UNIVERSITY OF OXFORD

OSCAR

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OSCAR PROJECTS win first and second prizes in Venture Contest for International Entrepreneurs

Professor Zhanfeng Cui elected Fellow of **THE ACADEMY OF MEDICAL SCIENCES**

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OSCAR projects win first and second prizes in Venture Contest for International Entrepreneurs

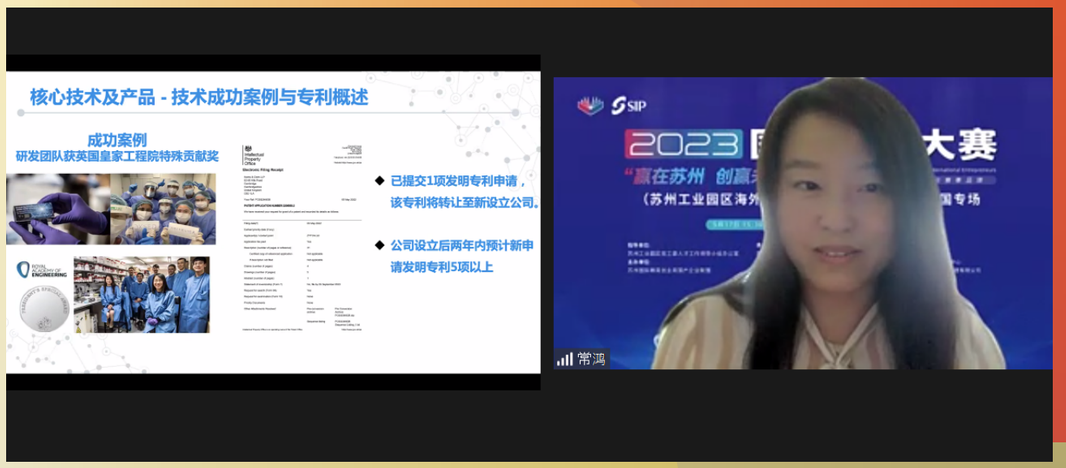
OSCAR projects providing innovative biomedical solutions finished first and second at the "Win in Suzhou, Win the Future" Venture Contest for International Entrepreneurs (UK session) on 17 May.

Launched in 2011, the Venture Contest for International Entrepreneurs has attracted more than 30,000 participants with over 9,500 projects competing in 12 editions across Asia, North America, Europe and Oceania.

A total of ten projects competed in the UK edition of the competition, showcasing innovative solutions in areas such as biomedicine, artificial intelligence, new materials and advanced manufacturing.

The winning OSCAR projects included one aiming to develop a rapid testing solution for animal infectious diseases and a second developing an innovative approach to the biological transformation and synthesis of high value fine chemicals and natural products.

Rapid detection platform for animal infectious diseases



The project aims to develop and commercialise rapid tests for animal infectious diseases to enable early detection and timely control of disease outbreaks to avert the impact of zoonotic diseases on agricultural economies, food safety and major public health problems.

The first batch of instrument and reagent production has been completed, with preliminary validation results showing high sensitivity and reproducibility. The product is now awaiting validation by the Pirbright Institute, the UK's leading institution for research into animal diseases and is ready to enter the Ministry of Agriculture and Rural Affairs approval process.

Biological Transformation and Synthesis of High-Value Fine Chemicals and Natural Products

The project focuses on the research and development of P450 oxidases ($P450_{BM3}$) and aims to achieve industrial scale production based on the enzyme's high native activity and ease of expression.

The team behind the project has carried out in-depth research into oxidised functional remodelling, used advanced technologies to artificially modify oxidases and successfully established a library of artificially modified enzymes. In addition, the team has established a complete technical development roadmap for rapid and efficient artificial modification of the highly selective oxidation function of new substrates in a short time.

Professor Zhanfeng Cui elected Fellow of the Academy of Medical Sciences

Professor Zhanfeng Cui is one of eight Oxford academics in the UK elected to Fellowship of the Academy of Medical Sciences.

The Donald Pollock Professor of Chemical Engineering and Fellow of Hertford College at Oxford since 2000, Professor Cui is also Founding Director of the Oxford-Suzhou Centre for Advanced Research.

The new Fellows have been elected to the Academy in recognition of their exceptional contributions to the advancement of biomedical and health science, cutting edge research discoveries, and translating developments into benefits for patients and wider society.

The Academy of Medical Sciences is the independent, expert voice of biomedical and health research in the UK. Its vision is good health for all supported by the best research and evidence.

OSCAR Academic Seminar series

On Friday 12th May, OSCAR held its fourth Academic Seminar of the year. The symposium was the 18th intercontinental video conference to-date, with participants from the UK and China in attendance. The two nominated guest speakers, invited to showcase their expertise and academic achievements were: (i) Professor Jeremy Robertson, OSCAR PI in Organic Chemistry, Professor of Chemistry and Tutorial Fellow in Organic Chemistry, Brasenose College, University of Oxford; and (ii) Dr. Jie Lin Senior Research Scientist with the Optoelectronic Technology Laboratory (OeTL) at OSCAR. OSCAR Research Coordinator Dr. Edward Welbeck chaired the meeting.

Talk 1 – "Reaching the parts other reagents cannot reach: Organic molecular synthesis and P450$_{BM3}$".

In the lecture, Professor Jeremy Robertson introduced a variety of interesting flavours and fragrances that appeared deceptively simple in structure. However, he then went on to explain in detail a series of molecular synthesis projects currently underway at the University of Oxford, clearly showing how complex non-modular organic molecules can be to synthesise using traditional organic chemical reactions. One example involved 18-steps in its synthetic process. He then went on to describe and compare some novel ideas for synthesising these target molecules using the P450BM3 enzymatic oxidation catalysis developed at OSCAR.

In addition, Prof. Robertson introduced the progress in the synthesis of molecular fragments within the chemistry research group.

OXFORD SUZHOU CENTRE FOR ADVANCED RESEARCH

Talk 2 – "Microcavity Organic Laser with Ultra Small Divergence Angle"

Senior Researcher Scientist, Dr Jie Lin introduced the topic of organic lasers and how they have attracted much attention due to their superior performance. However, due to the material properties and the additional optical losses caused by the construction of a resonant cavity, electrically driven devices have not yet been achieved. In recent years,
with the rapid development of colloidal quantum dots and perovskite technologies, organic lasers have attracted renewed attention. Researchers have found that quantum dots and perovskite lasers face similar challenges to organic lasers, suggesting a potential synergy between the three technologies. Therefore, this field has important prospects for in-depth development and application.

In his talk, Dr Jie Lin outlined the research background of organic lasers and the research work carried out at OSCAR, focusing on the progress made in ultra-small divergence angle organic lasers.

Professor Zhanfeng Cui attends Coronation Celebrations in Shanghai

On 10 May, Professor Zhanfeng Cui attended a ceremony to celebrate the coronation for their Majesties the King and Queen hosted by the British Consulate in Shanghai.

The event was also attended by Wu Qing, Executive Vice Mayor of Shanghai, Lin Haiping, Deputy Chairman of the Foreign Affairs Committee of the Shanghai Municipal People's Congress, Kong Rong, Deputy Director of the Shanghai Political Consultative Conference Foreign Friendship Exchange Society, and Be Zhaogian, Deputy Director of the Shanghai Foreign Affairs Office.

The coronation of the King of England on May 6 this year was a once-in-a-century event in the UK. It has been 70 years since the last coronation of Her Majesty the late Queen Elizabeth II in 1953. The Coronation is rooted in long-standing traditions and celebrations, while reflecting a future-oriented, modern and diverse Britain. Through this coronation, His Majesty King Charles III also conveys his passion for youth, community, sustainability and diversity.

Local EHS professionals gather at OSCAR for laboratory safety training

On 19 May, EHS professionals from local universities gathered at OSCAR for a one-day training course on laboratory safety management, initiated by the Administrative Committee of Dushu Lake Science and Education Innovation Zone.

The training included seminars by the Suzhou Industrial Park EHS Association and knowledge sharing among participants, focusing on how to manage the myriad risks associated with laboratory activities, and best practices in laboratory safety assurance.

Mary Ma, Senior EHS Supervisor at OSCAR, said: "Laboratory safety is everyone's responsibility and requires close cooperation between researchers and laboratory managers."

OXFORD SUZHOU CENTRE FOR ADVANCED RESEARCH

Meet OSCAR's new staff

Jiawei Ju
Project Manager in energy storage

Jiawei Ju joined OSCAR in May 2023 as a project manager in energy storage. She received her bachelor's degree from Nanjing University and her master's degree from the Chinese Academy of Sciences. She majored in environmental engineering. She has worked in the water and environmental protection industry for nearly 10 years. In her previous job, she worked at the Research Institute for Environmental Innovation (Suzhou) of Tsinghua. She was engaged in product development and translating research outputs into practice in the environmental protection industry.

At OSCAR, she is mainly responsible for the industrialization of related technologies of energy restoration. She believes her experiences and skills will greatly contribute to this position.

"It is really exciting for me to join OSCAR," Jiawei says. "I'm very grateful for this opportunity. There are many talented researchers here and the research they are engaged in are very innovative and meaningful. The atmosphere here is cordial, simple, and everyone is working hard towards their own goals. I'm looking forward to creating more value with everyone here. The inability to effectively combine scientific research and industry is a serious obstacle that has long plagued the development of innovation. At OSCAR I believe we will have more commercially available technologies supported by successful research advances and strong teams. Although it was not easy, I was ready for the challenge."

Qinwen Jiang
Research Engineer

Qinwen Jiang joined OSCAR in May 2023 as a Research Engineer in Perovskite Thin Film Innovation Technology Centre (ITC). He graduated from China University of Petroleum (East China) in 2017 with a master's degree in chemical engineering. During his postgraduate studies, he focused on molecular simulation of water clusters with the aim of reducing water injection pressure in low permeability reservoirs by reducing the scale of water clusters.

After graduation, Qinwen gained six years of work experience in industry. He started his career as an evaporation process engineer at Chengdu BOE Technology Co, Ltd, where he developed a strong understanding of evaporation process optimisation. Qinwen then moved to Wuhan TianMa Microelectronics Co, Ltd where he worked as a New Product Introduction (NPI) engineer. During this time, he became an expert in the import process flow of OLED display products, where he gained experience in handling the differences between laboratory and mass production lines. One of the issues he tackled was the reduction in the lifetime of OLED devices in mass production compared to the laboratory. Finally, he joined the Institute of Organic Optoelectronics affiliated with Jiangsu Provincial Industrial Research Institute, where he mainly focused on OLED light source product development. Unlike OLED display, OLED light chips need to emit light evenly without pixels. He focussed efforts on reducing short circuits in the lamp chip, which could be caused by even a small defect. He made several related process improvements, including the use of an appropriate pulse voltage parameter, which proved to be very effective in reducing the short-circuit rate.

"It is really exciting for me to join OSCAR," says Qinwen, "OSCAR has world-class scientists and advanced instruments and equipment, and the managers and colleagues here are also very friendly. Perovskite technology has similarities with OLED in terms of device principle, and the evaporation process is also very critical for perovskite. Building on my previous work experience and the academic guidance of my PI in the Perovskite Thin Film Innovation Technology Centre (ITC), I am committed to contributing to the perovskite industry to the best of my ability.

OXFORD SUZHOU CENTRE FOR ADVANCED RESEARCH

OSCAR outreach and collaboration

Professor Zhanfeng Cui gives invited lecture at Monash University Suzhou

On 9 May, OSCAR Director Professor Zhanfeng Cui was invited to give a talk on 'Development of the Rapid Covid-19 Test - what we learned' at the Monash University Suzhou campus.

The talk was hosted by the President of Monash Suzhou, Professor Aibing Yu.

In the talk, Prof Cui described the process of taking the Covid-19 test from initial concept to finished product, becoming the fastest spin-out to exit in the history of Oxford University Innovation. Prof. Cui alerted the audience to the tendency of striving for the “perfect product”, which can cost the window of opportunity. He also highlighted the role a good team can play in achieving project goals within the set timeframe.

After the presentation, a delegation from Monash University Suzhou visited OSCAR for a tour of the building.

SIP news in May

China-Britain Business Council holds business dialogue in Suzhou

The China-Britain Business Council (CBBC) recently co-hosted the first UK Business Dialogue with the Suzhou Municipal People's Government in Wujiang District. It is also the first time the CBBC has visited Suzhou. A total of 30 representatives from the automotive, finance, retail and higher education sectors travelled from the UK to Suzhou to discuss mutual development.

Suzhou and the UK have deep historical roots and close economic and trade ties. The UK has invested in and established more than 500 enterprises in Suzhou, and the UK's foreign direct investment in Suzhou has reached $2.016 billion. Representatives from a number of well-known British companies, including Jaguar Land Rover, Unilever, Reckitt Benckiser and Johnson Matthey, which have invested in Suzhou, attended the dialogue and expressed their desire to seek further cooperation with Suzhou.

By the end of 2022, more than 18,000 foreign enterprises had set up offices in Suzhou, and 160 overseas Fortune Global 500 companies had invested in the city and established 450 projects. Suzhou has 191 provincially recognised regional headquarters and functional agencies of multinational companies. The city has invested in more than 2,000 projects overseas, set up more than 80 offshore innovation centres, and established sister city relations with 58 foreign cities.