



UNIVERSITY OF
OSCAR OXFORD

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Acoustics and Optics Group in OSCAR

The Acoustics and Optics Group (AOG) in OSCAR was founded by Professor Ronald Roy in 2018. The research of AOG is focused on the physics of sound generation, detection, and propagation, the interaction of sound and light for imaging and therapy, industrial ultrasonics, biomedical acoustics, and medical ultrasound artificial intelligence. An emphasis of AOG's portfolio is the physical, chemical, and biological effects of acoustic cavitation. This includes sonochemistry, and both single and multi-bubble sonoluminescence. Other important aspects of AOG's ongoing work are with photo-acoustics and acousto-optics, and the application of ultrasound artificial intelligence in the point-of-care settings.



The AOG currently has three laboratories at OSCAR.

Medical Ultrasound Artificial Intelligence Laboratory

Photo-acoustics and Acousto-optics Laboratory

Industrial and Biomedical Acoustics Laboratory

People



PI: Ronald Roy

- Professor in Mechanical Engineering, University of Oxford
- Head of Department of Engineering Science, University of Oxford
- Professorial Fellow, Harris Manchester College, University of Oxford
- Adjunct Professor in Acoustics, School of Physics, Nanjing University
- Honorary Professor in Biomedical Engineering, The Hong Kong Polytechnic University

Group member:

Jason Raymond



- Senior Research Associate in Physical Acoustics, Oxford University
- College Advisor, Kellogg College, Oxford University
- Head, Photo-acoustics and Acousto-optics Laboratory
- Head, Industrial and Biomedical Acoustics Laboratory
- Co-head, Medical Ultrasound Artificial Intelligence Laboratory

Jiangang Chen



- Senior Research Scientist at OSCAR
- Head, Medical Ultrasound Artificial Intelligence Laboratory
- Co-head, Photo-acoustics and Acousto-optics Laboratory
- Co-head, Industrial and Biomedical Acoustics Laboratory
- Committee Member in Biomedical Ultrasound and Engineering, The Acoustical Society of China

Research

Photo-acoustics and Acousto-optics Laboratory

◆ Introduction

The Photo-acoustics and Acousto-optics Laboratory (PAL) is focusing on fundamental and applicable technologies that take advantage of the interaction of sound and light for both imaging and therapy. Ongoing projects include acousto-optic sensing, multi-functional nanoparticle for enhanced HIFU, and multi-functional nanoparticle for drug delivery.

Industrial and Biomedical Acoustics Laboratory

◆ Introduction

The Industrial and Biomedical Acoustics Laboratory (IBAL) is focusing on applications of acoustic theory and technology to industrial and biomedical fields. Ongoing projects include ultrasound-mediated DNA transfer for bacteria.

Medical Ultrasound Artificial Intelligence Laboratory

◆ Introduction

Ultrasound has been increasingly used in the field of point-of-care (POC) (such as ICU, emergency department, anesthesiology, etc.). However, the clinical application of POC ultrasound has developed very slowly. One of the main reasons is that the doctors in the POC departments are not medically specialized in the field of ultrasound. The interpretation of ultrasound images and the clinical diagnosis using ultrasound require the background knowledge and theoretical basis of ultrasound which the POC clinicians lack. It normally takes several years to train a novice to reach the medium sonographic level. In view of this situation, medical ultrasound artificial intelligence (AI) could assist POC clinicians in diagnosis, e.g., by recognizing clinical features from ultrasound images based on which doctors make the decision.

The Medical Ultrasound Artificial Intelligence Laboratory (MUAIL) is focusing on the development of AI technologies to POC applications of ultrasound, e.g., intelligent lung abnormality detection.





Meet OSCAR's New Staff



Dr. M. Irfan Arif / Prof. Ian Thompson's Group

Dr. M. Irfan Arif received his Ph.D. in Biotechnology from the University of Groningen, the Netherlands. He joined OSCAR in May 2019 as a Research Scientist with Prof. Ian Thompson. He specialises in the discovery and engineering of novel bacterial strains and enzymes for industrial applications. His previous work focused on directed evolution of enzymes for biodegradation of halogenated hydrocarbons and chemoenzymatic peptide synthesis. His main interests are the development of novel antibiotics, biocatalysis, bioremediation, and sustainable environment.

Ian Thompson

Professor of Engineering Science,
University of Oxford

Professor Thompson specialises in developing technologies for preventing pollution, stimulating microbial clean-up of waste waters, and their biotransformation to high value chemicals such as bioplastics.



OSCAR Thinking

Invited Talks at OSCAR

On 9 May, a talk by Prof. Tiantian Zhang (Professor of Reproductive Cryobiology, Bournemouth University), invited by Prof. Zhanfeng Cui's group, was held at OSCAR.

Prof. Tiantian Zhang's current research interests and activities are in the following areas: the cryopreservation of reproductive cells, tissues and embryos of aquatic species, and the effect of cryopreservation on the genome and cellular metabolism of reproductive cells, including stem cells. Prof. Tiantian Zhang is an internationally leading figure in research on cryopreservation of gametes and embryos of fish species.



第二届江苏发展大会
暨首届全球苏商大会
The 2nd Jiangsu Development Summit &
The 1st Global Jiangsu Entrepreneurs Convention

聚力新江苏 奋进新时代
BUILD TOGETHER IN JIANGSU GO AHEAD IN THE NEW ERA



Outreach Activities

In May, Prof. Zhanfeng Cui, OSCAR Director, attended the 2nd Jiangsu Development Summit and the 1st Global Jiangsu Entrepreneurs Convention, held in Nanjing. Prof. Cui also attended the Tree Planting Ceremony and Dinner Reception hosted by the Party Secretary and the Governor of Jiangsu Province on 19 May.

On 19 May, Prof. Zhanfeng Cui had a meeting with Jiangsu Industrial Technology Research Institute (JITRI). JITRI will hold the JITRI-UK Partner Summit at Oxford University on June 27-28, during which JITRI will have a delegation of around 20 people led by Dr. Qing Liu, President of JITRI.



江苏省产业技术研究院
JIANGSU INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE

On 23 May, Prof. Zhanfeng Cui and Leah He (OSCAR General Manager) visited Weitz Innovation Hub together with Mr. Weiming Jiang, Chairman of Suzhou Dushu Lake Science and Education Innovation District (SEID), and Mr. Yu Jiqiang, Deputy Director of SIP Science & Technology Development Bureau. Weitz Innovation Hub is an incubator founded by Prof. David Weitz of Harvard University with the support of the SIP government.

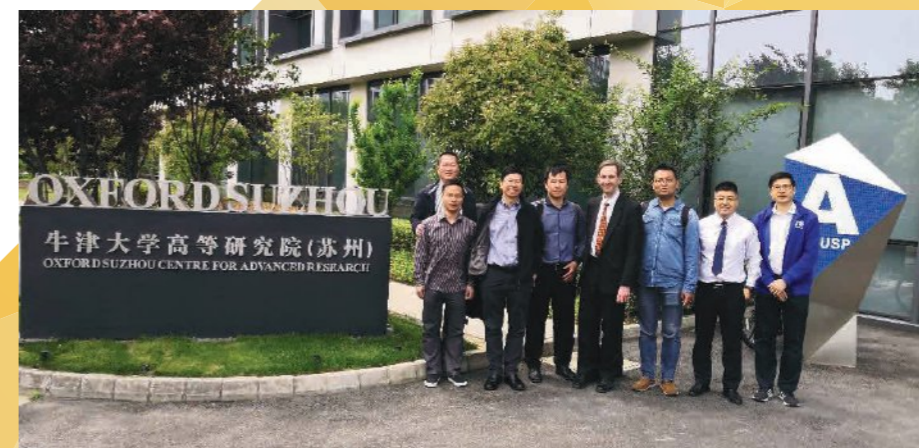


Research Collaborations

A technical team from the Institute of Medical Devices (Suzhou), Southeast University (ibmd) visited OSCAR. The purpose of the visit was to discuss the collaboration for a JITRI proposal with lung ultrasound as the first application.



Prof. Richard W. Prager, Head of the Department of Engineering at the University of Cambridge (<http://www.eng.cam.ac.uk/profiles/rwp12>), visited the Physical Acoustics Laboratory in OSCAR. He was introduced to OSCAR, with the Optics and Acoustics Labs as a focus. Prof. Prager will build an ultrasound lab at the Cambridge Nanjing Centre, and future collaboration with OSCAR is expected.



Prof. Prager, centre, with OSCAR staff

On 21 May, a team from a big data institution visited the Computational Health Informatics lab at OSCAR. The institution was set up by a Suzhou-based company, AA data, who has 10 years' experience in Chinese health care data integration. The institution and OSCAR discussed mutual interest in healthcare AI applications and potential collaboration opportunities.



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Visitors to OSCAR



On 29 May, a delegation from the Organization Department of Kunshan City (a city in southeast Jiangsu Province, neighbouring Suzhou) visited OSCAR, and received an introduction to the work here.



On 30 May, the National University of Singapore Research Institute's (NUSRI, Suzhou) admin team visited OSCAR and exchanged their experience and ideas in management, publicity, and operations with OSCAR's General Manager, Office Manager, and Finance Manager.

NUSRI was founded on 15 November 2010 in SIP with an official agreement sign-off ceremony between NUS and the Suzhou Industrial Park Administrative Committee (<http://en.nusri.cn/>).





Working at OSCAR

As an employee-friendly company, OSCAR always aims to make its working environment comfortable, diverse, and inclusive.

As more and more international employees join OSCAR, we are holding a range of activities that introduce employees to Chinese culture and traditional festivals.

In other news, the OSCAR gym was completed in May at the OSCAR Club, giving employees the opportunity to exercise and wind-down after the day's work.



Upcoming Events

OSCAR Open Day

9 am to 11 am

29 June 2019

Address: Building A, 388 Ruoshui Road,
Suzhou Industrial Park, Jiangsu, China

Theme: **OSCAR research briefing**

Please register by scanning the QR Code below





SIP News in May

SIP: A New Focal Point for Biomedicine Industry



Boasting over 1,200 biomedicine businesses which yield a total output value of RMB 80.3 billion each year, SIP is undoubtedly a new focal point for biomedicine industry in the country.

It is reported that three SIP-based biotech companies have gone public at Hong Kong Exchanges and Clearing Market (HKEx) since the HKEx amended its Main Board Listing Rules in

2017 to allow pre-revenue biotech companies to list on its Main Board, and 29 more have proved to be eligible for listing of the kind.

The achievements should be attributed first to SIP's integrated biomedicine ecosystem which includes not only over 1,000 upper-, middle- and lower-stream businesses, but also more than 500 research institutes and platforms and a host of investors that provide enough technical and capital support for the biomedicine businesses in the ecosystem.

Moreover, the achievements would not be made without the local authorities' considerate services such as policy incentives and subsidies for related projects, professionals and even their families.

SIP is planning to enhance support for biomedicine industry. It is predicted that, by 2020, it will be the home to 1,500 businesses engaged in the industry, with an annual output value exceeding RMB 100 billion.

Suzhou Daily,
May 17, 2019

http://www.sipac.gov.cn/english/news/201905/t20190518_1025350.htm



SIP News in May

Jiangsu Development Summit Parallel Event Held in Suzhou



The Suzhou leg of the 2nd Jiangsu Development Summit & Global Jiangsu Entrepreneurs Convention, an event that kicked off on May 20 in Nanjing, capital of East China's Jiangsu province, was held on May 21. The event gathered over 100 distinguished guests from home and abroad, including many who were born in Jiangsu and those who have attended schools or worked in the province.

Zhou Naixiang, member of the Standing Committee of CPC Jiangsu Committee and secretary of CPC Suzhou Committee, delivered a speech at the event, unveiling that the event is designed to offer the attendees a good chance to communicate and seek cooperation.

Several representatives of the Jiangsu-born attendees, including Zhang Xincheng, president of International Union for Conservation of Nature, Meng Liqiu, member of German National Academy of Sciences and famous Taiwan cartoonist Zhu Deyong, gave speeches at the event, sharing their memories of their hometown and offering suggestions for its future development.

The event also included a signing ceremony for 15 business cooperation projects, including two to be launched in SIP, and a tour around SIP where the guests learnt more about SIP's development over the past 25 years.

May 21, 2019

http://www.sipac.gov.cn/english/news/201905/t20190522_1026311.htm

