

SHANGHAI INTERNATIONAL MOTOR SHOW

2019 HIGHLIGHTS

—— The 18th International Automobile Industry Exhibition ——



AUTO SHANGHAI

**AUTO
SHANGHAI
2019**

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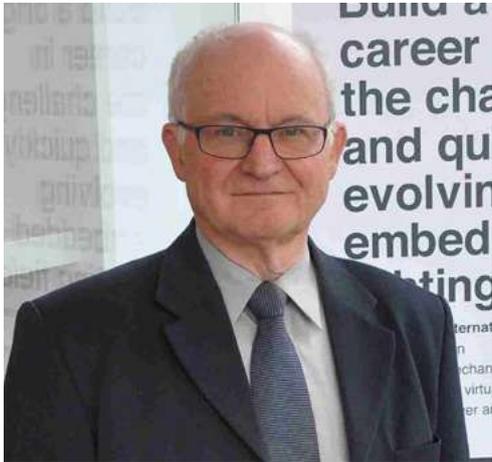
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Kamislav Fadel graduated from École Supérieure d'Optique in 1991. In May of that year, he joined Valeo at their Bobigny, France lighting headquarters as a Junior Lighting Expert; eventually he became Senior Manager of Lighting Design. In April 2001 he joined Renault as Lighting R&D Manager, and in September 2007 he joined Automotive Lighting as R&D Vice President at the company's HQ in Reutlingen, Germany. Then he joined Hella as R&D Executive board member and since 2018 he is Senior Automotive Exterior Lighting Advisor. Fadel has made his entire career in the vehicle lighting field, and has tackled challenges on the supplier and OEM side of things with great success. He is truly a lighting visionary and has contributed greatly to the launch of innovative LED lighting on premium cars, including presiding over the fitment of LED headlamps with HID-level performance.

The Shanghai Motor Show traditionally reflects the Chinese automotive market, which has ballooned in a few decades from around half a million cars per year to 28.2 million in 2017. Accordingly, the Shanghai show has, these past years, been the meeting place with the greatest number of models and brands.

This year the question was whether this affluence would be maintained despite some adverse trends; in 2018 the market slowed down by 3.7% to 27.5 million units.

And the first months of 2019 were even worse, with year-to-date sales dropping 16.3% in January and February. Nevertheless, many are hoping for a rebound—March showed the smallest decrease year-on-year in over seven months at 5.2%, and there's been a timely reduction in sales tax ordered by the Chinese central government, effective from the beginning of April.

In context of all these elements, the 2019 Shanghai motor show was very active with a huge number of premieres and a strong trend towards environmentally-sensitive cars. Every key Chinese carmaker, including the five state-owned heavyweights SAIC, FAW, BAIC, Dongfeng, and Changan, but also private rivals headed by the likes of Geely, GAC, Great Wall Motors and BYD, all presented new or improved production models this year.

This 2019 motor show was also especially significant with a strong increase of Chinese models prepared for European launches and models from non-Chinese global manufacturers specifically prepared for the Chinese market.

Environmental issues are becoming crucial in China, and zero-emission solutions are playing a big part in the attraction of new cars for Chinese buyers. New names are cropping up: Nio, XPeng, Weltmeister, Singulato, Byton, Aways, Bordrin, and Leap along with many other newly-created electric vehicle startups, several of which are based in and around the sprawling metropolis of Shanghai itself.



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Main trends on display

ELECTRIFICATION :

The trend for electrification was already seen in the previous motor shows, but never at this level. Every carmaker presented several electric versions of their cars. In some booths, there were more EVs than combustion-engine cars, and sometimes only electric versions were presented. This is particularly apposite to China as many new companies have come to develop electric cars only, this movement in China being reinforced by the industrial policy of the government and by the possibility to find there all the basic components for this new power architecture—thus facilitating a relatively low cost of entry. All the types of electric vehicles were presented: hybrid with a trend toward plug-in versions; pure battery electric with a range of at least 300 km (oftener 400 km); electric with a small combustion engine for range extension, and electric with hydrogen fuel cell. This last type seen by some people as the real future was not presented not only by the initial creators like Toyota, Honda, and Hyundai, but also by at least three Chinese carmakers showing their quick evolution towards high technology.

SUVs :

SUVs sell briskly everywhere, but especially in China. At the Shanghai autoshow, we saw a lot of SUV—many of them quite big. Some carmakers in China are producing only SUVs, and some only electric SUVs.

LIGHTING STYLE DIVERSIFICATION :

With hundreds of models presented, the variety of style was particularly impressive. If we should try to give some main trends for style seen at the Shanghai show, the list might include:

- Thinner front and rear lamps allowed now by the small LED modules;
- Composite front panels, often with some lighting elements on the upper part and the others more in the centre of the face.
- Large lighting devices with an appliqué joining the two main lighting functions from one side to the other, very often for the rear and now more progressively appearing in the front.

LED GENERALISATION

Never we have seen so few halogen headlamps, particularly for Chinese models. Of course at a motor show, mainly the high-end versions are presented, and for some Chinese cars it is not obvious to determine for sure that an LED source is used behind a lens module. But each time we check more closely by scrutinising the colour of the light, the detailed specifications, the particulars of the modules, etc, LEDs were present. More than in some other countries, in China (as in Japan and Korea) the colour of the light as well as the design are important factors of modernity.



Introduction of the car makers :

Domestic manufacturers, brands and cars:

China has a «big four» collection of state-owned domestic car manufacturers: Shanghai Automotive Industry Corporation (SAIC, in partnership with GM), Dongfeng, FAW, and Chang'an. Beijing Automotive Industry Corporation (BAIC) frequently challenge Chang'an as the fourth largest automaker. Guangzhou Automotive also are state-owned.

Shanghai Automotive Industry Corporation (SAIC) are headquartered in Shanghai operating in joint venture with General Motors. They had the largest production volume of any Chinese automaker in 2017, making more than 6.9 million vehicles. SAIC sell under a variety of brands including Maxus, MG, Roewe, and Yuejin. Vehicles made by SAIC joint ventures are sold under marques including Baojun, Buick, Chevrolet, Iveco, Škoda, Volkswagen, and Wuling.

Dongfeng Motor Corporation are headquartered in Wuhan. They were China's № 2 automaker in 2017 by production volume, manufacturing over 4.1 million vehicles that year. Owned brands are Dongfeng, Venucia, and Dongfen Fengshen. Joint ventures include Cummins, Dana, Honda, Nissan, Infiniti, PSA Peugeot Citroën, Renault, Kia and Yulon.

FAW Group Corporation are headquartered in Changchun. In 2017 they ranked third in terms of output, making 3.3 million vehicles. FAW sell under at least ten different brands including their own and Besturn/Běnténg, Dario, Haima, Hongqi, Jiaxing, Jie Fang, Jilin, Oley, Jie Fang, Yuan Zheng, and Tianjin Xiali. FAW joint ventures sell Audi, General Motors, Mazda, Toyota, and Volkswagen-branded vehicles.

Chang'an Automobile Group are headquartered in Chongqing. In 2017, they ranked fourth in terms of output by making 2.8 million vehicles. Changan sell passenger cars under the Changan brand, and commercial vehicles under the Chana brand. Foreign joint venture companies include Suzuki, Ford, Mazda, and PSA Peugeot Citroën.

BAIC Group, also known as **Beiqi**, are a state-owned enterprise and holding company of several Chinese automobile and machine manufacturers located in Beijing. In 2014, the company ranked fifth in terms of output by making 2.5 million vehicles. Principal subsidiaries include the passenger carmaker BAIC Motor; the military vehicle and SUV maker BAW, and the truck, bus and agricultural equipment maker Foton Motor. BAIC's parent is the Beijing Municipal Government's State-owned Assets Supervision and Administration Commission (SASAC). Foreign joint ventures are with Hyundai and Daimler-Benz.

Other notable Chinese automotive manufacturers include:

GAC (Guangzhou Automobile Group), another state-owned automaker headquartered in Guangzhou. They were the sixth biggest manufacturer in 2017, manufacturing over 2 million vehicles. GAC sell passenger cars under the Trumpchi brand, but in China they are more known for their joint ventures with Fiat, Honda, Isuzu, Mitsubishi, and Toyota.

Geely, are the biggest privately-owned automobile manufacturer and seventh-biggest manufacturer overall in China. Their main brand Geely Auto became the top Chinese car brand in 2017. Currently one of the fastest-growing automotive groups in the world, Geely are known for their ownership of Sweden's Volvo. In China, their passenger car brands include Geely, Volvo, and Lynk & Co.



Great Wall, the № 8 manufacturer in 2017 and China’s largest manufacturer of SUVs. Great Wall sell vehicles under the Haval and Wey brands.

Brilliance Auto are another Chinese state-owned automaker, based in Shenyang. They were the № 9 manufacturer in 2017. They have a foreign joint venture with BMW and also sells passenger vehicles under their own Brilliance brand.

Chery are a Chinese state-owned automaker based in Anhui. They were the № 10 manufacturer in 2017. They have a foreign joint venture with Jaguar Land Rover for the production of those brands in China, and they also sell under their own Chery and Qoros brands.

BYD Auto were founded by BYD, known for their batteries and electric buses around the world. They were also the seventh-best-selling Chinese car brand in 2017.

Chinese-Brand Auto Sales in China, 2018 (statista)





Arcfox

Arcfox is a new brand presenting two concepts with dummy lighting systems: the GT Sport concept (shown) and the ECF SUV concept.



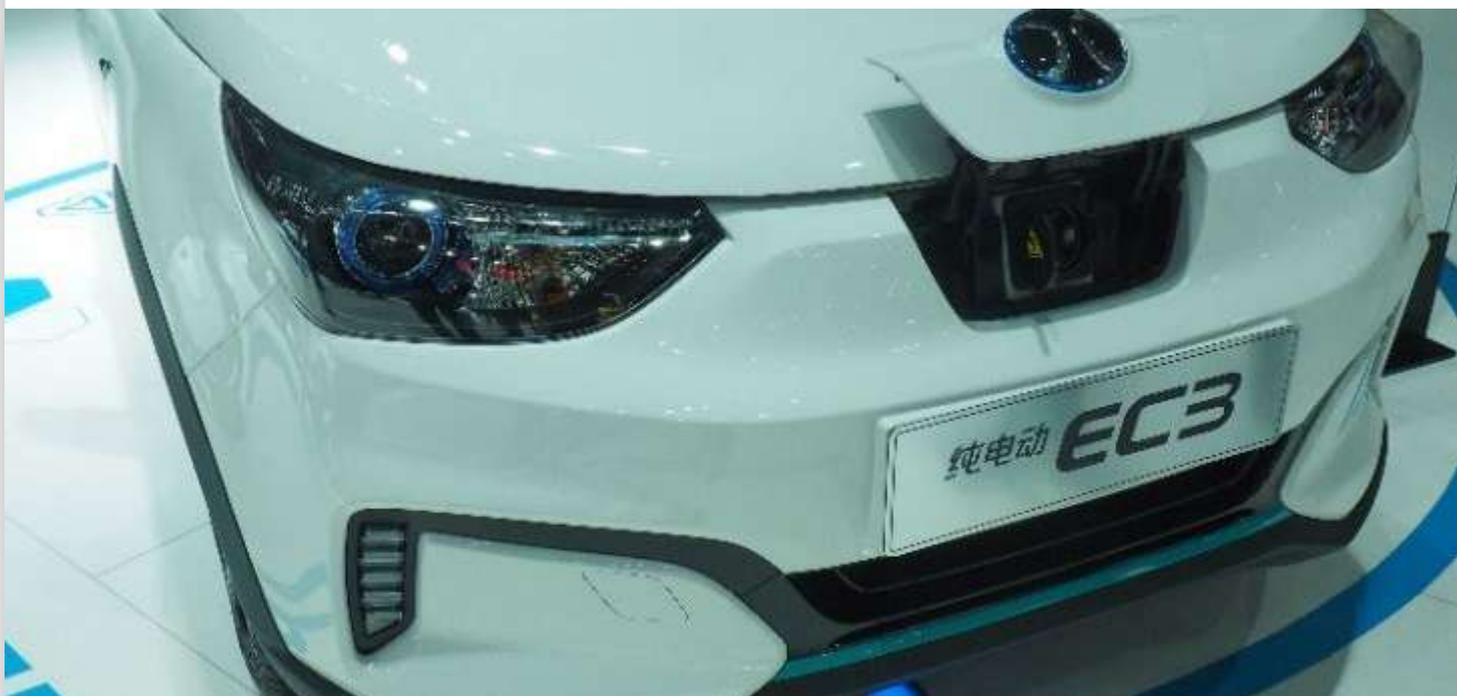


Baic Group

BAIC showed their Senova with two small lensed LED modules, and their EX3 with the headlamps well below the upper DRLs.



BAIC also presented three electric cars: the EX3 with 630-km range; the EC5 with 500-km range, and the EC3 with 395-km range.



Then there was the Lite R300, a very small vehicle just 3 metres long with a range of 300 km.





Baojun

Baojun, a brand of the SAIC-GM joint venture, showed their RM-C concept—the brand's first. It features large, full-width, wraparound signal lights at the front and the rear.



The Baojun RS5 has very small reflectors in the upper area in front, and a large applique at the rear:





Bordrin

Bordrin were founded in 2016 by a former Ford senior engineer. They're preparing for the launch of their first car. The iV6 (code name B31) prototype shown is a low-cost electric SUV which FAW would manufacture from the first quarter of 2020.



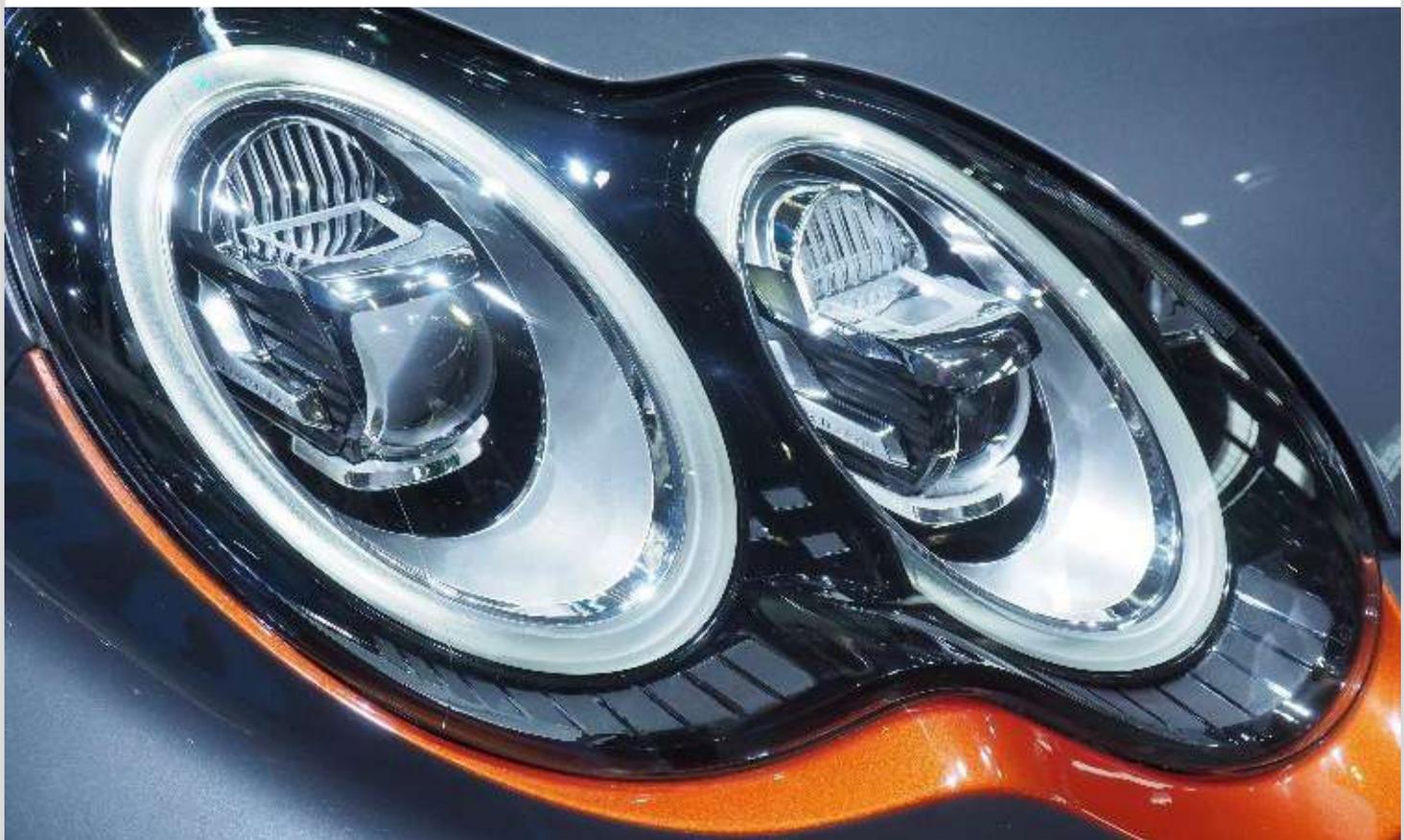
Their iV7 is a premium SUV which as a concept has seven seats, a layout which should be retained for the potential production model presented here with an exceptional range of 700 km and a huge screen inside.





BYD

BYD's e1 is an Electric vehicle powered by a permanent magnet motor of 45 kW (61 hp). It is surprising for such an inexpensive vehicle (90,000 Yuan, about €11,900 or \$13,300) to feature a nice full-LED headlamp system with multiple lenses.



The blue BYD Pro DM shown here has full-LED headlamps with three chambers separated by a position



The BYD Pro EV, shown here in red, has a 502-km range. Headlamps are reflector-type LEDs with blue





Changan

Changan's CS75 Plus is a large SUV, 4.67 metres long, expected to be the replacement for the CS75 which was only facelifted a year ago. Presented here is the PHEV version with full-LED headlamps and a blue ornament bar for the auxiliary lamps below:



The CX95 large SUV has two rectangular LED modules:



Chery

The Chery Tiggo 8 290T is a big new SUV with tri-chamber reflector LED headlamps showing the trend in headlamp design and technology in the Chinese industry and market. DRLs highlight the reflector shape:



The Chery Tiggo e is an EV 4.35 metres long, with a 400-km range. Apparently the headlamps contain LED technology:





Dongfeng

The Wuhan-based Chinese state-owned car maker showed their AX7 compact fuel cell CUV, launched late last year. Note the inboard-over/outboard-under compartmentalisation of the LED headlamps.



Dorcen

Dorcen are a small carmaker presenting several models including the 4.52-metre-long G60 SUV (red, below left), a new G60S model with LED lens modules, and an ultra-compact e20 EV just 2.87 metres long (white, below right) with a range of 302 km.





FAW

FAW showed Hongqi- and Bestune-branded vehicles, presenting 20 models including three premieres. Hongqi is a luxury brand; the blue H5 shown here is a fuel cell model aimed at providing long range capability in the future:



Bestune

The Bestune E² concept with hidden front and rear lamps (they're dummies on the concept shown) demonstrates the 5G-enabled mobility idea as envisioned by the maker:



Meanwhile, the Bestune T² concept previews the next B99 large SUV:



The T77 is Bestune's current production car with a length of 4.52 metres. Headlamps have four LED lens modules. Note the full-width appliqué for the rear lights.



A number of other Bestune models were also on display, including the X40, X40EV (upper picture), and DEV Lite (bottom picture).





GAC

The Aion LX electric SUV (silver, below) nips at the heels of the Tesla Model Y. The headlamp contains two rectangular LED lens modules.



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GAC Changfeng

The Leopard Mattu coupé (below) has an appliqué rear lamp and dark-look headlamps. Changfeng also showed other electric vehicles including the CS9: 4.31 metres long, 360 km range, very large 12" screen inside, and full LED lighting systems front and rear.



Geely

Geely are the largest privately-owned Chinese company. They own iconic Swedish carmaker Volvo. At the Shanghai show, they showed their Preface concept in blue, described as their «first high-end sports-orientated sedan based on the CMA architecture». Headlamps are triple-chamber LEDs. Note sideview cameras in lieu of mirrors:



The Geometry A is a pure-EV platform underpinning ten models Geely plan to launch between now and 2025, with a range of 500 km. The Jihe A (shown here in white) is the first Geometry A model. It's 4.7 metres long and has LED headlamps.



Other models presented by Geely included the Bin Yue PHEV, a 4.3-metre-long model recently launched that was the first SUV for Geely's BMA (B-segment Modular Architecture), now with a PHEV powertrain. There was the Emgrand GL PHEV, plug-in hybrid version of the GL sedan; the JiaJi 4.7-metre MPV with petrol engines, and the Xingyue 4.6-metre crossover coupé.



Grove

Grove's Granite concept is a Pininfarina-designed four-door coupé design study meant as a showcase for Grove Hydrogen which should be in production in 2020 with a range of 1000 km. At this stage, the car has dummy lights front and rear.





Hanteng

Models presented by Hanteng including the X8, the V7, the X7 hybrid PHEV (below, right) and the fuel cell FCV (below, left). Both had conventionally-styled lighting with likely BiLED projector modules.



Hozon

Hozon's U concept has front lighting in two levels with certainly Biled module for low and high beams. The DRL array wraps fully fro left to right, similarly to the rear lamps.



Hozon's Eureka O2 coupé concept has a continuous light-line across the front of the car, with a flying-dart shape at the outboard edges. They're dummy lights at this stage.



JAC - Jianghuai

JAC showed the IEVA 50 EV with 410-km range (white, below left) with headlamps reminiscent of Audi design, and the IEVA60, just under five metres long, with a range of 405 km and conventional round projectors probably with LED technology.



Jetour

Jetour's presentation included this red X70 coupé and blue X95 petrol car, both with square LED modules for headlamps and fog lamps:





Jiangling Motor

Jiangling make SUVs, some very similar in design to European models. For instance, the Landwind X7 copied the Range Rover Evoque so closely that lawsuits were filed (and won) by Jaguar Land Rover. The new Landwind E315 is a preview of an SUV which Jiangling say was developed by GFG Style. It has three square eyes on each side, along with three lower eyelids and a variety of other lighting lines and lenses up front:



Li Xiang

Li Xiang's One is a big electric SUV with range extension engine allowing a range of 800 km. The LED headlamp contains six small reflectors, while in back is a full-width, wraparound taillight array.



Lynk – Geely group

Geely's «Lynk & Co» brand, named in apparent flattery of Ford's Lincoln Motor Co, showed their 02 (grey, below left) and 03 (red, below right) PHEVs, two new plug-in hybrids joining the 01 crossover. All three share the same powertrain. Lighting is in LED technology with longitudinal-stripe DRLs in the traditional headlamp location and the actual headlamps—reflector LEDs, in this case—tucked into the left and right edges of the «grille» area:





Maxus

SAIC's Maxus range of big SUV and leisure vehicles includes the EG50, G20, D90, D60, G20, and RG10. On display at this year's Shanghai show was the D60. Trim upper front lights have three LED modules arrayed horizontally; below that in the fascia is a larger, vertically-arrayed home for the other light functions.



The Maxus G20 is a fuel cell vehicle with 650-km range and ice cube LED lights all over the front:





MG

SAIC's MG brand, bought from the British some years back, showed a variety of electric cars including the EV 400 SUV and the EZS (turquoise, below left), which has round projectors framed by white curvilinear DRLs in a Land Rover-like style. The HS has a differently-dressed variant of the similar headlamp arrangement, suggesting a high degree of subcomponent standardisation.





NIO

Nio are a new carmaker founded in 2014 and specialised in EVs. The ES6 (silver, left) and ES8 (blue, right) have similar front lighting packages, grouped and combined a little differently. Headlighting is by a single bifunctional LED projector on each side, with two-segment linear DRLs above. The ES8 was launched a year ago to rival Tesla's model X. The ES6 SUV came out at the end of last year.



Qiantu

Qiantu hope to make their China-developed K50 electric supercar in America next year. The two electric motors provide a total of 435 horsepower with 380 km range. Lights are well hidden in blacked-out nacelles.





Roewe - SAIC group

SAIC's Roewe brand showed off their Marvel X, featuring jewelled appearances in the multiple lens modules for the headlamp, and wraparound DRLs following the chrome contour surround lines:



The Max shows how SAIC have given their RX8 some minor changes to create this SUV. Rectangular projectors abound:



Meanwhile, the Roewe ERX5 EV has four LED reflectors, fish-hook DRLs, and 320 km range:



Seres

«Seres SF5» is the new name and design for the former SF Motors SF5 prototype. It's to be available in two forms, the faster of which has a claimed 1,039 Nm torque and 684 hp. We see five-chamber LED reflector headlamps up front, full-width wraparound rear lamp at the back:



Tech Shanghai CH auto

The Kangaroo hypercar concept, already presented in Geneva, puts out 360 kW for 0–100 km/h acceleration of 3.8 seconds—and has a range of 480 km. The very thin headlamps are dummies at this stage:



Wey

The Wey VV6 has projectors on each side in the headlamps—likely LED modules:



The X concept is a design study of a crossover similar in size to the company's own VV5. Triple headlamp modules are tucked into a recessed dart-shaped scoop on each side. Note the barely-visible sideview camera at the trailing edge of the front fender:



Xiao Peng

Xiao Peng's G3 has a very nice rear lamp with 3D styling and a dynamic turn signal. Up front, there are three small lens-type LED modules in each headlamp:





Zotye

Zotye's A16 SUV prototype has box-shaped LED modules in the headlamps. The front lighting package is in three layers with DRLs at the upper level. Rear lights are joined by a full-width red band:



The B21 SUV prototype also has three-layer front lighting with the high and low beams provided by lensed LED modules:



And Zotye's E200 FCV electric city car, with a range announced at 450 km, has H4 headlamps—a throw-back to 1970 technology, and a notable exception to the largely LED headlamp field at this show.



Zotye also showed a brilliant blue concept car with matched-design front and rear lights (though they were dummies, not actual lights in this show car).





Acura

Acura presented their RDX, MDX, CDX, and TLXL models, which all use the brand's jewel technology with multiple ice cubes (lensed LED modules). The 2020 TLXL is a performance luxury sedan with petrol engines. Note the sidemarker reflector—seldom seen outside the North American markets where it is required:





HONDA

Honda

Honda's X-NV concept is an EV based on the Vezel/HR-V. It will be in production by Dongfeng Honda later this year. LEDs provide the low beam, but high beam still has a halogen bulb. The front and rear lamps are monochromatic when unlit, and design-coordinated with each other.



The Inspire Sport Hybrid has Honda's line-of-small-reflectors LED design that has quickly become a visual brand identifier:



Infiniti

Nissan's luxury brand Infiniti presented the QS (below, left) and QX (below, right) «Inspiration» electric concept cars with headlamps so slim as to be almost invisible:



Lexus

Toyota's luxury brand showed numerous models including the RX300, LS500H, RX450H, ES300H, LS350, LC500H, and ES260 with the brand-typical lighting technology: three triangular lens modules aligned or arranged in a triangle formation. The LM 300H large hybrid SUV (below) was shown for the first time at Shanghai:



Mazda

Mazda's Vision Coupé concept has a high beltline and super-slim LED headlamps:

Other Mazda cars on display included the CX5, CX8, 3 Axela, 6 Atenza, MX5-RF, and CX4.





Nissan

The Nissan Sylphy, called Sentra or Pulsar in other markets, is a new-generation C-segment car built with Dongfeng Motor. Headlamps are fairly conventional in design, with LED projector low beams:



Subaru

Subaru's stand contained a BRZ equipped with a BiLED projector module in each headlamp:





Toyota

Toyota showed, for the first time in Shanghai, the electric C-HR and the electric Izoa that will be produced next year. The C-HR EV is the battery electric version of the B-segment crossover C-HR. Headlamps have round projector eyes with elaborate light guide eyelids and eyebrows:



The Izoa is also a new electric vehicle very close in size to the C-HR. Taillights remind of the butterfly design on the Prius Prime, but the headlamps are model-specific:





Hyundai

The Hyundai Elantra PHEV is a new plug-in version of the Elantra with full front and rear LEDs in conventional design:



The ix25 is much less conventional in design. It's a new small SUV, which will also be sold in some markets as the second-generation Creta. LED headlamps are bounded above and inboard with DRL light guides



The Santa Fe LWB, a long-wheelbase version of the Santa Fe, has new rear-end styling with a prominent bracket-shaped rear light package. The front lighting package is a 3-layer design:



A Hyundai Sonata concept design was presented with interesting design of the DRLs faired far back into the inboard edges of the fenders:



The Hyundai Encino EV has very thin LEDs headlamps. It's a version of the Kona CUV for the Chinese market:



The Nexo is a fuel cell vehicle launched last year and now selling in China. Thin LED headlamps are tied together by a prominent chrome band. At the rear, concentric triangles are silver-grey when unlit, but light up to provide the red and yellow rear lighting functions:



Kia

Kia's K3 PHEV is new to the Chinese market, though the K3 has been available in South Korea for almost a year (and in North America as the Forte sedan) but this is the world premiere for a plug-in hybrid variant. Headlamps have a technological appearance to their more or less conventional design:



The Kia Imagine electric concept car has an induction-charged battery and invisible headlamps:



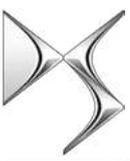
Audi Aicon

Audi's Aicon show car has digitalised front lighting. Each pixel can be controlled individually and participate in the beam pattern shaping. This architecture approach is fitting to an AI lighting concept. The rear panel is likewise completely digital and is envisioned as a communications panel.



The bright blue e-Tron has LED headlamps with Audi's e-tron signature, and a lens cleaning system. Turn signal repeaters are built into the sideview camera housing—there are no sideview mirrors, as such. The rear lamps are tied together by a prominent red band, which is more and more becoming an SUV trope.





DS

The main front signature is about three modules: The modules are static in the 4S and 5S where on the DS7 Crossback they have original movement when they are switched on and off. The synergy between the 4S and 5S on the front is quite high



The DS3 Crossback headlamp also uses the theme of the three modules, but the packaging is different and the synergies seems to be less with the predecessors.



The DS7 Crossback RCL is remarkable and very stylish



Karma

Karma's GT and Vision concepts both have very thin LED headlamps. The race for thinner and thinner headlamps is ongoing, at least on the majority of the concept cars.





Mercedes

The new GLE (pearl white, above) has new 84-LED low beams and high-range high beams. It also has two LED DRLs signing the E line. The C line has only one DRL wave and the S line will most probably have three—a quick and highly visible way to discern the various models (and price classes) on the road.



The GLB Concept shown here has inbuilt roof lightst and sophisticated full-LED headlamps.



Mini

The Union Jack rear lamps are now available for the Clubman, as shown below.



Very little apparent change on the headlamps, but four-segment matrix and the cornering function are now available, demonstrating that these technologies are reaching the smaller cars.





Škoda Vision I Concept

The Škoda Vision-I concept shows a nice front light band that is animated to provide welcome scenarios. The front grille is also illuminated and animated. The headlamps themselves are imagined as three teeth per side.





Volkswagen

The VW ID has a front signature in lit lines, with accented styling tying the front and rear design concepts together. Perhaps we are seeing here the evolution of VW's EV/AV light signature. Illuminated VW logos appear front and rear. The rear panel offers various personalisations and functionalities, though these are constrained by prevailing regulations.



VW use «Jetta» as a vehicle brand in China, rather than a model name as elsewhere. The Jetta VS5 (white, above) presents with reflector-type LED headlamps, and a more or less conventional rear lamp design.



The Jetta VA3 model has less expensive halogen headlamps.



Car makers

Aston Martin, UK
 Audi, Germany
 Bentley, UK
 BMW, Germany
 Changan Design Center, Italy
 FCA, USA
 Daimler, Germany
 Ford, Germany
 GM, USA
 Great Wall, China
 Harley-Davidson, USA
 Honda, Japan, USA
 Hyundai Motor, Korea, Europe
 Jaguar-Land Rover, UK
 Mahindra Mahindra, India
 Nio, China
 Nissan, Japan, Europe, USA
 Opel, Germany
 Porsche, Germany
 PSA, France
 Renault, France
 SAIC TC, UK
 Shanghai-Volkswagen, China
 Seat, Spain
 Skoda, Czech Republic
 Toyota, Japan, Europe, USA
 Volkswagen, Germany
 Volvo Cars, Sweden

Univ, labs, Consultants

Darmstadt university, Germany
 DEKRA laboratory, Nederland
 FEP, Franhauser, Germany
 Fudan university, China
 GranStudio, Italy
 Hannover Leibniz Univ.(HOT), Germ.
 Institut d'Optique, Fr.
 Karlsruhe Lighting Institute, Germany
 LAB, France
 Light Sight Safety, Belgium
 Nuremberg university, Germany
 Pacific Insight, USA
 Parma university, Italy
 Rensselaer university, USA
 SLD Laser—formerly SoraaLaser
 UMTRI, USA
 University of California, Santa Barbara
 YoungNam University, South Korea
 Mr Shunxing Wang, China

Set Maker

AL, Germany, USA
 Denso, Japan
 Elba, Romania
 Farba, Turkey
 FIEM Industries, India
 Flex'N'gate, USA
 Grakon, USA,
 Grote, USA
 Harbin Good Time, China
 Hascovision, China
 Hella, Germany
 Hyundai IHL, Korea
 Ichikoh, Japan
 J.W. Speaker, USA
 Koito, Japan, Europe
 Lear, USA, Europe
 Lite-On, Taiwan
 Lumax, India
 Magna, USA, Austria
 Microlight Auto Parts, Taiwan
 Mind Optoelectronics, China
 Mobis, Korea
 NAL, USA
 Neolite ZKW, India
 Nordic Lights, Finland
 Odelo, Germany
 Olsa, Italy
 Plastic Omnium, France
 Peterson, USA
 Rebo Lighting, China, Germany
 SL Corporation, Korea
 Stanley, Japan
 Tianchong, China
 Truck-Lite, USA
 Valeo, France, Spain, China
 Varroc, Germany, Czech R.
 Wipac, UK
 Xingyu, China
 ZF-TRW
 ZKW, Austria
 Zodiac, France

Light source suppliers

Anrui Opto, China
 Diodes Dynamics, USA
 Dominant Opto Tech., Malaysia
 Everlight Electronic, Taiwan, Germ.
 Excellence Opto Inc., USA, Taiwan
 LG Innotek, South Korea
 Lumileds, Nederlands
 Nichia, Japan
 Osram, Germany
 Samsung Electronics, Korea
 Seoul Semiconductor, Korea
 Soraa Laser Diode, USA
 Tungsram, Hungary

Lighting Suppliers

3M, USA
 A2Mac1, France
 AKKA, France, Germany
 AML Systems, France
 Aspöck Systems, Germany
 ASYST Technologies, USA
 Auer-Lighting, Germany
 Bicomoptics, China
 Bühler Alzenau, Germany
 Covestro, US, China, Europe
 Dajac, USA
 DBM Reflex, Canada
 Delvis, Germany
 Docter Optics, Germany
 EBW Electronics, USA
 EcoGlass, Czech Republic
 Elmos, Germany
 Enmech-Mektec, Germany
 GXC Coatings, Germany
 Holophane, France
 IAV, Germany, USA
 IMS, Netherland
 Infineon, Germany
 Instrument Systems, Germany
 Jenoptik, Germany
 Keboda, China
 LG Electronics, South Korea
 LMT, Germany, China
 Luminit, USA
 Lumitex, USA
 Maxell Joei Tech, Japan
 Merck, Germany
 Mentor Graphics, Europe, USA
 Mitsubishi Electric, Germany, Jap.
 Myotek Industries, USA
 Nalux, Japan
 NXP, UK
 ON Semiconductor, Europe, Asia, US
 Optis, France
 Optoflux, Germany
 Oxyphen, Switzerland
 Panasonic, Japan
 Proper Group, USA
 Red Spot, USA
 Sabic, USA
 Sapphire, USA
 Sea Link International, USA
 Segula Technologies, France,
 Austria
 Synopsys, USA, Germany
 Texas Instruments, USA
 TQ Technology, Taiwan
 Weidplas CH, Switzerland
 WL Gore, USA
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