

Appendix: Technologies Review (EN)

2019 Results Review

No	Cutting-edge Technology	Innovative Technology
1	Autonomous Vehicle Synthetic Aperture Radar	5G&C-V2X IoV Connectivity HUAWEI TECHNOLOGIES CO.LTD.
2	Solid-state Lithium Battery	High power density stack design Toyota motor
3	Fundamental Data Cloud Control Platform for ICV	High Energy Density and Fast Charging Technology for Lithium Ion Power Battery Contemporary Amperex Technology Co., Limited
4	High Power Density SiC Motor Controller for Electric Vehicles	e-Motor Controller Based on SiC MOSFET Tesla, Inc.
5	Lightweight Technology of 3D Braiding CFRP Composites for Automobiles	e-POWER:100% Electric Generation by Engine,100% Electric Motor Drive Nissan (China) Investment Co.,Lt
6	Hydrogen Fuel Cell Engine Technology—High Specific Power Stack for Fuel Cell Vehicle	Expanded Polytetrafluoroethylene (ePTFE) Reinforced Ultra-Thin Proton Exchange Membrane W. L. Gore & Associates
7	Distributed Electric Drive System Technology	Key technology of high-efficiency and high-power wheel motor drive system BYD Auto Industry Company Limited
8	Wireless charging technology for electric vehicles	eDrive Technology BMW Group

2020 Results Review

No	Cutting-edge Technology	Innovative Technology
1	Hydrocarbon Proton Exchange Membrane Technology	High Integration Technology of EV Battery Pack with Blade Cells FinDreams Battery Co., Ltd.
2	High Voltage LNMO Cathode Material and Battery Technology	Massive Scenario Priented Autonomous Driving Cloud Simulation Platform Technology Owner: Shenzhen Tencent Computer System Co. Ltd.
3	Platinum-Based Alloy Catalyst Technology Based on 3D-Structured Composite Carriers	Efficient Power Cell to Pack (CTP) Technology Contemporary Amperex Technology Co., Limited
4	Composited Solid Polymer Electrolyte Technology	Integrated High-Power Fuel Cell System Technology Shanghai Hydrogen Propulsion Technology Co., Ltd.

5	Environmental Perception and Computing Platform for Autonomous Driving Technology	Technology of 800-Volt SiC Inverter Delphi Technologies
6	High Density GaN on Si Power Module Technology	Octopus — Ascend AI-driven Autonomous Driving Cloud Services HUAWEI TECHNOLOGIES CO.LTD.
7	Axial-flux In-wheel Motor with Fanshape Module Technology	Metal bipolar plate fuel cell technology for vehicle SUNRISE POWER Co., Ltd.

2021 Results Review

No	Cutting-edge Technology	Innovative Technology
1	Super copper wire for New energy vehicles	Key technologies of ultra high performance permanent magnet synchronous electric drive system China First Automobile Group Co., Ltd
2	Cloud warning technology of battery thermal runaway based on AI algorithm	Test method for thermal runaway and thermal diffusion of power battery China Automotive Technology and Research Center Co
3	Wireless Battery Management System based on Smart Mesh Network	Optimal Source Electric Vehicle Heat Pump Tesla, Inc.
4	Innovative Technologies on High Torque Density Independent Drive Wheels for Heavy-duty Vehicles	Key technologies of high-voltage deep integrated architecture for high-performance pure electric passenger vehicles BYD Automobile Industry Co.,Ltd
5	High-efficiency PEM water electrolysis technology for hydrogen production	Multi-functional Composite Current Collector Contemporary Amperex Technology Co., Ltd
6		Large Array & High Resolution Radar HUAWEI TECHNOLOGIES CO.LTD.
7		Intelligent cockpit interaction solution: developed based on high-performance AI chip Horizon Robotics
8		Power Battery Cobalt-free Material Technology SVOLT Energy Technology Co., Ltd.
9		Charging network technology supporting massive access of electric vehicles TELD NEW ENERGY Co.,Ltd
10		Key Technologies for Vehicle Grade High-Power Metallic PEMFC Stacks of Heavy-Duty Commercial Vehicle Shanghai H-Rise New Energy Technology Co., Ltd.

2022 Results Review

No	Cutting-edge Technology	Innovative Technology
1	Key Technologies of Distributed Drive Liquid Hydrogen Fuel Cell Heavy Commercial Vehicles	Key Technologies of Exclusive Platform for High-Performance Pure Electric Passenger Vehicles BYD Auto Industry Company Limited
2	High-efficiency SOEC (proton conductor) steam electrolysis technology for hydrogen production	Rapid self-starting technology of graphite plate fuel cell with strong low temperature resistance Beijing SinoHytec Co.,Ltd.
3	Development of hot rolled oxidation resistant coating free PHS1500 steel	Huashan Autonomous Driving Computing Chip A1000 Black Sesame Technologies Co., Ltd.
4	Sliding plate platform steering brake suspension integrated wheel end drive wheel technology (e-corner module)	All-scenario battery safety solution based on cloud-edge collaboration Shanghai NIO Automobile Co., Ltd
5	Smart battery technology with multi-dimensional internal signal perception	Integrated diecasting body structure Tesla Shanghai Co., Ltd.
6	SOTIF real-time defense and test evaluation technology of intelligent networked vehicle	Key Technologies of 210Wh/kg Polyanionic Phosphate Battery HE FEI GOTION HIGH-TECH POWER ENERGY CO.,Ltd
7	A Solution for Vehicle Optical Display Based on ODP and Spatial Optics	THE ULTIMATE POWERFUL HIGHLY INTEGRATED SINGLE ESM EDRIIVE SYSTEM BMW China
8	Composite sintering paste system for new energy vehicle SiC power device packaging	Compact Coaxial Integrated eAxle Schaeffler Trading (Shanghai) Co., Ltd.

2023 Results Review

No	Innovative Technology
1	The Qilin Battery Technology Contemporary Amperex Technology Co., Limited
2	Wide temperature range heat-pump air conditioning system BYD Auto Industry Company Limited
3	The innovative intelligent computing architecture for full-scenario vehicle intelligent driving technology Horizon Robotics
4	Thermoelectric Separation-Based High-Efficiency Integration Technology for Power Battery Systems Hive Energy Technology Co., LTD
5	300kW fuel cell stack technology for heavy-duty commercial vehicles Shanghai H-Rise New Energy Techno. Co. Ltd.
6	Key Technologies for High-Efficiency Multi-Source Optimization in Battery Electric Vehicles Mercedes-Benz Group AG

7	High Performance Plug-in hybrid E-drive System BMW
8	Vehicle Information Security Technology Based on Chinese Commercial Cryptography Algorithm China First Automobile Group Co., Ltd
9	High-Performance Variable Frequency Hybrid Powertrain Platform Technology Geely Group
10	Key technology and industrialization of rapid heating of power battery based on the pulsed heating DEEPAL Automobile Technology

2024 Results Review

No	Cutting-edge Technology	Innovative Technology
1	Lithium-Free Anode Materials All-Solid-State Battery	SuperDrive Advanced Intelligent Driving System Technology Horizon Robotics
2	Conductive Automatic Charging Technology for Electric Vehicles	Universal Smart Fast Charging Technology BYD Auto Industry Co., Ltd.
3	Modular Hydrogen Storage System for Fuel Cell Passenger Vehicles	High-Performance, Long-Lifespan Extended-Range Fuel Cell Vehicle Powertrain Technology DEEPAL Automobile Technology
4		Integrated Smart Chassis Technology CATL (Shanghai) Intelligent Technology Co., Ltd.
5		High-Performance Off-Road Vehicle Powertrain (Hi4-T) Technology HYCET Technology Co., Ltd
6		Ultra-High-Speed High-Performance Electric Drive Key Technologies Xiaomi Automotive Technology Co., Ltd.
7		Two-Stage Planetary Parallel Coaxial Electric Reducer Technology Schaeffler Trading (Shanghai) Co., Ltd.
8		300kW High-Efficiency Electric Powertrain Technology Jingjin Electric Technology Co., Ltd.

2025 Results Review

No	Cutting-edge Technology	Innovative Technology
1	Quantum Correlated Imaging Technology	Continuous Megawatt Charging Technology with Multi-Level Power Pooling & Fully liquid Cooling Architecture Huawei Digital Power Technologies Co.,Ltd.
2	High-Bandwidth Optical Communication Technologies for In-Vehicle Network	High-Efficiency & High Power Density Amorphous-Carbon Fiber E-Drive Technology

		Guangzhou Automobile Group Co.,Ltd.
3	Pan-Domain AI Large Model Technology for Batteries	Lithium-ion Battery Digital and Intelligent Design Technology Electroder Ltd.
4	PCB Embedded Wide Band-Gap Semiconductor Technology for Automotive Traction Inverter	One-stage End-to-End Big Model Full-Scenario Mass Production Assisted Driving Solution Momenta (Suzhou) Technology Co., Ltd.
5	High-Safety, Low-Latency Intelligent Drive-Brake Integrated Unit	Intelligent Fully Active Body Control System Technology BYD Auto Industry Co., Ltd.
6	Joint Optimization of Prediction and Decision-Making for Human-Like Safe Autonomous Driving	Key Technologies for Intelligent Battery System of Passenger Vehicles with High Safety and Long life Deepal Automobile Technology Co., Ltd.
7	Automated Driving System Acceleration Testing and Evaluation Technology in Extreme Scenarios	AI-Oriented Full-Domain Operating System for Smart EVs NIO Inc.
8	Quantum Cryptography-Enhanced Automotive Information Security Technology	High-Performance Central Architecture Driving Chassis Control System BMW China Services Ltd.
9	Advanced Ionomer Technology for Medium-Temperature Proton Exchange Membrane Fuel Cells	AI Oriented High Safety & Security High Performance Microcontroller Infineon Technologies China Co. Ltd.