



UNIVERSITY OF
OSCAR OXFORD

NEWSLETTER 040 NOVEMBER 2020

OSCAR SECOND ANNIVERSARY



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CONTENTS

OSCAR opens to the public on its second anniversary	1
Meet OSCAR's Visiting Academicians	4
OSCAR Academic Seminar series	6
Research Spotlight - Optoelectronic Technology Laboratory	8
Outreach and Collaboration	10
SIP News for November	12



OSCAR opens to the public on its second anniversary

Committee, Science, Education and Innovation District (SIED), Suzhou. Mr. Xu reiterated SEID's commitment to enabling innovation, saying that the SEID authorities will continue their generous and consistent support to innovative and international education and research activities. He said that SEID also supports OSCAR's growth by facilitating in-depth collaboration with industrial partners.



Liveliness and joy filled the OSCAR building on 22nd November afternoon as OSCAR opened to the public to celebrate its two-year anniversary.

Over 160 guests, including students and teachers from local high schools and universities; eminent education leaders; government officials and Oxford alumni joined the invitational festivities.

OSCAR's two-year anniversary, and its second Open Day of 2020, opened with remarks by Wenqing Xu, Secretary General of CPC Working

OSCAR's General Manager Leah He then welcomed guests and colleagues and expressed her gratitude to the attendees for their support for OSCAR. OSCAR Director Prof. Zhanfeng Cui, unable to travel to Suzhou during the pandemic, sent his greetings from University of Oxford in a specially recorded video message. "When people see the word 'OSCAR', they think of the Academy Award, a supreme honour for the film community, in the first instance," said Prof. Cui. "The word was redefined to represent Oxford Suzhou Centre for Advanced Research in 2018, when it was officially inaugurated in Suzhou Industrial Park. OSCAR has since been a paradigm of UK-China science and education cooperation. As the first overseas multi-disciplinary research centre of the University of Oxford in its 850-year history, OSCAR provides an advantageous platform for researchers of the University to seek collaboration with universities, research institutes and industrial partners in China. It has also served as a window through which friends and peers in China can learn more about the University."



One of the highlights of the day was a very popular panel session with OSCAR researchers and visiting students. The panel, comprising current and former students of the University of Oxford, shared personal stories of their passion for science and the path that had led them to pursue a career in scientific research, including challenges and obstacles along the way. When asked about how they found their way to University of Oxford, a question of great interest to the "next generation young scientists" present at the event, OSCAR researchers and visiting students gave detailed account of their experience of applying for study or work at the University.

Panel speakers include Yixin Yang, Vice President of Soochow University; Qiuling Chao, Vice President of Xi'an Jiaotong-Liverpool University; Zhou Xiaoyang, Secretary of the Party Committee and Principal of Suzhou Industrial Park Xinghai Experimental Middle School; Jianlan Zhang, Principal of Peking University New Century Shiheng School; Ziyun Qian, Global CFO of M-FLEX; Zhaoxuan Chen, President of Oxford University Innovation Suzhou.



OSCAR researchers and visiting students participating in the panel session. From second left to right: Peng Tang, visiting student in Prof. Mauro Pasta's group; Dr. Yang Cao, Research Scientist in Prof. Luet Wong's group; Xiaoyu Chen, visiting student in Prof. Wei Huang's group; Rui Lei, visiting student in Prof. Zhanfeng Cui's group; Yuxuan Lu, visiting student in Prof. Luet Wong's group and Dr. Yang Yang, Senior Research Scientist in Prof. David Clifton's group.

The event also featured a themed panel discussion on "Examining redefined value of education in a post-pandemic era". Education leaders and academics from across the region were invited to exchange their opinions on how the Covid-19 pandemic has prompted the education community to adapt and think outside the box. The speakers agreed on the importance and necessity of the ability to interpret a reshaped education landscape in a post-pandemic time, and to capitalise on emerging trends with creative solutions.



The event closed with a cake-cutting ceremony in celebration of OSCAR's remarkable journey over the past two years.

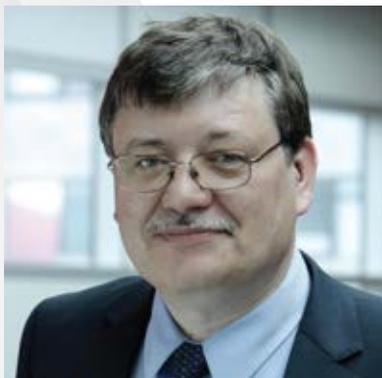


On this same day two years ago, the Gate of the Orient, a landmark building in Suzhou Industrial Park, was illuminated with the Chinese characters of "苏州" (Suzhou) and "牛津" (Oxford) to celebrate OSCAR's launch. This represented an exciting new chapter in University of Oxford's 850-year history, a chapter to be jointly written with the 2500-year old historic city of Suzhou.





Meet OSCAR's Visiting Academicians



Professor Donal Bradley
CBE, FRS, CEng, FIET, FNAI, FlInstP, FRSA

Professor Bradley is a Visiting Academician at OSCAR's Optoelectronic Technology Lab (OeTL), working with Professor Paul Stavrinou.

Selected Professional Highlights:

- Vice President for Research and Distinguished Professor of Materials Physics & Device Engineering at KAUST, Saudi Arabia
- Steering Committee member for KSA Circular Carbon Economy - National Program (CCE-NP) and overseeing the KAUST Circular Carbon Initiative response to the 2020 G20 Leaders' Summit endorsed CCE Platform
- Formerly Head of the Mathematical, Physical and Life Sciences Division, University of Oxford, in which role he championed and secured approval for the establishment of OSCAR
- Founding Director of CPE (Centre for Processable Electronics), Imperial College London
- Soluble semiconductor science and engineering expert and entrepreneur
- CO-founder of Cambridge Display Technology Ltd, Molecular Vision Ltd, and PeroLED Ltd
- Trustee and Optoelectronics Committee Chair, The Rank Prize Funds

Professor Bradley is renowned for his seminal contributions to the development of soluble semiconductor materials and devices. This technology embodies a paradigm shift to low temperature, solution-based device fabrication, with applications in energy efficient displays and lighting, photovoltaic energy generation, electronics and medical diagnostics; and longer-term potential for optical communications.

Professor Bradley joined the University of Oxford in 2015 as Head of the Mathematical, Physical and Life Sciences Division and Professor of Physics & Engineering Science, and was instrumental to develop the OSCAR project. He wholeheartedly embraced the challenge and together with Professor Zhangfeng Cui oversaw the delivery of OSCAR on time for its opening in November 2018. As an OSCAR PI, he established the optoelectronics group.

In 2019, Professor Bradley joined King Abdullah University of Science and Technology (KAUST) in Saudi Arabia as the Vice President for Research. Following this move, he holds a Visiting Academician appointment at OSCAR in association with which he continues as co-PI of OeTL with Professor Paul Stavrinou. The culmination of several years' collaboration and planning, OeTL is managed day-to-day by Dr Jingsong Huang, an ex-Imperial College postdoc and Molecular Vision research scientist. Professor Bradley's Visiting Academician post also provides considerable academic, industrial and entrepreneurial experience on which both OSCAR and SIP can draw and opens opportunities for international cooperation with colleagues in Saudi Arabia and the Middle East.

Professor Bradley has published over 650 papers and has over 88,000 citations and an h-index of 130 (Google Scholar). Resulting honours and awards include appointment as Commander of the Order of the British Empire (CBE, 2010) for services to science; the E-MRS Jan Czocharlski Gold Medal (2019); Jiangsu Province Governor's Award for Outstanding Contribution in International Cooperation (2016); Institution of Engineering & Technology Faraday Medal (2010); Royal Society Bakerian Medal (2009); the Institute of Physics Faraday Medal (2009); the European Science Foundation European Latsis Prize for Nanoengineering (2005); and the European Union Descartes Prize (2003).

OeTL's research at OSCAR concerns the development of soluble semiconductor materials and devices for a diverse range of applications, including flexible and printable electronics, optoelectronics and photonics. OeTL benefits from dedicated world class laboratory facilities, highly talented team members, and proximity to key manufacturers and other research groups in the SIP area.



Prof. Nigel Slater
FREng

Prof. Slater is an expert in Biopharmaceuticals. He is the Visiting Academician at OSCAR's planned Biomufacturing, Bioprocessing and Bioformulation ("3B") Innovation Training Centre, hosted by Prof. Zhanfeng Cui.

Professional highlights:

- Emeritus Professor of Chemical Engineering, University of Cambridge; former Pro-Vice Chancellor for Enterprise and Regional Affairs
- President of Fitzwilliam College (2009-13)
- Lead, Cambridge Unit for Bioscience Engineering
- Qiushi Chair Professor, University of Zhejiang

Prof. Slater's research interest lies in development of novel strategies for the manufacture, formulation and delivery of biopharmaceuticals including vaccines and therapeutic proteins, DNA, viruses and cells. His current focus is on AAV gene vectors and nanoparticles for ocular therapy. He also researches

procedures to improve the preservation of cells, especially pancreatic islets for the treatment of diabetes. Recently, research by Prof. Slater and his researchers was awarded 'Paper of the Year 2019' by the Springer journal Bioprocess and Biosystems Engineering.

During his career he has held senior leadership roles at the University of Cambridge, including Head of Department, President of Fitzwilliam College and Pro-Vice Chancellor for Enterprise and the Region, as well as research management posts in Dutch Unilever BV and Wellcome plc. During his tenure at Wellcome, he was responsible for their biopharmaceutical development activities. He served as a director and Chair of the Remuneration Committee of Cobra BioManufacturing plc, Chairman of the BBSRC Chemicals and Pharmaceuticals Directorate, Governor of the BBSRC Silsoe Research Institute and was a member of the BBSRC Technology Interaction Board. While he was Director of Angel Technology Ltd., the company won the Queen's Award for Innovation (2006).

In 2002, Prof. Slater founded Vivamer Ltd. with colleague Mark Eccleston to commercialise their responsive polymer chemistry technologies. In 2009, Prof. Slater won the IChemE Donald Medal for outstanding services to biochemical engineering. His Bioscience Engineering Group at Cambridge University (BSEG) collaborates with academia and industry partners across the UK, USA and Europe. Prof. Slater personally enjoys a wide range of international collaborations, and currently serves as Qiushi Chair Professor at the University of Zhejiang and as Honorary Professor at the Universities of Tianjin and Sichuan in China.

Prof. Slater will work with Prof. Cui and Prof. Hua Ye's groups to develop new and improved cell processing and preservation techniques and technologies to enhance cell therapy capability. Their work at the new ITC will be a significant driving force to adapt OSCAR's research for the clinic and point-of-care/at home medical treatment.





OSCAR Academic Seminar series

OSCAR's fifth Academic Seminar, the final seminar of 2020, took place via web conference on 27th November.

In a departure from the typical research presentation format, the seminar focussed on the grant and funding landscape in China. The seminar featured an interactive session with Dr. Xianning Xie, Associate Director of Research at National University of Singapore (Suzhou) Research Institute (NUSRI) who presented his experience in securing research grants in China as another public institution in SIP founded by an overseas university. This is the first time an external academic has been invited to speak at OSCAR's Academic Seminar series.

NUSRI is the first overseas research institute of NUS, and also the very first research institute in China which is independently operated and managed by an overseas top university, with the aim to reinforce the cooperation in science and education between

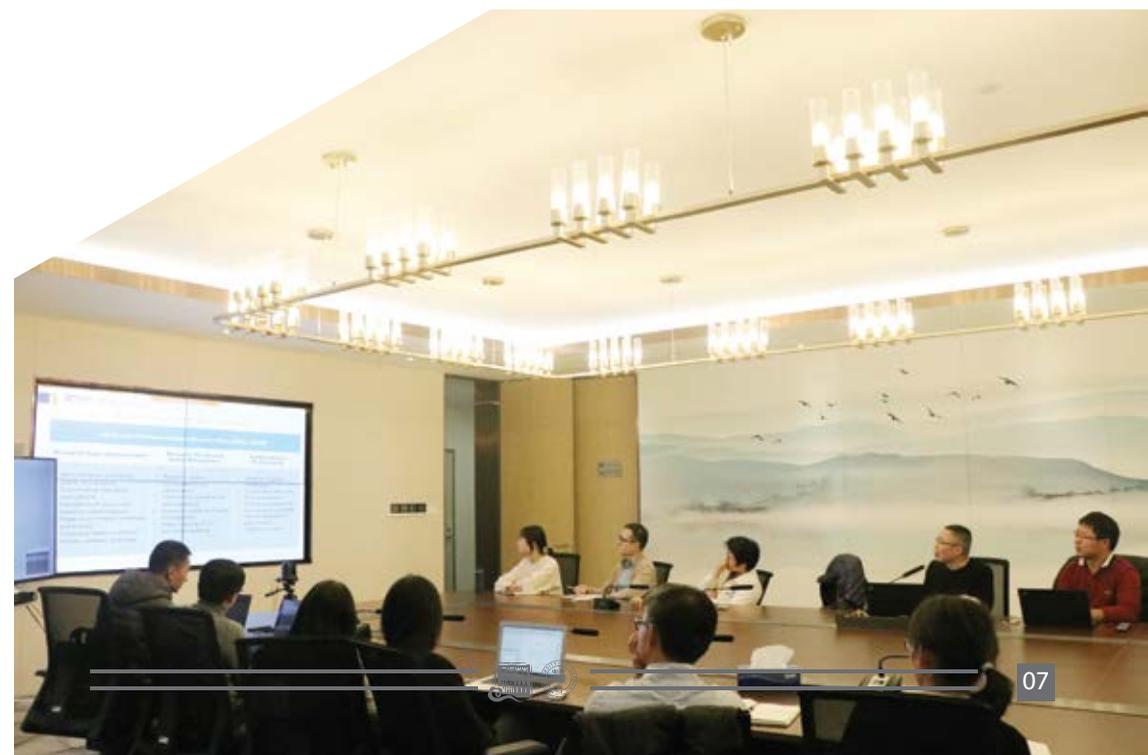
China and Singapore. NUSRI is registered as a local independent non-profit organization with legal identity under Suzhou Industrial Park Administrative Committee (SIPAC) and operated and managed by NUS.

Dr. Xie is the Senior Investigator leading the Research Management Office at NUSRI. His expertise lies in nano coating, which spans degrading organic waste into water and carbon dioxide, novel polarizable and energy-storage materials.

During the session, Dr. Xie discussed a wide portfolio of government-sponsored grant programmes in China and took questions from OSCAR PIs and researchers. He stressed the importance of preparation and organisation of grant proposal wording, and advised researchers to style applications in the Chinese way of writing as proposals are intended for Chinese reviewers. There are distinct differences between the research systems of China and the UK and this must be reflected at all levels.

This seminar was arranged to bring OSCAR research teams up to speed on what makes a successful grant application in the China system, and was timed to coincide with the release of the official guidelines for many grant programmes in the upcoming funding cycle. As the window for filing applications typically closes within 2-3 months, practical insights into the process shared in Dr. Xie's talk will be instrumental in making OSCAR's attempts at grant programmes more targeted and fruitful.

Next, OSCAR's Head of Research Cooperation, Alex Yang, expanded on Dr. Xie's talk by introducing specific regional and national-level programmes for which OSCAR PIs and researchers are eligible. The rules and regulations strictly define eligibility based on institution status and certain other criteria. However, there are a range of individual and research group awards available as well as the option of joint proposals for collaborative research. Projects like this are a key part of OSCAR's mission to innovate within the SIP research ecosystem. OSCAR is currently exploring the possibility of such joint proposals with strategic partner institutions.





Research Spotlight Optoelectronic Technology Laboratory

Dr. Jingsong Huang, Senior Research Scientist at OSCAR's Optoelectronic Technology Laboratory (OeTL) led by Prof. Paul Stavrinou, recently published a joint paper with collaborators in Shanghai Jiao Tong University, Suzhou Institute of Nano-Tech and Nano-Bionics CAS, East China Normal University, and Bruker (Beijing) Scientific Technology Co., Ltd.

The paper, entitled "Universal and versatile morphology engineering via hot fluoruous solvent soaking for organic bulk heterojunction" was published in Nature Communications in November 2020.

Background

Trained as a physicist and an engineer, Dr. Huang's research interest lies primarily in the science and application of novel semiconductor materials and devices. A particular focus is stability study of organic light-emitting diodes and organic solar cells, which is one of the decisive factors for their commercialization. Unlike inorganic materials, the morphology of organic thin films is not easy to control, and its stability is not ideal. This affects yield and long-term stability. This paper proposes a new method for optimizing the morphology of a donor/acceptor blend system and demonstrated its efficacy in achieving superior photovoltaic performances.

Research

With the rapid development of organic solar cells (OSC), people have realized that the ideal morphology of bulk heterojunction is a crucial challenge for the commercialization of OSC. A solution-processed manufacturing method is too fast for organic molecules to assemble in the expected way. Therefore, additional post-treatments are usually required by using heat or solvent as driving force to reorganize donor and acceptor molecules, such as thermal annealing, solvent vapor annealing and solvent soaking, etc.



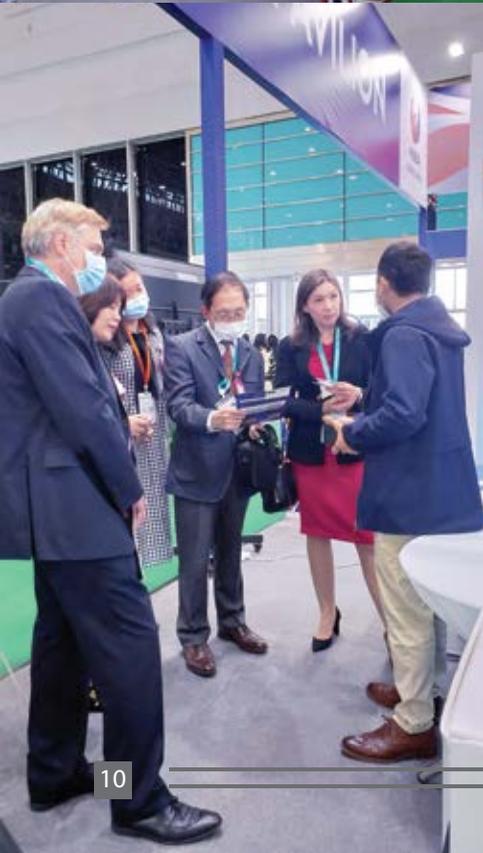
Jingsong Huang

- Senior Research Scientist
- Research interests: organic optoelectronics and its applications in information display, solar cells and biosensors; micro-nano manufacturing technologies.
- Dr Huang has a 20-year track record of research activities in leading universities and industries.

The paper describes a new approach of fluoruous solvent soaking. Fluoruous solvent has an amphiphobic nature, temperature-dependent miscibility, and good thermal conductivity. By immersing a blend film into hot fluoruous solvent (used as a liquid medium), molecular reorganization is accelerated which in turn helps to optimize the morphology. This method is applicable to various donor/acceptor combinations including polymer/small-molecule, all polymer and all-small-molecule systems.

In the paper, the researchers demonstrate that the molecular reorganization is performed quickly and completely in the polymer blend of PM6:Y6, leading to an ideal morphology with fibre-like PM6 and highly ordered Y6. This results in the enhancement of fill factor of device and realization of a champion device efficiency of 16.52%, which surpasses the pristine device (15.21%) and the one (15.96%) with thermal annealing as post-treatment.

The full open access paper is available to read online and in print: Shan, T. et al (2020). Universal and versatile morphology engineering via hot fluoruous solvent soaking for organic bulk heterojunction. Nature Communications 11(1): 1-11. DOI: 10.1038/s41467-020-19429-x



Outreach and Collaboration

OSCAR debuts at the World Health Expo

At the invitation of Hubei Britain Business Association, OSCAR attended the 2nd World Health Expo in Wuhan as an exhibitor from 11th to 14th November. More than 2000 exhibitors covering the full spectrum of the health sector attended the 4-day event, which attracted an estimated 400,000 visitors. On the first day of the expo, the Consul-General of the British Consulate-General in Wuhan, Gareth Hoar; the Trade and Investment Officer for Healthcare and Life Sciences at the British Consulate-General Wuhan, Yifang Lin; the Minister Counsellor at the British Embassy in China, Danae Dholakia, and Zhidao Xia, Vice President of the Hubei Britain Business Association, visited OSCAR's booth.

OSCAR presents research outputs at 5th China international Engineering Plastic Industrial Innovation Conference

Research scientist Dr. M Kamran Khan from Prof. Mark Moloney's surface chemistry group represented OSCAR at the "5th China international Engineering Plastic Industrial Innovation Conference" in Nanjing, China. Dr. Khan presented OSCAR's antimicrobial technology developed by Prof Mark Moloney's group. OSCAR's antimicrobial technology is a versatile coating technology which can coat several surfaces like polypropylene, cellulose, Nylon, polyether sulfone,



OSCAR invites industrial collaboration at high-profile academic-industry networking event

The Great University and Research Facility Convention for Cooperation and Development, hosted by the CPC Suzhou Municipal Committee and Suzhou Municipal People's Government, took place on 19th November 2020. With a theme of "Open Cooperation and Great Minds for Suzhou", the Convention is designed to invite dialogue among universities and research institutes, and to provide networking opportunities between academia and industry. The event was attended by top leaders from 62 universities and 33 research institutes, as well as 14 esteemed academicians.

plastics and much more. This coating kills any kind of bacteria, viruses, and fungi, and is particularly relevant in the context of global Covid-19 pandemic. The technology can be applied to anti-microbial personal protective equipment (PPE) like masks gowns, demonstrating a huge potential for commercialisation. During the conference, Dr. Khan was approached by several domestic and international companies and research institutes who showed great interest in OSCAR and its technology.



OSCAR General Manager Leah He was invited to speak at the conference. In her speech, Leah presented OSCAR as a "paradigm of UK-China cooperation in science" and "a place towards which innovative resources and great minds gravitate", discussing OSCAR's unique position and ability to transfer innovative and disruptive technologies to the market. On behalf of OSCAR, Leah shared with the audience some of OSCAR's recent research successes and outputs, inviting collaboration with academic, industry and government agencies to develop and commercialise OSCAR's technologies. Following the conference there has been significant interest from attendees in developing such partnerships.





The Future of Science is Global



SIP News for November

SIP goes all out to build a world-class biomedicine cluster

China National Center for Biotechnology Development released "2020 Evaluation and Analysis Report on Competitiveness of Chinese Biomedicine Clusters" during the 2020 China Biotech Innovation Conference held in SIP from 2nd – 4th November. SIP has stepped closer toward its goal of building a world-class biomedicine cluster and now ranks second among biomedicine clusters nationwide in terms of general competitiveness, and first in terms of industrial and talent competitiveness.

The local biomedical industry has been growing rapidly in recent years, with a huge pool of biotech talents being introduced and an annual increase of 20% in total industrial output value. The prosperity of SIP's biotech industry can be further evidenced by the following facts:

- An increasing number of new drugs are being developed in SIP. SIP-based biomedicine companies received a total of 24 approvals for clinical trials of Class-I drug candidates last year, accounting for 21% of the national total.
- There is continuous investment inflow into the biomedicine sector. Statistics show that biomedicine companies in SIP attract investment of around 10 billion RMB each year. Ten biomedicine companies located in SIP have gone public in China and overseas.
- An integrated ecosystem for the biomedical industry has taken shape in SIP. The ecosystem consists of not only biomedicine companies but also research institutes, technical platforms, and professional service organizations, forming a complete support loop for the biotech industry.

The ecosystem is still expanding with BioBAY, a biomedical industrial park in SIP. BioBAY launched operations earlier this year and have more projects now underway.

<http://www.sipac.gov.cn/szgyqenglish/News/202011/12cf2dc6f0694ee9ad0923c0bb5c64f5.shtml>

