



SCUT Newsletter 华工新闻快讯



1. There is no limit to innovation! SCUT set up Future Innovation Labs

创新无极限！华南理工开设未来创新实验室助学生探索无限可能

The New Engineering F Plan of South China University of Technology points out that "the fourth industrial revolution, characterized by intellectualization and informatization, has brought profound changes to humanity. Meanwhile, it has put elevated requirements on the quality of personnel training. Only those who possess the power of learning, thinking and action can find their way forward amidst uncertainty. "

华南理工大学《新工科F计划》中指出，“以智能化与信息化为特征的第四次工业革命给人类带来了深刻变革，同时也对人才培养质量提出了更高的要求。只有拥有学习力、思想力和行动力的人，才能在不确定性中找到前行的方向。”

In the first phase, SCUT has built seven Future Innovation Labs, including robotics, future intelligent communication, future cities and buildings, MRI of the human body, intelligent travel, artificial intelligence, and future power grids. The Future Innovation Labs are based on new technologies, new industries, new business forms and new economies. They carry out in-depth cooperation with leading enterprises and gather first-class specialists, scholars and engineering elites. The labs are committed to providing students with a platform for exploring unlimited future possibilities. By constructing a new engine that cultivates new engineering talents, they advocate interdisciplinary study, exploration of the unknown, experiential learning and team cooperation.

华南理工大学首期建设了机器人、未来智能通信、未来城市与建筑、人体磁共振成像、智能出行、人工智能、未来电网等7个“未来创新实验室”。“未来创新实验室”立足于新技术、新产业、新业态和新经济，与产业界行业龙头企业进行深度合作，汇聚一流专家学者和工程界精英人才，致力于为学生提供探索未来无限可能性的平台，倡导学科交叉、探索未知、体验式学习与团队协作，构建新工科人才培养新引擎。



2. Improve quality and promote transformation SCUT once again achieved good results at the China Patent Awards

提升质量促进转化 华南理工大学中国专利奖评选再创佳绩

On July 15, the National Intellectual Property Administration announced the "Decision on Awarding the 21st China Patent Awards". Four patents of South China University of Technology won the Excellence Award, ranking first among Chinese universities together with Tsinghua University and Shanghai Jiaotong University. Since 2009, the China Patent Awards have consisted of an annual review, and SCUT has won 34 prizes, among which 33 prizes were won as the first patentee (including one gold and two silver), ranking first in China.

7月15日，国家知识产权局公布《关于第二十一届中国专利奖授奖的决定》，华南理工大学4项专利获中国专

利优秀奖，获奖总数与清华大学、上海交通大学并列全国高校首位。自2009年中国专利奖改制为每年评审以来，学校获中国专利奖总数高达34项；以第一专利权人获奖总数33项（含一金两银），获奖总数排名全国高校首位。

From 2018 to 2019, two consecutive years, SCUT has ranked among the top five global educational institutions and top three Chinese universities in terms of the number of PCT patent applications. SCUT has won the title of "high-value patent advantage unit of strategic emerging industries in Guangdong Province" in 11 fields such as new materials, artificial intelligence, and biomedicine. In 2019, SCUT ranked second in "the list of top 100 Chinese universities in terms of patent strength".

2018-2019年，华南理工连续两年PCT专利申请量跻身全球教育机构前五、中国高校前三；在新材料、人工智能、生物医药等11个领域获得“广东省战略新兴产业高价值专利优势单位”；在2019年《中国高校专利实力100强榜单》中位列全国高校第二位。



3. 14 gold and 3 silver SCUT led Guangdong "Challenge Cup" with absolute advantage

14金3银 华南理工以绝对优势领跑广东“挑战杯”

From July 18 to 19, the 12th "Challenge Cup" Entrepreneurship Competition of Guangdong University Students, jointly sponsored by the Guangdong Provincial Committee of the Communist Youth League, the Department of Education of Guangdong Province, the Department of Science and Technology of Guangdong Province, the Guangdong Provincial Association for Science and Technology and the Guangdong Students' Federation, was held in Guangzhou University of Chinese Medicine. The 17 entries of South China University of Technology won 14 gold prizes and 3 silver prizes. SCUT obtained the competition's highest honor, the "Challenge Cup", with the top group score.

7月18-19日，由团广东省委、广东省教育厅、广东省科技厅、广东省科协、广东省学联共同主办的第十二届“挑战杯”广东大学生创业大赛在广州中医药大学举行。华南理工大学17件参赛作品最终获金奖14个、银奖3个，以团体总分第一的成绩捧得本届大赛最高荣誉“挑战杯”。

The theme of the competition is "entrepreneurship drives employment, challenges create the future". The competition was held online in the context of regular epidemic prevention and control, and took advantage of "5G + 4K + AR" technology. It focuses on the complementary channels of "entrepreneurship" and "employment", and strives to create a good atmosphere for college graduates to start their own businesses, become employed or make other contributions. According to the statistics, a

total of 3,448 entries from 146 colleges and universities in Guangdong province participated in the competition. After careful evaluation by experts in relevant fields, 501 works from 120 colleges and universities were eventually shortlisted for the final.

此次大赛以“创业带动就业，挑战成就未来”为主题，在疫情防控常态化的背景下，利用“5G+4K+AR”技术采用线上举办模式，聚焦贯通“创业”“就业”互补渠道，努力为高校毕业生创业、就业、建功立业创造良好氛围。据统计，共有来自全省146所高校的3448件作品参与角逐，经过相关领域专家的严格函评，最终120所高校的501件作品入围终审决赛。

The Number of disciplines at different grades in Universities 各大高校各级学科数量情况统计

Times Higher Education Chinese discipline rankings in 2020
(2020年泰晤士高等教育中国学科评级)

Universities 学校名称	Number of A-subjects A类学科数	Number of B-subjects B类学科数	Number of C-subjects C类学科数	Listed disciplines 上榜学科
Tongji University 同济大学	19	18	5	42
Sichuan University 四川大学	18	14	11	43
South China University of Technology 华南理工大学	16	10	2	28
Beijing University of Aeronautics and Astronautics 北京航空航天大学	16	6	1	23
Northwest Polytechnic University 西北工业大学	15	8	0	23
Beijing Normal University 北京师范大学	14	14	4	32
Southeast University 东南大学	14	13	4	31

4. The number of A+ disciplines of SCUT ranked 10th among mainland universities

华南理工A+学科数居内地高校第10位

On July 22, Times Higher Education released Chinese discipline rankings for the first time in 2020. SCUT has 28 disciplines on the list. Among them, there are 7 A+ disciplines and 16 A disciplines, ranking 10th and 18th respectively among mainland universities.

7月22日，2020年度泰晤士高等教育首次发布中国学科评级，华南理工大学共有28个学科上榜。其中A+学科7个，位居内地高校第10位；A类学科16个，位居内地高校第18位。

The list of A+ disciplines of SCUT

华南理工入选A类学科清单

Discipline 学科名称	Grade 评级
Light Industry Technology and Engineering 轻工技术与工程	A+
Materials Science and Engineering 材料科学与工程	A+
Environmental Science and Engineering 环境科学与工程	A+
Biomedical Engineering 生物医学工程	A+
Transportation Engineering 交通运输工程	A+
Instruments Science and Technology 仪器科学与技术	A+
Safety Science and Engineering 安全科学与工程应用	A+
Mechanical Engineering 机械工程	A
Mechanics 力学	A
Food Science and Engineering 食品科学与工程	A-
Chemical Engineering and Technology 化学工程与技术	A-
Chemistry 化学	A-
Electronic Science and Technology 电子科学与技术	A-
Electrical Engineering 电气工程	A-
Power Engineering and Engineering Thermophysics 动力工程及工程热物理	A-
Hydraulic Engineering 水利工程	A-

The data comes from the Times Higher Education World University Rankings 2020, the Academic Reputation Survey 2020 and the Elsevier Bibliometric Database. For the first time, the Times Higher Education Discipline Rankings evaluated 89 disciplines of 12 categories of Chinese universities. The results were categorized into nine different grades, including A (with A+, A, A-), B (with B+, B, B-), and C (with C+, C, C-).

此数据来自2020年度泰晤士高等教育世界大学排名、2020年度学术声誉调查和爱思唯尔 (Elsevier) 文献计量数据库。泰晤士高等教育学科评级首次对中国高校12个门类的89个学科进行评估排名，以A (含A+、A、A-)、B (含B+、B、B-)、C (含C+、C、C-) 三类9个等级呈现结果。



5. The Guangdong provincial final of the 6th China International College Students' 'Internet Innovation and Entrepreneurship Award' was held

第六届中国国际“互联网+”大学生创新创业大赛广东省赛决赛举行

On August 9, the Guangdong provincial final of the 6th China International "Internet Plus" College Students' Innovation and Entrepreneurship Award was held at South China University of Technology. In accordance with the requirements of regular epidemic prevention and control, the provincial final was conducted online.

8月9日，第六届中国国际“互联网+”大学生创新创业大赛广东省赛决赛在华南理工大学举行。按照疫情常态化防控的要求，本次省决赛采用了线上比赛的方式进行。

After the selection and recommendation of the colleges and universities in the preliminary competition, 1,572 projects were shortlisted for the provincial semi-finals, and 263 teams emerged from the provincial semi-finals and entered the provincial finals. Among them, all 18 projects of SCUT won gold prizes.

经各全省高校初赛的选拔与推荐，共有1572个项目入围了省复赛，有263个项目团队从省复赛中脱颖而出，进入此次省决赛。其中，华南理工大学18个项目全部获得金奖。

With the joint efforts of colleges and universities in Guangdong Province, this year's provincial competition had a greater influence and wider coverage than ever before, with all the data reaching record highs: 157,800 projects have been registered in the province, and more than 674,900 students have participated.

据了解，在广东省高校的共同努力下，今年省赛的影响力更大、覆盖面更广，各项数据均创历史新高：全省报名项目达15.78万个，参赛学生超67.49万人次。

World University Rankings 世界排名	Mainland China University Rankings 内地排名	University 学校
151-200	14-22	Jilin University 吉林大学
151-200	14-22	Shandong University 山东大学
151-200	14-22	Sichuan University 四川大学
151-200	14-22	Soochow University 苏州大学
151-200	14-22	South China University of Technology 华南理工大学
151-200	14-22	Tianjin University 天津大学
151-200	14-22	University of Electronic Science and Technology of China 电子科技大学
151-200	14-22	Wuhan University 武汉大学

6. SCUT ranks among the top 200 in Academic Ranking of World Universities

华南理工大学跻身ARWU世界前两百强

On August 15, Academic Ranking of World Universities 2020 (hereinafter referred to as ARWU) was officially released. SCUT ranked in the 151-200 range worldwide; marking the first time it has been shortlisted as one of the top 200 universities in the world.

8月15日，软科世界大学学术排名（Academic Ranking of World Universities，简称ARWU）2020年排名榜单正式发布，华南理工大学位列全球151-200位，首次进入该排名世界200强。

ARWU ranks the world universities with six objective indicators. SCUT stands out in two indicators: global highly cited scientists and international papers, among which SCUT ranks 74th in the single-item ranking of global highly cited scientists, up 57 places from the previous year, and 79th in the single-item ranking of international papers, up 14 places from the previous year.

世界大学学术排名使用6项客观指标对世界大学进行排名，从排名各项指标的具体表现来看，华工全球高被引科学家和国际论文两项指标表现强劲，其中全球高被引科学家单项排名居世界第74位，比上一年提升57名；国际论文单项排名居世界第79位，较上一年提升14名。

ARWU 2020 showcases the world's leading 1,000 research universities, with 144 universities in mainland China on the list and 71 universities among the top 500 worldwide.

2020年排名展示了全球领先的1000所研究型大学，中国内地共有144所大学上榜，71所大学进入世界500强。

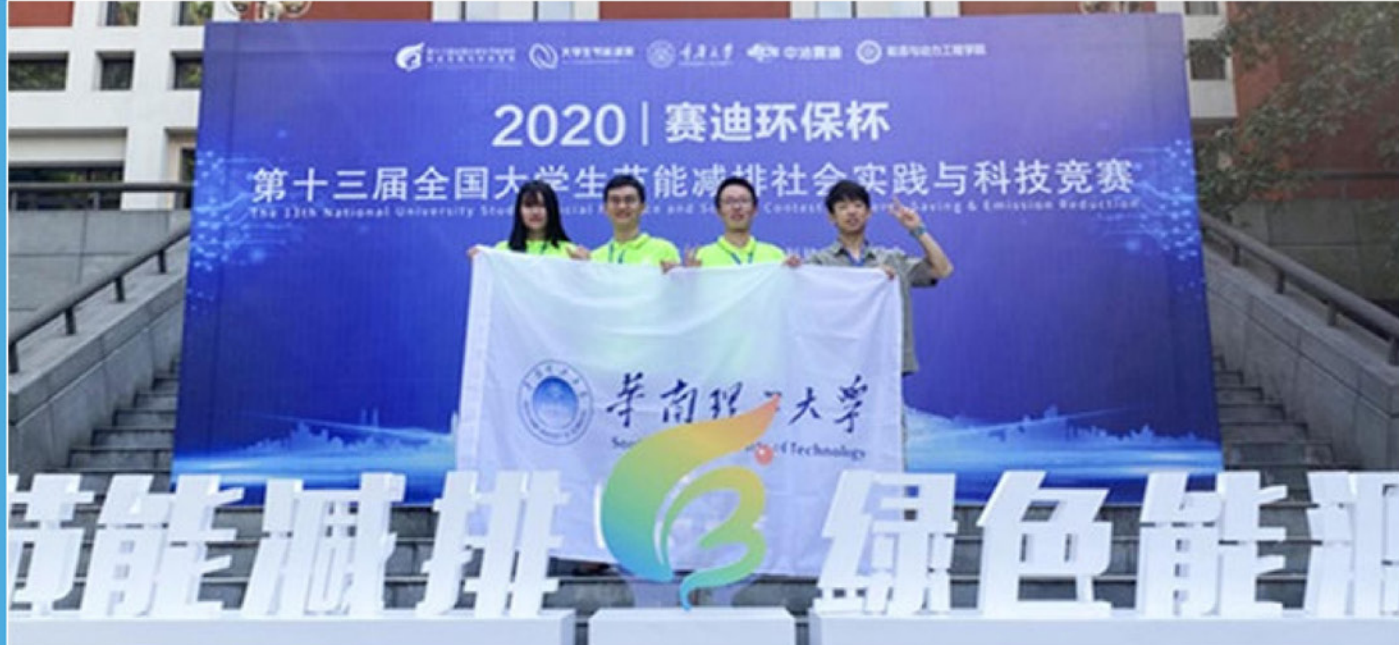


7. SCUT's first batch of undergraduate foreign students who came to China with the support of Chinese government scholarships completed their preparatory education

华南理工首届中国政府奖学金本科来华留学生预科教育结业

On the afternoon of August 24, SCUT held the ceremony for the completion of preparatory education for the first batch of undergraduate foreign students who came to China under the support of Chinese government scholarships in the 2019-2020 academic year. The university has issued graduation certificates to 36 preparatory students, mainly from developing countries. After completing preparatory education, students who passed the national examination went to their respective professional colleges to study undergraduate courses in September, and some students who applied to SCUT continued to study undergraduate courses at SCUT.

8月24日下午，华南理工大学举办2019-2020学年首届中国政府奖学金本科来华留学生预科教育结业典礼。学校分别为36名预科生颁发了结业证书，他们主要来源于发展中国家，完成预科后，通过全国考试的学生于9月份前往申请时的专业院校就读本科，部分申请我校的学生继续就读我们的本科。



8. SCUT achieved great success in the 13th National College Students' Social Practice and Technology Competition on Energy Saving and Emission Reduction

华南理工在第十三届全国大学生节能减排竞赛中获佳绩

On August 28-29, the final of the 13th National College Students' Social Practice and Technology Competition on Energy Saving and Emission Reduction was held in Chongqing University. SCUT won two first prizes, one second prize and six third prizes, and the university won the Excellent Organization Award.

8月28-29日，由教育部高等教育司主办的“赛迪环保杯”第十三届全国大学生节能减排社会实践与科技竞赛决赛在重庆大学举行。华南理工大学参赛作品斩获一等奖2项，二等奖1项，三等奖6项，学校获优秀组织奖。

Name of entries 参赛作品名称	Students 学生	Mentors 指导老师	Awards 奖项
Fractional-order Wireless Power Transfer System for UAV based on Multi-objective Optimal Location Scheme 《基于多目标优化选址方案的分数阶无人机无线电能传输系统》	Lu Zhilin et al. from the School of Electric Power 卢治霖等，电力学院	Associate Professor Xiao Wenxun 肖文勋副教授	First prize 一等奖
Intelligent Underwater Constant Pressure Air Energy Storage and Release System 《智能水下恒压储释能系统》	Yang Changyu et al. from the School of Electric Power 杨昌昱等，电力学院	Associate Professor Yang Cheng and Professor Ma Xiaoqian 杨承副教授、马晓茜教授	First prize 一等奖
Green Paper-based Supercapacitor electrode based on Multi-scale Fiber Network 《基于多尺度纤维网络的绿色纸基超级电容器电极》	Wu Xiao et al. from School of Light Industry and Engineering 吴潇等，轻工科学与工程学院	Associate Professor Xiang Zhouyang and Associate Research Fellow Mou Hongyan 项舟洋副教授、牟洪燕副研究员	Second prize 二等奖

Focusing on the theme of "energy conservation, emission reduction and green energy", this competition aims to further advocate the importance of energy conservation and emission reduction, enhance college

students' awareness of energy conservation and environmental protection, and foster the spirit of scientific and technological innovation. It also aims to broaden the students' horizons and improve their ability in innovative design, engineering practice, teamwork and social investigation.

据了解，本届大赛充分体现了“节能减排、绿色能源”的主题，旨在进一步加强节能减排的宣传，增强大学生节能环保意识和科技创新精神，扩大大学生科学视野，提高大学生创新设计能力、工程实践能力、团队协作能力和社会调查能力。



9. SCUT welcomed special freshmen to promote international education cooperation during the epidemic

推进新形势下国际教育合作 华南理工大学迎来特殊新生

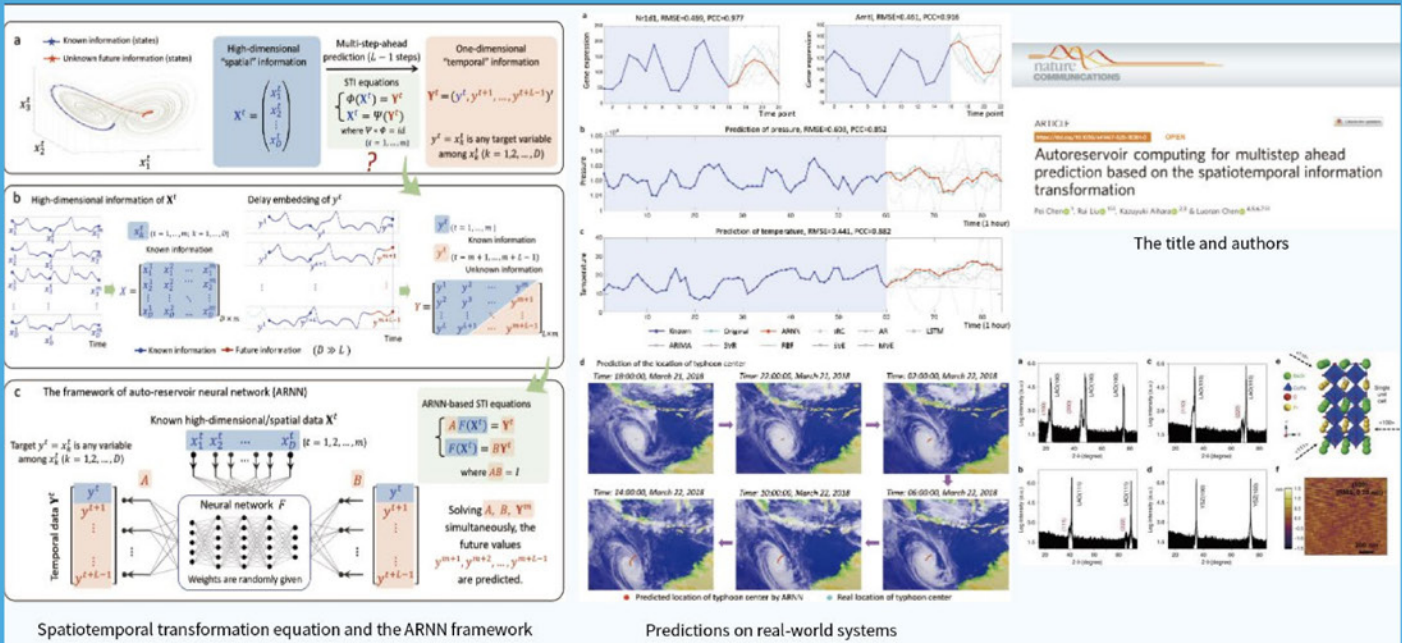
From August 29 to September 2, SCUT welcomed a group of special students; 112 Chinese freshmen from Rutgers, The State University of New Jersey from all over China. Unable to study in the United States due to the epidemic, they participated in the ROSE project jointly initiated by SCUT and Rutgers, and will start their study in the autumn semester of 2020 at SCUT. The exploratory and innovative cooperation project between SCUT and Rutgers has blazed a new trail for the in-depth development of Sino-US educational exchanges and cooperation.

8月29日至9月2日，华南理工大学迎来了一批“特殊”的学子，他们是112名来自全国各地的美国罗格斯大学中国籍大一新生。因受疫情持续影响无法赴美，进而参加了华工和罗格斯携手共建的ROSE项目，将在华工开启他们的2020年秋季学期学习。此次华工与罗格斯极富探索性和创新性的合作项目，为推进当前中美教育交流合作深度发展提供了一个新方案。

This year, SCUT and Rutgers have worked closer by establishing overseas education (exchange) bases in each other's schools to share the teachers, resources, teaching and experimental platforms of the two universities. As the overseas education base of Rutgers, SCUT provides strong support for the smooth implementation of the project, including all-round guarantees in teaching, life and logistics. Rutgers students can experience the same learning environment and facilities as SCUT students through the project, study side by side, and compete on the same stage with SCUT students. Students from both sides

can learn from each other and make progress together in communication and interaction.

今年，华工与罗格斯互建海外教育（交流）基地，实现两校师资、资源、教学和实验平台的共享和互鉴，开展深度合作。作为罗格斯的海外教育基地，华工为项目的顺利实施提供了强有力的支撑，从教学、生活到后勤等各方面给予了全方位的保障。罗格斯学子通过项目，体验与华工学子同等的学习环境和设施，与华工学子并肩学习、同台竞技，双方学子也将在交流互动中互学互鉴、博采众长、共同进步。



10. SCUT had two new research findings published in Nature Communications

华南理工大学两项研究成果在Nature Communications期刊发表

In September, SCUT published two new research findings in Nature Communications. One of the achievements comes from the computational biology research team of SCUT's School of Mathematics, with the paper entitled "Autoreervoir Computing for Multistep Ahead Prediction Based on the Spatial Temporal Information Transformation". SCUT is the first affiliation, Dr. Pei Chen (South China University of Technology) is the first author, Prof. Rui Liu (South China University of Technology) and Prof. Luonan Chen (Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences) are co-corresponding authors. The collaborators also include Professor Kazuyuki Aihara (The University of Tokyo). According to the introduction, they proposed an auto-reservoir computing framework: Auto-Reservoir Neural Network (ARNN), which provides a new reservoir computing structure for exploring the intrinsic low-dimensional dynamics of the target system, and meanwhile taking advantage of high efficiency of the reservoir computing. ARNN is successfully applied to both representative models and real-world datasets, all of which show satisfactory performance in the multi-step-ahead prediction, even when the data are perturbed by noise and when the system is time-varying. Actually, such ARNN transformation equivalently expands the sample size and thus has great potential in practical applications in artificial intelligence and machine learning.

9月，华南理工大学两项研究成果在Nature Communications期刊发表。一项是华南理工大学数学学院计算生物研究团队，成果题为"Autoreervoir computing for multistep ahead prediction based on the spatiotemporal information transformation (基于时空信息变换的自动储备池多步预测方法)"，第一署名单

位为华南理工大学，第一作者是华南理工大学数学学院博士后陈培，共同通讯作者为华南理工大学数学学院刘锐教授和中国科学院上海生命科学研究院陈洛南教授，合作者还包括日本东京大学Kazuyuki Aihara教授。据介绍，该成果提出了基于非线性动力学的时空信息变换理论与具有对称结构的自动储备池计算框架，成功地应用于实际场景中，包括风速预测、台风风眼位置预测、基因表达值预测、交通流量预测等。在数据受噪声干扰和系统时变的情况下，均表现出良好的多步预测性能。该工作从数学上诠释了自动储备池计算的动力学机理，所使用的时空信息变换等价地扩大了样本量，解决了传统机器学习算法面对短时序数据时遇到的过拟合问题，该计算方法在人工智能和机器学习等领域具有广阔的应用前景。

Another achievement comes from Professor Chen Yan's team of SCUT's School of Environment and Energy, with the paper entitled "Tuning Proton-coupled Electron Transfer by Crystal Orientation for Efficient Water Oxidization on Double Perovskite Oxides". The signature unit of the first author of this paper is SCUT, and the first author is Zhu Yunmin, Ph.D. student of SCUT's School of Environment and Energy. The joint corresponding units also include National Chiao Tung University (NCTU) and Georgia Institute of Technology. The researchers adopted double perovskite oxides $\text{PrBa}_{0.5}\text{Sr}_{0.5}\text{Co}_{1.5}\text{Fe}_{0.5}\text{O}_{5+\delta}$ (PBSCF) as a model system to demonstrate enhancing OER activity through the promotion of Proton-coupled electron transfer (PCET) by tuning the crystal orientation and correlated proton diffusion. PCET processes have been observed in a wide variety of key reactions in energy, environmental and biological systems. The reported approach can be widely applied for guiding the rational design of high-performance electrocatalysts in significant green energy and environmental applications.

另外一项是华南理工大学环境与能源学院陈燕教授团队，成果题为"Tuning proton-coupled electron transfer by crystal orientation for efficient water oxidization on double perovskite oxides (晶体取向调控质子电子耦合过程提高双钙钛矿材料的电解水催化性能研究)"，第一署各单位为华南理工大学，第一作者是华南理工大学环境与能源学院博士生朱云敏，共同通讯单位有台湾交通大学、佐治亚理工大学。该成果采用钙钛矿双氧化物 $\text{PrBa}_{0.5}\text{Sr}_{0.5}\text{Co}_{1.5}\text{Fe}_{0.5}\text{O}_{5+\delta}$ 作为模型系统，通过调节晶体取向和相关的质子扩散促进了质子耦合电子转移过程，进而有效提高了催化剂OER活性。由于在能源、环境和生物等领域中，质子耦合电子转移是一个广泛存在于化学、生物学和物理学体系中的基元反应，普遍存在于在光合作用、呼吸作用、燃烧过程、燃料电池、太阳能燃料、催化及有机合成过程中的化学能量转化与储存过程，该方法也可以应用于绿色能源和环境领域的其他关键应用中。

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