DrivingVisionNews.com
Automotive lighting and driver assistance technologies

Tue, 1 December 2020 Weekly Newsletter NEWSLETTER #675

Editorial

Join The DVN Workshop! Wednesday 2 December, 8am CET

Our last live, in-person DVN Workshop was in Munich this past January. Most of a year spent coping with Covid restrictions make it feel like that was years ago. In such a dynamic industry, networking is a perpetual must and DVN is one of the unique link to keep relation with automotive lighting colleagues, from newsletters, reports and workshops..

Our next important event will be the 21st DVN workshop, **tomorrow** on 2 December. This event will gather over 300 top worldwide experts and managers in the vehicle lighting and vision industry from over 100 different companies and organisations in Europe, Japan, China, and America. The speakers are from automakers, lighting suppliers, and regulators; take a look at this roster:

• Car makers including **Audi, Daimler, BMW, GM, Renault, Volvo,** and **Volkswagen**
• Tier-1 suppliers including **Grupo Autolin**, **Marelli AL, Ichikoh, Koito, Stanley, Varroc,** and **ZKW**
• Tier-2 suppliers including **AML Systems, Covestro, DesignLED, Elmos, Instrument Systems, Lumileds, Nichia, Osram, Osram Continental, Dominant, Texas Instruments, NXP,** and **Yole Development**

This lineup of speakers is practically guaranteed to bring broad, deep insight for all participants into the latest vehicle lighting and vision findings, innovations, and ideas. Registered participants will be able to join the live conference and presentations, but also to replay the presentatins VOD during the follwing 10 days. And we've put together provisions for networking during the whole day of the online event and following days, as well as communication tools to connect all participants, including presenters, and mainly exhibitors.

We look forward to welcoming you **tomorrow** at 8AM CET (tomorrow 2AM EST, 11PM tonight PST); don't miss out! Still time to REGISTER! We look forward to seeing you there.

Sincerely yours

In Depth Lighting Technology

This Wednesday: The Online 21st DVN Workshop

There have been more than 10 months of Covid restrictions since our last in-person Workshop in Munich. That puts a real crimp in things; in a dynamic field such as this what we work in, networking is essential to bring on innovation and collaboration. We've all had to reinvent ourselves. At DVN, we're busily working around the barriers to provide you with new ways of networking.

Following on the grand success of our online DVN-I Smart Interior Workshop two months ago, and the DVN Lidar Conference two weeks ago, now comes the 21st DVN Workshop, **tomorrow** 2 December at 8am CET (tomorrow 2am EST; 11pm tonight PST).

We view it as a core task to facilitate good, real networking—Covid or no Covid. So in organising these online events we make provisions for chats among attendees, and we optimise the virtual exhibitions. At the Smart Interior Workshop and Lidar Conference, we saw

tremendous interest in the virtual expo booths with their cornucopia of pictures, videos, and other enticing show-and-tell. To stay visible and avoid getting disconnected and losing momentum, exhibitors had a terrific opportunity for ongoing online networking and to communicate on their innovations, research findings, product launches, and a wide array of other important messages to the 300 attendees.

We're grateful to have received thoughtful feedback from attendees of these events, and we're using that feedback to make the DVN Workshop even better. It will be an all-round look at the state of the art in vehicle lighting considering digital light, new lighting functions and regulations. This workshop will gather the automotive lighting realm's top thinkers, makers, and deciders from automakers, their suppliers, the regulators, and research facilities.

The workshop will start off with a keynote by Kenji Arima, Koito's VP of R&D; he'll speak about creation of new value.

Kenjy Arima, Koito

Session 1 will comprise lectures from Daimler, BMW, Volvo, Volkswagen, and Renault

Hector Fratty, Session 1 Chair

Markus Maier
Daimler

Rene Uebler
BMW

Thomas Priller
BMW

Paul-Henri Matha
Volvo

Ricardo Plöger
Volkswagen

François Bedu
Renault

Session 2, chaired by Michael Hamm, will be animated by speakers from Marelli AL, Ichikoh, ZKW, and Stanley.

Michael Hamm, Audi
Session 2 Chair

Elo Rosenhahn
Marelli AL

Hiroyasu Onuki
Ichikoh

Gerald Böhm
ZKW

Yasushi Yatsuda
Stanley

Session 3, chaired by Geoff Draper, will centre on regulations.

Geoff Draper, GTB President
Session 3 Chair

Michel Larsen
General Motors

Wolfgang Huhn
Audi

Rainer Neumann
Varroc

Session 4 will be dedicated to Vehicle Interior lighting.

Carsten Befelein, Session 4 chair

Monica Ai
Grupo Autolin

Julien Adillon
Grupo Autolin

James Gourlay
DesignLED

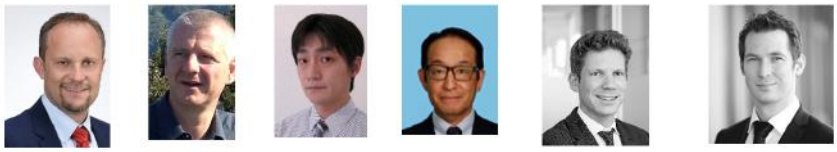
Brandon Seiser
Texas Instruments

Eic Toh
Dominant

Martin Vallo
Yole Developpement

Session 5 will focus on ADB and light sources.

Leo Metzemaekers, Session 5 chair



Stefan Groetsch Osram | *Norbert Lesch Lumileds* | *Hiroaki Kuroda Nichia* | *Kinya Ichikawa Nichia* | *Maximilian Austerer Osram-Continental* | *Dirk Spiesswinkel Elektrobit*

Session 6 is a mix of electronics, advanced material, aiming and measurement.

Ralf Schaefer, Session 6 chair

Prem Shama NXP | *Jatin Thaker Elmos* | *Ludovic Toulisse AML Systems* | *Hassan Gargouri Instrument Systems* | *Paul Platte Covestro* | *Jim Lorenzo Covestro*

Alongside the presentations, the event will also allow participants to learn about the latest innovations, findings, concepts, and products of thirteen exhibitors—presented, pictured, and described along with company contact information. The virtual expo and the video recordings of the event's sessions will be accessible for a full week after the event.

Auer-Lighting
Auer-Lighting is an IATF 16949 certified global supplier of precision glass components and high-quality coating solutions for the automotive industry. The steadily growing power densities of light sources and a continuous trend to more compact designs increase the thermal load on automotive lighting systems. Auer Lighting's borosilicate glass fulfills all these requirements.
Primary and secondary glass components from Auer Lighting are resistant to high temperatures and temperature fluctuations. UV irradiation, dust, hydrocarbons and other environmental influences have no impact on this material. The mechanical and optical properties remain unchanged during the entire service life. Low dispersion guarantees

constantly high color fidelity for refractive applications. Contact : christian.passlick@auer-lighting.com

AML Systems
AML Systems, lighting business of Johnson Electric Group, designs, produces and commercializes solutions to improve visibility and driver's safety. With 30+ years of expertise, AML Systems is the solution provider for levelers, smart lighting actuators and headlamp cleaning systems for the automotive industry with a unique wide range of products!
Contact : daniel.weber@johnsonelectric.com

Covestro
When it comes to materials and technologies for future auto lighting, Covestro is driving ahead of the curve, developing a functional headlamp concept to illustrate how polycarbonates enable functional and aesthetic benefits. This visionary approach can also reduce weight, space and cost while offering greater sustainability.
Contact : info@covestro.com

DesignLED
An innovative LED lighting technology company with expertise in designing, developing, prototyping and scaling thin and flexible LED lighting products for the automotive industry. Focus on the emotional and functional use of lighting and addressing key challenges of space, cost and integration. designLED have a cutting-edge technology platform with over 66 patents world-wide enabling the visions of the international car industry to be realized.
Contact : info@designled.com

DOMINANT
DOMINANT, a dynamic company that is amongst the world's leading automotive LED manufacturers. Dominant comprehensive product portfolio ranges from low to high-intensity LEDs with a wide range of color spectrum for both interior and exterior applications. With an extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing and development capabilities have become a trusted and reliable brand across the world.
Contact : yong-yiaw.lim@dominant-semi.com

Grupo Antolin
As a tier 1 supplier with an extensive experience delivering world-class solutions for the car interior, Grupo Antolin is redefining how people interact with the interior offering an extensive portfolio that provide an amazing in-car-experience. From lighting solutions, unique covering materials and advanced trims to integrated products. GrupovAntolin operates through 4 Business Units: lighting, electronics, overheads, cockpits and doors.
Contact : marta.cuevas@grupoantolin.com

Ichikoh Industries
Ichikoh Industries have delivered automotive lamp and mirror to global and Japan automotive manufacturers since its establishment in 1903. The company formed an alliance with Valeo in 2000 and became one of affiliated companies of Valeo Group in 2017. By making the most of the partnership, the company has enhanced new product development including lighting systems for autonomous vehicle and electronic mirror ?
Contact : shoichi.minokawa@valeo.com

IMS
IMS (Integrated Mechanization Solutions), based in Almelo, The Netherlands, develops and supplies high-accuracy production systems. IMS are specialized in building (automated) assembly lines and process automation for small, complex products and assemblies. IMS feels confortable in the sub-micron range. Customers are typically OEMs and TIER 1 suppliers in automotive, medical, photonics, and smart devices. Newest headlights in automotive need newest light modules, so the industry needs the newest assembly technology: IMS develops and builds automated assembly lines for: Matrix light modules, microLED light modules and DMD light modules.
Contact : hans.velten@ims-nl.com

Instrument Systems
Instrument Systems stands for premium German quality and profound application-oriented

expertise in light measurement. For over 30 years Instrument Systems have specialized in high-quality spectroradiometers, imaging colorimeters and innovative display measurement systems. Known for highest color and luminance measurement accuracy Instrument Systems systems are indispensable in automobile and aviation industries, LED/luminaire manufacturing and consumer electronics.
Contact : esterl@instrumentsystems.com

Osram
OSRAM, based in Munich, is a leading global high-tech company with a history dating back more than 110 years. Primarily focused on semiconductor-based technologies, OSRAM products are used in highly diverse applications ranging from virtual reality to autonomous driving and from smartphones to smart and connected lighting solutions in buildings and cities.
The global Automotive market is in a big change. New technologies that require smaller space for lighting modules, a possibility to direct the light exactly where it‘s needed, light that can send messages, light for obstacle detection – the list of new innovations is long. It is expected that many more new functions will emerge in the coming years. OSRAM plays an active part in creating this bright future.

Texas Instrument
Texas Instruments automotive products provide solutions to turn any surface, inside or outside the vehicle, into a display. Texas Instruments DLP® portfolio offers a variety of products for both exterior lighting and interior display applications, including high resolution headlight, dynamic ground projection (DGP), Augmented Reality Head-Up Display (AR HUD) and Transparent Window Display (TWD). For additional information, please visit www.ti.com/dlp
Contact : b-seiser@ti.com

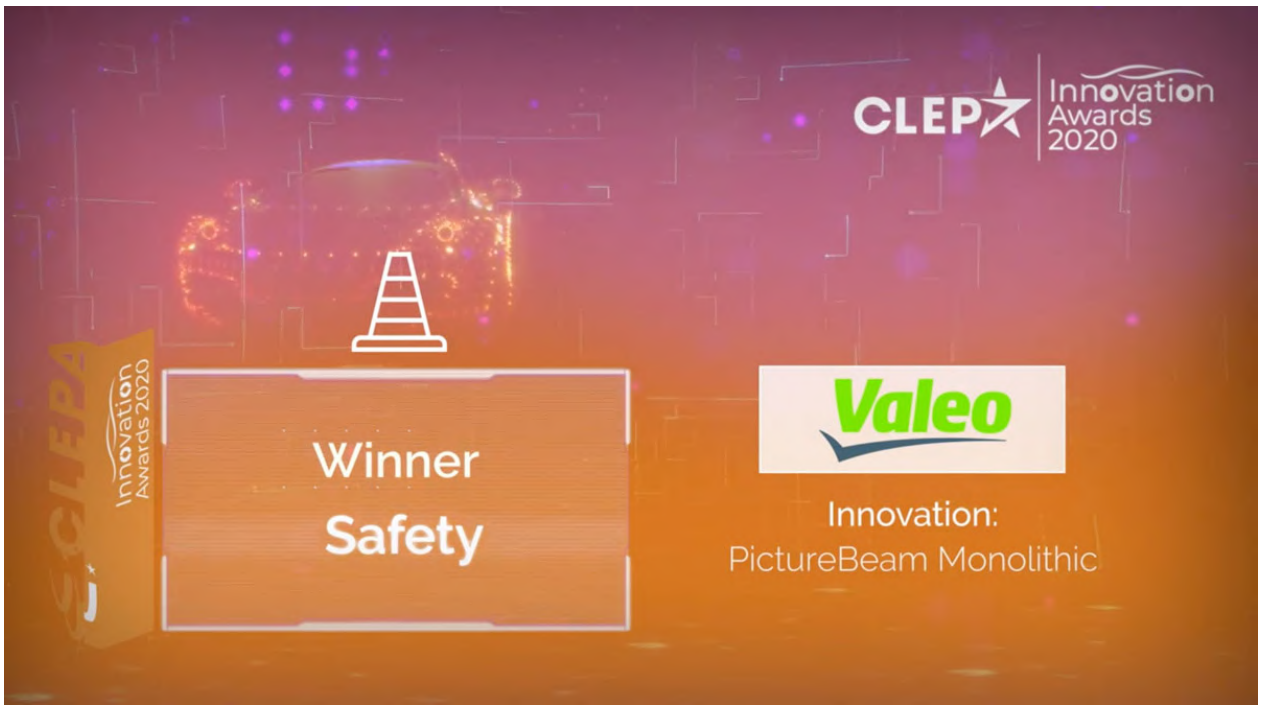
Xingyu Lighting
Xingyu Lighting is a company with headquarter located in Changzhou, China. Xingyu Lighting are engaged in design, manufacturing and sales of automotive lighting for about 30 years. In China, they have plants in Changzhou, Changchun and Foshan, and also have their subsidiaryies in Germany and Japan and a plant in Serbia which will finish construction in CY 2021. Xingyu Lighting company possesses one of high-quality team with superb technology solidarity and cooperation.
Contact : Ms. Grace Gu, Email : gujinhong@xyl.cn

Yole Development
Yole Développement supports industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to develop their business.
Along with its partners System Plus Consulting, PISEO and Blumorpho, they provide marketing, technology and strategy consulting, media and corporate finance services, reverse engineering and reverse costing services.
Contact : marine.wybranietz@yole.fr

Lighting News

CLEPA Awards for Valeo PictureBeam Monolithic and Hella-PO

LIGHTING NEWS



CLEPA organised last week a ceremony to present prizes in four fields: Connectivity and Automated, Coöperation, Environment, and Safety.

Valeo won first prize in the safety category for their PictureBeam Monolithic, set to hit the road from 2022. Capable of projecting nearly four kilopixels onto the road from a single lighting module, PictureBeam Monolithic produces high-resolution ADB and can make assistive road markings.

The technology is based on a monolithic LED developped and produced by Cree with 3,696 pixels to produce a high-definition beam on the whole field. This module also makes it possible to do road marking for ADAS, from 15 m in front of the car.

The Monolithic solution offers vertical and horizontal resolution of 0.28° over a full horizontal extent of 20° outboard to 16° inboard, the complete angular range of the high beam, in order to keep a high-intensity light level everywhere except where it would dazzle other road users.

This whole-field high resolution linked with digital functions means the complete field of view where light needs to be finely adjusted is covered.

The module comprises four major components corresponding to the main functions to be addressed: a monolithic light source to emit light; projection optics to project the light emitted by the source; a cooling system for thermal management, and an electronic board to drive and power each pixel individually. An **online video** has been posted to share the event and technology.

An award for Hella PO
With their stylish and interactive bumper concept, Plastic Omnium and HELLA were awarded at the second place in the “Cooperation” Category. The SmartFACE offers breakthrough communication and lighting features for smart bumpers, enhancing the car of the future.

CLEPA represents most European automotive suppliers, who collectively invest €30bn in R&D —30% of private sector R&D invested in Europe—and hold 9,000 patents.

DVN asked three questions to Valeo. Below their answers :

DVN : You won the first prize at the famous CLEPA Safety field; what was your reaction ?
Valeo : It is great to see that automotive lighting is given the attention it deserves especially in the safety section, as it is a key milestone into reducing the number of crashes at night and fatalities.
Of course, Valeo is extremely proud to be awarded as the winner in this category, to represent lighting innovation to the service of safety !

DVN : What does this innovation bring to safety ?
Valeo : 72% of fatal accidents occur at night (Data from ITALDA 2018) when visibility is the lowest and that lighting can have a serious impact on safety:

- Driving with 1000lm low beam headlamp (HID headlamps for what regards the US running car fleet) instead of 500lm halogen headlamp, reduces by 21% the risk of a collision.
- For cars equipped with automatic Low/High beam, the risk of a collision on VRU is decreased by 35%.
- High definition lighting, the state of the art for ADB also enables considerable stress reduction which is usually caused by the lack of proper visibility at night.

Thanks to the PictureBeam™ Monolithic modules that hold from 2.5K to 4K pixels, the driver can constantly drive in high beam without generating any kind of discomfort for other users such as pedestrians, drivers or or any kind of two wheelers.

It is the only technology on the market that combines a HD ADB with road marking in one module, improving safety for all road users.

DVN : What is the strength of PictureBeam™ Monolithic in comparison with the competition
Valeo : Valeo PictureBeam™ Monolithic is a high definition lighting technology that has several advantages; it is the most efficient HD solution, allowing for high-end lighting performances with lower power consumption.

Thanks to this innovation, Valeo brings a more compact and lighter solution than other HD Lighting systems on the market.

The PictureBeam™ Monolithic technology is the first one to be able to obtain high lighting performances, with a great field of view (35°, against 20° for competing high definition lighting solutions), enabling an amazing ADB function.

In fact, with 3 969 pixels on the road, that can be adjusted individually, the PictureBeam Monolithic provides the most precise and most comfortable high-definition Adaptive Driving Beam.
It goes from 0.2° to 0.3° degrees and can be dimmed from 0 to 100%, allowing a maximisation of the precision of the lighting around any obstacle.

This way, road marking functions are also enabled. Headlamps can project lines that indicate the vehicle's gabarit allowing a better anticipation of trajectories, in under construction zones for example. In the same manner, the technology can project on the road turning intention, therefore facilitating communication with other users such as two wheelers.

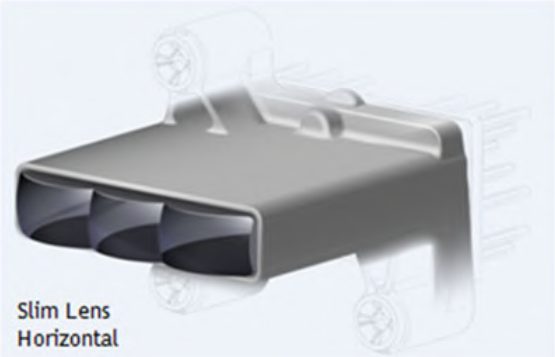
All in all, you have all functions in just one module, and to make it easier to integrate, it has been designed as an intelligent standalone module that can be easily included in most car vehicle architectures.

Andaltec's Super Slim Lighting Modules

LIGHTING NEWS

Andaltec, the Spanish Technological Centre, wield high capabilities to design innovative solutions for lighting modules. One of their newest developments: headlamp modules with an extremely slim front profile. This technological innovation allows the development of products with singular characteristics for the automotive lighting sector, offering high technical performances for lighting and comfort.

Andaltec have developed monofunctional modules with horizontal disposition, vertical or slightly inclined. For instance, with a combination of four modules measuring 75 mm (w) × 15 mm (h) × 120 mm (d), there are values of 1,300 Lm and 31,250 cd for the flux and the I_{max}, respectively for the low beam light; and 2,800 Lm and 81,250 cd for the flux and the I_{max} on high beam.



This technique provides the designer a high degree of flexibility and gives a customised and distinguishing style to the device while it is switched on, off or with welcome/farewell functions, multiplying the design possibilities depending on the style needs of the car manufacturers.

All of this is possible because of Andaltec's scientists, with their years of experience in the development of new materials, the research of new industrial processes, and product design. Andaltec also offer a night road simulation tunnel with huge dimensions: 80 × 20 × 4 metres. The tunnel has three lanes plus hard shoulders, employed to control the light dispersion

projected to the ground-sides-ceiling; it also has flooring optimised to detect changes in colour and intensity, which is optimal for the analysis and comparison of static devices.

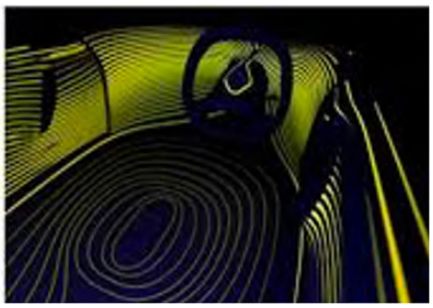
Light Projection for Interior Applications

LIGHTING NEWS

With the evolution towards AV, light is crucial to communications among drivers, vehicles, and the wider environment. The advantages of projections for emotional staging are already widely used in other areas of our everyday life, such as the illumination of building facades.
Small and powerful projectors in the interior allow the implementation of various ambient lighting scenarios and contribute to a feeling of safety, and coming home.

In the event of a dangerous traffic situation or fatigue, the colours of the interior surfaces can change automatically to attract attention.

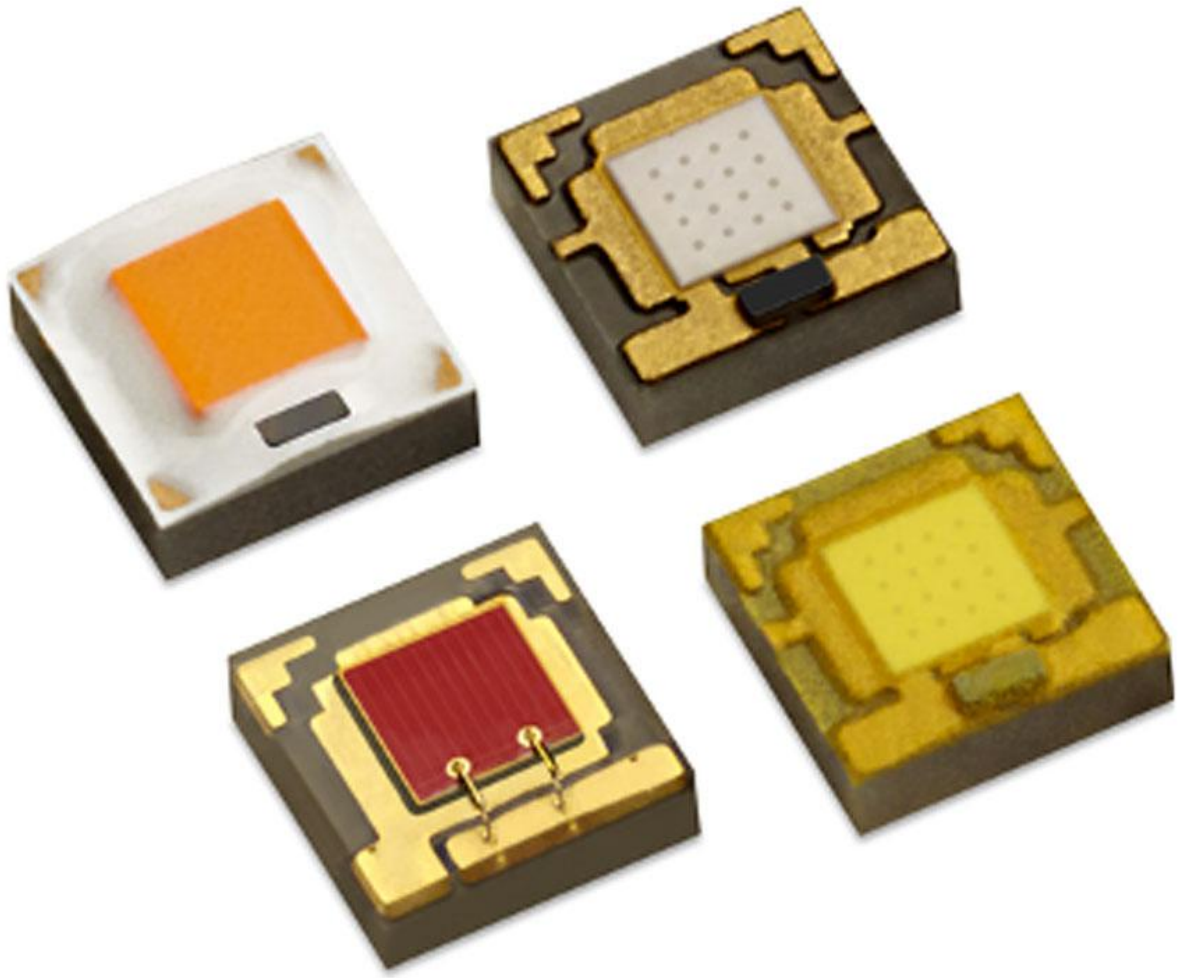
Personalisation options and comfort while driving will become more and more important. Light projections can create a new sense of space inside the vehicle and cinematic effects which have yet to be dreamed up! Intelligent interior lighting, which can be networked and individually controlled, extends the range of applications.

Onrunning development toward autonomous driving will further increase the demand for additional applications in interior lighting. The car is developing into a personal living and working space, so there's intense focus on increasing comfort and individualisation.

Lumileds boosts performance in the Luxeon C and CZ

LIGHTING NEWS

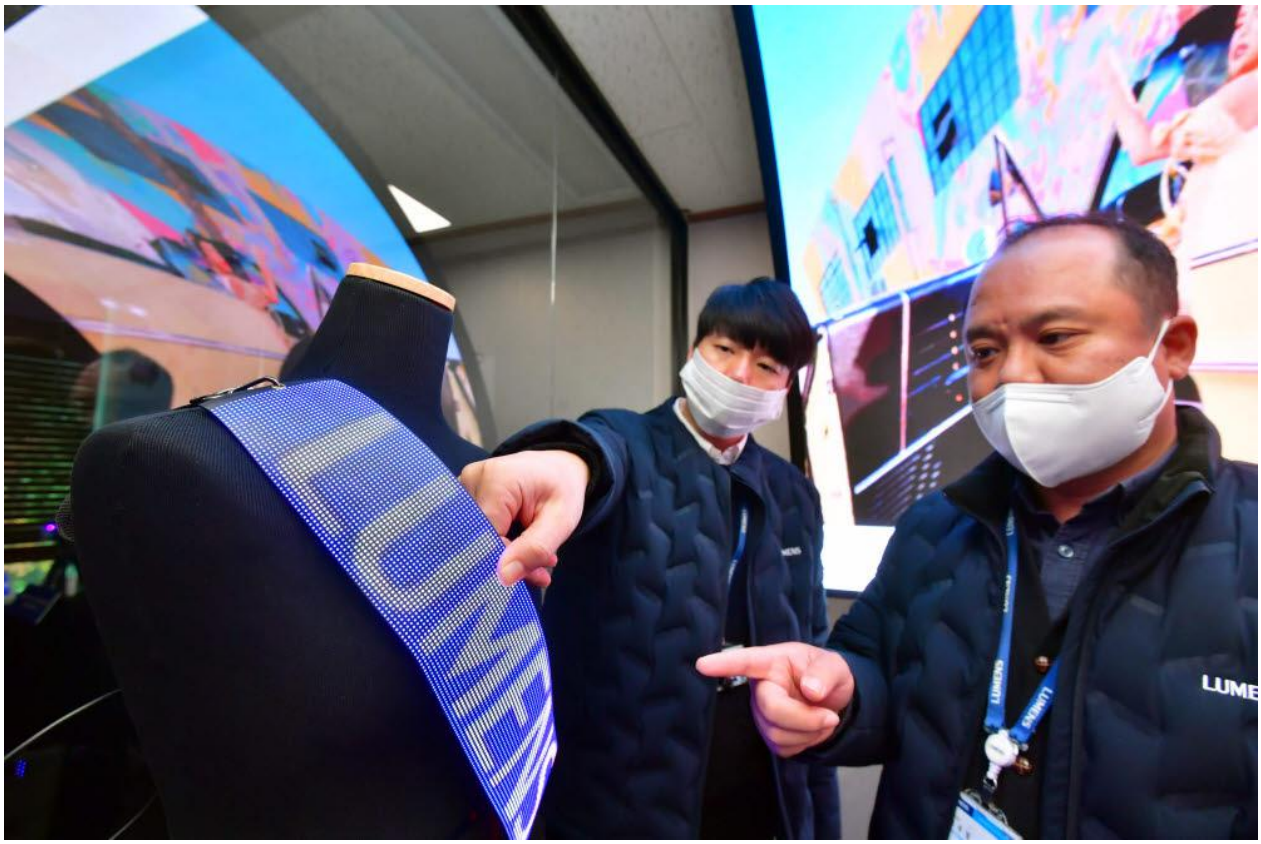


Newly uprated LEDs have been added to Lumileds' two most powerful product families, the Luxeon C and CZ, for greater flux and radiometric wattage, as well as improved beam distribution. The PC amber LEDs, for example, have 17% greater flux. Lumileds product marketing manager LP Liew says "The Luxeon colour lines are known for having the greatest colour selection, and now they provide even higher luminous output so fixtures will require fewer LEDs to achieve their target brightness in a smaller overall footprint".

The Luxeon C and CZ ranges include both monochromatic and phosphor-converted LEDs. High-brightness LEDs in colours serve a smaller overall market than phosphor-converted white LEDs, but there are very important applications for colour LEDs with very high flux—such as emergency vehicles and facade lighting.

Lumens Seek Flexible LED Display Biz Boost

LIGHTING NEWS



Korean LED maker Lumens have decided to make flexible LED displays a central focus of their business activities, to compete against others in the industrial display market after making LED components that go into TVs, laptops, monitors, and LED car lights. The company have developed one of the industry's best flexible LED displays, they say, and are now finishing preparations for mass production.

Flexible LED displays use LEDs as pixels. Their flexibility means they can be easily installed on non-flat surfaces, such as round pillars.

Lumens' flexible LED displays are light and thin—just three millimetres thick, which is about a third of other existing flexible LED displays, while at 300 g it weighs about half of competing products. The Lumens display's curve radius of 30 cm makes for easy application on round surfaces. It's 48 cm wide and 16 cm long—perhaps not very large, but the displays can be tiled to provide whatever design or total size is desired.

Over the past two years, Lumens have secured about ten important patents related to flexible LED displays and their applications. A Lumens representative said "It was difficult for us to secure flexibility and durability at the same time; however, we ultimately achieved our goal by developing core technologies not just in LED but also in displays and process".

Varroc's Office Makeover

LIGHTING NEWS

The Varroc building in Nový Jičín, Czechia has been reconstructed with a modern glass facade and technological solutions that help achieve Varroc's energy sustainability vision.

The reconstruction project was awarded an honorable mention in the 14th annual Building of the Moravian-Silesian Region competition in the industrial buildings category. The project was judged by prominent representatives of the Moravian-Silesian Region, architects and designers.

The non-contact cladding of the building is made of glass and sheetmetal plates, which are decorated in gray tones with blue elements that refer to the Varroc company colours. The original exterior spiral staircase was preserved and given new dark blue paint. A significant architectural change is the new spatial layout of the reception area and other floors of the building.

The entire interior of the building has undergone an extensive renovation as well, and now can accommodate more than 200 employees, compared to the original 80. The building is fitted with a centrally-controlled autonomous HVAC system with extensive temperature and motion sensors. The system adapts to the absence of people and automatically adjusts the temperature in individual rooms, giving a significant energy savings; the system is five times more efficient than conventional electric heating.

ZKW wins pma Award in the category

LIGHTING NEWS

LEFT, STEFAN HAUPTMANN – RIGHT, ANDREAS BAUER

As winner in the category "Project Owner of the Year 2020", Projekt Management Austria honors the special performance of the internal project owner, Stefan Hauptmann (on the left), with the ZKW project team for the premium customer Porsche. On the right, Andreas Bauer, Project Manager of the Porsche Project Team.

Last week, ZKW received the pma Award for its performance in project management, and the cooperation between the project client and the project team for the development of the “Porsche Taycan” main headlight. “The project was particularly exciting and demanding because we were allowed to develop front lighting for the first purely electrically powered Porsche,” said CEO Oliver Schubert.

As the winner in the “Project Client of the Year 2020” category, Projekt Management Austria honors the special performance of the internal project client, Stefan Hauptmann, with the ZKW project team for the premium customer Porsche.
During the development of the high-tech headlamp, which took place from 2016 to 2019, the ZKW project team, consisting of up to 40 bright minds, worked closely with the Porsche designers around General Plant Manager Stefan Hauptmann and Project Manager Andreas Bauer.

The features include the ADB system from 84 individually controlled LEDs switching off or dimming.

Driver Assistance News

JLR is setting up a testbed for autonomous ground

DRIVER ASSISTANCE NEWS

Jaguar Land Rover is working with Cisco, Seagate, Renovo, Red Hat, Valeo and Mergon at the test site in Ireland for driverless cars and drones.

The Future Mobility Campus Ireland (FMCI) will be a collaborative testbed spread across 12km of public roads around Limerick.

The driverless car testbed will work on autonomous, connected, electrified and shared vehicles in a smart city zone to test technology in the real world. Sensors across the site, along with high-accuracy location systems, a data management and control centre and self-driving prototype vehicles. It will feature smart junctions, connected roads, autonomous parking and electric vehicle charging as well as links to a 450km stretch of connected highway and a managed air traffic corridor for unmanned aerial vehicles (UAVs) from Shannon airport along the Shannon Estuary in Ireland.

Jaguar Land Rover is a lead partner of the FMCI and will collaborate with a host of other global technology companies to develop the facility.

The hub is fully accessible and controlled via a dedicated control centre for other automotive technology developers.
“This partnership with FMCI provides us with a real-world facility to trial our emerging autonomous, connected, electrified and shared technology in a strategic location. Collaborating with top-tier software companies will allow us to develop our future systems more efficiently,” said John Cormican, general manager, Shannon, Ireland for JLR.

FMCI was set up to simulate research, development and innovation in the area of Autonomous Connected Electric Shared Vehicles (ACES), including Connected and

Autonomous Vehicles (CAV) in Ireland.

Volvo: Mixed-reality Simulator to develop Safety and AD systems

DRIVER ASSISTANCE NEWS

Called the "the ultimate driving simulator" by Volvo engineers, the simulator features a moving driving seat, a steering wheel with haptic feedback, and a virtual reality (VR) headset. The simulator uses technology from Finnish startup Varjo and the Unity real-time 3D development platform, involves driving a real car on real roads.

It combines life-like, high-definition 3D graphics, an augmented reality headset, and a full-body Teslasuit that provides haptic feedback from a virtual world, while also monitoring bodily reactions. This combination of software and hardware, says the company, allows its engineers to endlessly simulate traffic scenarios on a real test track road while using a real car, all in total safety.

Using the simulator, engineers can gain important insights on the interaction between people and the car for development of new safety, driver assistance, and autonomous driving features. Testers can be exposed to imagined active safety and driver assistance features, upcoming autonomous drive user interfaces, future car models, and many other scenarios. It can be used on real test track roads or in the test lab, and every scenario is fully customizable.

"Working together with great companies like Varjo, Unity, and Teslasuit has allowed us to test so many scenarios that look and feel totally real, without having to physically build anything," says Casper Wickman, senior leader of User Experience at Volvo's Open Innovation Arena. "It lets us test drive actual cars in through traffic scenarios that look and feel real, but can be adjusted at the touch of a button."

General News

Markus Duesmann: No future for hydrogen cars

GENERAL NEWS

For Audi CEO Markus Duesmann (photo), the battery-powered electric motor is the drive of the future in cars. With autonomous driving, he announces a step forward, and explains why Audi are so cautious about this.

Duesmann sees no future for hydrogen and fuel cells as motorcar fuel strategies: "We will not be able to produce sufficient quantities of the hydrogen required for propulsion in the next few decades in a CO_2-neutral manner. I therefore do not believe in hydrogen for use in cars," he told the weekly newspaper *Die Zeit*; "the solution for the car is the battery".

Audi are likely to take a major step forward in automated driving in 2024. Duesmann says Audi "have the technology, but we haven't activated it yet. If an Audi model made serious mistakes because the autopilot did not work reliably, we would endanger the entire company with almost 90,000 employees. That is why we are so cautious". Duesmann's prudent approach stands in contrast to Tesla CEO Elon Musk, who has a reputation for his insouciant attitude toward safety concerns and regulations in his cars and factories.

Europe Sales Lag in October

GENERAL NEWS

Audi (+20%), Suzuki (+19%), and Fiat (+9%) were among the brands with increased European sales in October in a market that was down 6.6%. The decline coincided with new coronavirus restrictions that hit the market following the first monthly sales increase of 2020 in September.
The other brands that recorded gains last month included Great Wall (+5.9%), Opel/Vauxhall (+4.1%), Renault brand (+1.4%),and Dacia (+1.1%) A growing number of models increased sales in October, including the Škoda Kamiq, Renault Zoe EV and BMW 2 Series.

The Volkswagen Golf was Europe's № 1 seller for the fourth consecutive month in October with a volume of 27,000. For a period earlier this year the Golf was under pressure from the Renault Clio, which finished first for three separate months in 2020, but demand for the French small car cooled in September, dropping it to № 3 in the ranking behind the surging Opel/Vauxhall Corsa. The Clio, however, was able to pass the Corsa in October to retain second place with 22,276 sales. The Corsa was third with 21,283 sales.
The Golf won the month despite a 20% sales decline, while the Clio was up 14% in October and the Corsa's volume surged 60%, according to JATO data.
The Fiat Panda, Renault Captur, and the Peugeot 208 and 2008 were the other models in Europe's top 10 that increased sales in October. Bas du formulaire

Golf	**Clio**	**Corsa**	**208**	**Tiguan**	**Octavia**	**Focus**	**Captur**	**Yaris**	**Polo**
228	206	162	160	167	146	144	143	139	138

×1,000 TOP TEN SELLERS IN EUROPE, JAN-OCT 2020 (JATO DYNAMICS)

For the first 10 months, the Golf was in first place with 228,000 sales, a decline of 33%, followed by the Clio (206,000; down 23%) and the Corsa (162,000; down 18%). Rounding out the top five were the 208 (160,168) and VW Tiguan (146,776).

Renault Factory Dedicated to Circularity

GENERAL NEWS

Renault have announced the transformation of their site in Flins, about 40 km from Paris, to create what they call their Refactory, Europe's first circular economy factory dedicated to mobility with a negative CO_2 balance by 2030. This project, part of the Group's transformation strategy, will enable Renault to benefit from a rapidly growing source of value while reinforcing their industrial footprint in France. Renault aim to employ more than 3,000 people on the site by 2030.

With the Refactory, Flins will become a European reference in the circular economy. It will enable the Group to respond to current and future challenges facing the mobility and automotive industries. Renault CEO Luca de Meo says the plant is fully in line with the Group's global strategy by combining circular economy, reduction of emissions, development of skills, and the creation of new value-generating activities.

The Refactory, to be realised between 2021 and 2024, will involve a large network of multisectoral partners—startups, academic partners, major groups, local authorities, et al—and will be structured around four activity centres:
• **Re**trofit: this division will group all the activities enabling the life of vehicles and their uses to be extended, in coördination with the **Re**cycle division to ensure efficient management of the flow of used parts and materials within the same site;
• **Re**energy: this cluster plans to develop the potential of applications arising from electric batteries and new energies to an industrial scale;
• **Re**cycle: this division brings together all the Group's flows to promote the supply of parts and materials in short loops, integrating recycled materials, and
• **Re**start: to enhance and develop industrial expertise, and accelerate research and innovation in the circular economy, this cluster plans to house an incubator as well as a university and training centre.