

Tue, 8 November 2022  
Weekly Newsletter



NEWSLETTER #776

## PixCell LED

Ultimate precision in perfect alignment

100+ individual cells with just 25 µm spacing, perfectly matrixed onto a single LED chip for intelligent headlamps



# Editorial

## Come Celebrate DVN's 15th Anniversary At Paris Workshop!

The whole DVN team are hard at work on the 26<sup>th</sup> DVN Workshop.

It's going to be the greatest DVN event we have ever organised, and with great reason: in addition to all the great professional benefits you've rightly come to expect from DVN Workshops, it will also be a gala celebration of DVN's 15<sup>th</sup> anniversary!

That's fifteen years over which the DVN community has grown to include 200 Gold members; published 750 weekly Newsletters, 175 Reports, five in-depth Studies; and put on 25 workshops.

What an amazing trajectory since that first introductory DVNewsletter and the first workshop with just 20 attendees.

The Paris DVN Workshop will be on 31 January and 1 February, at the prestigious Hyatt Regency Paris Etoile Hotel. The rubric for the event is **Software Defined Lighting: New Possibilities for Optics, Electronics, Material, and Design**, and it will highlight how new technologies will contribute to increased safety in our world and opportunities in our industry. The event will bring together more than 300 participants from all over the world—managers; experts; decisionmakers; innovators; researchers, and regulators involved in lighting.

We have a special arrangement for 150 hotel rooms at a very attractive price, so hurry and [sign up](#). We'll look forward to seeing you there!

Sincerely yours,

A handwritten signature in black ink that reads 'W. Frally'. Below the signature, the text 'DVN CEO' is printed in a small, black, sans-serif font.

# In Depth Lighting Technology

## Paris DVN Workshop Will Be Unforgettable Event



The Paris DVN Workshop will be held on 31 January-1 February at the Hyatt Regency Paris Etoile Hotel, with the theme **Software Defined Lighting: New Possibilities for Optics, Electronics, Material, and Design**. Lectures are expected from:

**Automakers** including Audi · Bentley · BMW · GM · Mercedes-Benz · Nio · Nissan · Porsche · Renault · Rivian · Seat · Stellantis · Volkswagen

**Lighting setmakers** including Forvia Hella · Koito · Magna · Marelli AL · Mind · Hasco · Mobis · Stanley · Valeo · Varroc · ZKW

**Light source suppliers** including AMS Osram · Everlight · Lumileds · Nichia · Kyocera · Samsung · Texas Instruments · Seoul Semiconductor

**Tier-2 suppliers** involved in optics · electronics · driver monitoring · materials · simulation · testing · measurements · regulations

**Research outfits** including universities and Institutes

At this Workshop for the first time, DVN will host a Startups Row to present the best and most innovative new entrants in the lighting industry.

The lectures and discussions during the multiple sessions will provide new knowledge and networking opportunities to bolster your strategic decisions, product and service roadmaps, and resource allocations.

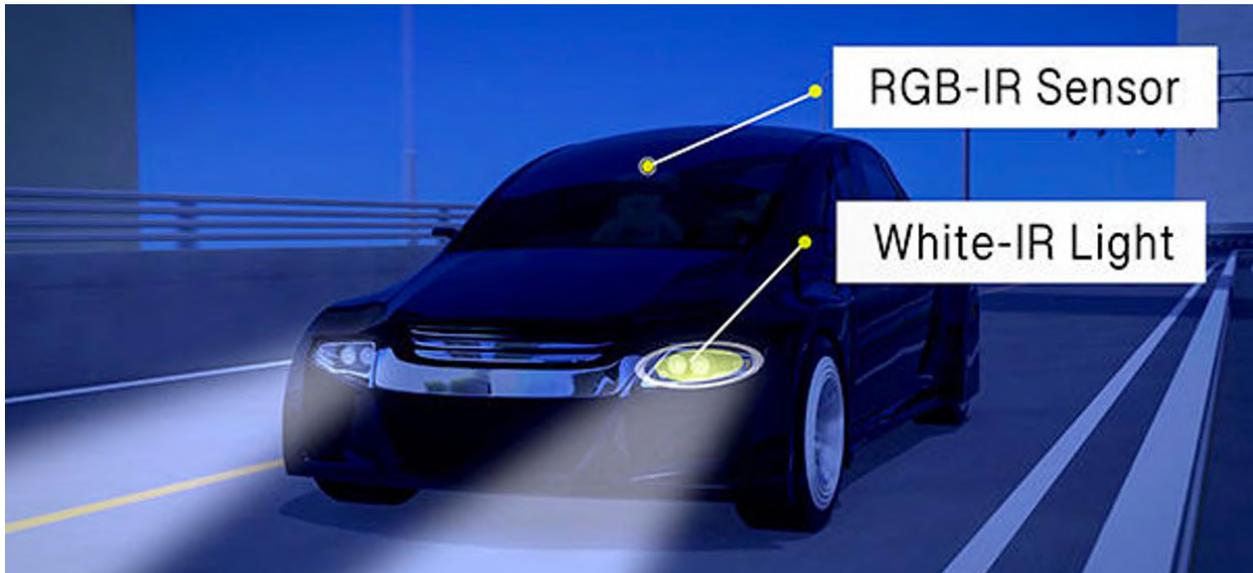
And this will be an extra-special Workshop, for we will be celebrating DVN's 15<sup>th</sup> anniversary! There will be a ceremony during the dinner on 31 January, to thank and recognise some shining luminaries and innovators. Multiple awards will be bestowed, including the DVN Personality of the Decade, awarded a decade ago to Wolfgang Huhn.

An exhibition area of about a thousand square metres, next to the main conference room, will provide ample space for exploring the expo booths of companies big and small; established and startup alike.

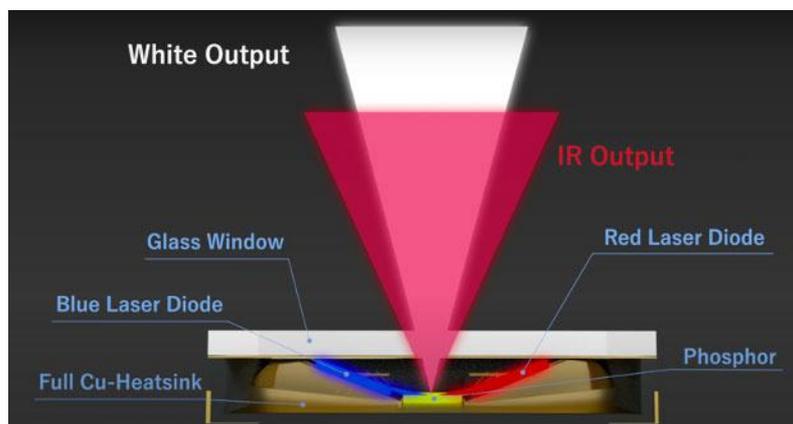
# Lighting News

## Kyocera: Night Vision System with White and NIR Lights

LIGHTING NEWS



Kyocera Corporation announced that it has developed an Automotive Night Vision System that can accurately identify collision-risk objects in low-visibility driving conditions, such as at night, or in rain, snow, fog, or smoke. Solution combines RGB-NIR sensors and proprietary image-fusion AI technology for safer driving, better visibility at night and in inclement weather.



Kyocera's Automotive Night Vision features the first headlight in the world that can emit both white (RGB) and near-infrared (NIR) light on the same optical axis; this allows higher accuracy object recognition than alternative technologies.

For more information, see video <https://www.youtube.com/watch?v=q3Am3wZJXpE>

# Lumileds Emerged from Chapter 11

## LIGHTING NEWS



Lumileds has successfully completed its financial restructuring and emerged from Chapter 11, having reduced its funded debt by approximately \$1.4 billion. With the restructuring transaction completed, Lumileds will be owned by a new group of long-term institutional investors, including Anchorage Capital Group, L.L.C., Nut Tree Capital Management, L.P., and Cerberus Capital Management, L.P.

Lumileds also announced that Steve Barlow, President of Lumileds' Automotive Business Unit, will be appointed CEO and to its Board of Directors, succeeding Matt Roney. The appointment is effective on November 11, 2022.

Steve Barlow brings over 30 years of experience in the semiconductor and LED lighting industries and several decades at Lumileds, having most recently served as the President of Lumileds' Automotive Business Unit and prior to that as President of the Lighting Solutions Business Unit.

"Lumileds holds a strong position as industry leader and innovator, with incredibly talented and committed people. I am energized and honored to lead Lumileds in this pivotal and exciting time in our business and in our industry," said Steve Barlow. "We enter this next stage poised for further growth, positioned to capture opportunities, and in an improved position to address changing global market environments."

# Plastic Omnium Post Strong Q3 Revenue

## LIGHTING NEWS



Plastic Omnium have posted sturdy results for Q3-2022: revenue of €2.377bn in the 3<sup>rd</sup> quarter of 2022, up by 32.6 per cent with outperformance over the first nine months of 2022 in Europe; America, and Asia excluding China.

The company's strategic plan has two pillars: strengthening the group's leadership through increased content and value per vehicle and complementarity of activities, and targeted diversification in line with major market developments in businesses with high potential for synergies with existing activities.

### **New Lighting Division**

Having bought VLS (Varroc Lighting Systems) and AMLS, Plastic Omnium now can offer lighting solutions to meet growing manufacturer demand for integrated exterior systems. The lighting business brought in €1bn in pro forma sales in 2021, with 7,000 employees and 11 factories. The activity aims for economic revenue of around €1.5bn by 2027. Plastic Omnium closed their full acquisition of AMLS Osram in July for €65m. AMLS achieved sales of €148m in 2021, with 770 people and a portfolio of high-tech products in exterior and interior lighting; advanced projection, and body lighting. PO also finalised their acquisition of Varroc's vehicle lighting business, Varroc Lighting Systems, for an enterprise value of €520m. VLS recorded revenue of around €800m in 2021.

### **HBPO Buy-Up**

Plastic Omnium have agreed to purchase Hella's remaining 33.33-per-cent stake in HBPO (Hella Behr Plastic Omnium) for €290m, giving PO full ownership of the world leader in complex modules. This acquisition was entirely financed by the PO Group's own resources. Plastic Omnium, by fully owning HBPO, will be able to develop new modules and systems leveraging the new lighting capabilities in response to the transformation of the market and customer expectations. opportunities and strengthen Plastic Omnium's exposure among German and international high-end manufacturers.

# Hella Show Profitable Growth Under Forvia Umbrella

LIGHTING NEWS



Hella presented their 2025 strategy and targets at a Capital Markets Day in Paris, the first to be held jointly with Faurecia since the two companies came together under the Forvia umbrella.

To achieve their new objectives in line with Forvia's Power25 priorities, Hella will leverage their three strategic pillars: technology and market leadership; global presence and broad customer portfolio, and operational excellence.

Hella CEO Michel Favre said "Thanks to our unique positioning with the Lighting, Electronics and Lifecycle Solutions business groups, we are at the forefront of tomorrow's mobility. This is demonstrated by our financial performance, but also first and foremost by our strong order book. Around 80 per cent of the sales expected in 2025 in Lighting and Electronics are already based on booked business".

Hella expect annual sales growth of more than 10 per cent, to over €9.4bn by 2025—significantly outperforming global light vehicle production. With innovations including their SSL | HD digital headlamp system; FlatLight rear combination lamps, and multifunctional Front Phygital Shields, Hella have numerous fast-growing, innovative technologies in their lighting portfolio. Growth in the Lifecycle Solutions business group is to be further boosted by new digital business models.

Favre said the cooperation between Hella and Faurecia is "already bearing fruit; this shows how well the two companies complement each other. We will therefore continue to intensify our close cooperation and, on this basis, further accelerate Hella's successful path under the Forvia umbrella".

# AMS Osram Show Solid Q3 Revenues, Operating Profit

LIGHTING NEWS



AMS Osram have reported their third-quarter group financial results: revenues of €1.21bn and adjusted EBIT margin of 7.5 per cent show quarter-on-quarter revenue growth matching expectations in context of an unfavorable market environment. Development and industrialisation programs for leading smallest-structure microLED technology are advancing in accord with plans. Mid-term targets have been updated to €4.7bn.

The group's Semiconductors segment provided the most relevant contribution to group results in the third quarter, with 67 per cent of group revenues, while the Lamps & Systems segment saw third quarter results in line with expectations, contributing 33 per cent.

# VW CEO Confirms New EVs

## LIGHTING NEWS



VW brand CEO Thomas Schaefer says his company will greatly expand their ID range of electric vehicles with ten new models by the end of 2026. Confirmed additions include an entry-level ID.2 hatchback and ID.2X SUV, as well as an ID.3X SUV and ID.6 sedan.

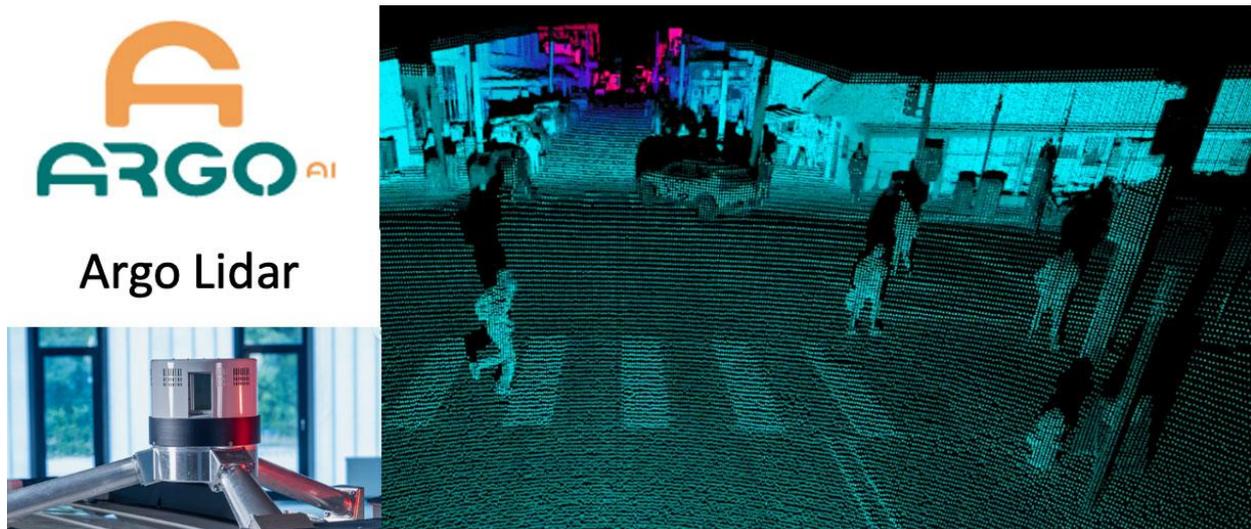
The two new ID.2 models will be produced starting in 2025 at a factory run by the Volkswagen Group's Spanish brand SEAT in the city of Martorell, near Barcelona. Schaefer said they will be priced under €25,000, and described them as a small car and a sporty crossover with dimensions like those of VW's existing petrol-powered Polo and T-Cross models sold in European markets. The ID.2 hatchback and its higher-riding ID.2X compact SUV sibling are planned to replace the old e-Up, an electrified version of Volkswagen's existing Up hatchback. The new models, currently under development in partnership with SEAT's Cupra brand and the VW Group's Czech Škoda brand, will be based on the MEB Entry electric-vehicle architecture—it shares some elements of the larger MEB structure but uses a smaller battery.

Schaefer also confirmed VW are "working hard to develop an additional compact SUV based on the ID.3 so that we can also launch a product in this fast-growing vehicle segment".

# Driver Assistance News

## After Argo Shutdown, What Will Happen to Their Lidar Unit?

DRIVER ASSISTANCE NEWS



Argo.ai announced they would terminate operations across their locations in Pittsburgh; San Francisco; New Jersey, and Munich. The closedown hits about 2,100 employees, and throws a harsh light on the feasibility and business models for autonomous transport on public roads.

Argo was founded in 2013 by alums of the 2006 DARPA Grand Challenge; Google, and Uber AV initiatives and secured \$1bn in backing and funding from Ford in 2017 and \$2.6bn from Volkswagen in 2020. Both investments occurred during the tenure of earlier CEOs, who have since been replaced. The new management saw things differently and did not want to inherit their predecessor's strategic bets.

Prominent AV 'unicorns' like Waymo; Aurora; Mobileye, and Argo considered lidar a critical differentiator for their AV hardware and software stacks. Separately, venture capitalists and automotive tier-1 suppliers have poured billions of dollars into this technology since 2015, with over 70 companies competing. Most of the relevant opinions on the matter consider lidar crucial for effective, safe autonomous driving, though notoriously contrary Tesla CEO Elon Musk has called the rest of the automotive world "doomed" for their well-founded belief in lidar.

So, what's next? Forbes weighed in with five possibilities:

- Ford or Volkswagen could direct their tier-1 suppliers to take over. Innoviz are a tier-1 lidar supplier to Volkswagen and could be an option.
- Other independent lidar companies could make a play for Argo's lidar activities. Luminar are one of the lidar companies with enough market capitalisation to afford acquiring Argo Lidar. There is also synergy in that Luminar currently offer high-performance, 1550-nm lidar with linear mode APDs and fiber lasers.

- Argo use contract manufacturers to build their lidar. They could acquire the lidar unit in concert with other tier-1 companies interested in integrating lidar into their automaker customer platforms.
- The current management of the Argo lidar unit could buy out the company and run it in the future. Potentially, the buyout could be done through equity arrangements with Ford, Volkswagen and other investors.
- Non-automotive entities could step in and participate.

# Changan Pick Hesai Lidar

## DRIVER ASSISTANCE NEWS



HESAI AT128

Hesai Technology say they have formally reached a cooperative relationship with Changan Automobile, and a number of new models built on Changan's SDA architecture will be equipped with Hesai's AT128 automotive-grade ultra-high-definition lidar.

the AT128 is an ADAS long-range main lidar launched by Hesai for the front-loading mass production market, which integrates 128 lasers and a spot frequency of more than 1.53 million per second to achieve ultra-high-definition scanning of the surrounding environment, helping cars to 'see' the three-dimensional world in real time.

Since its release, the AT128 has equipped a number of Li Auto; Jidu; Hiphi; Lotus, and other-marque vehicles. This past September, Hesai announced that the monthly delivery volume of the AT128—and therefore of Hesai's automotive lidars overall—exceeded 10,000 units.

# Hesai's New FT120 Solid State Lidar

DRIVER ASSISTANCE NEWS



HESAI FT120

On 2 November Hesai Technology released a solid-state, close-range, blind-compensation lidar, the FT120, which is targeted for factory installation in vehicles. The product will enter into mass production in the second half of 2023, and already Hesai have obtained orders from automakers for over 1 million units.

The FT120 has a  $100^{\circ} \times 75^{\circ}$  ultra-wide-angle field of view, and no blind zone. Its maximum range is 100 metres. It can perceive the road signs; railings; three-dimensional features and obstacles of a parkade or garage, *and also can* detect children; pets; cone barrels, zebra crossings, and so on.

The Hesai Maxwell manufacturing centre, built to put out a million lidar units annually, will be fully onstream next year. At that time, it will provide sufficient production capacity for the large-scale mass production of units like the FT120.



# Volvo EX90 Lidar Creates 'Invisible Safety Shield'

## DRIVER ASSISTANCE NEWS



LIDAR UNIT ON THE VOLVO EX90 EV

Volvo have developed a low-profile, low-drag cover for the roof-mounted lidar module on their EX90 electric crossover. Volvo Cars exterior design boss T. Jon Mayer describes the lidar unit as the eyes of the vehicle: "Placing the lidar sensor in the grille would be like having eyes on your knees. If you put it up high, you can see above that car and beyond limiting vision to the vehicle directly in front".

Volvo say the EX90's Luminar lidar can detect pedestrians up to 260 metres away, even at highway speeds. Beyond early detection, the roof mount also protects the sensitive and expensive sensor from damage in a collision or from road debris.

But while the roofline position maximises performance, the boxy unit could also disrupt airflow around the vehicle and create drag. A low aerodynamic drag coefficient ( $C_d$ ) is crucial for EVs' driving range. So

Volvo designers developed a low-profile, teardrop-shaped cover for the lidar to reduce drag. Mayer said the cover rounds off the lidar's edges and tapers toward the rear, like an airplane wing, so air flows around the sides and over the module.



T. JON MAYER, HEAD OF EXTERIOR DESIGN

"It's about getting the air to attach seamlessly to the car as if the lidar wasn't even there," he said. "There's very minimal impact from an aerodynamic standpoint."

# Liangdao Get Money Injection for Lidar Mass Production

DRIVER ASSISTANCE NEWS



Liangdao Intelligence was founded in China and Germany in 2017, and they provide customers with lidar hardware; perceptual function development; test verification; mass-production data services, and other full-stack lidar system mass production solutions. After five years of effort, they've succeeded in developing a mature intelligent driving and roadside perception system and have obtained project cooperation with Great Wall; Volkswagen Group; BMW Group; Mercedes-Benz, and other automakers. In early 2022, Liangdao Intelligence received Series A financing of over €14m.

Based on the experience of the development of vehicle perception function for quite few years, Liangdao Intelligence launched the first pure solid-state flash lidar with blind-zone compensation, called LDSatellite, in China this past May. This product adopts a pure chip design with simple structure and small size, with large horizontal and vertical field of viewing. It claims to be a vehicle-level lidar with high performance, low cost, high reliability, and long lifespan. The platform is in a sampling stage, and the fully automated smart production line is in deployment and construction. It is planned for a production-verification phase in the first quarter of 2023.

# General News

## Runners and Walkers in the European Market

### GENERAL NEWS



According to market researcher Dataforce, Asian brands have made the biggest gains in European market share in Europe over the last five years. The biggest winners were Toyota and Kia, followed by Hyundai, Dacia, and Tesla. Key factors in Toyota's success were their ability to navigate supply chain disruption better than many competitors.

Maker	Share 2017	Share 2022
Toyota	4.4%	6.9%
Kia	3.0%	5.0%
Hyundai	3.2%	4.8%
Dacia	3.0%	4.2%
Tesla	0.1%	1.4%

TOP MARKET SHARE GROWERS, 2017-22

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TOP MARKET SHARE GROWERS, 2017-22

Toyota also have successfully strengthened their range by adding models such as the CH-R compact SUV and Yaris Cross small crossover. Kia and Hyundai have done a better job than rivals securing semiconductors and other components. Europe's N° 1 and N° 2-selling EVs are Tesla's Model Y and Model 3, respectively. With a volume of 54,000 through August, the Model Y was also Europe's best-selling premium midsize SUV, ahead of the Mercedes-Benz GLC and BMW X3.

# New Chinese EV brand Beyonca Launches

## GENERAL NEWS



BEYONCA FOUNDER AND CHAIRMAN SU WEIMING WITH GT OPUS 1 CONCEPT

On October 30, another new Chinese electric vehicle brand went live: Beyonca, positioned as a luxury smart EV brand. At the press conference, Beyonca presented their first model, the Gran Turismo Opus 1 concept car. They plan to announce their first real model next spring, and to announce the brand's Chinese name. The first mass-production model is slated for 2024



GT OPUS 1 CONCEPT CAR

Presently, Beyonca has institutions in five cities located in China, Germany, and Singapore, including three R & D centres in China; design centres in Munich, and Singapore branches which plan to be upgraded into technology centres in the future.

# Neta Pick Nvidia Platform

GENERAL NEWS



On October 27th, Neta opened cooperation with Nvidia. Neta Motors will be equipped with Nvidia's Drive Orin car computing platform and consider the introduction of the Thor chip for the cabin, to continuously improve intelligent level of Neta Motor AI.



NETA CEO ZHANG YONG, NVIDIA CHINA GM LIU TONG

Neta Cofounder and CEO Zhang Yong said, "Nvidia, as a head AI chip company, constantly refreshes smart driving chip computing power. And Neta is entering a new stage of development, technological innovation is one of the major driving forces. Cooperation with Nvidia is an important deployment of the two parties in the era of EV. The close cooperation between the two parties will vigorously support Neta to precisely develop leading smart vehicles and improve smart technologies".

Neta are one of the new auto companies in China. In September 2022, they sold 18,005 units, which won the first place as to monthly sales among new automakers for the third consecutive month, an increase of 134 per cent year-on-year. As of September, Neta have launched models including the Neta S; Neta U; Neta V, totaling over 200,000 units.