

# Navigating the Future of EVs

## Dialogue

By LONG Yun & BI Weizi

The automotive industry is currently undergoing a transformation as it steers toward widespread adoption of electric vehicles (EVs). One key figure at the forefront of this change is Helmut Stettner, the CEO of Audi FAW NEV Company, which is located in Changchun, northeast China's Jilin province. This German expert is leading the setup of a groundbreaking new production site for fully electric models in Changchun.

Recently, he shared his views on the future of the automotive industry and the rapidly evolving Chinese market with *Science and Technology Daily*.

**Key career steps**

In 1999, Stettner took the position of head of production at quattro GmbH, Audi Group and was responsible for the start of production of the iconic Audi R8 high-performance sports car at the Audi plant in Neckarsulm, Germany. It was his first experience in challenging the increase of small series production, which set the stage for his future career.

The next important chapter in Stettner's career saw him take on the role of plant and production director at FAW- VW Automotive Company in Changchun. "I have been responsible for [this company's] production for five years and gained a lot of experiences in this international environment," he said.

Returning to Neckarsulm, Stettner assumed the role of plant manager at the Audi plant, where he oversaw the entire production site. He said that "the responsibility for a complete production site is very special," adding that managing a plant renowned for its extensive variety of models within the Volkswagen

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Group was no small feat. These key steps shaped Stettner's perception on the automotive industry.

**A great opportunity**

In 2011, Stettner became the plant and production director at FAW-VW Automotive in Changchun. With the support of a strong team at this company, he quickly adapted to his new role, immersing himself in the Chinese market.

Establishing a new production plant for EVs until 2024 presents unique challenges and opportunities, he said, adding that "This is a great opportunity and one of the most beautiful challenges I can have as an automotive production expert." Stettner views this endeavor as an extraordinary opportunity, as it involves not only building a new production plant from scratch but also establishing an entirely new company.

According to Stettner, with decades-long expertise within the Volkswagen Group, the new plant in Changchun will also introduce innovative elements, including the adoption of a single IT infra-



Mr. Helmut Stettner. (COURTESY PHOTO)

structure and the implementation of the "Mission: Zero" environmental program for CO<sub>2</sub>-neutral production. The company aims to set new standards in sustainability, efficiency and digitalization.

**A promising market**

When talking about the future of the new energy vehicle (NEV) industry, Stettner emphasized that, "The future of mobility is electric." He pointed out that NEVs already held a substantial market share in China in 2022, and predicted that they would surpass traditional internal combustion engine (ICE) vehicles, even sooner than expected.

The Audi FAW NEV Company plays a pivotal role in Audi's global electrification strategy, with plans to produce EVs based on the Premium Platform Electric (PPE) specifically tailored to the Chinese market.

"The Chinese market has enormous potential and is growing rapidly in the field of NEVs," said Stettner. According to the German expert, several factors attributed to China's rapid development in

the NEV sector. Supportive government policies, robust charging infrastructure and a focus on automated driving have served as an important role in contributing to this growth.

At the same time, Chinese customers' openness to new technologies and innovations, particularly in connectivity, has also been a driving force.

As a result, Audi aims to leverage these factors by expanding its local research and development efforts, also with the Audi FAW NEV Company, and offering products and services designed specifically for Chinese customers.

As the automotive industry transitions to EVs, Stettner emphasized the importance of understanding the customer needs and delivering the right offerings. He expressed confidence in the "rapid pace of change towards e-mobility in China" and Audi's ability to meet these evolving demands.

**"Changchun, my second home"**

In 2022, Stettner was presented with the Chinese Government Friendship Award for his tremendous contribution to promoting international cooperation.

"Changchun has become a second home for me. Since my first day here, I really enjoy working in this promising city," said Stettner. He shared his deep appreciation for Chinese culture, of which he says Chinese people are the most appealing part.

He described the Chinese people as friendly, focused, and future-oriented based on his experiences and observations in Changchun.

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## My China Story

# Meaningful Scientific Journey in China

By LONG Yun & BI Weizi

A young Finnish scientist, Dr. Roope Halonen, is one of those who came to Zibo which draws visitors from all over the world this summer for a mouth-watering distinctive barbecue-style cuisine.

"I liked the friendliness and openness of people not only in my university but in every place in China. And the food is good both in Zibo and Tianjin, the city I live in now," he told *Science and Technology Daily*.

**Rewarding experiences**

Halonen is currently a special associate researcher at the Center for Joint Quantum Studies and the Department of Physics at Tianjin University (TJU), which he joined two years ago.

According to Halonen, it has been a rewarding experience at TJU, offering him a wealth of opportunities in research and personal growth.

TJU has provided Halonen with a supportive and conducive environment for his scientific pursuits. He enjoys total freedom in his research, allowing him to explore the ideas he is passionate about. Furthermore, he has found the lifestyle in China appealing, and the university's facilities and academic community align with his goals.

Halonen sees his study as an important role in atmospheric science. "The significant improvements have been observed in air quality in China's mega-cities over the past decade," he noted, adding that this positive change proves to be the power of science and technology to address pressing environmental issues. "Science is a team sport," he said, noting that international sci-tech cooperation in the future will pave the way for "a sustainable and healthier planet."

**Big fan of Sci-fi movies**

Halonen stands as an example of a young and passionate researcher who has dedicated his career to exploring the mysteries of the physical world.

However, his story is not limited to a laboratory. Halonen's interests extend to the fields of science fiction, where he not only gets research inspiration, but also finds relevance in the ever-evolving relationship between science and society.

He used Christopher Nolan's movie *Interstellar* as a vivid example. What attracts him about the movie is how it portrays science and physics, especially in the context of space travel. He appreciates that this movie's willingness to explore the unknown reflects the essence of scientific discovery. Halonen believes that scientists should embrace the passion of discovering the impossible, as it is often through such exploration that groundbreaking breakthroughs occur.

"Many futuristic ideas from sci-fi literature and films have inspired real-world innovations, from self-driving cars to the Internet," he noted, adding that progress often occurs and can be influenced by creative visions of the future, despite some predictions that may seem remote.

In terms of the public's understanding of science, he highlights the importance of trust because science is not infallible and must be open to mistakes and uncertainties, while trust is essential when complex scientific findings to be communicated to the public. Halonen believes that scientists actively engaging in improving their communication skills is vital.

This article was also contributed by TJU.

# How Taikonauts Exercise in Space

## Science Outreach

By Staff Reporters

When the China Manned Space Engineering Office recently released an exercise video of the three Chinese astronauts in space station Tiangong following their arrival via the Shenzhou-16 aircraft in May, their specialized biomimetic adhesive shoes fascinated the viewers.

The footwear, which at first

glance look like ordinary, are a key part of the space exercise gear of astronauts, known as taikonauts in China.

Speaking to *Science and Technology Daily*, Pang Zhihao, an expert on space exploration technology and a renowned writer, explained how the shoes work.

According to Pang, when astronauts wear these shoes and step onto specially designed pedals, adhesion makes the shoes stick to the pedals. To lift their feet, the astronauts have to make considerable efforts, thus creating a workout effect.

Also, the muscle sensors embedded in the shoes enable quantitative

monitoring of muscle and bone stimulation during physical activity.

For astronauts, maintaining a regular exercise regime is very important as they have to stay for long periods in space where they become weightless due to the absence of the gravitational force. When astronauts aged between 30 and 50 stay in space for long without any exercise, their muscles atrophy severely.

Besides, the reduced pressure on bones in microgravity sends misleading signals to the body, leading to excess calcium excretion through urine and feces, resulting in bone demineralization. This increases the risk of kidney stone

formation and vascular calcification.

Research has shown that after a year in space, astronauts upon returning to Earth require approximately one month to recover the lost muscle mass. Additionally, they may lose up to 25 percent of their total body calcium, which may take two to three years to replenish fully.

To mitigate these challenges, China's space missions typically last for around six months to minimize the impact on astronauts' health. Various exercise facilities are available inside space stations to enable astronauts to target different muscle groups for physical training.



Dr. Roope Halonen. (COURTESY PHOTO)

## Traditional Eastern Wisdom

# Louche: Ancestor of Modern Seed Drill

By BI Weizi

The Louche, also known as a drill sowing vehicle, was a mobile animal-powered agricultural sowing machine invented by Zhao Guo, a Chinese agronomist and official in charge of agricultural production during the Han Dynasty (202 BC - 220 AC).

According to the records of the *Political Commentator* written by Cui Shi in the Eastern Han Dynasty, the Louche was composed of a plow rod, a plow bucket, a plow leg and a plow share, and all parts are cleverly connected with each other. The plow share, made of iron, could automatically dig the ridges while pulled by an animal in the field.

Other parts were made of wood. The seeds flow from the bucket into the hollow plow feet and then into the field for sowing.

Due to the different widths of sowing and the number of rows, during the reign of Emperor Wu of the Han Dynas-

ty, Zhao Guo invented a three-legged Louche, which could sow three rows at the same time. The leg of the Louche could directly dig a trench in the flattened soil, sow the seeds, cover the seeds, and flatten the land all at the same time.

The machine was known for its utility and efficiency in performing several agricultural tasks at once, saving time and labour. One person led the cow in front and pulled the Louche, and the other held it at the back and sowed the seeds.

At that time, the efficiency of China's sowing system was at least 10 times that of the European system, and when converted into harvest volume, it was 30 times that of Europe.

The Louche has been called the ancestor of the modern seed drill and also inspired the invention of the first seed drill in the West, which relieved farmers from tedious work in the field.

# Guangxi Meets Expats' Financial Service Needs

## Expats Activity

By DENG Zhuoyuan & LONG Yun

A seminar on financial service policies was conducted to facilitate foreign experts living in Guangxi Zhuang autonomous region on September 2, to gain a comprehensive understanding of policies. Nearly 20 foreign experts from 13 countries actively participated in the event.

Based on information from pre-event surveys, the Guangxi branch of the Bank of China presented an in-depth explanation of financial service policies for participants. This encompassed a range of topics, including opening a domestic account, buying financial products, and how to trade Forex.

Furthermore, the participants had an opportunity to engage in interactive

Q&A sessions, where their queries concerning routine banking operations were effectively addressed.

This seminar is part of a series of initiatives organized by the Department of Science and Technology of Guangxi. In recent years, the department has been dedicated to facilitating the involvement of foreign experts in policy seminars and cultural experiences. This concerted effort has resulted in the establishment of a platform for consultation and services, aimed at helping foreign experts to integrate into Guangxi and fostering a favorable working and living environment. These events have garnered applause from foreign experts.

According to Egyptian expert Ahmed Zaki Amin, an associate researcher in cell biology at the Guangxi Buffalo Research Institute, this event was excellent and effectively addressed the needs of foreign experts.

"This event holds significant mean-

ing. In addressing our concerns, the organizers have provided us with numerous solutions," echoed Carole Lelievre, a French teacher at Guangxi Minzu Uni-



Foreign experts interact during the Q&A session of the seminar. (PHOTO: the Science and Technology Department of Guangxi Zhuang autonomous region)

versity. This article was sourced from the *Science and Technology Department of Guangxi Zhuang autonomous region*.