



Photo | James Qi

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## Vice President He Lianzhen and Dean Li Erping Visit Key Universities in Singapore for Global Cooperation

January 20th, 2020

Source: Office of Global Engagement of ZJU  
Translator: Lai Shuxian



Prof. He Lianzhen, Vice President of ZJU and Prof. Li Erping, Dean of ZJUI visited the National University of Singapore (NUS), Nanyang Technological University (NTU), Singapore University of Technology and Design (SUTD), and the Campus for Research Excellence and Technological Enterprise (CREATE) in January to build stronger academic collaboration and exchange between the two countries.

At the ZJU-SUTD cooperation management committee meeting, Prof. Li signed a memorandum of understanding that encourages more exchange between SUTD and ZJU for undergraduate research. Prof. Li also attended a Scientific Design Conference co-sponsored by ZJU and SUTD and presented a seminar on "The Research Challenges of Brain-like Chip Design for Electromagnetic Reliability".

During the visit to NTU, there was discussion of cooperation between NTU and ZJU on information systems and engineering. Prof. Li also introducing ZJUI and described ZJUI faculty opportunities.

The visit to NUS included the Campus for Research Excellence and Technological Enterprise (CREATE). Together with Prof. Hohn Thong, Chancellor of the NUS School of Electrical and Computer Engineering, Prof. Li discussed joint doctoral programs, collaborative research, and strategies for cultivating young experts. 

## ZJUI Online Course Evaluated by ZJU Leaders

February 25th, 2020

Translator: Chang Long



The institute started online classes on February 17, a week earlier than other ZJU campuses. Ren Shaobo, Secretary of the Party Committee of Zhejiang University, and Wu Zhaohui, President of Zhejiang University, came to the online teaching command center to learn about the new semester's online courses.

Among the online lectures evaluated by school leaders was the ZJUI course on biosensors. This advanced elective has been coordinated between the University of Illinois and the institute to demonstrate the capabilities of online instruction. It attracted praise from the Evaluation Group at the command center.

The biosensor course is an advanced interdisciplinary course prepared by Professor Brian T. Cunningham of UIUC, motivated by his scientific research and entrepreneurial experience. Prof. Cunningham has founded multiple bitech companies, and his work has been widely recognized. This semester, Prof. Hu Huan of ZJUI is co-teaching the online offering in Haining with Professor Cunningham

This course integrates principles and applications of sensors with background science in biology and chemistry. It aims to provide engineering students with solid knowledge of biosensors, lay the foundation for future innovation related to biosensors, encourage new ways of thinking, and inspire opportunities for further study. The core advantage of this course lies in the rigorous combination of theory and application. Many examples are drawn from drug screening and disease monitoring. Each student prepares a professional scientific research project application, including topic selection, background research, innovation highlights, feasibility demonstration, and research plan formulation. This experience will help students prepare to carry out scientific research and give them practice on how to write applications for projects in the future.

The biosensor course is intended for seniors and graduate students at ZJUI. Going forward, it is envisaged that the course will provide a development foundation for a planned multidisciplinary sensors course. The role of sensors in biology, medicine, contaminant monitoring, structural monitoring, intelligent infrastructure, mechanical integrity, motion control, agriculture, and many other fields presents opportunities for far-reaching exchanges and integration. 

## ABET Mock Accreditation Evaluates ZJUI Programs

December 20, 2019

Article: Zhou Yifu, Zhang Yi  
Photo: ZJUI staff



In December, two experts, Dr David Beasley and Dr John A. Orr, who have long served in various capacities in ABET (formerly the Accreditation Board of Engineering and Technology), joined UIUC's ABET experts, Prof. Michael Hirschi and Prof. Jenny Amos for an initial evaluation process of the ZJUI degree programs. UIUC leaders, including Executive Associate Dean Prof. Philippe Geubelle, Associate Dean Prof. Jonathan Makela, and Director of Academic Affairs for the UIUC-ZJU Partnership Prof. Umberto Ravaioli joined the team and carried out parallel discussions. The team carried out a comprehensive "mock" ABET visit, simulating most aspects of an accreditation visit likely to take place in 2021. The experts commended ZJUI's international style of engineering education and expressed confidence in ZJUI's future. The two experts reported that the ZJUI inspection was among their best visit experiences, and they anticipate ZJUI to become a top engineering college.

The experts attended lectures, reviewed program data, inspected ZJUI facilities and infrastructure, communicated with students, met with Heads of Department on the ZJU International Campus, and met with ZJUI faculty and staff. ZJUI's learning environment, innovative labs, and teamwork emphasis received high marks from the team.

The experts held workshops with ZJUI faculty and staff to discuss ABET's work and goals, train ZJUI on ABET's assessment criteria, and enhance preparations for the actual inspection visit. ABET emphasizes a results-oriented perspective, aiming at long-term outcomes that demonstrate high-impact engineering professionals. The ABET experts encouraged ZJUI to pay attention to students' development as individuals as well as to the acquisition of professional skills. The process is about continuous improvement of engineering education.

ABET is a globally recognized accreditation body, and its professional accreditation system has been a major pathway for improvement of engineering education. For a university to pass ABET's assessment means that it has demonstrated its ability to educate globally competent engineers. The ABET accreditation process continues to support innovation in engineering education. ABET is a highly regarded organization in the US and internationally, and is a primary external method used by UIUC and all recognized engineering programs to assess program quality. As a collaborative partner of UIUC, ZJUI incorporates ABET's accreditation into our system. 

## ZJUI 2019 Year-end meeting

December 21st, 2019

Article: Zhou Yifu, Zhang Yi  
Photo: Zhang Yi  
Translator: Chang Long



Zhejiang University-University of Illinois at Urbana-Champaign Institute (ZJUI) held its 2019 year-end meeting as classes ended in December. The meeting summarized the progress made in 2019 by ZJUI in teaching, research, and faculty development. The resolution of several key issues raised during the summer retreat meeting was discussed, and the meeting set up future development plans for the institute.

Dean Li gave a summary of the achievements of the past year and expressed his gratitude to the faculty and staff for their hard work. He presented the three research themes of the ZJU-UIUC research center, its co-leaders, and the development plan. He described a plan to establish a ZJU-UIUC-International Research Alliance of local industries. He issued letters of appointment to the faculty members who joined in the second half of 2019 and welcomed them.

Professor Philip Krein, Executive Dean of ZJUI, discussed 2019 results from four viewpoints: the Institute's profile, education and teaching, faculty recruiting, and research. Multidisciplinary courses are expanding. The collaboration between the two partner universities has deepened. For instance, cooperative doctoral and postdoctoral programs have been implemented and master's degree programs are nearing final agreement. The ZJU-UIUC Joint Research Center was officially established. Professor Krein expressed high expectations for the future development of ZJUI, with the hope that faculty from the two universities will strengthen exchanges, deepen research collaboration, and promote the development of multidisciplinary scientific research.

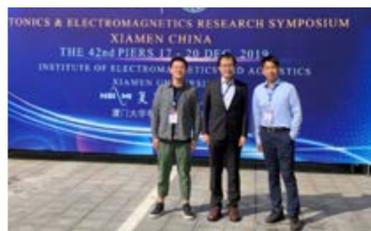
The Institute announced preparations for graduation ceremonies for the class of 2020.

At present, there are 518 undergraduate students, 48 doctoral students, 24 ZJUI local faculty members, and 21 staff including administrators, lab technicians, and tutors. In 2020, the first ZJUI students will graduate. We believe that these students, like ZJUI itself, will have a bright future. Going forward, we will contribute to the education of outstanding cross-disciplinary engineering talent, to the creation of a world-class engineering college, and to the "double first-class" initiative of Zhejiang University. 🇺🇸

## ZJUI students shine at the PIERS International Symposium

December 27th, 2019

Article: Tang Zhizhan,  
Feng Zhaoyang, Zhang Yi  
Photos: Tang Zhizhan, Feng  
Zhaoyang provided



ZJUI Professor Tan Shurun led a team of ZJUI students who participated in the 42nd Photonics & Electromagnetics Research Symposium (PIERS) in Xiamen in December. The student team included ZJUI juniors Ma Xiaoyu and Tang Zhizhan, who major in electrical engineering, and doctoral student Feng Zhaoyang. Ma Xiaoyu and Tang Zhizhan presented "An Improved Model for Soil Moisture Content Estimation from GNSS SNR Measurements." Feng Zhaoyang's paper, "Efficient Characterization of Topological Photonics Using the Broadband Green's Function", was selected from more than 1700 submissions as third prize among the best paper awards.

The two undergraduates were presenting results from the ZJUI Student Research Training Program. Their project, guided by Prof. Tan, introduced a new use of the Global Navigation Satellite System (GNSS) signals for soil moisture content and its vertical profile estimation. This offers a low-cost and accurate method for the future global soil moisture observation. Their paper developed a rigorous physical model for the observed GNSS signals that varies with soil moisture.

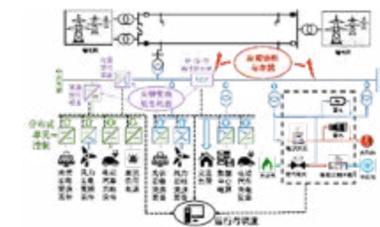
Feng's paper presented an innovative method to analyze wave interactions with periodic scatterers. Simple small identical objects when placed periodically with separation around the wavelength of interest interact with electromagnetic waves and lights strongly and lead to exotic wave phenomena. Only waves with special wavelengths can propagate in the structure, called photonic bands. In Feng's paper, the photonic bands of a special periodic structure composed of gyromagnetic scatterers are computed with an innovative new method, achieving high precision and improved efficiency. Gyromagnetic materials react to external DC magnetic fields to form non-diagonal tensor constitutive parameters. Such periodic structures are found to support unidirectional waves along its boundaries. This salient feature is related to the unique topology of the bands and is a subject that leads to the Nobel Prize in Physics in 2016 (<https://www.nobelprize.org/prizes/physics/2016/press-release/>). Feng's seminal work opens a new avenue for analyzing wave-functional periodic scatterer with complicated material properties. This work was advised by Prof. Tan Shurun.

The Photonics and Electromagnetics Research Symposium (PIERS), also known as Progress in Electromagnetics Research Symposium, provides an international forum for reporting progress and recent advances in electromagnetics, photonics, and applications. PIERS is sponsored by the Electromagnetics Academy. It has been held more than 40 times in cities around the world. 🇺🇸

## Prof. Ma Hao's Research Group Secures the NSFC-UKRI\_EPSRC Joint Grant

January 7th, 2020

Article: Li Chushan  
Photo: Li Chushan, Zhang Yi



A proposal on "Interactive Operation and Resilient Control to Support Power Electronics Based Smart Urban Energy Systems" was among successful bids announced in January by the National Natural Science Foundation of China (NSFC) under the NSFC-UKRI\_EPSRC joint research program. The project co-PIs are Vice Dean of ZJUI, Prof. Ma Hao on the China side, and Prof. Tim C. Green of Imperial College, London on the UK side. ZJUI Professor Li Chushan is one of the main participants. This project is a major international collaboration between the International Campus, Zhejiang University, and the College of Electrical Engineering, Zhejiang University.

This project supports a consortium that includes Zhejiang University, Imperial College London, Tsinghua University, Hefei University of Technology, and Cardiff University. Five applications were awarded.

Major changes are happening in energy systems. China is adding about 20 GW of wind generation capacity per year and has replaced all buses in several cities with electric buses. The UK has halved carbon emissions linked to electricity generation since 2012. As discussed in the proposal, the development of smart urban energy systems is key to achieving green and low-carbon urban development and promoting decarbonization and electrification of energy supply. Conventional urban distribution systems lack power flow control devices. The characteristics of a system with extensive power electronics are not yet understood. To address these issues, the project conducts collaborative research among five universities from China and Britain, aiming to solve challenging problems on interactive operation and resilient control. The intent is to support power electronics based intelligent urban systems.

Despite the differences between histories and geographies of cities in China and in the UK, the team found common challenges and identified a complementary set of research expertise. This project brings together experts in power electronics, optimization, control, and fault management. The partners will build deeper collaboration and develop theories and solutions to further support the development of urban energy systems.

Prof. Hao Ma, PI from China, is Vice Dean of ZJU-UIUC Institute, Zhejiang University. His research interests include advanced control in power electronics, wireless power transfer, and especially in fault diagnosis of power electronic circuits and systems, and application of power electronics. He serves as Director of the Academic Committee of the China Power Supply Society, Vice President and Secretary-general of the Power Supply Society of Zhejiang Province, Associate Editor of the Journal of Power Electronics (JPE), and Associate Editor of the IEEE Journal of Emerging and Selected Topics in Power Electronics.

Prof. Tim C. Green, FEng, FIEE, PI from the UK, is Co-Director of Imperial College's Energy Futures Lab, a pan-university hub promoting interdisciplinary research. He has led major RCUK collaborative research programs in energy networks. He has extensive experience with China, such as through NSFC-EPSC collaboration and as an Honorary Visiting Professor at both Tsinghua and Zhejiang Universities. 🇺🇸

ZJUI research assistant, Mr Zhou Sicheng, presented "High-strain Rate Compressive Tests on Glubam: Preliminary Results" at the 2019 International Conference on Shock & Impact Loads on Structures in December. The results validate bamboo technology for impact-resistant structures. The paper received one of five Highly Commended Paper Awards out of more than one hundred papers. This paper was supervised by ZJUI Professors Cristoforo Demartino and Yan Xiao.

The International Conference on Shock & Impact Loads on Structures is the largest global conference on shock, impact, and extreme load design for structures. Glubam is a bamboo based laminated composite, invented by Prof. Xiao, that uses this fast-growing renewable bio resource for sustainable construction. The paper reported tests of impact stress-strain behavior of Glubam. 🇺🇸

## ZJUI Research Assistant Receives Award at the International Conference on Shock & Impact Loads on Structures

December 31st, 2019

Article: James Qi  
Photo: Zhou Sicheng Provided



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