

# Newsletter

ZJU-UIUC INSTITUTE | 2023 Spring | Volume 23

2023年5月



## FUTURE READY: ZJUI Engineering Symposium & Juanhu International Academician Lecture Hall were held May 12, 2023

Date:15/05/2023  
Article:Zhang Yi Photo:Hailan Culture



On May 12th, the "Future Ready: ZJUI Engineering Symposium" & Juanhu International Academician Lecture Hall were co-hosted by Zhejiang University-University of Illinois Urbana-Champaign Institute and Haining Juanhu Lake International Science Park at International Campus, Zhejiang University, to further implement the strategic deployment of the CPC's 19th National Congress on the coordinated promotion of education, science and technology, talents, and to build a typical model of international cooperative education to promote regional development, as well as to promote the integrated innovation and development of the global engineering field. With the theme of "Engineering Shaping the Future," the symposium focuses on sustainable smart cities, and cutting-edge technologies in artificial intelligence. Representatives from academia and industry in the global engineering and technology field attended and exchanged ideas around the theme. The symposium consists of three parts: the opening ceremony, plenary talks of academicians, and technical sessions. The goal was to promote engineering technology cooperation and innovation to enhance industrial and social development, cultivate new driving forces for future technological development, and build a new ecosystem for the integrated and innovative development of the global engineering field.

Academicians Fu Zhihuan, Lu Chunfang and Chen Xiaohong of the Chinese Academy of Engineering, Dr. Chen Gan, Deputy Chief Engineer of Dongfeng Motor Corporation, Prof. He Lianzhen, Vice President of Zhejiang University and Secretary of the CPC of International Campus, ZJU, Cao Guoliang, Secretary of the Haining Municipal Party Committee, Qu LiJuan, Executive Deputy Secretary of the CPC of International Campus, ZJU, Vice Dean leaders of relevant departments of Zhejiang Province, Jiaying City, Haining City, leaders of relevant departments of Zhejiang University, leaders of the International Campus, and academic and industry representatives from the engineering and technology fields attended the symposium. Prof. Lee Der-Hong, Academician of the Singapore Academy of Engineering, and Dean of ZJUI, presided over the symposium.

At the symposium, the *Juanhu International Academician Lecture Hall* officially launched, which will serve as an important carrier for promoting theories, a host for academic seminars, talent cultivation, scientific research, and a bright business card for the construction of International Collaborative Education Model. Led by Academician Lee Der-Hong, the *Smart Urban Future Laboratory* officially launched. To meet the major needs of the country and Zhejiang Province, the Smart Urban Future Laboratory for Smart Integrated Multi-Modal Mobility introduces international, advanced concepts and practices, carries out systematic and cutting-edge research on fundamental theories, key technologies, and demonstrative applications around the "integrated multi-modal transportation theory and key technologies". The *Smart Urban Future Laboratory* will construct an international team and platform, leading integrated transportation and intelligent logistics research. The symposium also held the unveiling ceremonies of the Sustainable Smart Livable Cities Alliance and Zhejiang International Science and Technology Collaboration Centre for Sustainable Smart Livable Cities, the appointment ceremony of the Talent Cultivation Steering Committee Members of the Zhejiang University-University of Illinois Urbana-Champaign Institute, Academic Affairs Committee Members of the Smart Urban Future Laboratory, and Haining Juanhu Lake Science and Technology Innovation Area consultants, the launch ceremony of Haining Talents Month, and the signing ceremony of Juanhu Lake International Science Park -ZJUI-Dongfeng Motor Research Institute and ZJUI-Dongfeng Motor Research Center.

The symposium also held two technical sessions: "Smart Future - Technologies in Artificial Intelligence" and "Green Future-Sustainable Smart Cities," which were respectively presided over by Prof. Wang Hongwei, Vice Dean of ZJUI, and Assist Prof. Simon Hu, Assistant Dean of ZJUI.

After the main forum, academicians and guests jointly experienced a self-driving minibus with an On-demand Mobility System and visited the Smart Urban Future Laboratory.



CHEN Jianye is a 24' mechanical engineering undergraduate of ZJUI. In the "Ying Jianke Cup" 15th National Structure Design Contest for College Students, the "Dengfeng Team" formed by CHEN Jianye and his two peers, CHEN Yuying and YUAN Meng from the College of Civil Engineering and Architecture, ZJU. The three students stood out among the 111 teams that qualified for the national contest through model making, loading, and other stages, finally winning the first prize in the National Structure Design Contest for College Students, and receiving the laurel crown for Zhejiang University!

### Overcoming obstacles along the way

In 2018, CHEN Jianye, who was still in his first year of senior high school, started his relationship with structure design contest with his passion and dream. At that time, under the leadership of a senior, he participated in the "Dengfeng Cup" National Structure Design Contest for Secondary School Students and won the second prize. Although this was already a very good achievement, CHEN regretted that he did not win the first prize.

In 2021, CHEN Jianye is a freshman in ZJUI. After the preliminary selection of Zhejiang University's school contest, he teamed up with XIN Yu, a civil engineering student in the same year with him at ZJUI, and JIN Chuhao from the College of Civil Engineering and Architecture and participated in the Zhejiang Structure Design Contest for College Students as one of the three representative teams of Zhejiang University and won the second prize. CHEN Jianye recalled, "We all know that most tower structures require more workmanship and are more adventurous, but innovation is in the genes of ZJUI students, and we wanted to break through by insisting on innovation." In addition, through participating in the contest and gaining experience, he also observed carefully and studied intently, noting that the shortcomings of ZJU is in the piece of component section and node design in the structure contest. He speculated that this is also the reason why ZJU has not been able to achieve good results in many contests.

After accumulating several experiences, he cherished this national contest, which was also the last opportunity he set for himself to realize his dream. As the team leader, he made up his mind to grasp this opportunity firmly and gave his best efforts. In response to the shortcomings of ZJU's structure design team in cross-sectional design, they determined the form of dense and sparse spacing between the main body of the structure, and optimized the design of the cable distribution, the eaves layer, and the top of the tower. For this reason, CHEN Jianye's team made more than 30 models in total, and they not only stayed at school during the whole summer vacation to perfect the model, but also insisted on testing for more than half a year until the eve of the contest in March. As the leader of the team, CHEN Jianye took the lead in the contest, actively cooperated with his teammates, and overcame difficulties. During this period, he played his strengths



Date:06/04/2023 Article:ZJUI Student Reporters Photo:From interviewee

and used the secondary development of SAP2000 to analyze 350,000 loading conditions, which laid a solid foundation for the contest. With their determination and perseverance, they won the first prize of the National Structure Design Contest for College Students.

### Adhering to love with the original intention being unchanged

As a student of mechanical engineering, CHEN Jianye chose to participate in this contest, which traditionally belongs to students of civil engineering, precisely because of his love for structure design and his years of uninterrupted dedication to it. Although he chose mechanical engineering after the college entrance exams, the foundation he gained in high school and the cross-disciplinary learning experience of research training under the guidance of Assist Prof. Yasutaka Narazaki, faculty member in civil engineering of ZJUI, made him steadfastly choose to take on the structure design contest again.

The barriers between programs are broken by "passion," and many innovations arise from interdisciplinary fields. How can CHEN, who loves structure design, be hindered in his exploration due to a popular concept?

Perhaps it is this unconquerable heart and irresistible love for structure that has sustained him through his long journey of contest. CHEN Jianye believes that in the pursuit of his passion, he is aggressive and always pursues the "best," but as long as he puts in 100% effort, he becomes very calm when facing the results.

Despite the hardships of the contest process, he believes that it is very worthwhile to do everything possible to study what he loves.

### Innovating continuously to write the future

After receiving the national award, CHEN Jianye also shared his experience in the contest with his junior schoolmates, providing them with guidance for their structure design contest. He said, "I hope they can do the work they really love, don't be afraid of setbacks, and be willing to try and make mistakes." He also advised students to train their innovation ability in addition to their professional studies instead of just pursuing the GPA and neglecting the exploration in other fields. "Engineering learning cannot ossify one's own thinking, and we must dare to innovate in order to creating the brilliant future of Zhejiang University."

Looking back on the preparation process, CHEN Jianye expressed his gratitude to his instructors for their careful guidance. Researcher WAN Huaping and Assoc Prof. ZOU Daoqin from the College of Civil Engineering and Architecture, as well as Assist Prof. Cristoforo Demartino from ZJUI, gave him efficient guidance and great support in the preparation for the contests.



## Inspiring Lectures by CHEN Bining and WANG Zhitao, Two Experts from the Industry

Date: 15/03/2023 Photo:ZHANG Yi, JIN Xiufang



Entrepreneurship: A Journey Full of Self-exploration by Chen



Carry Out Global Business Operation for Patents by Wang



## Prof. Der-Hong LEE and Prof. XIAO Yan were selected into the 2022 "Highly Cited Chinese Researchers" list by Elsevier

Date: 29/03/2023 Article & Photo: The official website of Elsevier

On March 28th, Elsevier, a global information analysis and academic literature publishing company, released the 2022 "Highly Cited Chinese Researchers" list. Zhejiang University ranked second among domestic universities with 204 people on the list. Among them, Prof. Der-Hong LEE and Prof. XIAO Yan, from Zhejiang University-University of Illinois Urbana Champaign (ZJUI), were selected, reflecting the unanimous recognition of ZJUI's research achievements in relevant fields by international peers and the gradual manifestation of its academic influence.

It is reported that there are 5216 scholars on the list, including 504 universities, enterprises, and research institutions, covering 84 first-level disciplines in 10 disciplines of the Ministry of Education. Only 58 people from the transportation engineering discipline to which Fellow Der-Hong LEE affiliates were selected this time, while 107 people from the civil engineering discipline to which Prof. XIAO Yan affiliates were selected.

## Awards for six semesters! Two freshmen were selected as the Winner of UIUC Rhetoric Student Essay Contest

Date: 31/03/2023 Article: YU Mengyue Photo: From interviewees



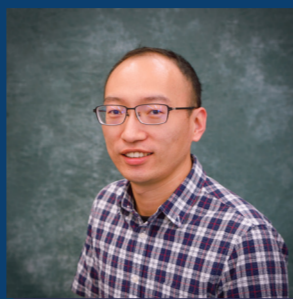
Recently, under the guidance and recommendation of ZJUUI Adjunct Faculty Professor Ryan Flanagan and Professor Mary Lucille Hays, Mr. SHEN Zhuoyang ('27, Civil and Environmental Engineering) and Mr. YU Ziheng, ('27, Computer Engineering), participated in the UIUC Rhetoric Student Essay Contest with native speakers and were selected as winners of the contest with their unique essay topics, rigorous logical argumentation, and compact essay structure. "The award of the UIUC Rhetoric Student Essay Contest was

actually a surprise to me, and I think it was mainly due to Prof. Hays's writing class." Mr. SHEN Zhuoyang shared with us. "I feel like Prof. Hays's classroom is like a happy family. She not only taught us many writing principles and skills, but also told us the importance of academic integrity and copyright awareness, making our writing standardized." His instructor, Prof. Mary Lucille Hays praised SHEN Zhuoyang as one of the most talented and dedicated students in RHET 101. Therefore, when she heard the good news, she expressed great pleasure, but was not surprised. "SHEN Zhuoyang chose the traditional Chinese culture carnival as the topic. His description is exquisite and vivid, making every scene of traditional culture performances vivid. What impressed me most was the Chinese drum performances. From between his lines, I felt the tremendous energy unleashed by each stroke of the drumstick and drum surface, and saw the enthusiastic, youthful and sunny drummers struggling to beat the drum."

Similarly, another award-winning student, Mr. YU Ziheng, also expressed his sincere gratitude to the valuable experience gained from the writing course. "I am grateful for the rhetoric course for teaching me so many writing methods and techniques, but I think this course goes beyond that. It also teaches us many practical skills, such as finding authentic images and papers, and quoting and reporting them in the correct format to prevent plagiarism or infringement. In addition, it has also improved our thinking logic with shortcomings in writing being made up." Mr. YU Ziheng's tutor, Dr. Ryan Flanagan also expressed his joy at his award. "Ziheng's article discusses how to save our valuable and limited power resources by carefully observing excessive lighting in campus buildings. This is very original and urgent, and I hope to see our campus consider his proposals and take corresponding actions."

## Welcome on board

**MENG, Xiangming**  
Assistant Professor



Dr. Xiangming Meng joined the ZJUUI as a tenure-track assistant professor from March 2023. Before that, he was a project assistant professor in The University of Tokyo, Japan from April 2022 to March 2023. He obtained his Ph.D. in information and communication engineering from Tsinghua University in 2016 and B.Eng in communication engineering from Xidian University in 2011. He was a senior research engineer at Huawei Technologies Co., Ltd. from 2016 to 2019. After that, he worked as a postdoctoral researcher in the Approximate Bayesian Inference team of RIKEN Advanced Intelligent Project (AIP), Japan from 2019 to 2020, and a postdoctoral researcher in the Department of Physics, The University of Tokyo, Japan from 2020 to 2022, respectively. His research works have been published in top journals and conferences such as IEEE JSAC, IEEE SPL, NeurIPS, ICML, ICLR, AISTATS, etc. He has been serving as the reviewer for top journals and conferences, including Statistics and Computing, IEEE TCOM, NeurIPS, ICML, ICLR, CVPR, AAAI, AISTATS, etc.

Research Interests:  
Intersection of machine learning, information theory, signal processing, and statistical mechanics

## Donation Ceremony of Eaton (China) Investment Co., Ltd. to ZJU Education Foundation and Unveiling Ceremony of Zhejiang Provincial Practical Education Base were Successfully Held

Date: 23/05/2023 Article: Li Chushan, Liu Bowen, Yao Yinan Photo: Zhang Yi

On May 18, the donation ceremony of Eaton (China) Investment Co., Ltd. to Zhejiang University Education Foundation and the unveiling ceremony of Zhejiang Provincial University Students' Off-campus Practical Education Base were Successfully Held at the International Campus, Zhejiang University. Mr. Yang Bo, President of Eaton Vehicle Group and Vehicle Electrification Business in Asia Pacific, Mr. Antonio, Global Technical Director of Eaton Research Institute, Mr. Luo Cheng, Head of Eaton Research Institute, China, Mr. Chen Zhuoya, Head of Eaton Chinese Government Relations, Mr. Ye Hong, Young Talent Development Manager of Eaton China and North Asia and Mr. Zhou Yifu, Director of the Office of Planning and Advancement of International Campus Zhejiang University, Mr. Xu Xiaozhong, Deputy Director of the Office

of Planning and Advancement of International Campus, Mr. Ma Yuguang, Director of the Office of Student Affairs of International Campus, Prof. Ma Hao, Vice President of ZJUUI, and representatives of relevant faculty members and students, attended the event. The ceremony was hosted by Mr. Wu Hang, Vice Dean of the Residential College, International Campus.

The donation project will be used to support the educational development, including the establishment of academic scholarships, internship and practice scholarships, support for the "Eaton Cup" electronic design course competition, the iCareer series of activities, and activities related to innovation and entrepreneurship.



## The research team of Prof. CHEN Xiqun, Vice Dean of ZJUUI, released the latest research findings on Patterns

Date: 25/04/2023  
Article & Photo: Cell Press Wechat



Recently, Prof. CHEN Xiqun, Vice Dean of ZJUUI and Director of the Institute of Intelligent Transportation Systems, Zhejiang University, published a research paper titled "Understanding common human driving semantics for autonomous vehicles" in the Cell Press Journal Patterns. By analyzing and analogizing the neural mechanisms behind human driving behavior, a semantic expression model of common human driving behavior was established, which provides bionics basis and method support for the design of human-like autonomous driving system.

### Research Highlights

- Reveal human auditory cortex activation during driving
- Discover the hierarchical structure of human driving understanding
- Propose a neural-informed semantics-driven driving understanding model
- Address long-term contextual dependency of driving behaviors

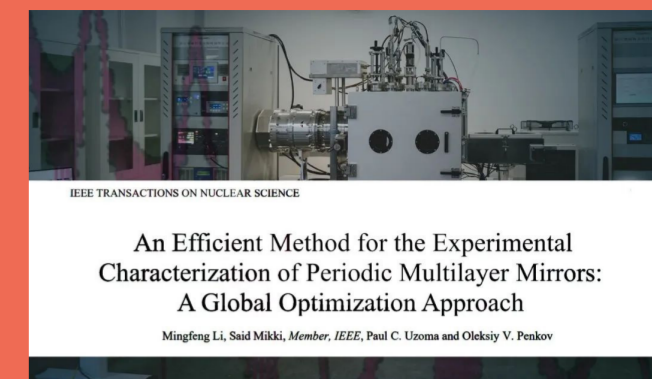
**Article title:** Understanding common human driving semantics for autonomous vehicles  
**Article link:** [https://www.cell.com/patterns/fulltext/S2666-3899\(23\)00070-3](https://www.cell.com/patterns/fulltext/S2666-3899(23)00070-3)  
**DOI:** <https://doi.org/10.1016/j.patter.2023.100730>

## Research Team of ZJUUI Assist Prof. HU Huan Developed Complementary Vertically Coupled Plasmonic Structures for Surface-Enhanced Infrared Absorption

Date: 13/03/2023  
Article & Photo: Research Team of ZJUUI HU Huan  
Translator: LAI Shuxian, YU Mengyue

To increase the peak for IR absorption in molecules, surface-enhanced infrared absorption (SEIRA) based on plasmon resonances is commonly used. By utilizing the strong coupling effect between free electrons in metals and electric fields, plasmon structures can concentrate the light field in the subwavelength region, which in turn significantly intensify the local electric field. However, due to the narrow range of plasmon structure (within the submicron and nanometer range), high-resolution nanolithography techniques, such as electron-beam lithography, are needed. Such technologies require state-of-the-art equipment that cost million dollars. Such high cost subsequently limits the scale and affordability of producing nanostructures, and therefore creates a challenge for more widespread, practical usage of SEIRA.

To address this bottleneck issue, ZJUUI's researcher, Assist Prof. HU Huan, together with Prof. XU Yang (from School of Micro-Nano Electronics) and Prof. MA Yungui (from College of Optical Science and Engineering) led a research team to develop a large-scale and low-cost manufacturing method for IR spectroscopy by using a more efficient vertical-coupled nano-structure. Their research work has recently been published on Sensors and Actuators B: Chemical, a well-known international journal in the field of chemical transducers. The research article is published with ZJUUI's postgraduate WU Shaoxing as the first author and Assist Prof. HU Huan as the sole corresponding author.



## LI Mingfeng, a master student in Prof. Penkov's research group of ZJUUI, published the paper in authoritative journals in the field of nuclear science and innovated methods of material structure analysis

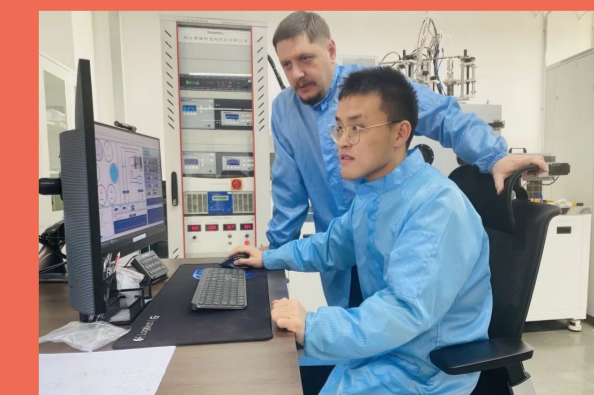
Date: 21/03/2023  
Article & Photo: Oleksiy Penkov's Research Group

Recently, the IEEE Transactions on Nuclear Science (TNS) published a cross-disciplinary research achievement from our institute on the global optimization fitting of X-ray reflectivity curves. The first author of the paper is LI Mingfeng, a master's student in mechanical engineering at ZJUUI from the class of 2021, and the sole corresponding author is Associate Prof. Oleksiy Penkov, a researcher at ZJUUI. Other authors include Associate Prof. Said Mikki, a researcher at ZJUUI, and Paul C. Uzoma, a postdoctoral researcher at ZJUUI. IEEE TNS is a journal of the IEEE Nuclear and Plasma Sciences Society, and according to the JCR impact factor, it has consistently ranked in the top five in the field of nuclear science and technology.

This research significantly improves the efficiency of fitting X-ray reflectivity (XRR) of periodic multilayer, enabling rapid and accurate analysis of multilayer films containing hundreds of material layers and obtaining parameters such as thickness, roughness, and density for each layer. Compared to time-consuming and expensive techniques such as TEM and SEM, this fitting method can quickly analyze material structures to guide researchers in their subsequent preparation work, aiming to promote innovation and development in the thin-film materials industry.

This paper, co-supervised by Associate Prof. Oleksiy Penkov and Associate Prof. Said Mikki, is a result of interdisciplinary research. Associate Prof. Said Mikki is an expert in the field of particle swarm algorithm applications, and in this paper, he mainly guided the optimization problem of particle swarm algorithms in the X-ray domain. Associate Prof. Oleksiy Penkov's research fields involve materials, physics, mechanics, and software development, and in this paper, he mainly guided the experimental process and the development of the computational software. LI Mingfeng said, "Since I started studying here, I have been deeply influenced by the interdisciplinary research of the research group and ZJUUI. I have been continuously learning new knowledge from different fields, experiencing the joy of scientific research in interdisciplinary exploration, which has prompted me to transfer from the master program to PhD program, in order to continue on the path of scientific research." Now LI Mingfeng has completed his transfer process and has started pursuing his doctoral degree.

\*Article Link <https://ieeexplore.ieee.org/document/10066334>



▲ LI Mingfeng operated the advanced deposition system under the guidance of Associate Prof. Oleksiy Penkov



## The International Engineering Cross Innovation Teaching Labs of ZJUUI were approved as Provincial Key Construction Teaching Demonstration Labs

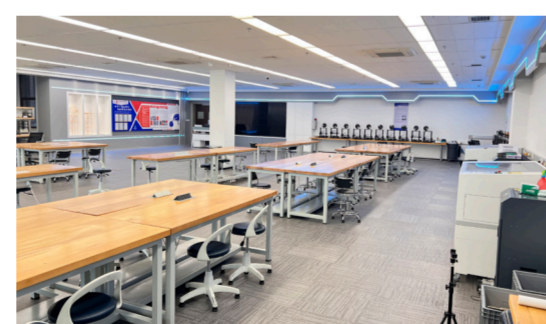
Date: 10/03/2023 Article: Zhang Shilei, Xie Qingbing

Recently, the Department of Education of Zhejiang Province announced the list of Provincial Key Construction Teaching Demonstration Labs and Provincial Off-campus Practical Education Bases for General Colleges and Universities in the "14th Five-Year Plan." Seven teaching labs of Zhejiang University were selected, and the International Engineering Cross Innovation Teaching Labs (hereinafter referred to as the "Labs") of Zhejiang University-University of Illinois Urbana-Champaign (ZJUUI) were approved. In the experimental teaching, the labs pay attention to the innovation consciousness and engineering interdisciplinary, cultivate innovative students who can face the hot engineering fields of the future society with interdisciplinary and multidisciplinary knowledge background.

Since its establishment, the labs have built 33 teaching laboratories with an area of about 5500 m<sup>2</sup> and complete experimental supporting facilities. At present, they have more than 2000 experimental teaching equipment with a value of more than 50 million yuan. The instrument configuration conforms to the mainstream direction of relevant disciplines, and a variety of instrument resource sharing platforms have been established to adapt to and meet the international first-class teaching and research level. The software and hardware configuration of the labs can fully meet the needs of carrying out

innovative research and cultivating high-level students. The labs offer about 30 experimental courses and 241 experimental projects every year, and construct a three-stage, project-oriented student training model from basic experiments, comprehensive experiments to innovative experiments. To promote the vigorous development of ZJUUI students' extracurricular scientific and technological innovation activities, the labs actively expand its service functions, implement the laboratory opening system, and help students improve their practical ability.

ZJUUI will take this opportunity to strengthen the construction of the teaching labs, further clarify the construction ideas, improve the operation and management mechanism, promote the reform of experimental teaching, improve the academic achievements and service level of members of the labs, and will exhibit the role of the provincial teaching demonstration labs. In the future, the labs will focus on the "14th Five-Year Plan," make full efforts to promote and implement, ensure the completion of all the work of the teaching labs in a high standard, high level, and high quality, and contribute to constructing International Collaborative Education Model.



浙江省普通本科高校“十四五”省级重点建设实验教学示范中心建设名单

序号	学校	中心名称	中心负责人
1	浙江大学	海洋实验教学中心	瞿建章
2	浙江大学	体育实验教学中心	王峰
3	浙江大学	国际工程交叉创新实验教学中心	马楠
4	浙江大学	建筑与城规技术科学实验教学中心	吴津东
5	浙江大学	航空航天实验教学中心	王高峰
6	浙江大学	国际生物医学实验教学中心	徐素宏
7	浙江大学	艺术与考古实验教学中心	王小松
8	西湖大学	生物基础实验教学中心	霍兴
9	中国美术学院	数字虚拟技术联合实验室	董宇君
10	中国美术学院	科技融合交叉创新实验教学示范中心	于展

# NewsLetter

浙江大学伊利诺伊大学厄巴纳香槟校区联合学院 | 2023春季刊 | 第23期 | 2023年5月



## 工程创新，塑造未来 ZJUI未来大会 暨第一期鹊湖国际 院士大讲堂顺利举办

时间: 15/05/2023  
文: 张旖 图: 海蓝文化



5月12日,为进一步贯彻落实党的二十大关于教育科技人才“三位一体”统筹推进的战略部署,打造国际合作教育促进区域发展的典型样板,促进全球工程领域的融合创新发展,由浙江大学伊利诺伊大学厄巴纳香槟校区联合学院(ZJUI)和海宁鹊湖国际科技城主办的2023年ZJUI未来大会暨第一期鹊湖国际院士大讲堂在浙江大学国际联合学院(海宁国际校区)隆重举行。大会以“工程创新塑造人类未来”为主题,由开幕式、院士主旨报告和分论坛三个环节组成,聚焦人工智能前沿技术、可持续智慧城市等领域,汇聚全球工程科技领域学术界和产业界代表,旨在推动工程科技合作与创新,促进产业、人才和经济社会发展,培育未来科技发展新动能,为国际化工程人才培养构筑新生态。

中国工程院院士傅志寰,中国工程院院士卢春房,中国工程院院士、湖南工商大学党委书记陈晓红,东风汽车集团副总工程师陈赣,浙江大学副校长、国际联合学院(海宁国际校区)党委书记何莲珍,海宁市委书记曹国良,国际联合学院(海宁国际校区)党委常务副书记、副院长屈利娟,浙江省、嘉兴市、海宁市相关部门领导,浙江大学相关部门领导,国际校区领导,以及工程科技领域学术界和产业界专家代表等出席,新加坡工程院院士、ZJUI院长李德斌主持大会。

何莲珍在致辞中指出,浙江大学一直秉持“求是创新”精神,积极变革科学研究范式,加速科学技术和经济社会发展相互渗透融合,也致力于以工程科技创新培育经济增长和社会发展的新动能。国际校区营造以我为主、中西交融的国际合作办学生态,正以国际合作教育样板区建设为牵引,打造高能级科创枢纽,建设在地国际化教育样板。此次大会的召开,也将探索产学研深度融合新模式,助力实现高水平科技自立自强、塑造人类未来、造福人类生活。

会上,鹊湖国际院士大讲堂正式启动,将作为开展理论宣讲、学术研讨、人才培养、科研攻关的重要载体,成为国际合作教育样板区建设的亮丽名片。由李德斌院士牵头,带领团队面向国家与浙江省重大需求,引入国际先进理念与做法,围绕“综合交通一体化协同理论与关键技术”展开基础理论、关键技术与示范应用研究的光数实验室正式开幕,将打造国际领先的综合交通和智慧物流科研团队与平台。会上还举行了可持续智慧宜居城市学科联盟、浙江省可持续智慧宜居城市国际科技合作基地的揭牌仪式和ZJUI人才培养指导委员会、光数实验室学术委员会委员、鹊湖科创湖区顾问聘任仪式,海宁“潮城英才月”发布,举行鹊湖科技城、ZJUI、东风悦享三方共建光数-悦享未来出行技术研究院签约和ZJUI-东风悦享研究中心签约。

未来大会还设有“智慧未来——人工智能前沿技术”“绿色未来——可持续智慧城市”两个分论坛,分别由ZJUI副院长王宏伟、ZJUI院长助理胡勇主持。

在“智慧未来——人工智能前沿技术”分论坛中,阿里云智能副总裁城市大脑首席科学家张磊,英国朴茨茅斯大学机器学习和机器人方向教授、欧盟重点项目首席科学家璐兆杰,内容科技独角兽特赞联合创始人、首席技术官王喆,沛岱汽车创始人、董事长曹鹏,ZJUI研究员、助理教授杨景量等嘉宾围绕产业AI关键技术、视线跟踪、生成式内容、自动驾驶仿真、机器人技术等内容作了精彩报告。

在“绿色未来——可持续智慧城市”分论坛中,东风汽车公司技术中心首席总工程师、东风悦享科技有限公司首席科学家陈赣,中南大学交通工程二级教授、智慧交通湖南省重点实验室主任黄合来,浙江中控信息产业股份有限公司高级副总裁、总工程师张伟,上海交通大学教授金建钢,浙江大学智能交通研究所所长、ZJUI副院长陈喜群等嘉宾围绕面向未来城市的地面车辆交通解决方案、智能网联交通安全、数字道路技术与应用、公共交通枢纽的共乘拼车调度优化、网约共享出行管理等内容作了精彩报告。与会嘉宾学者通过深度交流,探讨研究进展和发展趋势,凝心聚力擘画未来。

主论坛后,院士嘉宾一同体验搭载了社区化高通达自主出行系统的无人驾驶小巴士,参观光数实验室。



陈建业, ZJUI2020级机械工程专业本科生。在“盈建科杯”第十五届全国大学生结构设计竞赛中,他作为队长与建工学院陈雨晴、袁梦同学组成的“登峰队”,经过模型制作、加载等环节,在获得全国赛参赛资格的111支队伍中脱颖而出,最终获得全国大学生结构设计竞赛一等奖的佳绩,为浙江大学捧回桂冠!

### 克破阻碍,一路走来

2018年,还在念高一的陈建业就怀着热血,循着梦想,开始了他与结构设计竞赛的缘分。那时的他,在一名学长的带领下,参加了“登峰杯”全国中学生结构设计比赛,并取得了全国二等奖的好成绩。尽管这已经是一个非常不错的成绩,但陈建业却为与一等奖的失之交臂而心生遗憾。

2021年,大一的陈建业经过浙江大学校赛初赛后,与ZJUI同年级土木学子辛羽,建工学院的金楚皓组队,作为浙大的三个代表队之一参加了浙江省大学生结构设计竞赛并获得二等奖。陈建业回忆说,“我们都知道桅杆塔结构对做工要求更高,也更冒险,但创新是ZJUI学子的基因,我们想要突破,坚持创新”。此外,通过参加比赛积累经验,他也仔细观察,潜心研究,注意到了浙大在结构赛中构件截面和节点设计这一块存在的短板。他推测这也是浙大在多次比赛中都没能取得很好成绩的原因。

积累了几次的参赛经验后,这次的国赛,他倍加珍惜,也是他给自己设定的最后一次参赛“圆梦”机会。作为队长,他全力以赴,暗下决心一定牢牢把握这次机会。针对浙大结构设计团队在截面上的短板,他们在方案构思上确定了结构主体层间间距下密上疏的形式,并对拉索分布、挑檐层和塔顶进行了多项优化设计。为此,陈建业的队伍一共做了30多个模型,从暑假开始,不仅整个假期都待在学校完善模型,一直到三月份比赛前夕,半年多的时间里都步履不停的在坚持测试。在比赛历程中,作为队长,陈建业勇挑重担,首当其冲,积极团队协作,攻坚克难。期间,他发挥所长,利用SAP2000的二次开发,进行了35万种加载工况的分析,为比赛夯实了基础。也正是凭借这样克服重重阻碍的决心和百折不挠的坚持,他们获得了此次全国大学生结构设计竞赛一等奖的佳绩,圆梦国赛。

### 坚守热爱,初心不改

作为一名机械工程专业的学生,陈建业之所以会选择参加这项在传统意义上属于土木专业学生的竞赛,正是源于他对结构设计的热爱及多年来为之不间断的付出。尽管高考时选择了机械工程专业,但高中打下的基础和ZJUI土木方向教师Yasutaka Narazaki指导下进行科研训练的交叉学习经历,让他坚定不移的选择再



## ZJUI少年说 陈建业: 不负热爱, 同行同在 勇夺全国大学生结构设计竞赛一等奖!

时间: 06/04/2023 文: ZJUI品宣中心学生记者 图: 受访者提供

次向结构设计竞赛发起挑战。

专业的壁垒为“热爱”所破,不少创新都产生于学科交叉领域,热爱结构设计的陈建业又怎能因为一个大众观念而禁锢他探索的脚步?

或许是这份不服输的心,以及他心中对结构从未消散的热爱之火,支撑着他走过漫长的竞赛历程。陈建业认为,在追求自己热爱事物的过程中,他是激进的,始终追求着“最好”,但只要付出了百分百的努力,面对结果的他,反而会变得很“佛系”。

尽管竞赛过程有一些艰苦,但他认为,通过实践竭尽所能的去钻研所热爱的事物是非常值得的。

### 创新不断, 续写未来

在拿到国奖后,陈建业也倾囊相授,将自己参赛的经验分享给学弟学妹们,为他们的结构设计比赛提供指导工作。他说,“希望学弟学妹们能够做自己真正热爱的工作,不要害怕挫折,要敢于试错。”他也建议同学们在学习专业课程之余,多训练自己的创新能力,而不要一味追求绩点,忽略了其他领域的探索学习,“工程学习不能僵化自己的思维,要敢于创新,才能续写浙大的辉煌未来。”

回首备赛过程,陈建业同学表示,非常感谢老师们的悉心指导,建工学院的万华平、邹道勤老师,以及ZJUI的Cristoforo Demartino老师等都为他历次备赛给予了高效的指导和莫大的支持。

5年时光 终如愿以偿 抱得国一等奖而归  
陈建业在他逐梦国奖经历中  
始终循着自己的兴趣  
不遗余力,勇攀高峰  
从高中到大学,他与结构设计  
一路同行  
不负热爱,与之同在



## 创新赋能 筑基未来 王志涛、陈碧凝 两位业界专家走进ZJUI

时间: 15/03/2023 图: 张旖、金秀坊



陈碧凝: 创业,一段充满自我探索的旅程



王志涛: 针对专利开展全球化商业运营



## 喜报 | 浙江大学ZJUI2位教授 入选2022爱思唯尔“中国高被引学者”!

时间: 29/03/2023 图文: 爱思唯尔官网

3月28日,全球性信息分析和学术文献出版公司爱思唯尔(Elsevier)发布了2022“中国高被引学者”(Highly Cited Chinese Researchers)榜单。浙江大学以204人上榜,位列国内高校第二。其中,浙江大学伊利诺伊大学厄巴纳香槟校区联合学院(ZJUI)李德斌、肖岩2位教授入选,体现了ZJUI相关领域科研成果获得国际同行一致认可,学术影响力逐步彰显。

据悉,此次上榜学者共计5216人,来自504所高校、企业及科研机构,覆盖了10个教育部学科领域中的84门一级学科。李德斌院士所属的交通运输工程学科此次仅58人入选,肖岩教授所属的土木工程学科107人入选。

## 喜报！六度得奖！ ZJUI大一学生教你如何在母语使用者中脱颖而出！

时间: 31/03/2023 记者: 俞梦悦 摄影: 受访者提供



近日, 从美国伊利诺伊大学厄巴纳香槟校区 (UIUC) 传来喜报, ZJUI2022级土木工程专业学生沈卓洋、2022级电子与计算机工程专业学生于子恒, 分别在ZJUI兼职教师Mary Lucille Hays和Ryan Flanagan博士的指导和推荐下参赛。他们凭借新颖选题、严密论证和严谨结构, 在UIUC写作大赛中与众多母语使用者同台角逐, 并喜获佳绩, 获选为UIUC本科生英文写作比赛获胜者 (Winner)。

据悉, UIUC本科生英文写作比赛是基于其写作通识

课开展的针对全校学生的比赛, 每学期由专家评选出10~20名获胜者, 获奖的文章或将入选教材, 成为范文供未来学生参考。

“UIUC写作大赛的获奖对于我来说其实算是意外之喜, 我认为这主要得益于Mary老师的写作课堂。”沈卓洋同学向我们分享道。“我感觉Mary老师的课堂就像一个其乐融融的大家庭, 她不仅教授了我们许多写作原理和技巧, 还教会了我们学术诚信以及版权意识的重要性, 让我们的写作变得规范。”其指导老师Dr. Mary Lucille Hays称赞沈卓洋是RHET 101课程中最有天赋、最专注的学生之一。因此, 在得知这个喜讯时她表示很高兴, 但并不惊讶。“沈卓洋选择了传统文化体验日作为他的文章主题, 他的描述细腻生动, 使传统文化表演的每一个场景都栩栩如生, 让我印象最深刻的是文章中关于中国鼓表演的描述, 从他的字里行间中我感受到了鼓槌和鼓面的每一次敲击所爆发出巨大能量, 看见了那一个热情高涨, 青春阳光的鼓手正在奋力击鼓。”

同样, 另一位获奖同学于子恒也表示写作课程显著提升了其英文写作水平, “感谢Rhet课程教会了我许多写作方法和技巧, 但我认为这门课程不止于此, 它还教会了我们很多实用技能, 例如查找正版图片和论文, 并根据正确的格式引用和转述以防止抄袭或侵权; 此外, 它还改变了我们的思维逻辑, 很多写作上的短板, 实际上都是思维逻辑的缺陷, 而在写作中弥补这些短板, 就相当于完善了大脑中的思维逻辑。”于子恒的指导老师Dr. Ryan Flanagan也对他的获奖表示欣喜, “子恒的文章通过仔细观察校园建筑中过度的照明现象, 就如同节约我们宝贵而有限的电力资源展开论述。这是非常具有独创性和紧迫性的, 我很希望看到我们的校园能够考虑他的建议, 并采取相应的行动。”

# 求是新力量



**孟祥明**  
助理教授 / 研究员

孟祥明博士于2023年3月加入ZJU-UIUC任长聘教职助理教授, 此前于2022年4月至2023年3月担任日本东京大学特任助理教授。他于2016年在清华大学获得信息与通信工程博士学位, 2011年在西安电子科技大学获得通信工程学士学位。2016年至2019年在上海华为技术有限公司任高级研究工程师, 之后于2019年至2020年, 以及2020年至2022年先后在日本理化研究所RIKEN综合智能创新中心(AIP)以及日本东京大学物理系做博士后研究员。孟祥明博士的研究兴趣主要是机器学习、信息论、信号处理以及统计物理的交叉领域, 尤其集中于概率图模型, 近似贝叶斯推理以及学习算法。最近他对于扩散模型等深度生成模型及其在各种逆问题(如压缩感知与图像重构)中的应用特别感兴趣。相关工作发表于IEEE JSAC, IEEE SPL, NeurIPS, ICML, ICLR, AISTATS等国际顶级期刊与顶级会议。他受邀担任多个国际顶级期刊会议的审稿人, 包括Statistics and Computing, IEEE TCOM, NeurIPS, ICML, ICLR, CVPR, AAAI, AISTATS等。

研究方向:  
机器学习、信息论、信号处理以及统计物理的交叉领域

# 喜报！ZJUI国际工程交叉创新实验教学中心 获批省级重点建设实验教学示范中心



时间: 10/03/2023 文: 张石磊、谢庆兵 图: 张瀚

近日, 浙江省教育厅公布了《普通本科高校“十四五”省级重点建设实验教学示范中心和省级大学生校外实践教育基地立项建设名单》, 浙江大学7个实验教学示范中心入选, 浙江大学伊利诺伊大学厄巴纳香槟校区联合学院国际工程交叉创新实验教学中心(以下简称“中心”)获批立项。中心在实验教学中注重创新意识、工程学科交叉、培养面向未来社会的热点工程领域、造就跨领域、多学科知识背景的创新型人才。

学院将以此为契机, 加大对实验教学中心的建设力度, 进一步明确建设思路, 完善运行管理机制, 推进实验教学改革, 提升中心成员学术成果和服务社会水平, 充分发挥省级实验教学示范中心的示范引领作用。未来中心将围绕“十四五”规划, 全力推进, 狠抓落实, 保证实验中心各项工作的标准化、高水平、高质量完成, 为打造国际合作教育样板区贡献力量。



浙江省普通本科高校“十四五”省级重点建设实验教学示范中心建设名单

序号	学校	中心名称	中心负责人
1	浙江大学	海洋实验教学中心	瞿逢康
2	浙江大学	体育实验教学中心	王健
3	浙江大学	国际工程交叉创新实验教学中心	马皓
4	浙江大学	建筑与城规技术科学实验教学中心	吴津东
5	浙江大学	航空航天实验教学中心	王海峰
6	浙江大学	国际生物医学实验教学中心	徐素宏
7	浙江大学	艺术与考古实验教学中心	王小松
8	西湖大学	生物基础教学实验室	雷兴
9	中国美术学院	数字虚拟技术联合实验室	宣学君
10	中国美术学院	科技融合交叉创新实验教学示范中心	于朕

## 伊顿（中国）投资有限公司 向浙江大学教育基金会捐赠仪式 暨省级大学生校外实践基地揭牌仪式圆满举行

时间: 23/05/2023 文: 李楚杉、刘博闻、姚蕊楠 图: 张瀚

5月18日, 伊顿(中国)投资有限公司向浙江大学教育基金会捐赠仪式暨浙江大学-伊顿(中国)省级大学生校外实践基地揭牌仪式在浙江大学国际联合学院(海宁国际校区)举行。伊顿车辆集团和车辆电气化业务亚太区总裁杨博、伊顿研究院全球技术总监Antonio、伊顿研究院中国区负责人罗成、伊顿中国政府关系负责人陈卓娅、伊顿中国与北亚区青年人才发展经理叶红一行, 国际校区规划与拓展部部长周一夫, 国际校区规划与拓展部副部长徐晓忠, 国际校区学生事务部部长马宇光, 浙江大学伊利诺伊大学厄巴纳香槟校区联合学院(ZJUI)副院长马皓, 以及相关教师学生代表共40余人出席仪式。活动由国际校区书院副院长吴行主持。



## ZJUI副院长陈喜群团队 在Patterns发表最新研究成果： 面向自动驾驶的人类共性驾驶语义理解

时间: 25/04/2023  
图文: Cell Press微信公众号



近日, ZJUI副院长、浙江大学智能交通研究所所长陈喜群教授课题组在Cell Press期刊Patterns上发表了题为“Understanding common human driving semantics for autonomous vehicles”的研究论文, 通过解析与类人脑驾驶行为背后的神经机制, 建立了人类共性驾驶行为的语义表达模型, 为类人自动驾驶系统设计提供了仿生学依据与方法支持。

- 研究亮点**
- 1.揭示人类驾驶行为对于大脑听觉皮层的激活过程
  - 2.发现人脑对于驾驶行为理解的层次化抽象结构
  - 3.提出“神经启发-语义驱动”的驾驶行为理解仿生计算模型
  - 4.解决驾驶行为理解过程中的长期情境依赖问题

**相关论文信息**  
论文标题: Understanding common human driving semantics for autonomous vehicles  
论文网址: [https://www.cell.com/patterns/fulltext/S2666-3899\(23\)00070-3](https://www.cell.com/patterns/fulltext/S2666-3899(23)00070-3)  
DOI: <https://doi.org/10.1016/j.patter.2023.100730>

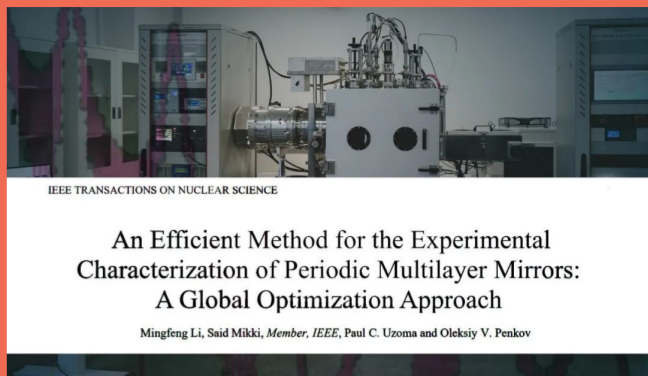
## 以等离激元“火眼金睛” 识别分子, ZJUI胡欢团队 研发表面增强红外吸收纳米技术

时间: 13/03/2023 图文: 胡欢课题组

为了增强化学分子红外吸收峰, 等离激元表面增强红外吸收(SEIRA, surface-enhanced infrared absorption)是一种常用的红外增强技术。由于金属与电场的强耦合作用, 等离激元结构可以将光场聚集在亚波长范围内, 将局域场的强度提升数个量级。然而由于等离激元结构的尺寸通常只有亚微米至纳米量级, 需要高精度的光刻甚至电子束光刻技术, 这两种制造技术都需要几百万甚至上千万的设备, 导致样品面积小且造价昂贵, 阻碍了SEIRA衬底的实际应用。

针对这一技术瓶颈, 浙江大学ZJUI胡欢研究员与微纳电子学院徐杨教授、光电学院马云贵教授合作带领团队研发出一种大规模低成本的制造方法, 并采用了更加高效的垂直耦合纳米结构。该工作近日在国际知名传感器类期刊(Sensors and Actuators B: Chemical)(中科院一区杂志, 影响因子9.221)发表。文章第一作者为ZJUI博士生吴少雄, 唯一通讯作者为胡欢研究员。该工作引入了一个垂直耦合的等离激元纳米光腔, 这种结构具有高均匀性且易于大规模制备。通过纳米小球光刻方法, 能够低成本地制备四英寸硅片尺寸的样品。通过调节纳米小球的尺寸, 能改变等离激元结构的共振频率, 使得SEIRA衬底的频带能够覆盖整个功能区和分子指纹区。进一步优化调节等离激元结构的耦合深度, 局域光场的强度能够增强接近800倍。实验证明, 通过这种等离激元纳米腔的增强, 能够实现对十八醇醇单分子层的探测, 吸收增强系数能提升2100倍。

该研究的另一个创新点在于在垂直耦合的纳米腔中引入了自组装的金属纳米粒子。该研究充分发挥大面积衬底的优势, 将光场面积提升到1平方毫米。在这种条件下, 十八醇醇单分子中极少量的甲基CH<sub>3</sub>-键也能被探测到。实验结果表明, 该SEIRA衬底的浓度检测极限能够达到10 nM, 相比平面金衬底提升了四个数量级。在未来的研究中, 有望用于生物目标检测, 如病毒、生物标记蛋白和外泌体等, 在疾病检测、环境检测领域有很强应用潜力。目前, 该技术也已申请国家发明专利, 具备广阔的产业化应用前景。该项目受到浙江大学国际校区Human Space X基金和ZJU-UIUC联合研究基金Center for Pathogen Diagnostics项目资助。



## 我院Oleksiy Penkov课题组 硕士生李明峰在核科学领域权威期刊 发表论文, 创新材料结构分析方法

时间: 21/03/2023 图文: Oleksiy Penkov课题组

近日, IEEE Transactions on Nuclear Science(TNS)发表了该院最新一项关于全局优化拟合X射线反射率曲线的交叉研究成果, 文章第一作者为ZJUI 21级机械专业硕士研究生李明峰同学, 唯一通讯作者为ZJUI 研究员 Oleksiy Penkov教授, 其他作者还包括ZJUI研究员Said Mikki教授、ZJUI博士后研究员Paul C. Uzoma。IEEE TNS是IEEE核与等离子体科学学会的期刊, 根据JCR影响因子, 该期刊在核科学与技术领域一直位列前五。

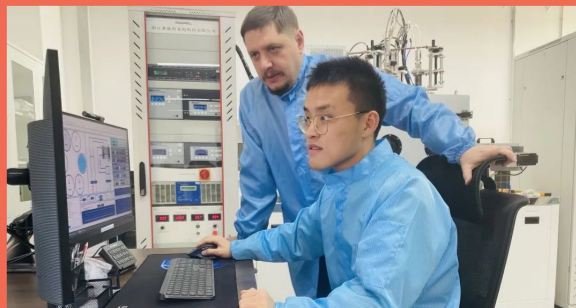
该研究大大提高了拟合周期性多层膜X射线反射率(XRR)的效率, 可快速准确地分析含有几百个材料层的多层膜并获得每一层材料的厚度、粗糙度、密度等参数。与使用TEM, SEM等耗时且昂贵的技术相比, 该拟合方法可快速分析材料结构, 以指导研究人员下一步的制备工作, 致力于推动薄膜材料产业的创新发展。

周期性多层膜反射镜由Oleksiy Penkov研究员课题组自主搭建的先进磁控溅射系统制造。由于反射镜上的多层膜通常由轻、重两种不同材料交替叠成, 包含有N个材料周期。若要实现反射镜的高反射率, 通常需要沉积200个周期以上。为获得每一层膜材料的参数(厚度、粗糙度、密度), 需要由X射线衍射仪表征得到多层膜的X射线反射率曲线(XRR), 再由本课题组独立开发的软件X-Ray Calc手动拟合。因为手动拟合无法分析所有层的参数, 通常需要输入一个周期的参数, 再设置N个周期, 以拟合X射线反射率曲线。实际上, 在制备多层膜的过程中受到电源、基底温度等影响, 每个周期的参数都会有略微不同, 手动拟合无法有效分析多层膜且拟合耗时长。

基于以上原因, 本文提出了全局优化拟合X射线反射率曲线的方法(Levy flight 粒子群优化算法), 由Object Pascal语言编写的X-Ray Calc集成X射线反射率数学模型, 在6核i5-10500 CPU 上计算200个周期的多层膜的反射率仅需0.069秒。将X-Ray Calc 改进为jexe文件, 输出为代价函数(cost function), 通过levy flight 粒子群算法优化代价函数输出最优解, 完成拟合。经测试, 拟合200周期的多层膜反射率曲线只需20秒, 这不仅大大提高了拟合效率, 而且实现了对每一层膜的参数分析。

该论文由Oleksiy Penkov研究员和Said Mikki研究员共同指导, 是一项交叉研究的成果。Said Mikki研究员是粒子群算法应用领域的专家, 在本文中主要指导粒子群算法在X射线领域的优化问题。Oleksiy Penkov 研究员的研究领域涉及材料、物理、机械、软件开发等, 在本文中主要指导实验过程和计算软件的开发。李明峰同学表示, “自入学以来, 我深受课题组和ZJUI学科交叉领域研究的影响, 不断学习不同领域的新知识, 在跨学科的研究探索中, 感受到了科研的乐趣, 也促使我申请了硕博, 选择继续科研之路。”据悉, 李明峰同学目前已完成硕博申请, 开始攻读其博士学位。

该项目获得国家自然科学基金委-外国优秀青年学者研究基金项目支持。(原文链接: <https://ieeexplore.ieee.org/document/10066334>)



▲李明峰同学在Penkov 研究员指导下操作磁控溅射系统