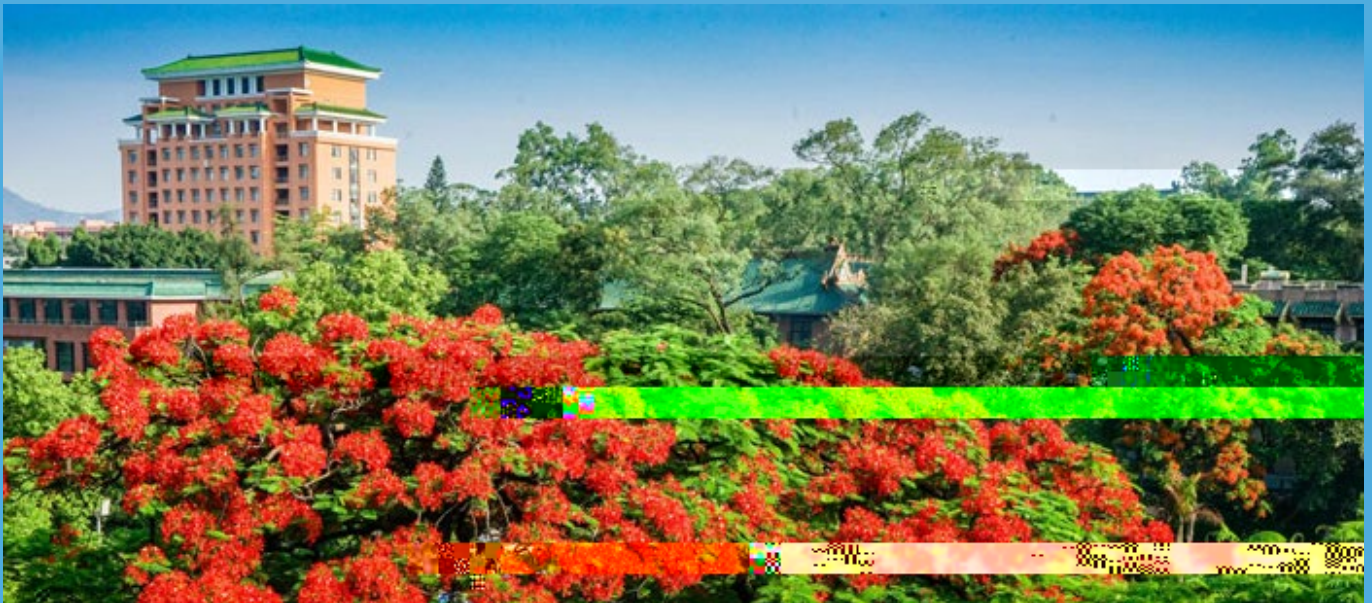
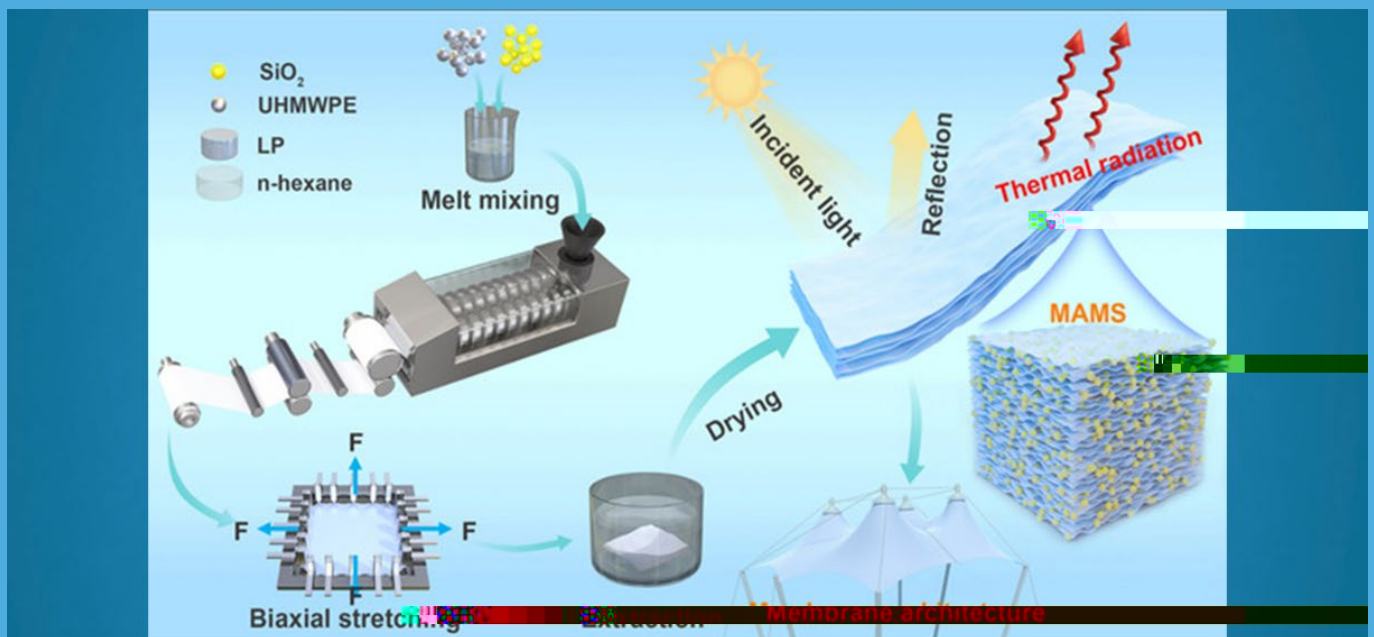




SCUT Newsletter



1. SCUT Team Achieves Ultra-High Solar Reflectivity with Polymer-Based Porous Membrane, Advancing Green Passive Cooling Technology

The research team from the School of Mechanical and Automotive Engineering at South China University of Technology has developed an innovative micro-sandwich structured polymer-based porous membrane. The membrane features a micro-sandwich porous structure (MAMS), significantly enhancing solar light scattering and achieving an impressive 99.1% solar reflectivity. This enables efficient radiative cooling. Real-world tests demonstrated a remarkable temperature reduction of 10.7

in enclosed cavities, making this membrane suitable for applications such as lightweight membrane structures, vehicles, and food preservation.

This research was led by corresponding authors Zhang Guizhen and Qu Jinping, with Li Yu as the first author. The findings were published in Matter, a sister journal to Cell. This breakthrough offers new insights into the development of green passive cooling technologies, with the potential to reduce reliance on traditional air conditioning and lower energy consumption.

MAMS 99.1%

10.7

Cell Matter



2. SCUT President Tang Hongwu Attends the Belt and Road University Presidents Forum & Conference on Universities and Sustainable Development

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On October 8, 2024, Tang Hongwu, President of South China University of Technology, attended the Belt and Road University Presidents Forum and Conference on Universities and Sustainable Development held at Chongqing University. The event brought together university presidents from multiple Belt and Road partner countries to discuss the role of higher education institutions in addressing global challenges and promoting sustainable development. During the forum, Tang Hongwu presented SCUT's vision, initiatives, and achievements in supporting the Belt and Road Initiative and emphasized the importance of international educational cooperation. The conference also included discussions on transnational collaboration in green technologies and smart manufacturing.



3. Mutual Commitment and Model Collaboration: SCUT-Nantes 20th Anniversary Celebration and Alumni Association Inauguration Ceremony Held

- 20

On October 23, the 20th Anniversary Celebration of the SCUT-Nantes Partnership and the Inauguration Ceremony of the SCUT-Nantes Alumni Association were held at Wushan Campus. SCUT President Tang Hongwu and Antoine Goullet, Vice President for Research at Nantes University, attended the event.

Both university leaders expressed high recognition for the achievements of their 20-year collaboration and envisioned further expansion of the scope and methods of partnership in the future. They highlighted that the SCUT-Nantes partnership has set an example for Sino-French higher education cooperation, injecting continuous vitality into scientific and technological innovation between China and France.

During the event, the SCUT-Nantes Alumni Association was officially established. SCUT also signed an internship-based cooperation agreement with alumni enterprises. Students and alumni representatives shared their experiences from the China-France joint training program.

10 23

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Antoine Goullet

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4.Zhang Xichun Attends China-Italy University Rectors Dialogue to Strengthen SCUT's Comprehensive Collaboration with Italian Universities

On the evening of November 8, Chinese President Xi Jinping and Italian President Sergio Mattarella jointly met with representatives attending the China-Italy Cultural Cooperation Mechanism Conference and the China-Italy University Rectors Dialogue in Beijing. Zhang Xichun, Chancellor of SCUT, was invited to attend the event.

The following day, Zhang Xichun participated in the China-Italy University Rectors Dialogue, where he delivered a keynote speech on "Promoting Cultural Exchange and Cultivating Outstanding Talent." Representing SCUT, Zhang signed cooperation agreements with several Italian universities to establish the Sino-Italian Interdisciplinary Joint Research Center under the witness of Huai Jinpeng, China's minister of Education. The center will focus on collaborative innovation in artificial intelligence, advancing interdisciplinary research, and translating findings into practical applications.

Marking the 20th anniversary of the China-Italy Comprehensive Strategic Partnership, this event further strengthened the foundation for educational and research collaboration between the two countries and contributed to the overall development of China-Italy relations.



5. SCUT Students Win Two First Prizes at the Chinese Undergraduate Physics Experiment Tournament

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From November 22 to 25, the 10th Chinese Undergraduate Physics Experiment Tournament Grand Final was held at Beihang University. Two projects from SCUT's School of Physics and Optoelectronics stood out and won first prizes.

The project "Omnidirectional Vibration Monitoring Scheme Based on RGB Image and Fiber Sensing," led by undergraduates Hu Jinteng and Wang Ruihao, introduced an innovative solution combining fiber sensing and image processing for cost-effective vibration monitoring. The project "Weak Magnetic Field Measurement Based on Higher Harmonic Analysis of Fluxgate," completed by undergraduate Huang Weihao's team, proposed a high-sensitivity measurement method utilizing high-permeability materials to study weak magnetic fields.

The competition aims to inspire students' interest in physics experiments while fostering innovation and practical skills through hands-on practice. This year's event attracted 2,755 teams from 667 universities and involved 15,715 participants, making it the largest ever. SCUT students' exceptional performance highlighted the university's outstanding achievements in nurturing innovative talent.

11 22 -25

RGB



6.Nature reports the breakthrough achievement of SCUT researchers in perovskite solar cells

Nature

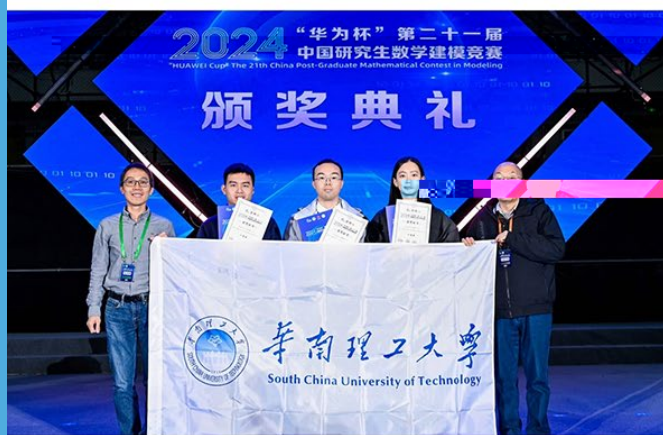
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Recently, Professor Yan Keyou's team from SCUT made a breakthrough in the field of perovskite solar cells (PSCs). They successfully fabricate the world's first 2-terminal inorganic perovskite tandem solar cells (IPTSCs). This pioneering research addressed the industry's issue regarding to the poor photothermal stability. The findings were published in Nature entitled "Durable All-Inorganic Perovskite Tandem Photovoltaics."

The development of IPTSCs significantly improved photovoltaic efficiency and overcame the photothermal stability issues of organic-inorganic hybrid PSCs. This direction paved the way for cost reduction and efficiency improvement in the photovoltaic industry. The team plans to focus on reducing voltage loss in wide-bandgap subcells and improving the stability of narrow-bandgap subcells, driving the commercialization of PSCs.

2

perovskite tandem photovoltaics" Nature "Durable all Inorganic



7.Addressing Climate Change with Mathematical Models: SCUT Teams Win First Prize at China Post-Graduate Mathematical Contest in Modeling

On December 12, the 2024 National Social Science Fund of China announced its list of approved major projects. Professor He Jianfeng from the School of Economics and Finance at South China University of Technology successfully secured a major project titled "Research on Statistical Evaluation of Local Debt Risk and Effectiveness of Risk Mitigation."

The project aims to deeply analyze potential risks in local debt management and propose effective prevention and policy optimization mechanisms. Its outcomes will enhance investor confidence, support high-quality economic development, and provide critical theoretical backing to prevent debt crises. As the highest-level funding initiative in China's philosophy and social sciences field, this

prohibitively expensive and rare, restricting the widespread use of PEM electrolyzers. Professor Zhao 's group proposed to address these challenges by developing low-cost, earth-abundant acidic oxygen evolution reaction catalysts. They delved into the degradation mechanisms from the device level to electronic structures and analyzed the dissolution processes in acidic environments. Based on existing theoretical studies and experimental data, a systematic analysis of electrochemical data for various materials and catalyst design strategies was conducted. Finally, they proposed a design guideline roadmap for next-generation low-cost, earth-abundant catalysts for acidic oxygen evolution.

12 17

acidic oxygen evolution"

Nature Catalysis

"Earth-abundant electrocatalysts for

PEM



10. Advancing 5G Communication Technologies: SCUT Team Develops High-Performance Amorphous Magnetic Powder Cores

5G

A research team led by Professor Yang Chao from the School of Mechanical and Automotive Engineering at South China University of Technology, in collaboration with Shenzhen University and the Songshan Lake Materials Laboratory, has published their findings in Nature Communications. The study introduced a novel locally adaptive insulation structure with a biconcave lens shape via ultrasonic rheomolding, addressing key challenges in the amorphous magnetic powder cores industry and providing innovative support for 5G communication technologies.

The research targeted the stringent demands of high-frequency low-loss, high permeability, and high

DC bias performance. The newly developed insulation structure alleviates the high mechanical stress induced by magnetic fields, significantly improving the overall soft magnetic performance of amorphous magnetic powder cores. Compared to traditional core-shell structures, the new design increases magnetic permeability by approximately one-third and DC bias performance from 69% to 87%, greatly enhancing magnetization efficiency and stability.

Nature

Communications

5G

69% 87%



11.SCUT Professor Zhu Jizhong Elected as an Ordinary Member of the European Academy of Sciences and Arts

On December 16, 2024, Professor Zhu Jizhong from the School of Electric Power Engineering at South China University of Technology was elected as an ordinary member of the European Academy of Sciences and Arts. Professor Zhu has made remarkable contributions in the fields of integrated smart energy systems, fully digitalized intelligent distribution and utilization systems, and efficient low-carbon operation of new power systems. He was also honored with the IEEE Standards Medallion for his significant contributions to international academic exchanges.

The European Academy of Sciences and Arts is a renowned interdisciplinary international academic organization that fosters academic progress and exchange within Europe and globally, enjoying a prestigious reputation in the fields of science and arts.



12."Harvard Students' Visit to China" China-U.S. Cultural Exchange Event Concludes at SCUT

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On December 20, 2024, South China University of Technology held the closing ceremony of the "Harvard Students' Visit to China" China-U.S. cultural exchange program. Co-hosted by SCUT and China Center for International People-to-People Exchange under the Ministry of Education, the four-day event featured field research, discussions, and various cultural activities focusing on Chinese and American education systems, the socio-economic development of the Guangdong-Hong Kong-Macao Greater Bay Area, and Lingnan culture. During the event, Harvard students experienced SCUT's educational environment, visited the Guangzhou International Campus, participated in new engineering courses, and engaged in a friendly ping-pong match with SCUT students. The program fostered mutual understanding and strengthened the friendship between students from both nations, creating a meaningful platform for cultural exchange.

2024 12 20



13.SCUT Wins Gold in the National "Challenge Cup," Bringing Home the Victory Cup Again

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The final round of the 14th "Challenge Cup" QinChuangYuan Platform National College Students' Entrepreneurship Competition, jointly organized by the Central Committee of the Communist Youth League of China, the Ministry of Education, and other institutions, was held at Xi'an Jiaotong University. South China University of Technology achieved outstanding results with six projects, earning one gold medal, two silver medals, and three bronze medals, securing the "Victory Cup" once again. This year's competition attracted participants from over 2,700 universities and colleges, involving more than 3 million students and 390,000 submitted projects.

The "Challenge Cup" encompasses both the National College Students Science and Technology Innovation Competition and the National College Students Entrepreneurship Competition. Co-hosted by the Central Committee of the Communist Youth League of China, the China Association for Science and Technology, the Ministry of Education, and the All-China Students' Federation, the competition has been held since 1989 and has grown to become one of the most influential platforms for science and technology innovation among Chinese college students.

	6	1	2	3
2700	300		39	
	1989			



14.China's First Theoretical Monograph on "Internationalization at Home" Released at the China National Convention Center

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At the China Annual Conference and Expo for International Education, held at the China National Convention Center in Beijing, Zhang Xichun, Chancellor of SCUT, officially released China's first theoretical monograph on "Internationalization at Home," titled *Exploring the Path of Internationalization at Home in Chinese Higher Education: Practices from SCUT's Guangzhou International Campus*. This groundbreaking book highlights the innovative development model of Internationalization at Home with Chinese characteristics, summarizing SCUT's practices and explorations in international education at its Guangzhou International Campus. The book launch attracted significant attention from domestic and international university representatives.

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2025 2