狮城新闻

22 May 2025

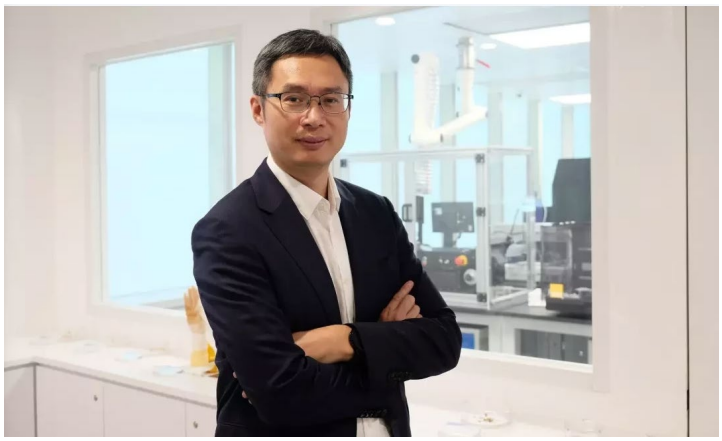
Translated from Mandarin

Good news! Professor Chen Xiaodong of Nanyang Technological University was elected as a Fellow of the Royal Society

Professor Xiaodong Chen, Distinguished University Professor and President's Chair in Materials Science and Engineering at Nanyang Technological University, Singapore, was awarded the title of Fellow of the Royal Society on May 20, 2025.

This honour is not only a high recognition of his groundbreaking contribution in the field of "soft material electronics", but also marks another milestone for NTU in scientific research innovation and social value transformation.

Deeply cultivating the field of soft materials: creating unlimited possibilities with "flexibility"



As a global leader in "soft materials electronics", Professor Chen adheres to the concept of "hardness within softness". He pioneered the combination of flexible materials and electronic devices to create bendable and stretchable "Transformer-level" devices.

Flexible electrodes: Reshaping the future of medicine and agriculture

One of Professor Chen's most eye-catching innovations is the water-responsive electrode inspired by spider silk, which can fit human tissues and organs like a "biological bandage" to achieve precise transmission of electrical signals, providing a new solution for nerve repair and wound healing.

The plant communication electrodes attached to the surface of the Venus flytrap allow humans to "understand the language of plants" for the first time. In the future, they can monitor crop "distress signals" to provide early warning of diseases and help smart agriculture.

Universal "electronic Lego": BIND interface technology

Professor Chen is also recognized as the inventor of the biphasic nanodispersed interface (BIND), which can serve as a universal connector to make modular assembly of stretchable devices as simple and fast as Lego blocks, laying the foundation for the large-scale production of flexible electronic devices.

Interdisciplinary innovation: the implementation of “hard technology” from the laboratory to life

Professor Chen’s scientific research is never limited to papers, but focuses on “real-world problem solving”.

"Skin detector" on fingertips: HapSense sensor

Developed by Professor Tan in collaboration with multinational consumer goods company Procter & Gamble and the Agency for Science, Technology and Research (A*STAR), HapSense is Singapore’s first wearable sensor that can accurately quantify skin texture.

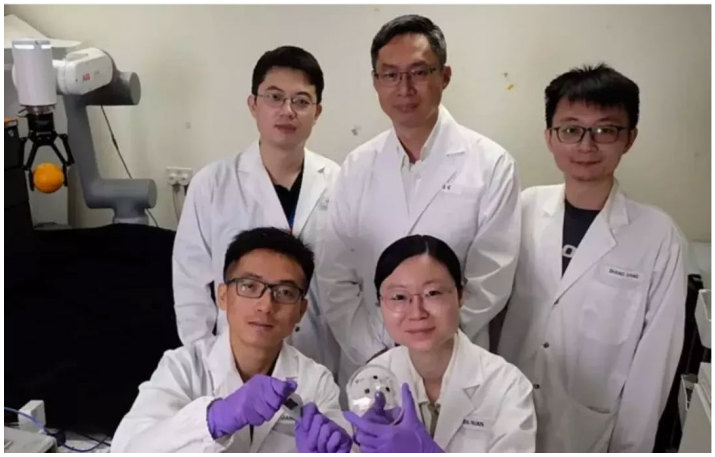
The device is shaped like a ring and is worn on the fingertips. It captures skin friction and pressure data in real time through a smart watch module, allowing consumers to objectively evaluate the effects of skin care products at home, ending the era of "selecting products based on feelings."

Electronic "nose" that can "smell" freshness

Professor Chen also invented an electronic "nose" that simulates the mammalian olfactory system and combines it with AI algorithms to create a meat freshness detector.

Through the colour change reaction of the barcode and mobile phone APP analysis, the accuracy rate of predicting the freshness of chicken, fish and beef has reached 98.5%. We are currently cooperating with local agricultural enterprises to expand to more perishable foods.

Honours: Remain true to our original aspiration in scientific research and practice "technology benefits the people"



Professor Chen's academic achievements have long been world-renowned: he is a member of many top institutions such as the German National Academy of Sciences (Leopoldina), the Singapore National Academy of Sciences, the Singapore Academy of Engineering, and the American Institute for Medical and Biological Engineering.

Professor Chen has twice won the "Falling Walls Breakthrough of the Year Award" and is currently the editor-in-chief of ACS Nano, a top journal in the nano field.

He always stressed: "This honour belongs to my team, NTU and Singapore. The ultimate meaning of scientific research is to transform discoveries into solutions that truly benefit mankind."

From flexible electronics to plant communications, from skin detection to food preservation, Professor Chen uses "flexible technology" to create infinite possibilities for interdisciplinary innovation.

NTU is proud to have such a scholar with both scientific research depth and social sentiment. We look forward to him leading the team to continue to break boundaries and let the warmth of science reach more corners!

https://www.shicheng.news/v/vvxEw