

City honors top scientists, local and foreign

Li Qian

THE city's top awards for scientific and technological achievements have become more diverse and international than ever this year.

The 2019 Shanghai Science and Technology Awards honored 308 scientific breakthroughs and distinguished researchers in an awards ceremony at the Shanghai Exhibition Center in Jing'an District yesterday.

The 2019 awards, for the first time, allowed scientists based overseas to compete directly with locals.

Also, renowned foreign scientists were invited to be judges and encouraged to nominate projects.

"We have changed our outlook from simply recognizing foreign scientists based in Shanghai to rewarding those who have made, or are making, great contributions to the scientific life of Shanghai, no matter where they are," said Han Yuanjian, an official of the Shanghai Science and Technology Commission.

Among the nominees, 37 projects involved foreign scientists from 11 countries and regions, including the UK, France and Japan.

One winning project about protection for reinforced concrete structures was nominated by an Indian-American expert. Three of the judges came from the United States.

In 2006, Shanghai introduced an international cooperation category into the Shanghai Science and Technology Awards to honor foreign scientists for their involvement in local projects. So far, nearly 30 expats have won such awards.

The latest awards in this category released yesterday went to Belgian engineer Luc Taerwe and American scientist Yu Jinquan for deepening international exchange and cooperation between China and other countries.

Taerwe is director of the China Platform at Ghent University in Belgium, a platform established to facilitate the university's academic interaction with Chinese universities and organizations.

Yu, a professor at The Scripps Research Institute based in California, has organized key meetings in China and invited renowned scientists to attend. Also, he has cooperated with local researchers to publish articles in science journal Nature.

Shanghai this year introduced a "science education" category, the first city in the country to do so.

Fifteen projects were awarded. They included books to explain the treatment of nearsightedness, promote traditional Chinese medicine to children and raise awareness of chronic diseases.

Previously, top individual prizes and prizes for outstanding



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young scientists were granted every two years.

From the 2019 awards, they are now annual.

Bioengineer Chen Yazhu and chemical expert Tian He were honored with top individual prizes.

Chen, 84, a pioneer of non-invasive medical devices in China, helped the country ditch pricey imports and allowed millions of Chinese patients to receive advanced, safe and inexpensive treatment.

Benefiting millions

"The greatest value of my life is to let more people live a healthy life," Chen told Shanghai Daily.

In China during the 1980s, patients with kidney stones had to have surgeries.

Patients in Western countries received extracorporeal shock wave lithotripsy, a nonsurgical technique to use shock waves to smash stones.

Chen designed China's own ESWL device.

Much cheaper than imports, the home-grown devices have been promoted across the country, benefiting millions of patients including her own son.

She also developed a radio frequency hyperthermia system for patients with enlarged prostates and new-generation ultrasound equipment.

Tian's research on new smart materials using dynamic molecular assembly is globally recognized.

He has joined Dutch chemist and Nobel laureate Bernard Lucas Feringa to establish the Feringa Nobel Prize Scientist Joint Research Center at the East China University of Science and

Technology to focus on smart molecular engineering.

Ten people ranging from 35 to 46 were honored as outstanding young scientists.

Engineer Wu Jiangbin provided technological support for super-tall buildings such as the Shanghai Tower.

And biologist Xu Chenqi found a new way to break the defense mechanisms of malignant tumor cells, providing a possible new way to fight cancer.

Achievements in cutting-edge technologies and fields are springing up, demonstrating the city's dynamic innovation and progress to become a global innovation center, according to the Shanghai Science and Technology Awards Center.

Energy and environmental technology topped the winners, accounting for more than a fifth. Biomedicine and pharmaceutical technology accounted for 19.05 percent, followed by information technology (11.22 percent) and new materials (7.82 percent).

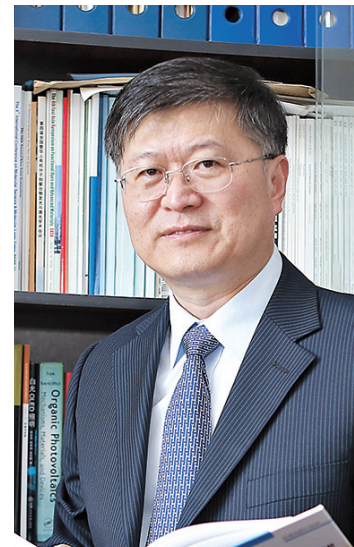
They include doctor Xu Wendong's innovative approach to repairing the arm function of paralyzed patients.

Stroke and other severe brain trauma can cause limb paralysis.

While other doctors were trying to repair the damaged brain hemisphere, Xu, vice president of Huashan Hospital, took an unconventional approach. He connected the nerves of a paralyzed arm to the healthy brain hemisphere to help regain function.

Shen Baifei, from the Shanghai Institute of Optics and Fine Mechanics, proposed a new laser light pressure-driven ion acceleration scheme and started research on a new radiation field driven by super-intense lasers.

TOP INDIVIDUAL PRIZES



Bioengineer Chen Yazhu (left) and chemical expert Tian He were honored with top individual prizes for their great contributions and meritorious service. — Ti Gong

INTERNATIONAL COOPERATION AWARDS



Belgian engineer Luc Taerwe (left) and American scientist Yu Jinquan won awards for their dedication to deepening international exchange and cooperation between China and other countries. — Ti Gong

Hairy crabs to trains: Local unis win big

Yang Meiping

SHANGHAI universities scored big at the 2019 Shanghai Science and Technology Awards announced yesterday.

He Jifeng, dean of the software engineering institute at the East China Normal University, and his team won a top prize with technologies for software testing, analyzing and assessment to ensure development of safe and credible core controlling software for key industrial equipment.

Their technologies have supported the success of many important Chinese space missions, including the launch of the Fengyun-4 satellite and the docking of the Shenzhou-8 spacecraft and with the Tian-gong-1 space lab.

The University of Shanghai for Science and Technology won two first prizes and four seconds. Five were led by the university and one second prize

involved its teachers.

In one of its first-prize programs, a team led by Professor Liu Ping developed a high-performance copper alloy for the production of overhead wires that provide power for high-speed trains.

High speed rail

Team member Professor Zhou Honglei said China had been using German wires in high-speed railways but from 2008 it began to use products developed by the team.

With their high electrical conductivity, mechanical strength, thermostability and anti-friction capacity, the wires have enabled China's high-speed trains to increase their speed from 100 to 400 kilometers per hour.

They have also helped produce new output value of over 3 billion yuan in the past three years and saved at least 1 billion

yuan in electricity costs each year in the operation of high-speed trains.

About 70 percent of the railway systems that run at 350 kilometers per hour are equipped with its products.

The Shanghai Ocean University's hairy crab breeding and raising program also won a first prize. Hairy crabs in Shanghai were of low quality, low output and low price.

A team from the university led by Professor Wang Chenghui, after 10 years of research around the world developed a new variety called "Jianghai 21" which grows fast, is large and has a high yield. The team has also established the largest hairy crab database.

Its breeding and raising technologies have been adopted around China, including in Jiangsu Province's Sheyang County, the country's largest crab breeding base.