34m.

**Innoviz** made \$1m in sales for the three months ending 30 June, almost identical to their revenue figure for the same period in 2020. Costs have led to a quarterly net loss of more than \$70m, though \$50m of that was related to stock-based compensation.

With 70 per cent of employees working in R&D, Innoviz have recently signed a number of collaboration deals, including one with Chinese autonomous driving firm Whale Dynamic.

**Innovusion** said they will use the additional \$66m from their series B "plus" round to increase production capabilities for automotive-grade lidar, while extending their development efforts to encompass other applications, such as high-speed rail.

# Mobileye, Zeekr Agree Partnership

## DRIVER ASSISTANCE NEWS



IMAGE: ZEEKR

Mobileye are entering into a new partnership with Zeekr, the global premium electric mobility brand from Geely Holdings. Mobileye will work with Zeekr to create advanced ADAS systems with increasingly sophisticated capabilities for a variety of Zeekr models. The collaboration will begin with the launch of Zeekr vehicles in the fourth quarter of 2021 featuring Mobileye's SuperVision, a full-stack ADAS solution powered by two EyeQ5 SoC devices processing data from 11 cameras. The two companies also plan to collaborate further on a next-generation system powered by six EyeQ5 SoCs to deliver a new standard for a comprehensive ADAS experience. It is expected to make its global debut as soon as 2023.

Mobileye cofounder and CEO Prof. Amnon Shashua says "Zeekr's powerful vision for the future of driving make them an ideal partner to Mobileye. By working closely together, we have an exciting opportunity to reach a new level of excellence in ADAS, bringing to market what will be the industry's most state-of-the-art, full-feature system".

# Scantinel Photonics: Award from Frost & Sullivan

## DRIVER ASSISTANCE NEWS



Scantinel Photonics, a German startup and Zeiss Ventures spinoff, have been awarded the Frost & Sullivan 2021 Best Practices Technology Innovation Leadership Award.

Scantinel's approach uses FMCW (frequency-modulated continuous-wave) lidar sensors for obstacle detection and avoidance; object detection and tracking, and simultaneous localisation and mapping.

Autonomous driving cars, robot taxis, and unmanned industrial vehicles can use lidar sensors to detect objects at a distance of up to 300 metres, even under difficult environmental conditions such as fog, snow, and dust. FMCW lidar will facilitate the breakthrough in autonomous driving and, according to experts, will render ToF (time of flight) lidar systems uncompetitive. Scantinel are working on next-generation sensors that are highly integrable and producible in volume at a competitive price, which is a key auto industry criterion.

Frost & Sullivan commended Scantinel's industry-proven management team and the technical competence of their developers; F&S analysts have rated the backing from Zeiss Ventures and Scania Growth Capital, in Series A financing, as a success factor that will contribute to a promising economic future.

# General News

## BMW's RE:Circular Lab

GENERAL NEWS



The BMW Group are launching their new communication and experience platform “RE:BMW Circular Lab”, an invitation to accompany the BMW Group on its journey of transformation into a circular economy.

The RE:BMW Circular Lab focuses on circular thinking and awareness of new, sustainable courses of action. The BMW Group aims to use the RE:BMW Circular Lab to raise awareness of circularity: circular rather than linear. Rethinking the entire process. Reducing what can be reduced, and reusing what can be maximally reused. The newly created communication and experience platform RE:BMW Circular Lab is a hybrid experience for every user. Its aim is to communicate the BMW Group’s development as a sustainable organisation in a manner that is transparent, interactive and accessible to all.

On this path, the BMW Group are guided by four basic principles: rethink, reduce, reuse, and recycle. The BMW Group use the RE:BMW Circular Lab to tell the story of their transformation on the basis of these principles:

**REthink** – keeping circularity in mind during all deliberations. The key principles are reducing, reusing, and recycling throughout the process and far beyond: new materials, new technologies, new processes and new ideas.

**REduce** – Using less to achieve more, at every opportunity. This opens up enormous creative scope for ideas and possibilities, such as a new premium segment for the future, with new materials, different components and flexible combinations.

**REuse** – Extending every product's usable lifespan for as long as possible. Extending and expanding the value, possible applications and use of the products by means of modernisation, digital functions, and many other options. New mobility concepts will provide an interior that can be used in a variety of ways: for work meetings, for gatherings with friends, and as an additional living room.

**REcycle** – Keeping resources in circulation for as long as can be. Using as many unmixed mono-materials as possible. Using materials already in circulation, such as recycled plastic, recycled aluminum, and recycled steel. Detachable connections are essential for easy dismantling. Being able to separate materials more easily makes it easier to recycle them.

# Rivian to Go Public

## GENERAL NEWS



US-based Electric truck and SUV proto-company Rivian's IPO is the subject of much hype and anticipation. Prototypes have been shown, but no production vehicles have been built yet, and "The size and the price of the offer has not yet been determined ", The company said in a statement, but Bloomberg says they're seeking a valuation of USD \$80bn.

Since their founding in 2009, Rivian have already raised over \$10bn from the likes of Amazon and Ford. Last month Rivian founder RJ Scaringe, 38, said the delivery of the first electric pickup trucks is expected for this month, with the first SUVs shortly after that. If that actually happens, Rivian would beat General Motors, who plan to release their electric Hummer before the end of the year, and Ford, whose pre-popular electric F-150 pickup truck is expected next Spring. Rivian also have been developing electric delivery vans for Amazon, and are in talks with the city of Fort Worth, Texas, to open a second plant; a third site in Europe could follow.

# European Sales Slump in July

## GENERAL NEWS



Europe's new-car sales dipped 24 per cent in July, ending four consecutive months of increases, as the pandemic continued to weigh on consumer confidence and the global shortage of microchips hit the availability of many models.

New-car sales fell to 968,000 last month from 1.27 million in July 2020, according to data from 26 European markets collected by JATO Dynamics. The French market plunged 35 per cent, the UK and Spain both saw sales fall 30 per cent, and the German market was down 25 per cent. Sales in Italy declined by 19 per cent.

Hyundai and Suzuki were among brands that made volume gains in July. All other major brands saw sales decline, with Renault down 54 per cent, Ford down 46 per cent, Nissan down 37 per cent, and Peugeot down 34 per cent. VW, Europe's top-selling brand, saw registrations drop 19 per cent.

Bas du formulaire July sales were still below pre-pandemic numbers for the month. Registrations were 1.27 million in July 2020, and 1.32 million in July 2019.

European registrations for the first 7 months of this year, though, are up 24 per cent to 7.38 million.

# New Geely R&D Centre Opens in Raunheim

## GENERAL NEWS



A new Geely development centre in Raunheim, Hesse, Germany, has gone live under the name of Lotus Tech Innovation Centre (LTIC). Around 150 engineers are working there on new drive concepts and environmentally friendly mobility. By the end of the year, this number is expected to increase to 200.

LTIC is part of the global R&D network of the Geely Holding Group with locations in China, England, and Sweden. A new building was put up especially for LTIC at the entrance to Raunheim. The centre is the successor to GATD – the Geely Auto Technical Centre – which has been in Raunheim for more than two years and has now been transformed into LTIC. The new building itself was constructed on an area of 5400 m<sup>2</sup>.