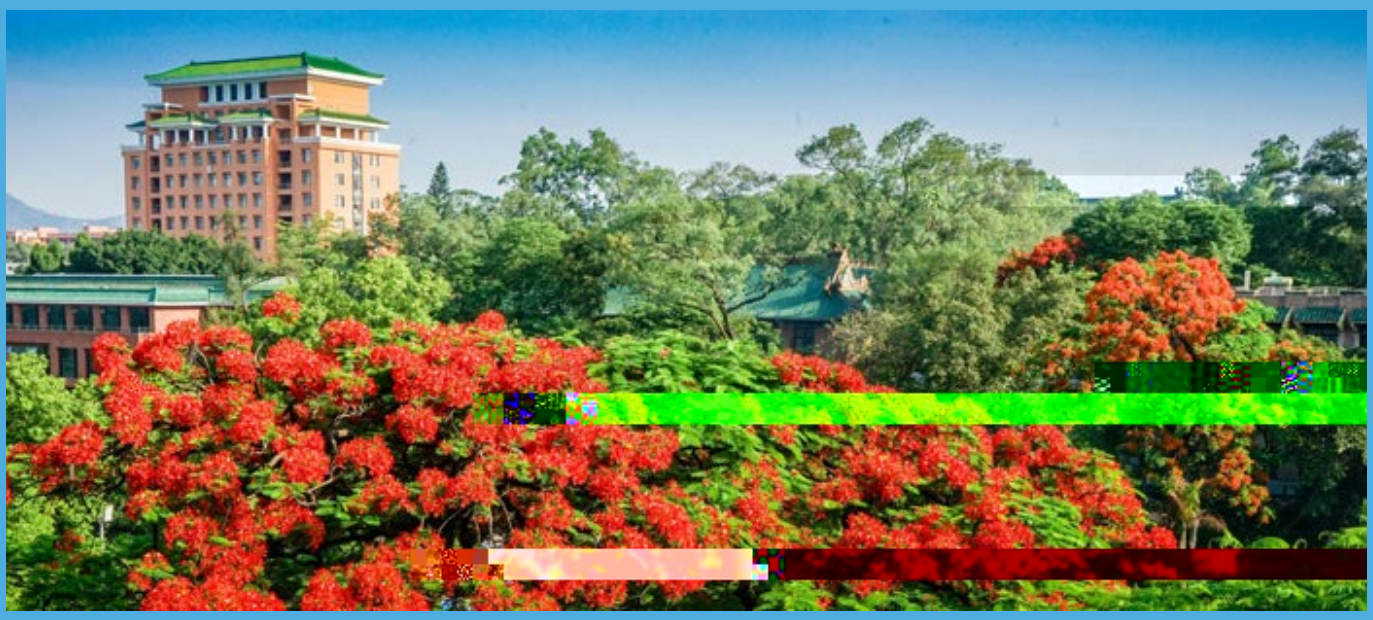
SOUTH CHINA UNIVERSITY OF TECHNOLOGY



nature biomedical engineering

ARTICLES

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Biomimetic cartilage-lubricating polymers regenerate cartilage in rats with early osteoarthritis

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On October 4, Prof. Ren Li, Deputy of National Engineering Research Center for Tissue Restoration and Reconstruction, School of Materials Science and Engineering, published a paper entitled "Biomimetic cartilage-lubricating polymers regenerate cartilage in rats with early osteoarthritis" online in Nature Biomedical Engineering with SCUT as the first affiliation. The paper proposed a method to simulate the

brush-like lubricating complex nanofibers within articular cartilage, which is expected to provide a new strategy for the treatment of early osteoarthritis. This is a breakthrough in the field.

10 4

Nature Biomedical Engineering -

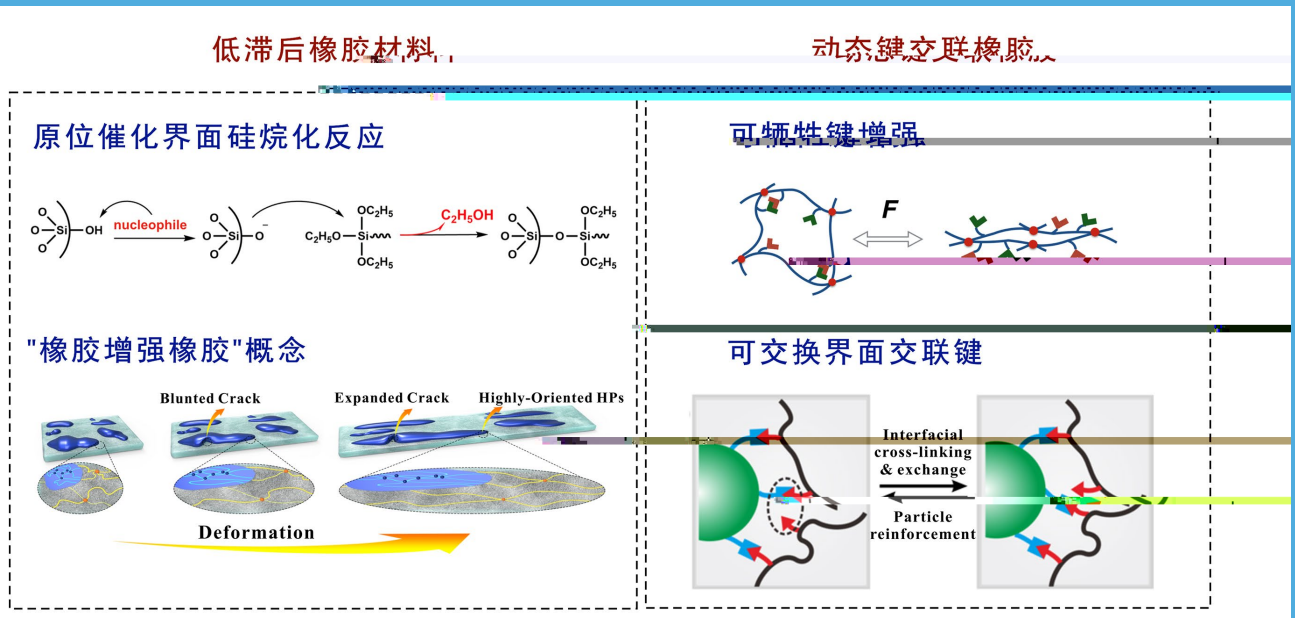
"Biomimetic cartilage-lubricating polymers regenerate cartilage in rats with early osteoarthritis"

Osteoarthritis (OA) is the most common degenerative joint disease, caused by cartilage degeneration, injury, obesity, etc. It is the leading cause of disability in adults. Based on the mechanism that the excellent lubrication performance of natural articular cartilage requires the coordination of synovial biomolecules to form a lubrication layer on the outer surface of cartilage, Professor Ren Li's team constructed two brush-like lubrication complex nanofibers, named HA/PA and HA/PM, which showed excellent lubrication performances and biocompatibilities. It has been found that these two nanofibers can form a lubrication layer on the outer surface of cartilage and then effectively lubricate the damaged human cartilage, reducing its friction coefficients to the typical low level of natural cartilage. Results show that when HA/PA and HA/PM used together, the lubrication effects on human cartilage were the best.

OA

HA/PA HA/PM

HA/PA HA/PM



From October 4-7, the annual International Elastomer Conference (IEC) of Rubber Division of American Chemical Society (ACS Rubber Division) was held in Pittsburgh, the USA. Prof. Baochun Guo of SCUT won the 2022 Sparks-Thomas Award for his research and development of the rubbers with low hysteresis and the rubbers crosslinked by dynamic bonds.

10 4-7 ACS Rubber Division

2022 Sparks-Thomas

Established in 1986, the Sparks-Thomas Award aims to commend and encourage outstanding scientific contributions and innovations in elastomers by young scientists, technical experts and engineers and to permanently commemorate William J. Sparks and Robert M. Thomas, chemists who developed butyl rubber. Its winners are those who have made outstanding contributions to elastomer science and technology and only one winner is elected per year worldwide (or vacant). Prof. Baochun Guo is the second Chinese scholar to win this award since its inception.

Sparks-Thomas 1986

· William J. Sparks ·

Robert M. Thomas 1

Prof. Baochun Guo proposed the in-situ catalytic interfacial silanization to reduce the use of silane and improve the dynamic performance of tire rubber, which is significant in reducing volatile organic compound (VOC) emissions during tire manufacturing and improving the energy-saving performance of tires. He also proposed the concept of 'Rubber-Reinforced Rubber', which innovatively realizes the combination of high strength and ultra-low heat generation. This is of great significance for the future development of the rubber products used in dynamic environment toward higher service safety.

VOC "

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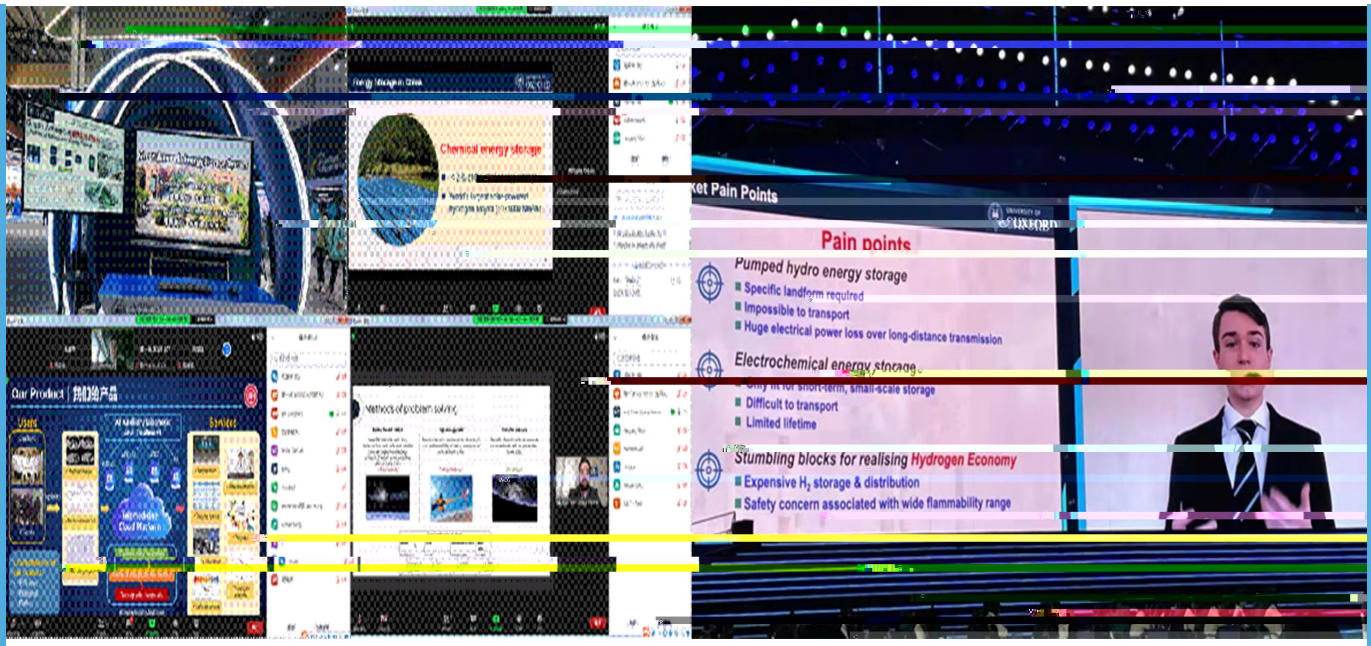

On October 15, the 7th China International College Students' Internet+ Innovation and Entrepreneurship Competition was held. Green Ammonia Energy Storage System by Oxford University, an international project recommended by SCUT, won the third place in this competition. After winning the third place in the 6th China International College Students' Internet+ Innovation and Entrepreneurship Competition last year, SCUT achieved another success in recommending international projects for this competition! Among 39 international projects recommended by SCUT, 11 entered the top 500, 4 entered the finals and won 3 gold and 1 silver awards. At the same time, SCUT received the Excellent International Project Organization Award. (Only 10 universities awarded nationwide)

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—— Green Ammonia Energy Storage System

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39 11 500 4 3 1

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1	Green Ammonia Energy Storage System	University of Oxford	UK	Yuancheng Sun	Third place and gold award
2	Smart Healthcare Platform for Hierarchical Cancer	Rutgers University	USA	Haoyang Wen	Gold award

	Telemedicine				
3	Space Cleaner	Moscow Aviation Institute (National Research University)	Russia	Vladimir Tereshonkov	Gold award
4	Intelligent micro-nano drug delivery robots	Ghent University	Belgium	Junnan Song	Silver award

In October, IEEE Systems, Man, and Cybernetics Society announced at its annual meeting that Prof. C. L. Philip Chen of the School of Computer Science & Engineering, SCUT, won the 2021 IEEE Joseph G. Wohl Outstanding Career Award for his outstanding achievements in intelligent systems and control and for his long-term contributions to the society and IEEE.

10 IEEE IEEE Systems, Man, and Cybernetics Society 2021 IEEE Joseph G. Wohl IEEE

IEEE Systems, Man, and Cybernetics Society established this award in 1991 to commend scholars who have rendered outstanding professional service or contributions to systems engineering concepts, methods, designs, education or management. C. L. Philip Chen is not only the first scholar in China to receive this award, but also one of the few scholars to win the Norbert Wiener Award, a prestigious award which is regarded as the highest honor in IEEE control.

IEEE 1991

IEEE Norbert Wiener Award

On October 27, the inaugural meeting of the World Alliance of Universities on Carbon Neutrality was held in Nanjing. As a founding member, SCUT was invited to the inaugural meeting of the alliance in view of its research and innovation achievements in carbon neutrality.

10 27

The establishment of World Alliance of Universities on Carbon Neutrality was jointly initiated by Southeast University and the University of Birmingham. Its founding members include more than ten "double first-class" universities, as well as a number of world-renowned universities such as the University of Birmingham.

10 " "

World Alliance of Universities on Carbon Neutrality is the first global alliance of universities in the world to focus on talent cultivation and scientific research cooperation in carbon neutral technologies. The alliance will focus on the following: talent cultivation; scientific research cooperation and achievement transformation in carbon neutral technologies; promotion of cooperation and communication between world-class universities and academic institutions; active strengthening of international cooperation on climate change; training of top talents with international vision and innovation ability for low-carbon development of the global society; the realization of dual carbon goals at both national and local levels; providing world-leading technological innovation support. The inaugural meeting was organized by Southeast University and held both online and offline. The alliance plans to hold a variety of activities such as an international carbon neutral knowledge contest for university students, international academic conference on carbon neutrality, joint training of high-level talents, and achievement transformation and recommendation exhibition.

On November 18, the Chinese Academy of Sciences and Chinese Academy of Engineering announced the list of newly elected academicians in 2021. Among them, Prof. Yuguang Ma was elected academician of the Chinese Academy of Sciences, and alumnus Zhengyi Fu and Shuangfei Wang were elected academicians of Chinese Academy of Engineering.

11 18 2021

Academician Yuguang Ma is engaged in the fundamental scientific research on organic/polymer optoelectronic materials. With his research achievements, he has made important contributions to the development of the second-generation phosphorescent and the new-generation of low-cost pure organic electroluminescent materials. He won the second prize of the National Natural Science Award and the first prize of the Natural Science Award for Outstanding Scientific and Technological Achievements of the Ministry of Education.

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Academician Zhengyi Fu was admitted to SCUT for a bachelor program of cementitious materials in 1980 and for a master program of inorganic nonmetallic materials in 1984. He is one of the early pioneers of combustion synthesis research in China, and has developed a number of materials synthesis and preparation equipment with independent intellectual property rights. In addition, he established an internationally advanced material preparation technology platform.

1980 1984

Academician Shuangfei Wang was admitted to SCUT for a PhD program of pulp and paper engineering in 1992. He is committed to the application of basic research, key technology development and industrial application of clean paper production and end treatment. He has made a series of important achievements in clean pulp bleaching and clean waste paper pulping and has made important contributions to the sustainable development of China's paper industry.

1992

On November 23, the Institute of Electrical and Electronics Engineers (IEEE) announced the list of its 2022 fellows. Prof. Wenquan Che and Prof. Xiuyin Zhang of the School of Electronic and Information Engineering were on the list.

11 23 IEEE( ) 2022 Fellow

IEEE is a well-known non-profit multinational academic organization in the areas of electronics,

electrical engineering, computers, communication and automation engineering. It has about 420,000 members and 39 professional chapters in more than 160 countries and regions. IEEE Fellow is the highest-level member of the society and the highest honor bestowed by the organization. It is recognized as an authoritative honor and important professional achievement in the academic science and technology community. IEEE Fellows are selected annually by peer experts among members who have made outstanding contributions to their field. The number of elected members does not exceed 0.1% of the total number of IEEE members. Selected scientists are generally regarded as outstanding scientists who have made significant achievements in science and engineering.

IEEE 160
42 39 IEEE Fellow
IEEE 0.1%

On November 29, the Ministry of Education issued the list of 2021 top students training program in basic disciplines base 2.0, SCUT has two bases listed in terms of chemistry and computer science. This marks the official entry of SCUT into the national team of training top talents in basic disciplines.

11 29 2021 2.0
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1	Chemistry	The top chemistry students training base
2	Computer Science	The top computer science students training base

The Top Students Training Program is a talent cultivation program launched by China in 2009. It aims to cultivate China's own academic masters. After ten years of pilot exploration, six government departments, including the Ministry of Education, the Ministry of Science and Technology and the Ministry of Finance, launched the Top Students Training Program 2.0 in 2018. In 2019, the top students training program in basic disciplines base was established.

〃 〃 2009
2018 〃 〃2.0 2019

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