



Students from Jiading's Juyuan Community pose for a group photo at the Shanghai Automotive Wind Tunnel Center after an on-site automobile science popularization tour. — Photos by Yang Yujie



A visit to the test section at the Shanghai Automotive Wind Tunnel Center, which is known as one of the quietest wind tunnels worldwide.



In the popular science course on aerodynamics, students participate in fun experiments that help them learn the underlying principles.



Before each science popularization route starts, we will first explain the relevant knowledge of the route, then conduct science popularization knowledge fun experiments, and finally visit and experience the corresponding venues.

**Chen Li**

Leader of Jiading's science popularization task force on intelligent, low-carbon vehicles

## Ambitious programs aim to popularize automotive science

**Yang Yujie and Li Xinran**

A science popularization project on intelligent, low carbon vehicles initiated by Jiading Science and Technology Commission and implemented by Tongji University in 2020 has recently been declared a success. In the next stage, the suburban district plans to further integrate its existing tourism and science popularization resources and hopefully form a systematic approach of its own to better popularize sciences among its residents.

### Courses popularize automotive science education

A popular science course was taught by Chen Guanda, a postgraduate student from the School of Automotive Engineering at Tongji University, at the Experimental High School Affiliated to Tongji University recently.

"When you see Mercedes-Benz cars, do you know that autonomous driving technology can be divided into multiple levels based on the intelligence level of the system?" Chen asked.

The course began with the "new four modernizations" of auto industry (electrification, IoT, intellectualization and sharing), reviewed the development process of automotive technology, looked at its development trends, and therefore provided a full picture of automotive development that connected

the past and future.

This popular science course covers a total of 12 topics, each with two different difficulty level versions, which could be freely combined to form differentiated automotive science popularization content for different groups of people.

Over the past two years, a student volunteer team led by Chen conducted automotive popular science courses in five high schools around the district, namely Anting Senior High School, the Experimental High School Affiliated to Tongji University, Jiading Experimental High School Affiliated to Tongji University, the East Campus of Cunzhi School Affiliated to Tongji University and Jiading No.2 High School.

Through group discussions, fun experiments, and other forms, they promoted the popularization of automotive knowledge.

"We have adjusted the course content according to the different needs of the schools and provided personalized and customized course services, achieving good feedback," said Chen Li, a professor at the School of Automotive Engineering at Tongji University who is in charge of Jiading's science popularization task force on intelligent, low carbon vehicles.

"Because students don't very often have access to such professional and vivid science popularization courses," Prof Chen added.

Besides the courses, a series of automotive science popularization products

have been created, including short essays, short videos and demonstration devices, to promote the development of the science popularization in the district.

So far, about 50 short automotive science popularization essays have been published online on a regular basis, registering more than 800,000 clicks.

### Advancing science popularization through exhibits and experiments

Popular science venues are where obscure and profound scientific principles can be made tangible through visual exhibits.

One can conduct a popular science experiment on aerodynamics full of fun at the Shanghai Automotive Museum, and visit the Baidu Apollo unmanned driving center to experience simulated autonomous driving.

When popular science venues with different styles and characteristics complement each other, visitors can fully enjoy the charm of cars at their doorsteps.

As a district that boasts a strong automotive industry, Jiading has a complete automotive industry system as well as abundant automotive industry resources. Previously, however, those industry resources available to the public were not closely related to each other, and the content involved was also relatively scattered.

"Science popularization needs to be improved, and the influence and differentiation between various resources are obvious," Prof Chen said.

He stated that the task force had effectively improved the existing stock of science popularization resources, aiming to create an automotive science popularization cluster and build an efficient automotive science popularization ecology.

At present, there are 10 places around the district, namely the Jiading campus of Tongji University, Shanghai Auto Museum, SAIC Volkswagen, EV-AI Future Mobility Park at Shanghai International Auto City, Baidu Apollo, Shanghai Motor Vehicle Inspection Certification & Tech Innovation Center Co (SMVIC), Shanghai International Circuit, EF Park, Shanghai Sunwise Energy Systems Co and E-Drive Culture and Tourism, which could provide on-site automobile science popularization tours.

To this end, the task force has classified the on-site visit locations, matched existing automotive science popularization resources with automotive science popularization knowledge points, and formed six science popularization routes, namely the traditional automotive science popularization route, the aerodynamics science popularization route, the new-energy vehicle science popularization route, the intelligent connected vehicle science popularization route, automotive

safety science popularization route and the racing sports science popularization route.

"Rather than taking a brief tour, we focus more on immersive research. Before each science popularization route starts, we will first explain the relevant knowledge of the route, then conduct science popularization knowledge fun experiments, and finally visit and experience the corresponding venues," Prof Chen said.

Popular science tourism is not a simple combination of "popular science" and "tourism," but rather a deep integration of the industrial system and the education system through the form of research plus tour.

### Online popular science map a guide to automotive science resources

Where to take the kids on weekends is a head-scratcher for many Shanghai parents.

Liu Xi, a resident of Anting Town, chose to answer that question by following an auto-themed science popularization map in Jiading, and embarked on a wonderful journey.

In addition to developing and designing a series of popular science products, the task force has also developed a "Jiading Popular Science" mini-program online, which sorted and summarized the popular science resources across the district, and integrated the popular

science essays, videos, courses, routes, and activities to the platform.

By using the "Jiading Popular Science" mini-program, Liu was pleasantly surprised to find it not only included the address, opening times, location, introduction, ticketing information, transportation information, and phone number, but also allowed for reservations at the relevant venues.

In fact, the task force leverages the good foundations of the new-energy vehicle industry and the well-established auto culture in the district. By empowering automotive science popularization with digitization, an online popular science map was created.

The program aims to promote and popularize the latest technology of the auto industry to all of society, especially the young, and thus achieve the enhancement of the automotive industry's science popularization ability with rich content, distinctive features, public acclaim, sustainable development, and strong influence.

"Looking forward, we will further optimize our popular science products and create basic modules, advanced modules, and improvement modules," said Prof Chen, who explained that the basic module is a series of automotive science popularization courses, with advanced modules including hands-on practice and on-site visits, and improvement modules including exploratory learning and popular science competitions.



Chen Guanda, a postgraduate student from the School of Automotive Engineering at Tongji University, speaks on the history of Mercedes-Benz cars.



A student takes notes during a science course at the Experimental High School Affiliated to Tongji University.