



HARBIN 2025 INVIGORATES GLOBAL ICE AND SNOW ECONOMY

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A JOURNEY OF DISCOVERY, INNOVATION IN BIOCHEMISTRY

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Spring Festival Consumption Upgrades Traditional Products

By LIN Yuchen

The celebration of the Chinese New Year around the world has brought Spring Festival consumption to the forefront as a critical area of economic attention.

From traditional delicacies to cultural products, the growing demand for festive goods signals the potential of unique Chinese industries in global markets. Various aspects of the Spring Festival market are demonstrating China's technological innovation, market expansion, and rich cultural heritage.

New abalone craze on table

During the Spring Festival, the coastal province of Fujian becomes a major supplier of high-quality seafood, with the "green disk abalone" leading the charge.

This innovative variety, a hybrid developed by Professor Ke Caihuan's team at Xiamen University through crossbreeding green and disk abalones, boasts impressive characteristics. Known for its substantial size — some specimens exceed one pound — the green disk abalone also demonstrates remarkable heat tolerance and accelerated growth. These attributes make it the mainstay of high-end seafood dishes.

Before this variety was developed, the market for large abalones was dominated by expensive imports from Europe and North America. However, the green disk abalone, the result of years of genetic research, offers a locally produced and economically viable alternative. It has already captured an impressive 70 percent share of China's abalone farming industry, demonstrating rapid adoption and commercial success.

Additionally, this innovative breed has also sparked new industries, such as abalone pearls, enhancing its economic impact.

Fireworks bloom at night

Liuyang city in Hunan province, central China, also known as the "Fireworks Capital of China," has seen a significant rise in its fireworks exports.

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WEEKLY REVIEW

Ancient Genomes Reveal Population Migration Pattern

A study on ancient genomes from east China's Shandong province has revealed the complex migration and integration patterns of populations in East Asia spanning over 6,000 years. Published in the journal *Nature Communications*, the research provides new insights into how ancient people moved and mixed across northern coastal regions, inland areas and islands.

Oldest Short-tailed Bird Fossil Unearthed

Chinese research team has discovered the oldest short-tailed bird fossil from Fujian province in southeast China. The fossil dates back approximately 150 million years. This indicates that the body structure of modern birds emerged in the Late Jurassic Period, 20 million years earlier than previously known.

Breakthrough in Distributed Quantum Computing

Scientists from the University of Oxford demonstrated the first instance of distributed quantum computing. Using a photonic network interface, they successfully linked two separate quantum processors to form a single, fully connected quantum computer, a milestone that brings quantum computing closer to large-scale practical use. Scientists Discover Largest Radio Jet in Early Universe

Astronomers have made an astonishing discovery: the largest radio jet ever observed in the early universe, spanning an incredible 200,000 light- years — double the width of our Milky Way galaxy. This colossal jet, streaming from a quasar known as J1601+3102, challenges our understanding of how supermassive black holes shaped the cosmos in its infancy.

${\it Research \ Finds \ How \ Healthy \ Stem \ Cells \ Turn \ Cancerous}$

Researchers at University of California San Diego discovered how healthy stem cells are transformed into cancer stem cells in the earliest stages of the disease. The research paves the way for the development of therapeutics to target HPV-positive cancers at their earliest stages.



Performers showcase the Baizhifang Lion Dance in front of the Bird's Nest stadium in Beijing on February 12, celebrating the Lantern Festival. (PHOTO: XINHUA)

Editor's Pick

Sci-tech Boosts Ice and Snow Economy

By LU Zijian

The passion for winter sports in China has been ignited in recent years, particularly since the successful hosting of the Beijing 2022 Winter Olympics. This surge in interest is driven by science, technology, and innovation, which have now improved the experiences for both travelers and athletes.

Ice and snow sports equipment upgraded

One example of sci-tech's impact on winter sports kits is the use of titanium alloy, often employed in the aerospace industry, in the production of ice skating blades developed by the Black Dragon Company in Qiqihar city, Heilongjiang province, for the first time in China.

Compared with traditional ice skating blades, they have an obvious advantage in weight, intensity and durability. During

high-speed skating, they are able to maintain outstanding stability and control. They also display good fatigue resistance performance in long-distance skating.

It takes only one minute to make such a pair of blades thanks to the automatic welding production line, said Liu Zhihong, head of the market business department of the Black Dragon Company, adding that three million pairs could be made each year.

The carbon fiber skates they developed are recognized as world-class, and are very cost effective. According to Liu, customized skates are also available to ice sports fans at an affordable price.

Researchers, from a laboratory of ice and snow sports at Northeast Normal University (NENU) in Jilin province, took their research to the sports field and invited athletes to assist in solving R&D problems related to ice and snow

equipment via sci-tech innovation.

Liu Junyi, director of the laboratory and professor at NENU, said that the popular skis they developed and mass produced cost around 4,000 RMB. The price of other high-quality race skis could be as high as 15,000 RMB.

Apart from skis, the research team also developed ski insoles, helmets and functional ski glasses based on big data and 3D printing technologies. The laboratory cooperated with three enterprises in Jilin in the production, sales and operation of ice and snow equipment.

Athletes' performance enhanced

Another crucial research output of the laboratory is the "champion model," which can make customized training programs for athletes by all-round data monitoring, thus helping athletes improve their techniques and physical fitness.

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Home-developed Gasfield Yields High Production

By LIN Yuchen

Deep Sea No. 1, China's first independently developed ultra- deepwater gasfield, has recorded a cumulative natural gas output exceeding 10 billion cubic meters and over one million cubic meters of condensate oil. In 2024 alone, the field produced more than 3.2 billion cubic meters of natural gas, marking the third consecutive year of annual production surpassing three billion cubic meters.

This sustained high-level production is attributed to significant advancements in deepwater drilling and completion technologies. According to Li Zhong, chief engineer at the China National Off-

shore Oil Corporation (CNOOC) Research Institute, the success of Deep Sea No. 1 signifies China's mastery of independent design and efficient operational capabilities for 1,500-meter-class deepwater development wells.

The second phase of the project achieved breakthroughs in drilling and completion technologies for high-pressure, large- displacement development wells at depths of 1,000 meters. These advancements addressed multiple technical challenges, including safe drilling in complex deepwater wells, wellbore integrity, reservoir protection, efficient sand control, and intelligent completion, elevating China's deepwater drilling and completion technologies to an advanced

international level.

Discovered in 2014, Deep Sea No. 1 is located approximately 150 kilometers from the city of Sanya in the South China Sea and operates at a maximum water depth exceeding 1,500 meters, with its wells reaching depths of over 5,000 meters. Formation temperatures can reach up to 138 $^{\circ}\text{C}$, and pressures surpass 69 megapascals — equivalent to 1,000 times the working pressure of a household pressure cooker. These conditions make it China's deepest, highest-temperature, and highest-pressure self-developed deepwater gasfield to date, presenting significant exploration and development challenges.

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China-Malaysia Auto Sector Cooperation Thriving

International Cooperation

By WANG Manxi

In recent years, Chinese and Malaysian enterprises have advanced their cooperation in the automotive industry, benefiting both sides and setting a benchmark for cross-border industrial collaboration.

Proton, Malaysia's national car brand, which enjoyed a market share as high as 60 percent in the past, has suffered repeated financial losses since 2010.

To turn the situation around, Proton sent cooperation invitations to 23 car companies around the world and received responses from 15 of them, including Chinese car giant Geely.

In 2017, the two parties signed an agreement for Geely to acquire a 49.9 percent stake in Proton. This partnership has introduced advanced technologies and innovative practices to the Malaysian brand.

In 2018, the Proton X70, developed from the Geely Boyu, was officially launched, incorporating intelligent connected features and quickly becoming a market darling.

After seven years of deep integration, Proton has completed a comprehensive transformation in R&D, manufacturing, quality, procurement and marketing, and has been ranked second in the Malaysian market in terms of sales and market share for six consecutive years.

China and Malaysia also have great potential for new energy vehicle cooperation.

Malaysian Minister of Economic Affairs Rafizi Ramli, said that China's technological advantages in energy transformation and electric vehicles provide Malaysia with valuable learning opportunities.

Meanwhile, Malaysian Minister of Investment, Trade and Industry Tengku Zafrul Aziz, said the automotive industry is one of the five pillar industries in Malaysia. Chinese enterprises' involvement has not only boosted the Malaysian automobile industry, but also set a good example for the economic and trade cooperation between Malaysia and China.

New Graphic

By the end of 2024,
the number of enterprises in the smart robot industry in China reached 451,700

19.39%
y/y

Total registered capital
6.44
trillion RMB

Source: State Administration for Market Regulation Designed by YAO Yilu / Science and Technology Daily

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