SCHOOL OF
ENGINEERING

WESTLAKE UNIVERSITY

西湖大學
WESTLAKE UNIVERSITY

西湖大學
WESTLAKE
UNIVERSITY
工学院
SCHOOL OF ENGINEERING

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ENGINEERING

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学校介绍

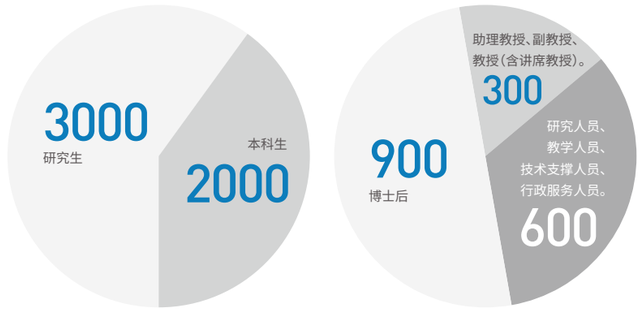
ABOUT WESTLAKE UNIVERSITY

西湖大学是一所社会力量举办、国家重点支持的新型高等学校，前身为浙江西湖高等研究院，由施一公、陈十一、潘建伟、饶毅、钱颖一、张辉和王坚等七人发起创办，于2018年2月14日正式获教育部批准设立，举办方是杭州市西湖教育基金会，首任校长由施一公教授担任。

学校按照“高起点、小而精、研究型”的办学定位，致力于集聚一流师资、打造一流学科、培育一流人才、产出一流成果，力争到2026年，主要学科的实力达到世界领先水平，在基础科学研究、技术原始创新、科技成果转化方面作出具有重大影响力的贡献，成为一所设置合理、定位清晰、发展潜力强劲、社会声誉良好的新型国际化高水平研究型大学。

预计2026年，在校学生达到5000人左右（其中研究生3000人，本科生2000人）；助理教授、副教授、教授（含讲席教授）约300人；研究人员、教学人员、技术支撑人员、行政服务人员约600人；博士后约900人。

预计到 2026 年人员规模
by 2026



SCHOOL OF ENGINEERING 工学院

Established in 2018, Westlake University is a new type of research university, a first in the history of modern China. We enjoy strong public support and aim to be a reformer in our higher education system. Founded by prominent scientists and scholars, Westlake University is committed to building a truly international, world leading, research-focused university.

Westlake University is based in Hangzhou, a stunning city well known throughout Asia for her long history, rich culture, fine arts, delicious cuisine, and beautiful scenery.

Westlake University is a diverse community consisting of excellent and globally leading faculty, enthusiastic and strongly motivated students, professional researchers and staff, and generous friends and supporters.

Westlake University is a state-of-the-art facility for education and research with a beautiful campus. Designed by German company HENN GmbH, it offers a gorgeous and comfortable learning environment connecting people and ideas.

Westlake University is an international university: we exemplify the highest international standards in higher education, and our systems and methods endeavor to adopt the best practices of leading universities worldwide. English and Chinese are both official languages on campus, and all courses are taught in English.

Finally, and perhaps most importantly, Westlake University is a bridge, a bridge between East and West, between the present and the future, between China and the world. This idea encapsulates our values and goals and is literally incorporated into our logo and the physical design of our campuses.

We were founded by a group of leading Chinese academics who established their professional careers abroad. Westlake University strives to serve the global community and promote developments for the common good of all humanity.

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ABOUT

SCHOOL OF ENGINEERING

学院介绍

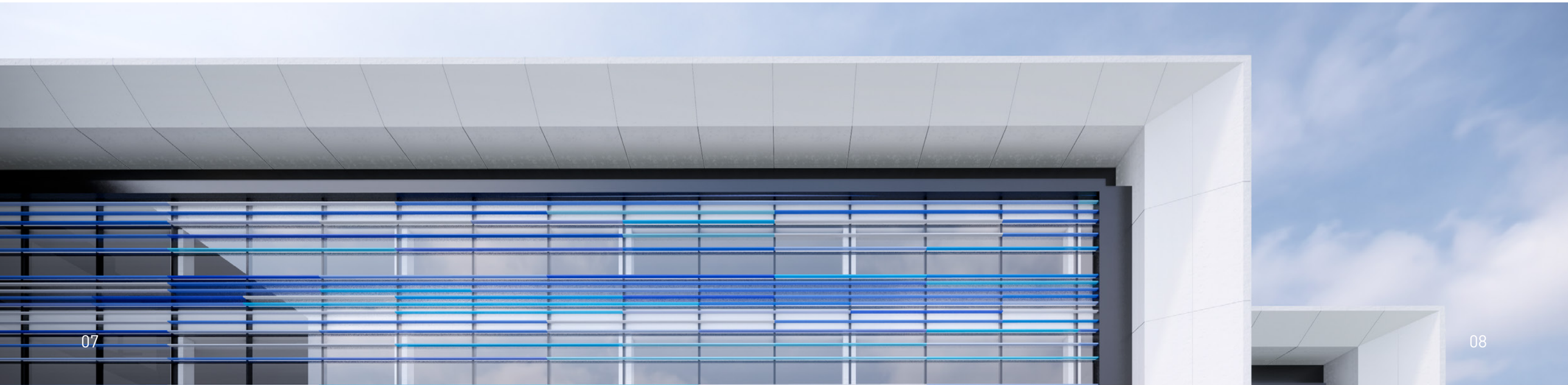
SCHOOL OF ENGINEERING 工学院

西湖大学工学院面向国家战略性新兴产业发展重大需求，着力建设交叉学科与新兴学科为特色的工程技术学科群，努力建成国家重大科学技术研究和拔尖创新人才培养的重要基地。工学院以国际高端人才为学科带头人构建科研团队，分阶段、分领域打造一流人才队伍。

工学院目前重点建设六大研究领域 (Programs)——人工智能与数据科学、生物医学工程、化学与生物工程、电子信息科学与技术、材料科学与机械工程、可持续发展与环境工程。围绕六大领域，工学院已建成一批高水平实验室和研究中心，其中已获批成立浙江省 3D 微纳加工和表征研究重点实验室，培育建设浙江省海岸带环境与资源研究重点实验室，建立微纳光电系统集成浙江省工程研究中心。同时，工学院联合生命科学学院和理学院，共同建立西湖大学合成生物学与生物智造中心。

目前，西湖大学工学院按四个一级学科招收博士研究生，包括电子科学与技术、计算机科学与技术、材料科学与工程、环境科学与工程。同时，工学院鼓励多学科交叉，将依托四个一级学科、围绕六大领域，积极吸纳各相关方向的人才和科研力量，高水平开展人才培养和科技创新工作。

The School of Engineering (SOE) is devoted to frontier research in applied sciences and innovation of technologies to advance human wellbeing sustainably. It aims to establish key strengths at the cutting-edge in science and technology through interdisciplinary research, training of forward-thinking students and recruitment of top talents from around the world. The school currently has (but will not be limited to) six programs: Artificial Intelligence and Data Science, Biomedical Engineering, Chemical and Biological Engineering, Electronic and Information Engineering, Materials Science and Mechanical Engineering, Sustainable and Environmental Engineering. By focusing on the six major programs, the School of Engineering has built a number of high-level laboratories and research centers. Among them, are The Key Laboratory of 3D Micro/Nano Fabrication and Characterization of Zhejiang Province, The Key Laboratory of Coastal Environment and Resources of Zhejiang Province (KLaCER), and The Engineering Research Center of Micro/Nano-Photonic/Electronic System Integration of Zhejiang Province. The School of Engineering also jointly builds Westlake Center of Synthetic Biology and Integrated Bioengineering (WE-SynBio) with the School of Life Sciences and the School of Science. Currently, the School of Engineering offers doctoral students in four first-class disciplines, including electronic science and technology, computer science and technology, materials science and engineering, and environmental science and engineering. At the same time, the School of Engineering encourages cross-disciplinary studies based on our first-class disciplines and six major programs. We wish to attract talents and scientific research abilities from across the world to carry out high-level talent training and technological innovation.



PROGRAMS

研究领域介绍

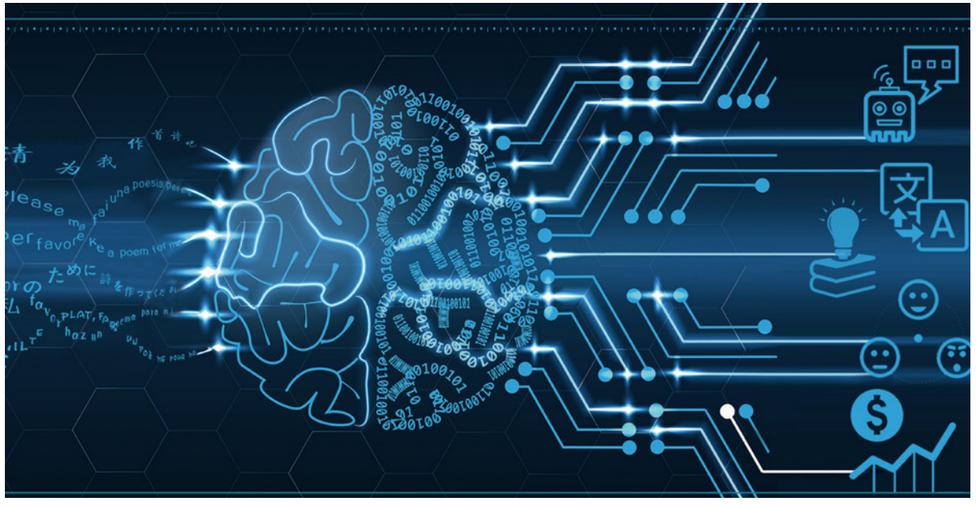
人工智能与数据科学

人工智能在感知、识别、决策等信息技术和大数据分析领域研究和产业上取得了巨大成功，并广泛带动其它领域的科技创新，成为了现代和未来科技和社会发展的一个主要驱动力。

人工智能与数据科学分支研究重点包括以下三个方面：

1. AI 基础研究：数据科学、机器学习、深度学习；
2. AI 核心应用：计算机视觉、自然语言、语音处理、机器人、数据挖掘、可视化、X-现实；
3. AI 学科交叉：生命科学、生物医学、其它学科。

我们致力于在上述方向和领域开展理论方法和实际应用研究，并做出有深远影响力的创新和贡献。在引领科技研究的同时，我们十分重视本科生和博士生培养，充分激活学生在人工智能科学研究与工程项目中的科研能力和领导力。



ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI)

Artificial intelligence (AI) has become a major driving engine in modern scientific and social developments and a technological cornerstone of our future life. It will continue to reshape multi-facets of scientific and technological research and development and foster emerging transitions in a broad range of intellectual and commercial realms.

The AI Program is committed to conducting innovative research in three major categories:

1. AI Fundamentals: machine learning, deep learning, data science;
2. AI Core Applications: computer vision, natural language processing, speech processing, robot learning and systems, data mining, visualization, XR;
3. AI+ Cross-disciplinaries: life science, biomedicine, others.

We are dedicated to achieving influential innovations in theories and applications of these research fields. In addition to scientific research leadership, we also emphasize undergraduate and graduate education, with the goal of cultivating the next generation of global leaders through inspiring research problems to motivate their professional development.

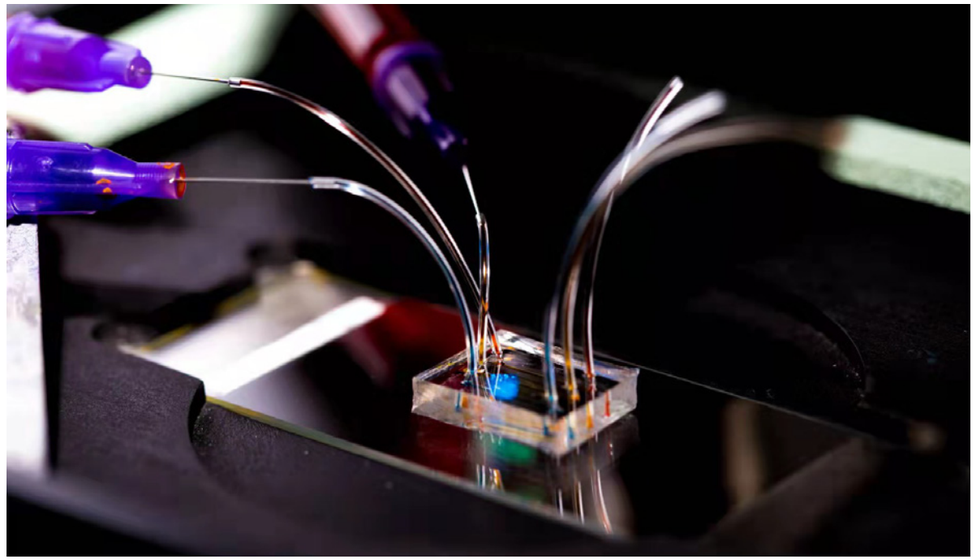
生物医学工程

生物医学工程领域旨在创造生物/非生物界面方面的新知识以及改善人类健康的使能技术。我们将工程、生命科学和医疗需求联系起来，结合综合研究、教育和创业的方式，革新理解、检测和治疗疾病的方法。

将创新与合作深植于生物医学工程领域的根基，我们力求在多学科领域的前沿进行研究和发现，设计和施行新的生物界面材料和策略，多角度、多尺度地建立对人体的定量理解，并促进对新的诊断工具和治疗方法的发现和转化。通过培养问题解决能力、滋养创造力、鼓励批判性和跨学科思维，我们热衷并致力于培育学术界和生物医学工程行业的未来领导者。

生物医学工程领域的成员从事着广泛的研究工作，涵盖物理、生命科学和其他工程学科的互补性专业知识，我们关注的方向包括但不限于：

1. 生物材料
2. 生物电子和脑工程
3. 计算医学



BIOMEDICAL ENGINEERING (BME)

The Biomedical Engineering (BME) program aims to create new knowledge at the biotic/abiotic interfaces and enabling technologies for improving human health. Bridging engineering, life science and medical needs, we are revolutionizing approaches to understand, detect, and treat diseases through integrative research, education, and entrepreneurship.

With innovation and collaboration embedded in the foundation of the BME program, our community strives to study and discover at the forefront of multi-disciplinary fields to design and implement novel bio-interfacing materials and strategies, establish a quantitative understanding of the human body through many lenses and scales, and accelerate the discovery and translation of new diagnostic tools and treatments. We are enthusiastic and committed in training future leaders in academia and biomedical engineering industry by cultivating problem-solving skills, nurturing creativity, and promoting critical and cross-disciplinary thinking.

BME faculty members are engaged in a wide range of research efforts that encompass complementary expertise from physical, life science and other engineering disciplines, including but not limited to the focus on the following convergence themes:

1. Biomaterials
2. Bioelectronics and Neuroengineering
3. Computational Medicine

化学与生物工程

化学与生物工程的使命是将化学、生物学、数学和物理等基础科学与材料科学、计算机科学、机械和电气等工程学科相结合，以提供关键解决方案建立更健康、更清洁、和更持续的世界。化学与生物工程领域的成员研究重点是研究基本的分子工程策略，开发先进的化学和生物转化和工程技术，设计制造流程，创造有益于社会，环境及气候的有用产品和材料。

化学与生物工程领域的成员从事的基础及工程化领先研究主要目的是把原料转化为化学品，能源，医药产品，未来食品，电子和新材料。我们的主要研究方向包括：

1. 生物化学和生物分子工程
2. 合成生物学
3. 能源与环境

CHEMICAL AND BIOLOGICAL ENGINEERING (CBE)

The mission of Chemical and Biological Engineering (CBE) is to integrate the fundamental science of chemistry, biology, mathematics, and physics with engineering disciplines like material science, computer science, mechanical and electrical engineering to provide key solutions towards a healthier, cleaner, and more sustainable world. The research in CBE program focuses on studying fundamental molecular engineering strategies, developing advanced chemical and biological transformations, designing manufacturing processes, creating useful products and materials that benefit society, environment, and climate.

Members in the CBE community are performing leading research in converting raw materials to chemicals, energy, medicine, future food, electronics, and novel materials under three major research areas:

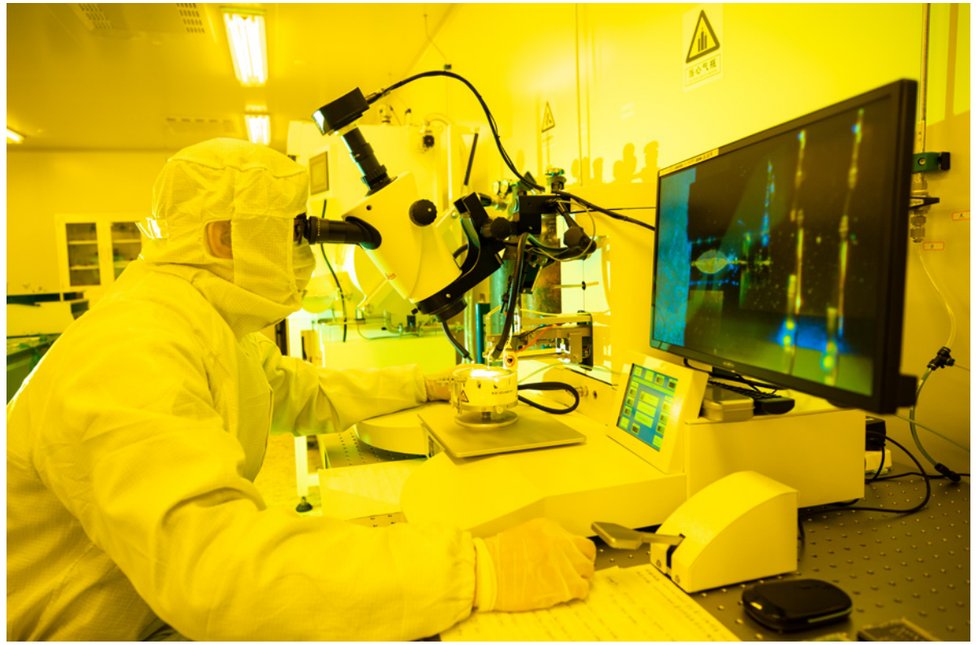
1. Biochemical and Biomolecular Engineering
2. Synthetic Biology
3. Energy and Environment

电子信息科学与技术

电子信息科学与技术是现代社会几乎大部分先进信息技术的基础，也是其最重要的发展源动力。例如，融合了材料、设备、电子和光学组件等多个科学和工程领域的集成电路（IC）设计和测试，即是电子信息科学与技术领域最具代表性的知识成果之一。电子信息科学与技术领域的成员致力于在以下几个方向进行具有开创性的研究：

1. 光子与光电子器件
2. 微纳加工技术
3. 微电子和信息技术
4. 电子器件与能源电子

我们致力于在上述研究领域所涉及的理论、建模、加工、集成、测试以及体外、体内实验和临床试验等方面实现有影响力的创新和贡献。



ELECTRONIC AND INFORMATION ENGINEERING (EIE)

Electronic and Information Engineering has always been the driving force for the development of our modern information technology society and is the foundation of most advanced technologies. The design and tests of Integrated circuits (ICs) are one of the most representative intellectual achievements of Electronic and Information Engineering which incorporate interdisciplinary science and engineering fields such as material, device, electronic and optic components. The Electronic and Information Engineering program at Westlake University is committed to lead research activities in the following main areas:

1. Optics, Photonics and Optoelectronics
2. Micro- and Nano-fabrication Technologies
3. Microelectronics and Telecommunications
4. Electronic and Energy Devices

In all these main areas, our research programs and projects include various stages of original contributions and impactful innovations, such as theory, modeling, simulation, nanofabrication, assembly, test, validation, in vitro and in vivo experiments, clinical tests when applied, and project management.

材料科学与机械工程

材料科学与机械工程领域基于“结构-性质-功能”之间的逻辑规律，主要研究新材料和新系统的设计与创造，进而将基础科学上的发现应用于与人类社会和生产生活息息相关的方方面面，比如机器人，先进机械，未来智造以及新材料的开发和新材料在微电子、清洁能源、可持续发展、医药保健、公共卫生等诸多方面的应用。

秉持原创探索和回馈社会的理念，本领域的研究人员致力于将基础科学原理和前沿技术相结合的研究。我们的教师们全部都有在世界知名的科研院所从事一线科研或执教的经历，并且有着多样化，学科交叉的背景，可以有效激发学生的学习和科研兴趣。

材料科学与机械工程领域天然具有跨学科的特性，所以本领域的研究者们常会与物质科学和生命科学的研究人员进行深入合作。本领域的研究内容包括但不限于：

1. 机器人和机械系统
2. 先进智造
3. 能源材料
4. 电子材料
5. 材料与医疗、保健、公卫

MATERIALS SCIENCE AND MECHANICAL ENGINEERING (MSME)

Research in the Materials Science and Mechanical Engineering (MSME) program focuses on the design and creation of new materials and systems, the understanding of their structure-properties-functions relationship and applying our discoveries for the well-being of the society, such as through robotics, advanced mechanical systems, advanced manufacturing, new materials and their use in electronics, energy, sustainability, healthcare, and public health.

Driven by curiosity, the excitement of discovery and a sense of commitment to the society, members in the MSME community conduct frontier research connecting fundamental science with engineering to create enabling technologies. MSME faculty members have diverse intellectual background and extensive research and education experience from other world-class institutes, which they leverage to enhance learning experience and bring the best out of the students.

MSME is interdisciplinary in nature, and naturally collaborates with other engineering disciplines as well as physical, biological and life sciences. Below are some examples of our research areas.

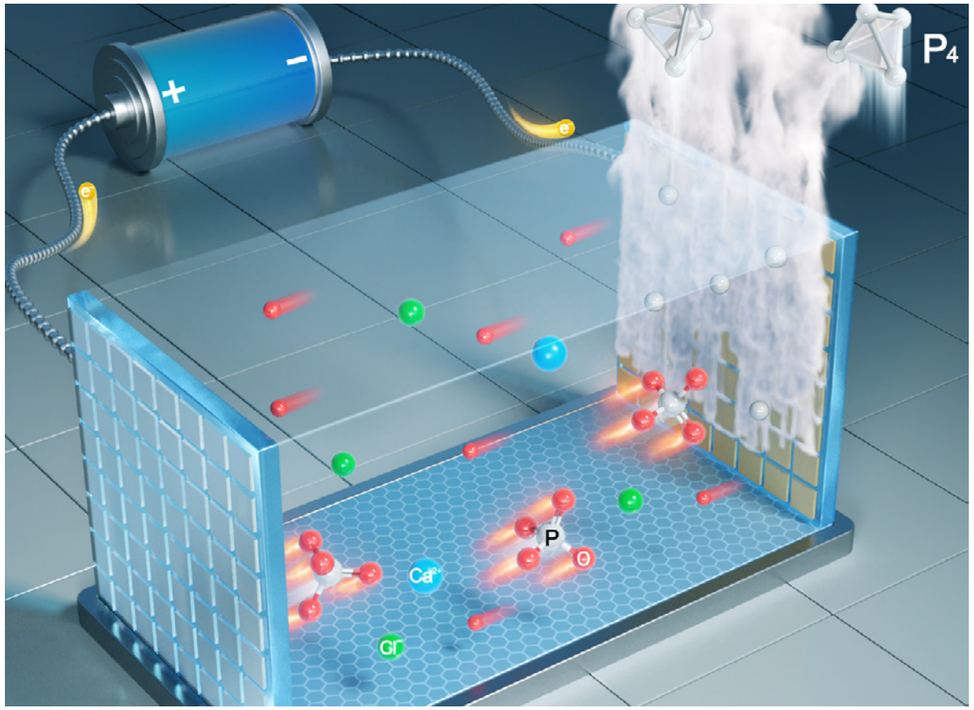
1. Robotic and Mechanical Systems
2. Advanced Manufacturing
3. Energy Materials
4. Electronic Materials
5. Materials for Health

可持续发展与环境工程

在可持续发展与环境工程领域，我们致力于研究环境-资源-人类之间的相互影响和交互作用，以解决日益匮乏的自然资源与持续增长的人口对水、食物和能源不断增加的需求之间的矛盾。全球气候变化进一步加剧了这些矛盾带来的挑战。我们将协同基础研究和技术创新，探索如何实现环境-资源-人类之间的纽带平衡和可持续发展。我们的教育旨在培养学生掌握坚实的基础知识和专业技能，尤其是批判性思维和解决问题的能力，以引领未来环境与可持续发展领域的科学和技术创新。

主要研究方向：

1. 生态环境系统演变和全球变化趋势
2. 食品、资源和可持续发展
3. 环境化学、微生物学和生物技术
4. 碳中和战略和技术



SUSTAINABLE AND ENVIRONMENTAL ENGINEERING (SEE)

The Sustainable and Environmental Engineering program aims to explore the trade-offs within the Environment-Resources-Human Nexus in a world where dwindling natural resources must meet increasing demands for water, food, and energy by a growing human population. Global climate change further exuberates the challenges. We combine fundamental research and technological innovation to address these trade-offs for a sustainable future. Our educational programs are designed to equip students with not only knowledge but also skills, particularly critical thinking, and problem-solving skills, to lead the future scientific and engineering developments in Environmental and Sustainable Engineering.

Key areas:

1. Eco-environmental Systems and Global Changes
2. Food, Resources and Sustainability
3. Environmental Chemistry, Microbiology and Biotechnology
4. Carbon Neutrality Strategy and Technology

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FACULTY RECRUITMENT

人才招聘

一、学院介绍

西湖大学工学院面向国家战略性新型产业发展重大需求，着力建设交叉学科与新兴学科为特色的工程科学与技术学科群，努力建成国家重大科学技术研究和拔尖创新人才培养的重要基地。工学院以国际高端人才为学科带头人构建科研团队，分阶段、分领域打造一流人才队伍。

二、招聘领域和方向

领域一：人工智能与数据科学

方向包含但不限于以下3个：（1）AI基础研究；（2）AI核心应用；（3）AI学科交叉。

领域二：生物医学工程

方向包含但不限于以下3个：（1）生物材料；（2）生物电子和脑工程；（3）计算医学。

领域三：化学与生物工程

方向包含但不限于以下3个：（1）生物化学和生物分子工程；（2）合成生物学；（3）能源与环境。

领域四：电子信息科学与技术

方向包含但不限于以下4个：（1）光子与光电子器件；（2）微纳加工技术；（3）微电子和信息技术；（4）电子器件与能源电子。

领域五：材料科学与机械工程

方向包含但不限于以下5个：（1）机器人与机械系统；（2）材料与医疗、保健、公卫；（3）先进智造；（4）能源材料；（5）电子材料。

领域六：可持续发展与环境工程

方向包含但不限于以下4个：（1）生态环境系统演变和全球变化趋势；（2）食品、资源和可持续发展；（3）环境化学、微生物学和生物技术；（4）碳中和战略和技术。

三、招聘岗位

1. 长聘教职/Tenured Faculty：主要包括副教授、教授、讲席教授（1）应聘人应在国际一流高校、科研院所担任终身副教授以上或相当职务，具有国际一流的学术水平；（2）年龄一般不超过55岁；（3）承诺通过评选后全职来西湖大学工作。

2. 准聘教职/Tenure-Track Faculty：主要包括助理教授、副教授（1）具有博士学位，年龄一般不超过40周岁；（2）应聘人学术水平和资历应达到担任国际知名高校助理教授或副教授职务的相应标准；（3）承诺通过评选后全职来西湖大学工作，首聘期5年。

四、薪酬福利与其他待遇

1. 薪酬和福利待遇

西湖大学将参照国际一流大学相应职位，根据具体情况，为入选者提供有国际竞争力的、能够使其专心于学术的协议薪酬和福利待遇。对于已获得国际一流大学教职职位的申请人，将提供同样或更优越的薪酬福利待遇。

2. 科研保障

西湖大学将参照国际一流大学相应职位提供充足的科研启动经费；同时，将视引进人才的实际科研工作需要，在实验室空间、团队配备、博士生招生指标等方面给予充分支持。

3. 安家补助

协助解决住房问题，或提供相应的住房补贴。

4. 其他待遇

西湖大学将为引进人才及其配偶、未成年子女购买高端商业医疗保险，协助解决子女入学入托问题，为引进人才解决后顾之忧。

五、联系方式

1. 请将求职信、个人简历（含论文列表）、研究内容和研究计划（含教学和研究兴趣）等材料（材料要求英文，合并成一个 PDF）发至工学院学术人才招聘邮箱：talents_engineering@westlake.edu.cn，邮件主题请标明“姓名 + 研究领域”；

2. 建议应聘者建立个人“谷歌学术”主页并在个人简历中标注；

3. 我们会通过学术人才招聘邮箱及时解答应聘问题和相关政策咨询；

4. 面试通知一般于投递申请后 6 个月内发出，如未收到，欢迎再次投递（建议二次投递时提交重要科研进展）。

西湖大学全球学术人才招聘常年进行中，诚邀海内外各层次杰出学术人才加盟！

About us

The School of Engineering (SOE) at the Westlake University (Westlake) is seeking to fill multiple tenured or tenure-track faculty positions in all ranks. We seek candidates with research interests in but not limited to the following programs and areas.

Program 1: Artificial Intelligence and Data Science (AI).
Areas:
(1) AI Fundamental Research;
(2) AI Core Application Research;
(3) AI+ Cross-disciplinary Research.

Program 2: Biomedical Engineering (BME).
Areas:
(1) Biomaterials;
(2) Bioelectronics and Neuroengineering;
(3) Computational Medicine.

Program 3: Chemical and Biological Engineering (CBE).
Areas:
(1) Biochemical and Biomolecular Engineering;
(2) Synthetic Biology;
(3) Energy and Environment.

Program 4: Electronic and Information Engineering (EIE).
Areas:
(1) Optics, Photonics and Optoelectronics;
(2) Micro- and Nano-fabrication Technologies;
(3) Microelectronics and Telecommunications;
(4) Electronic and Energy Devices.

Program 5: Materials Science and Mechanical Engineering (MSME).
Areas:
(1) Robotics and Mechanical Systems;
(2) Materials for Health;
(3) Advanced Manufacturing;
(4) Energy Materials;
(5) Electronic Materials.

Program 6: Sustainable and Environmental Engineering (SEE).
Areas:
(1) Eco-environmental Systems and Global Change;
(2) Food, Resources and Sustainability;
(3) Environmental Chemistry, Microbiology and Biotechnology;
(4) Carbon Neutrality Strategy and Technology.

Faculty members in the SOE are expected to initiate and sustain a vigorous research program. Successful candidates are expected to demonstrate a strong commitment to undergraduate and graduate teaching, and to diversity, equity, and inclusion through rese`arch, teaching, and service endeavors.

To apply, please create a candidate profile and send an Email to: talents_engineering@westlake.edu.cn or submit your application via INTERFOLIO: apply.interfolio.com/95472. The application package should include a statement of teaching and research interests, a curriculum vitae, a cover letter and a publication list all in a single pdf file. Candidates for tenure-track positions must provide names and contact information for three letters of reference in the application file. Candidates for tenured positions must have achieved national and international recognition for their scholarship; selected candidates will be contacted to provide reference letters.
Founded in 2018, Westlake University is a new, private research university located in Hangzhou, China, with a world-class environment for research and education in science, engineering and technology, and life sciences. We welcome exceptional scholars in all branches of cutting-edge science and technology to pursue an exciting career opportunity with us.

We have the following facilities: (1) Biomedical Research Core Facilities; (2) Laboratory Animal Resource Center; (3) Westlake Center for Micro/Nano Fabrication; (4) Westlake University High Performance Center; (5) Instrumentation and Service Center for Physical Sciences; (6) Instrumentation and Service Center for Molecular Sciences.

At the time of appointment, applicants must hold an earned doctorate in an appropriate field. Salary and rank will be commensurate with qualifications. The evaluation of applications by the search committee will be initiated immediately once the application files are complete.

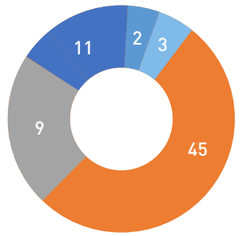
For any questions concerning the application process, please send an email to talents_engineering@westlake.edu.cn.
Westlake University conducts criminal background checks on all job candidates upon acceptance of a contingent offer.

4

FACULTY

人员介绍

70位特聘研究员



讲席教授　正教授　长聘及准聘副教授
西湖学者 (Westlake Fellow)　助理教授

高水平人才队伍

100%
具有海外学习或工作经历

76.8%
杭州市高层次人才获得者比例

66.1%
浙江省级人才头衔获得者比例

41.2%
国家级人才头衔获得者比例

Chair Professor,
Materials Science and Engineering
材料科学与工程讲席教授

Jianjun Cheng
程建军

Chair Professor,
Deep Sea Technology
深海技术讲席教授

Weicheng Cui
崔维成

Chair Professor,
Materials
材料科学讲席教授

Jiaxing Huang
黄嘉兴

Chair Professor,
Mechanical Engineering
机械工程讲席教授

Hanqing Jiang
姜汉卿

Chair Professor,
Environmental Hydrology
环境水文学讲席教授

Ling Li
李凌

Chair Professor,
Artificial Intelligence
人工智能讲席教授

Stan Z. Li
李子青

Guoqiang Endowed Chair Professor
国强讲席教授

Min Qiu
仇旻

Chair Professor,
Microsystems and Bioengineering
微系统与生物工程讲席教授

Mohamad Sawan
默罕默德 萨万

Chair Professor in Optical
Communication and Sensing
光通信与传感讲席教授

William Shieh
谢伟

Chair Professor,
Synthetic Biology and Bioengineering
合成生物学与生物工程讲席教授

Anping Zeng
曾安平

Biomaterials and Drug Delivery Laboratory
生物材料和药物递送实验室

PI: Jianjun Cheng
程建军

程建军教授，2021 年 8 月起任全职加盟西湖大学，任工学院院长和材料科学与工程讲席教授。他于 1993 年获南开大学化学学士，1996 年获美国南伊利诺伊大学化学硕士学位，2001 年获加州大学圣巴巴拉分校材料科学博士学位。2001-2004 年作为资深科学家在 Insert Therapeutics 工作，2004-2005 年在麻省理工学院从事博士后研究。2005-2021 年就职于伊利诺伊大学厄巴纳 - 香槟分校材料科学与工程系，历任助理教授、副教授、正教授和 Hans Thurnauer 讲席教授。他是英国皇家化学会 *Biomaterials Science* 期刊主编，中美纳米药物及生物纳米技术学会（CASNN）的共同创始人、执委和现任主席。他是美国国家发明家科学院院士、美国科学促进会会士、美国医学与生物工程学院会士、美国化学会高分子化学会士。

Professor Jianjun Cheng joined the Westlake University in August, 2021, as the Dean of School of Engineering and Chair Professor of Materials Science and Engineering (MSE). He obtained a B.S. degree in Chemistry at Nankai University in 1993, a M.S. degree in Chemistry at Southern Illinois University at Carbondale in 1996, and a Ph.D. degree in Materials Science at the University of California, Santa Barbara in 2001. He was a Senior Scientist at Insert Therapeutics, Inc. from 2001 to 2004, and a Postdoctoral Research Scientist at MIT from 2004 to 2005. He was an Assistant, Associate, Full and Hans Thurnauer Professor of MSE at the University of Illinois at Urbana-Champaign between 2005 and 2021. Cheng is the Editor-in-Chief of *Biomaterials Science*, RSC, UK. He is a Fellow of National Academy of Inventors, the American Association for the Advancement of Science, the American Institute for Medical and Biological Engineering and American Chemical Society-Division of Polymer Chemistry.

研究成果:

程建军教授是Insert Therapeutics的IT-101小分子药物递送技术的主要开发者。他也是核酸适配体聚乳酸纳米药物技术用于靶向肿瘤递送技术的早期开发者之一，这些技术后来都进入人体临床II期。在伊利诺伊大学，他的课题组开发了药物引发聚乳酸药物偶联物纳米药物技术，链碎裂快速药物释放体系，带电螺旋多肽用于基因药物递送，细胞穿膜和抗菌等多方面的应用。他的课题组首次报道了利用小分子糖的可控体内代谢以达到靶向细胞标记的目的。该技术已经用于前临床抗癌药物研发。他的课题组也开发出围阻聚脲化学可以用于自修复材料的设计研究。程建军共有获批的41项国际或美国专利，其中超过一半被转让或被用于商业应用；发表论文200余篇。

RESEARCH ACHIEVEMENTS:

Professor Jianjun Cheng led the development of IT-101 drug delivery technology at Insert Therapeutics. He also co-developed aptamer-polylactide nanoparticle delivery system for targeted cancer therapy. Both technologies later entered Phase II clinical trial. At UIUC, his group developed drug-initiated polymerization for PLA-drug nanoparticle formulation, chain-shattering polymeric therapeutics, helical charged polypeptides for gene and siRNA delivery, cell membrane penetration and antimicrobial applications, cell-labeling technology for cancer targeting and hindered urea dynamic chemistry for self-healing application. He has 41 issued patents, half of which being licensed or being in active use and has over 200 publications.

代表性成果 REPRESENTATIVE OUTCOMES:

Synthesis of polypeptides via bioinspired polymerization of in situ purified N-carboxyanhydrides, PNAS, 2019, 116, 10658-10663.
Cooperative polymerization of α-helices induced by macromolecular architecture, Nature Chemistry, 2017, 9, 614–622
Selective In Vivo Cell Labeling Mediated Cancer Targeting" , Nature Chemical Biology, 2017, 13, 415-424.

Biomaterial and Molecular Engineering Lab
生物材料及分子工程实验室

PI: Gang Cheng
程钢

程钢，2009年获得美国华盛顿大学西雅图分校化学工程博士。同年被美国阿克隆大学化学与生物分子工程系聘为助理教授，2015年晋升终身副教授。2016年加入美国伊利诺伊大学芝加哥分校化学工程系，2022年12月全职加入西湖大。程钢教授在抗菌，抗垢和生物领域做出了开创性的工作。课题组共发表论文80余篇，7项专利获得授权。程钢教授圆满完成美国国家科学基金会，美国国防部等十余项重大项目。获得的荣誉包括美国国家自然科学基金会青年学者奖，伊利诺伊大学优秀教学奖，伊利诺伊大学校长概念验证奖，伊利诺伊大学优秀导师奖等。

研究成果:

程钢课题组的研究方向包括高分子化学，生物界面，生物材料设计和合成，纳米药物。现阶段的主要研究方向包括：（1）研发具有颠覆性性能的新材料、新概念和新方法来解决长期困扰医疗和工业领域的生物垢挑战；(2）利用新材料作为工具来探究多种生物垢（菌膜，材料引起的凝血，排异反应等）的形成机制；(3）利用实验和计算工具探索高性能抗垢材料在分子、纳米和微观尺度上的内在结构-性能关系，并建立指导材料研发的设计原则；(4）研发高性能生物材料以解决核酸，蛋白，和小分子药物递的痛点问题。

Dr. Cheng received his doctoral degree in Chemical Engineering from University of Washington Seattle in 2009. In August 2009, Dr. Cheng started his independent academic career as an assistant professor at the University of Akron. In 2015, Dr. Cheng was promoted to Associate professor with tenure. In 2016, Dr. Cheng joined the Department of Chemical Engineering at the University of Illinois at Chicago. He has obtained many major grants from US and China federal and state funding agencies to support his research program. In 2015, He received the prestigious NSF Faculty Early Career Award. Dr. Cheng is well known for his pioneering work in zwitterionic polymers. His team has developed a set of new materials, concepts, and methods to address long-standing biofouling challenges. His work has been highlighted and commented on by Nature Materials, Science, and experts in the field.

RESEARCH ACHIEVEMENTS:

1. Develop new materials, new concepts, and new methods to address long-standing biofouling challenges for medical and industrial applications
2. Use new materials as a tool to probe and understand the mechanisms of multiple biofouling phenomena, including biofilm, material-induced thrombosis, and foreign body reaction
3. Establish the structure-function relationships of the effective antifouling materials and develop material design principles
4. Develop new biomaterials to address critical challenges in nucleic acid, protein, and small molecular drug delivery

代表性成果 REPRESENTATIVE OUTCOMES:

Yaqian Fan, Peilang Yang, Hongyang Ma, Yang Hu,* Gang Cheng,* and Fu-Jian Xu,* One ternary nucleic acid delivery system with smart dextran-peptide coating enables in vivo and ex vivo wound therapy, 2022, Matter, https://-doi.org/10.1016/j.matt.2022.10.011
Huifeng Wang, Daniel Edward Christiansen, Shafigh Mehraeen, Gang Cheng,* Winning the fight against biofilm: A six-month study showing minimal bacterial attachment and no colony formation on zwitterionic polymers, Chemical Science, 2020,11, 4709-4721
Cao B.; Lee, J. C.; Zeng, Z. P.; Cheng, F.; Xu, F. J.; Cong, H. B.*; Cheng, G.*, Electroactive Zwitterionic Poly(sulfobetaine 3,4-ethylenedioxythiophene) (PSBEDOT) with Controllable Antimicroibal and Antifouling Properties, Chemical Science 2016, 7, 1976-1981.

Deep Sea Technology Research Lab
深海技术研究实验室

PI: Weicheng Cui
崔维成

崔维成，1986年获清华大学固体力学专业学士，1990年获英国布里斯托大学结构可靠性专业博士。1993年被中国船舶科学研究中心聘为高级工程师和硕士生导师，1995年晋升为研究员和博士生导师，1999年担任上海交通大学船舶与海洋工程学院副院长。2002年被中国船舶重工集团公司党组任命为中国船舶科学研究中心所长，并担任了“蛟龙”号总体与集成项目负责人，第一副总设计师。2013年加盟上海海洋大学，在国内高校中创立首个深渊科学与技术研究中心，发起“彩虹鱼挑战深渊极限”的项目。2018年受聘为西湖大学深海技术讲席教授。

研究成果:

崔维成教授主要从事深海装备的多学科设计优化方法研究和产品研制。曾作为“蛟龙”号总体与集成项目负责人和第一副总设计师主持“蛟龙”号潜水器研制项目，获国家科技进步一等奖和“载人深潜英雄”称号。曾获国家“百千万人才工程”一二层次首批人选（1996）、“全国优秀科技工作者”(2010）、上海市领军人才（2013）等荣誉称号，国际海洋装备展览会杰出成就奖，“Blancpain 宝珀汉斯·哈斯五十噚大奖”、首届全国创新争先人才奖（2017)等奖项。2013年起在国内科技界首次引入“国家支持+民间投入”的新模式发起“彩虹鱼挑战深渊极限”项目。在海洋结构物极限强度分析方法、疲劳寿命预报方法、多学科设计优化方法及在潜水器设计中的应用等领域，有创新性成果。已在SCI和EI杂志上发表论文共计400余篇，连续数年被Elsevier评为海洋工程领域“中国高被引学者”。2016年被《自然》杂志评为“中国十大科学之星”。现担任五本国际期刊编委，《中国造船》和《船舶力学》副主编。

Prof. Weicheng Cui received his B.Eng. degree from Tsinghua University and Ph.D. degree from University of Bristol, UK. He was the Project Leader and first Deputy Chief Designer of the Jiaolong deep manned submersible. He serves as the Project Leader and Chief Designer for the Rainbowfish Challenging the Challenger Deep. He joined the School of Engineering at Westlake University as Chair Professor of Deep Sea Technology in September 2018.

RESEARCH ACHIEVEMENTS:

Prof. Weicheng Cui mainly engages in research on methods of predicting the ultimate strength and fatigue life of marine structures and the application of the multidisciplinary design optimization method of manned submersibles. In 2016, he was named one of “China's Top Ten Science Stars” by *Nature*. He has published more than 400 papers in SCI and EI journals, being selected in Elsevier's list of China's Highly Cited Researchers. Because of his outstanding contribution to the Jiaolong manned submersible development project, he won the Blancpain Hans Hass Fifty Fathoms Award, the First Prize in National Science and Technology Progress and many honorary titles such as "The National Excellent Science and Technology Workers", "The Deep Diving Hero" awarded by the Central Committee and the State Council, and the first batch of scholars of the National Innovation Talent Award. He is currently an editorial board member of five international journals, and the associate editor-in-chief of both *Shipbuilding of China and the Journal of Ship Mechanics.*

代表性成果 REPRESENTATIVE OUTCOMES:

Multidisciplinary Design Optimization and Its Application in Deep Manned Submersible Design, Ocean Engineering & Oceanography 13, Zhejiang Science and Technology Publishing House Co., Ltd. and Springer Nature Singapore Pte Ltd., Pan, B.B. and Cui, W.C., 2020,
On an Axiomatic Foundation for a Theory of Everything, Philosophy Study, April 2021, Vol. 11, No. 4， The only author
On the Philosophical Ontology for a General System Theory, Philosophy Study, June 2021, Vol. 11, No. 6, 443-458.

Intelligent Visualization Lab
智能可视化实验室

Westlake Fellow: Shenghui Cheng
成生辉

成生辉于纽约州立大学石溪分校获得计算机科学博士学位，在德国莱比锡大学医学研究所、布鲁克海文国家实验室和美国哈佛医学院进行研究，并曾担任世界银行和西达赛奈医疗中心的顾问。他创立了Dagoo数据可视化平台；曾任CSIG-VIS大数据高峰论坛执行主席，IEEE VIS、IEEE Pacific Vis、Chinavis等项目委员会委员。

Dr. Shenghui Cheng obtained a Ph.D. in computer science from the State University of New York at Stony Brook (Stony Brook University), and conducted research at Brookhaven National Laboratory and Harvard Medical School. He also served as a consultant for the World Bank and Cedar Sinai Medical Center, US. He founded the Dagoo data visualization platform; served as the executive chairman of the CSIG-VIS Big Data Summit Forum, the program committee member of the IEEE VIS, IEEE Pacific Vis, and Chinavis etc.

研究成果:

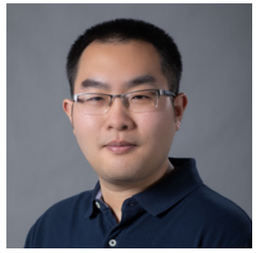
本实验室主要是应用人工智能和可视化技术来解决科学问题。研究领域包括可视化、元宇宙、可视化分析、数据挖掘、计算机图形学以及一些交叉应用。

RESEARCH ACHIEVEMENTS:

The aim of this lab is to apply the AI and visualization techniques to solve the scientific problems. The research domains include visualization, metaverse, visual analytics, data mining, computer graphics, and some cross-cutting applications.

代表性成果 REPRESENTATIVE OUTCOMES:

《元宇宙：概念、技术及生态》，成生辉，机械工业出版社，ISBN: 978-111-70354-9, 2022.
ColorMap ND: A Data-Driven Approach and Tool for Mapping Multivariate Data to Color, Shenghui Cheng, Wei Xu and Klaus Mueller, IEEE Trans. Vis. Comput. Graph, 25(2):1361-1377. 2019.
The Data Context Map: Fusing Data and Attributes into a Unified Display, Shenghui Cheng and Klaus Mueller, IEEE Trans. Vis. Comput. Graph. 22(1):121-30, 2016.



Intelligent and Informational Fluid Mechanics Laboratory
流体信息与智能化实验室

PI: Dixia Fan
范迪夏

范迪夏，1990年出生于上海。2013年获得上海交通大学船舶海洋与建筑工程学院工学学士，2016年和2019年分别获得美国麻省理工学院工学硕士和理学博士学位。2019年-2021年在麻省海洋基金委先后从事博士后研究和担任研究员职位。在2021年同时担任加拿大皇后大学机械与材料工程助理教授职位。于2022年全职加入西湖大学工学院，建立流体智能与信息化实验室（i4 – FSI Laboratory）。

Dr. Dixia Fan was born in Shanghai in 1990. He obtained his BS.c. from Shanghai Jiao Tong University, China, in 2013, and then received his MS.c and Ph.D. from MIT, the USA, in 2016 and 2019. He then worked as a postdoctorate associate and then a research scientist at MIT Sea Grant, where he established the intelligent hydrodynamics lab. In 2021, he joined Queen's University, Canada as an assistant professor in the department of mechanical and material engineering. In 2022, he joined Westlake University as an assistant professor in charge of the Intelligent and Informational Fluid Mechanics Laboratory.

研究成果:

范迪夏博士研究方向集中在流固耦合现象，多栖仿生机器人，以及人工智能在漩涡流体感知与控制中的应用。尤为突出的是，在博士与后续研究期间，范迪夏博士提出并开发了基于物理信息与数据驱动的实验流体力学研究方法：在传统的计算和实验技术更新的基础上，将数值方法，实验与统计学习之间的各研究工具更系统整合的流体实验研究方法，助力揭示经典力学之一的流体力学的强非线性以及空间和时间上多尺度性，从而为加深我们人类对于流体运动现象的基本理解以及更好地预测和控制流体问题打下坚实的研究基础。相关成果发表于*Science Robotics,Proceedings of National Academy of Science ,Journal of Fluid Mechanics*等国际期刊。

RESEARCH ACHIEVEMENTS:

Dr. Dixia Fan focuses his research on the fundamental understanding of fluid-structure interaction phenomena, bio-inspired amphibious robots design as well as AI application in vortical flow control and sensing. Based on physics-informed (and -informative) machine learning, He has been combining domain expertise (fluid mechanics, robotics, and control) and proper machine learning tools to address the inherent spatial and temporal non-linearity and multiscality of fluid-related problems at a greater scale and a broader scope. His work has been published in several esteemed Journals, include *Science Robotics, Proceedings of National Academy of Science, Journal of Fluid Mechanics* and etc.

代表性成果 REPRESENTATIVE OUTCOMES:

A robotic intelligent towing tank for learning complex fluid-structure dynamics. Science Robotics, 4(36), p.eaay5063.
Mapping the properties of the vortex-induced vibrations of flexible cylinders in uniform oncoming flow. Journal of Fluid Mechanics, 881, pp.815-858.
Reinforcement learning for bluff body active flow control in experiments and simulations. Proceedings of the National Academy of Sciences, 117(42), pp.26091-26098.

Laboratory of Functional Biomaterials
功能生物材料实验室

PI: Chengchen Guo
郭成辰

2011 年毕业于南京大学化学化工学院，获得理学学士学位；2017 年 5 月毕业于美国亚利桑那州立大学分子科学学院，获得化学博士学位；2017-2020 年在美国塔夫茨大学生物医学工程系从事博士后研究，研究兴趣主要为新型蛋白基生物高分子材料的开发和生物医学应用。

Dr. Chengchen Guo received his B.S. degree in Chemistry from Nanjing University (2011) and Ph.D. degree in Chemistry from Arizona State University (2017). Since then, he worked as a postdoctoral fellow at Tufts University, USA, from 2017 to 2020 with a research focus on design, fabrication, and applications of protein-based biomaterials.

实验室研究方向:

主要从事功能生物高分子材料的设计、制备和生物医学应用。主要研究方向为：

1. 新型蛋白基生物可吸收材料的开发及其在骨组织修复和再生方面的应用；
2. 天然生物高分子材料的结构和性能研究；
3. 功能性生物高分子纳米复合材料的开发及其在生物医学领域的应用。

RESEARCH INTERESTS:

The primary focus of our lab is to develop functional biomaterials towards clinical translation with rational design and advanced processing. Some major research topics include:

1. Protein-based bioresorbable materials for bone tissue repair and regeneration;
2. Structure and properties of natural biopolymers (e.g. silk and collagen);
3. Functional biopolymer-based nanocomposites and their biomedical applications.

代表性成果 REPRESENTATIVE OUTCOMES:

Thermoplastic Moulding of Regenerated Silk, Nat. Mater. 2020, 19, 102-108
Design of biodegradable implantable devices towards clinical translation, Nat. Rev. Mater. 2020, 5, 61-81
Bi-layered Tubular Microfiber Scaffolds as Functional Templates for Engineering Human Intestinal Smooth Muscle Tissue, Adv. Funct. Mater. 2020, 2000543

Laboratory of Aerosol-Cloud-Climate Interactions (LACCI)
气溶胶-云-气候相互作用实验室 (LACCI)

PI: Xianda Gong
宫先达

2013年和2016年分别获西北大学环境科学学士和复旦大学环境科学硕士学位。2020年在德国莱布尼茨对流层研究所取得气象学博士学位。之后在圣路易斯华盛顿大学进行博士后研究。长期致力于通过外场观测的手段研究极地和远洋气溶胶来源，以及对云凝结核和冰核贡献，对云的微物理和气候变化的影响。相关研究成果发表在*Bulletin of American Meteorology Society, Atmospheric Chemistry and Physics, JGR Atmospheres*等国际期刊上。

Dr. Gong received his Bachelor's degree from Northwest University in 2013 and a Master's degree from Fudan University in 2016, both in Environmental Science. Dr. Gong received his Ph.D. degree in Meteorology from Leibniz Institute for Tropospheric Research (Leipzig University, Germany) in 2020. He then worked as a Postdoctoral Research Associate at Washington University in St. Louis. Dr. Gong has so far published 17 peer-reviewed papers on these topics in journals such as *Bulletin of American Meteorology Society, Atmospheric Chemistry and Physics,* and *JGR Atmospheres.*

实验室研究方向:

气溶胶 - 云 - 气候相互作用实验室的主要研究方向：

(1) 运用可解释的机器学习算法解释极端环境中（例如南北极和第三极）云凝结核和冰核的调控机理；

(2) 滨海，远洋地区冰核的来源（主要是生物气溶胶的贡献），理化特性以及对气候变化的影响；(3) 极地地区风吹雪对云凝结核，冰核的贡献以及对气候变化的影响等。

RESEARCH INTERESTS:

(1) Using explainable deep learning algorithms to understand the controlling factors of cloud condensation nuclei and ice-nucleating particles in extreme environments, such as the Arctic, Antarctic, and third poles.
(2) Ice nucleating particles, especially the biological ice nuclei, in coastal and remote marine regions.
(3) Blowing snow contribution to cloud condensation nuclei, ice-nucleating particles, and climate effect in polar regions.

代表性成果 REPRESENTATIVE OUTCOMES:

Characterization of aerosol particles at Cabo Verde close to sea level and at the cloud level – Part 2: Ice-nucleating particles in air, cloud and seawater, Atmos. Chem. Phys., 20, 1451–1468
Significant continental source of ice-nucleating particles at the tip of Chile's southernmost Patagonia region, Atmos. Chem. Phys., 22, 10505–10525
Size distribution and mixing state of black carbon particles during a heavy air pollution episode in Shanghai, Atmos. Chem. Phys., 16, 5399–5411

Microbiome Engineering Lab
微生物组工程实验室

PI: Po-Yi Ho
何柏毅

何柏毅，西湖大学工学院助理教授，目前主要研究方向为微生物群的定量工程，广泛研究方向包括生物物理学、合成生物学、微生物生态与进化学等。2014 年获美国耶鲁大学物理学学士学位，2019 年获美国哈佛大学应用物理学博士学位，2019 年至 2023 年在斯坦福大学从事博士后工作。

Po-Yi Ho is an assistant professor in the School of Engineering at Westlake University. He received his BS in physics from Yale University in 2014 and his PhD in applied physics from Harvard University in 2019. From 2019 to 2023, he was a postdoctoral researcher at Stanford University, where he developed mathematical models and experimental systems to engineer microbial communities. He is broadly interested in biophysics, synthetic biology, and microbial ecology and evolution.

实验室研究方向:

（1）微生物生态和进化的定量原理
（2）合成微生物群
（3）生物物理、定量生物学、系统生物学

RESEARCH INTERESTS:

1. Quantitative principles in microbial ecology and evolution
2. Synthetic microbiotas
3. Biophysics, quantitative biology, and systems biology

代表性成果 REPRESENTATIVE OUTCOMES:

Ho P, Good BH, and Huang KC., Competition for fluctuating resources reproduces statistics of species abundance over time across wide-ranging microbiotas., eLife, 11:e75168 (2022).
Cheng AG*, Ho P*, …, Huang KC, and Fischbach MA., Design, construction, and in vivo augmentation of a complex gut bacterial community, Cell, 185:3617-3636 (2022).
3.Ho P, Lin J, and Amir A., Modeling cell size regulation: From single-cell level statistics to molecular mechanisms and population level effects, Annual Review of Biophysics, 47:251-271 (2018).

Laboratory of Architectonic Materials and Processing
微纳构建和材料加工实验室

PI: Jiaxing Huang
黄嘉兴

黄嘉兴 2000 年毕业于中国科大化学物理专业，2004 年于美国加州大学洛杉矶分校取得化学博士学位并获得加州大学伯克利分校米勒研究奖资助开展博士后研究。2007-2021 年执教于美国西北大学材料科学与工程系，2021 年 8 月全职加入西湖大学，受聘为材料科学与工程讲席教授。现任美国化学会首份国际合作期刊 *Accounts of Materials Research* 的创刊主编，同时也担任包括 *Science China Chemistry, Science China Technological Sciences, Materials Chemistry Frontiers, Aggregates, Carbon, Chemistry of Materials, Matter* 等重要期刊的编委。

Jiaxing Huang received his B.S. degree in Chemical Physics from University of Science and technology of China in 2000 and Ph.D. in Chemistry from University of California, Los Angeles in 2004, after which he became a Miller Fellow at University of California, Berkeley. From 2007 to 2021, he was an Assistant Professor, Morris E. Fine Junior Professor in Materials and Manufacturing, Associate Professor and Full Professor of Materials Science and Engineering at Northwestern University in Evanston, IL USA. He joined Westlake University as a Chair Professor of Materials in August 2021.

研究成果:

黄嘉兴教授在胶体纳米材料的合成，加工以及应用方面做出了一系列原创性的工作。课题组研究方向包括二维软材料、新型块体纳米结构材料及与个人护理和公共卫生相关的新材料等。曾获得国际气溶胶联合会 Fissan-Pui-TSI 研究奖、美国古根海姆奖、日本学术振兴会 JSPS Fellow、德国洪堡研究奖等多项重要奖项和荣誉，并连年被列为全球高被引科学家。

RESEARCH ACHIEVEMENTS:

Prof. Huang enjoys integrating education and research to enhance learning experience for his students and himself. His group uses chemical principles and tools to discover new materials, advance materials processing, and use material innovations for better living including personal care and public health. He received the Guggenheim Fellowship in 2014, the JSPS Fellowship from Japan in 2016, and the Humboldt Research Award from Germany in 2016. He is a Fellow of the American Association for the Advancement of Science, a Member of European Academy of Sciences and Arts, and the founding Editor-in-Chief of *Accounts of Materials Research*.

代表性成果 REPRESENTATIVE OUTCOMES:

COVID-19: A Call for Physical Scientists and Engineers, ACS Nano, 2020, 14, 3747-3754
Droplet-capturing coatings on environmental surfaces based on cosmetic ingredients, Chem, 2021, 7, 2201-2211
Cresol-carbon nanotube charge-transfer complex: Stability in common solvents and implications for solution processing, Matter, 2020, 3, 302-319

Quantum Dots Lab
量子点实验室

PI: Botao Ji
冀波涛

2007 年毕业于山东大学化学专业，获学士学位；2010 年毕业于山东大学纳米材料化学专业，获硕士学位；2014 年毕业于法国巴黎第六大学物理化学专业，获博士学位；2015 年至 2018 年，在以色列希伯来大学从事博士后研究。主要从事无机纳米晶的合成及光电性质研究。

Dr. Botao Ji received his B.S. (2007) in Chemistry from Shandong University, P. R. China and Ph.D. (2014) in physical chemistry from École Supérieure de Physique et de Chimie Industrielles de la Ville de Paris (ESPCI), France. His Ph.D. research was about the synthesis and optical properties of plasmonic fluorescent quantum dots. Then he worked in Prof. Uri Banin' s group in Hebrew University of Jerusalem (Israel) as a postdoctoral researcher between 2015 and 2018, during which he mainly focused on heavy-metal-free colloidal semiconductor nanorods. He joined the School of Engineering, Westlake University as a principal investigator in January 2019.

实验室研究方向:

课题组目前主要从事主要从事胶体半导体纳米晶的合成、表征和性质研究，今后将着重致力于发展绿色、低毒高质量纳米晶体（包括半导体和金属）的合成及其光电性质研究，探索材料在显示、照明、光电探测以及生物标记等领域的应用。

RESEARCH INTERESTS:

Quantum dots (QDs) are tiny colloidal semiconductor nanocrystals with typical size between 1 and 10 nm. Due to their size-/shape-dependent properties, QDs show great potential in many applications including light-emitting diodes (LEDs), solar cell, photocatalysis and bio-imaging. Dr. Botao Ji is interested in synthesis and optical/electronic properties of heavy-metal-free QDs and developing new applications based on their unique properties.

代表性成果 REPRESENTATIVE OUTCOMES:

Dielectric Confinement and Excitonic Effects in Two-Dimensional Nanoplatelets, ACS Nano 2020, 14, 7, 8257–8265
ZnSe/ZnS Core/Shell Quantum Dots with Superior Optical Properties through Thermodynamic Shell Growth, Nano Letters 2020, 20, 2387-2395
Metallic Conductive Luminescent Film, ACS nano 2019, 13, 10826-10834）

Beyond Mechanics with Societal Impact (DETECT) Lab
跨力学实验室

PI: Hanqing Jiang
姜汉卿

2001年在清华大学取得工学博士学位，于2006年开始任教于美国亚利桑那州立大学，于2011年获得终身职位，并于2016年评为正教授。2021年6月全职加入西湖大学工学院，任机械工程讲席教授。已在包括 *Science*, *Nature Energy*, *Nature Nanotechnology*, *Science Advances*, *PNAS*以及*Nature Communications* 等顶级刊物上发表130余篇学术论文。他的研究工作获批了超过20项国际专利，在美国和中国孵化了多家创业公司。于2016年当选美国机械工程师协会会士（ASME Fellow），2021年获得Worcester Reed Warner Medal （ASME工程文献类最高奖项）；2022年担任国际协会Society of Engineering Science的主席。现任美国机械工程师协会材料学部的执行委员会成员（将于2025年担任执行委员会主任），和多个国际学术期刊编辑和编委，包括 *Extreme Mechanics Letters*， *Research (AAAS/Science Partner Journal)*等领域顶刊。

Dr. Hanqing Jiang received his Ph.D. from Tsinghua University in 2001, majoring in Solid Mechanics. Before joining Westlake University in June 2021, he was a professor (2016-2021), associate professor (2011-2016), and assistant professor (2006-2011) of Mechanical Engineering at Arizona State University. Jiang joined Westlake University as Chair Professor of Mechanical Engineering in 2021. He has published 5 book chapters and more than 130 peer-reviewed journal papers, including in leading scientific journals, such as *Science, Nature Energy, Nature Nanotechnology, Science Advances, PNAS, Nature Communications*, etc. Many of his papers are among the top cited papers in mechanics and/or mechanical engineering communities. His work has led to more than 20 issued patents and several startup companies in the US and in China. He was elected to an ASME Fellow in 2016. He was the president of the Society of Engineering Science in 2022. He is a member of the executive committee of the Materials Division of ASME and will be the chair of this committee in 2025.

研究成果：

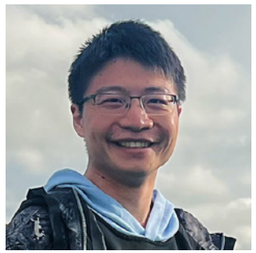
姜汉卿教授长期从事材料、力学及多场耦合问题的理论和应用研究，在纳米材料、柔性电子、锂电池中的力—电—化学耦合作用、智能折纸、机械超材料以及食物级别可食用电子等领域均取得了丰硕成果。

RESEARCH ACHIEVEMENTS:

Dr. Jiang has diversified research areas, focused on multi-physics interactions of novel mechanics of materials and structures. He initiated several research topics, including origami-based mechanical metamaterials and devices, stress relaxation in lithium metal batteries, and food-based edible electronics and systems.

代表性成果 REPRESENTATIVE OUTCOMES:

In Situ Stiffness Manipulation Using Elegant Curved Origami, Science Advances, 6
Data-Driven Automated Discovery of Variational Laws Hidden in Physical Systems, Journal of the Mechanics and Physics of Solids, 137, 103871
A Robust and Versatile Finite Element Implementation to Study the Time-Dependent Behaviors of Responsive Gels, Extreme Mechanics Letters, 22, 89-97



Organic Functional Materials Laboratory
有机功能材料研发室

PI: Zexin Jin
金泽鑫

金泽鑫于 2014 年获得北京大学化学与分子工程学院材料化学学士学位；2019 年获得斯坦福大学化学博士学位；2019-2023 年在哥伦比亚大学从事基于有机功能性材料研发的博士后研究。金泽鑫博士的主要学术成果包括研发高效的合成方法学，探究新型有机材料结构 - 功能关系，设计合成独特的有机（高）分子功能材料应用于有机光电领域以及能源材料领域。

Dr. Jin received his bachelor degree at Peking University in Materials Chemistry in 2014. In 2019, he obtained his Ph.D. degree at Stanford University with Prof. Yan Xia. After that, he worked with Prof. Colin Nuckolls at Columbia University as a postdoctoral researcher. Dr. Jin's research focuses on developing new synthetic strategy towards novel organic (polymeric) functional materials in various applications.

实验室研究方向：

金泽鑫课题组将以有机合成化学研发为基础，在有机化学、材料化学的交叉领域，设计合成新型的有机（高）分子功能材料，并探究它们在有机光、电、磁器件中的应用。

RESEARCH INTERESTS:

Jin research group will interface with organic chemistry and materials science to develop novel materials with creative designs, in order to establish new sustainable materials for organic electronics, organic spintronics and energy storage applications.

代表性成果 REPRESENTATIVE OUTCOMES：

Remote Control of Dynamic Twistacene Chirality, J. Am. Chem. Soc. 2022, 144, 18772.
Iterative Synthesis of Contorted Macromolecular Ladders for Fast-Charging and Long-Life Lithium Batteries, J. Am. Chem. Soc. 2022, 144, 13973.
Streamlined Synthesis of Polycyclic Conjugated Hydrocarbons Containing Cyclobutadienoids via C–H Activated Annulation and Aromatization, J. Am. Chem. Soc. 2017, 139, 1806.

Environmental Microbiome and Biotechnology Laboratory (EMBLab)
环境微生物组与生物技术实验室

PI: Feng Ju
鞠 峰

2008 年毕业于江汉大学环境工程系，获工学学士学位；2011 年毕业于华南理工大学环境工程系，获工学硕士学位；2015 年毕业于香港大学土木工程系，获工学博士学位；2015-2018 年在瑞士 EAWAG 研究所从事博士后研究。鞠峰博士凭借在环境微生物组与生物技术方向的创新成果，获得了中国生态学学会“微生物生态青年科技创新奖特等奖”（2018）、香港科学会“Young Scientist Award”（2016）和香港大学“Award for Outstanding Research Postgraduate Student”（2014—2015）；目前担任中国工程院院刊《*Engineering*》编委、*Frontiers* 系列期刊《生物工程与生物技术》、《环境科学前沿》和《微生物学前沿》编委会成员与审稿编辑。

Dr. Feng Ju received his bachelor's degree, master's degree and Ph.D. degree in Environmental Engineering from Jianghan University (2008), South China University of Technology (2011), and The University of Hong Kong (HKU, 2015). From November 2015 to 2018, he worked as a postdoc at EAWAG in Switzerland. Dr. Ju received the 2018 Young Scientist Awards for Microbial Ecology by Ecological Society of China, 2016 Young Scientist Awards by Hong Kong Institution of Science, and the 2014-2015 Award for Outstanding Research Postgraduate Student by HKU. He serves as an editorial board member of the Transactions of Chinese Academy of Engineering since 2020, and a review editor and board member of Frontiers journals since 2019.

实验室研究方向：

环境微生物组与生物技术实验室致力于环境工程与微生物生态交叉学科的前沿研究，研究兴趣包括：

1. 微生物组、环境、生物技术效能的关联；
2. 环境生物修复与生物资源化技术；
3. 微生物群落构建机制与时空演变规律；
4. 工程微生物组功能的靶向调控。旨在通过应用基础研究阐明微生物组、环境因素、生物工艺过程功能之间的联系，实现更高效的环境生物修复与生物资源化，以通过微生物工程调控加强生物修复、生物合成和生物资源回收过程。

RESEARCH INTERESTS:

The EMBLab is dedicated to cutting-edge research in the interdisciplinary field of environmental engineering and microbial ecology. Its research interests include:
1. nexus between microbiome, environment, and biotechnology;
2. environmental bioremediation and bio-resourcization;
3. microbiome assembly mechanisms and tempo-spatial succession;
4. targeted functional regulation of engineered microbiome. The aim is to elucidate the nexus between microbiome, environment and biotechnology functioning, to achieve more efficient environmental bioremediation and bio-resourcization, and thus to engineer microbiome for improved bioremediation, biosynthesis and bioresource recovery.

代表性成果 REPRESENTATIVE OUTCOMES：

Metformin chlorination byproducts in drinking water exhibit marked toxicities of a potential health concern, Environment International (146)106244
Unraveling the riverine antibiotic resistome: the downstream fate of anthropogenic inputs, Water Research. (197)117050
Metagenomics unravels differential microbiome composition and metabolic potential in rapid sandfilters purifying surface water versus groundwater, Environmental Science & Technology. 2020, 54, 8, 5197-5206

Advanced Solid-state Semiconductor Laboratory
先进固态半导体实验室

PI: Wei Kong
孔 玮

2007 年于中山大学获学士学位；2016 年于杜克大学获博士学位；2016 年至 2019 年在麻省理工学院从事博士后研究。孔玮博士研究方向包括 III-V、II-VI 族三维半导体以及石墨烯、氮化硼、过渡金属硫化物等二维材料的合成技术与工艺，已在相关领域发表具有广泛影响力的研究报告；研究成果开拓了异质材料多功能集成的新研究方向。

Dr. Kong received his bachelor's degree from Sun Yat-sen University, China, in 2007, and Ph.D. degree in Electrical and Computer Engineering from Duke University in 2016. He worked as a postdoc in Massachusetts Institute of Technology, USA, before joining Westlake University in 2020. Dr. Kong has published more than 25 research papers, among them eight are in Science, Nature, Nature Materials, Nature Nanotechnology, Nature Electronics. Dr. Kong was selected as the 2018 Energy Fellow of MIT.

实验室研究方向:

主要从事高性能半导体材料生长、集成工艺开发，以及器件应用研究。主要研究方向为：

1. 开发新型二维材料或超薄准二维材料，现阶段涉及的材料为 III-V 族氮化物、II-VI 族氧化物，以及石墨烯、氮化硼、过渡金属硫化物；
2. 开发堆叠形成的三维异质结构工艺，探索界面产生的包括力学、电学、光学、热学等物理现象；
3. 并由此开发功能集成及应用。

本实验室研究致力于开拓超微型多功能集成芯片的新解决方案，并应用于人工智能、人机界面、物联网等未来场景。

RESEARCH INTERESTS:

The research interests of our lab are in the synthesis and processing of novel high-performance semiconductor materials, and their applications in electrical and optical devices. Our recent directions focus on the development of single-crystalline ultrathin semiconductor materials, including 2D materials (graphene, hBN and TMDCs), and free-standing III-V nitrides, II-VI oxides membranes. We aim to develop the platform for heterointegration of dissimilar thin film semiconductors, in order to achieve the multi-functionalities required in the emerging applications such as in internet of things, artificial intelligence, human-machine interfacing.

代表性成果 REPRESENTATIVE OUTCOMES:

Path towards graphene commercialization from lab to market, Nature Nanotechnologies 14, 927-938, 2019
Heterogeneous integration of single-crystalline complex-oxide membranes, Nature, accepted, 2019
Epitaxial growth and layer-transfer techniques for heterogeneous integration of materials for electronic and photonic devices, Nature Electronics 2, 439-450, 2019

Deep Learning Lab
深度学习实验室

PI: Zhenzhong Lan
蓝振忠

2010 年本科毕业于中山大学获工学学位。2010 ～ 2012 年间，他是卡耐基梅隆大学感知实验室访问学者。2017 年 5 月博士毕业于卡耐基梅隆大学计算机学院。博士毕业后，他加入一家位于洛杉矶的智能监控企业作为研发主管。他于 2018 年 2 月加入谷歌 AI 研究所。期间所发表的自然语言理解模型 ALBERT 是目前最好的自然语言理解模型之一。

Dr. Zhenzhong Lan received his bachelor's degree from Sun-Yat Sen University in 2010. He then spent two years at the human sensing lab at CMU as a visiting scholar. Between 2012 and 2017, he was a Ph.D. student at School of Computer Science, CMU. He then joined a LA-based smart surveillance startup and served as a director of R&D before he left to join Google AI in Feb. 2018. At Google, he published one of the best natural language understanding models in the world called ALBERT.

实验室研究方向:

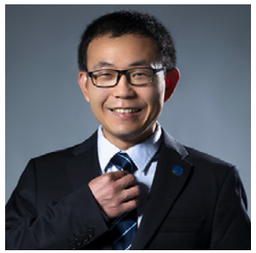
实验室的研究领域为深度学习及其在在自然语言处理和计算机视觉中的应用。实验室主要关注有大规模工业应用影响的算法，如自然语言理解算法。当前主要针对基于话题的多轮对话系统，研究如何提高其对话时长和对话质量，从而使其能用于智能心理测评和心理辅助治疗。

RESEARCH INTERESTS:

The research field of Dr. Lan's lab includes deep learning and its application on natural language understanding and computer vision. They mostly do applied research that has industry impact. Currently, they try to improve the duration and quality of multi-round topic-based conversation system, which hopefully can be used for smart psychological evaluation and psychotherapy.

代表性成果 REPRESENTATIVE OUTCOMES:

ALBERT: A Lite BERT for Self-supervised Learning of Language, Arxiv, 2019
Multi-stage Pretraining for Abstractive Summarization, Arxiv, 2019
Deep local video feature for action recognition, CVPR workshops 2017



Digital Porous Media Laboratory
数字多孔介质实验室

PI: Liang Lei
雷亮

2009 年与 2012 年获同济大学工学学士与工学硕士学位，2017 年获美国佐治亚理工学院博士学位。2017-2020 年在美国国家能源技术实验室从事博士后研究。于 2020 年全职加入西湖大学工学院，建立数字多孔介质实验室 (Digital Porous Media Laboratory)。

Dr. Liang Lei obtained his bachelor's and master's degree from Tongji University in 2009 and 2012, and Ph.D. from the Georgia Institute of Technology in 2017, and worked as a post-doc research fellow at National Energy Technology Laboratory from 2017 to 2020. He joined the School of Engineering in Westlake University and established Digital Porous Media Laboratory in 2020.

实验室研究方向:

雷亮博士长期研究多种类型的孔隙介质，有从事海洋高压环境下相关研究的丰富经验，主要通过温度 - 渗流 - 化学 - 应力多物理场耦合实验对物质和能量在孔隙介质中的运移（单相和多相渗流）和相变（溶解、沉淀、气化、凝固和融化）等物理化学过程进行多尺度的系统研究。本实验室的研究突出以下几个特色：温度、压力以及应力的控制，结合 micro-CT 技术及传统测试方法的三维孔隙尺度研究，多物理场耦合的实验研究及理论分析。基于这几项特色，本实验室研究方向包括：非常规环境条件下颗粒材料、孔隙材料及材料与孔内多相介质的相互作用，地学方向课题涵盖海洋能源与资源、永冻土及地外环境下的沉积物，能源方向包括天然气水合物的形成与开采和大体量能源储存，另有其它基础研究方向如孔隙介质中的多相流和晶体生长等。

RESEARCH INTERESTS:

Dr. Liang Lei has been working on various types of porous media, research topics associated with high pressure marine environments, and thermal-hydraulic-chemical-mechanical coupled experiments to explore mass and energy transfer in porous media (single- and multi- phase flow) and phase change (dissolution, precipitation, dissociation, freezing, melting and etc.) at multiple scales. Our research on porous media features temperature, pressure and stress control, pore-scale insights based on micro-CT technique integrated with conventional testing, multi-physics experiments and theoretical analysis. Targeted areas include:
1. particulate material and porous media under abnormal conditions and their interaction with pore constituents;
2. energy, marine, and resource geo-engineering;
3. permafrost and outer space sediments;
4. natural gas hydrates and their hosting sediments;
5. massive energy storage;
6. multi-phase flow and crystallization in porous media.

代表性成果 REPRESENTATIVE OUTCOMES:

Pore-scale investigation of methane hydrate-bearing sediments under triaxial condition, Geophysical Research Letters, 47 (5), e2019GL086448
Pore habit of methane hydrate and its evolution in sediment matrix – Laboratory visualization with phase-contrast micro-CT, Marine and Petroleum Geology, 104, 451-467
Methane hydrate film thickening in porous media, Geophysical Research Letters, 46(20), 11091-11099

Flexible Integrated Photonics Lab
柔性集成光子实验室

PI: Lan Li
李兰

2010 年毕业于中国科学技术大学材料科学与工程系，获得理学学士学位；2016 年 2 月毕业于美国特拉华大学，获得博士学位；自 2016 年 3 月起加入美国麻省理工学院从事博士后研究。博士、博士后阶段一直致力于柔性集成光子领域的研究。2015 年获得中国国家留学基金委颁发的国家优秀自费留学生奖，2016 年获美国陶瓷协会玻璃光学材料分会授予研究生的最高奖 Norbert J. Kreidl Award for Young Scholars。

Dr. Lan Li obtained her B.S. degree from University of Science and Technology of China (2010) and Ph.D. degree from University of Delaware (2016), both in Materials Science and Engineering. Since then she has been the postdoctoral associate at the Massachusetts Institute of Technology and continues working in the field of flexible integrated photonics. She was recognized with the Chinese Government Award for Outstanding Students Abroad (2015) and Norbert J. Kreidl Award for Young Scholars (2016) by American Ceramic Society Glass and Optical Materials Division.

实验室研究方向:

该实验室瞄准新型柔性集成光子技术开展全面系统的基础研究和应用开发。相关研究方向包括但不限于以下内容：

1. 开发先进可靠的柔性光子器件与新型材料（红外光学玻璃，生物相容性氧化物，高分子聚合物，2D 材料，半导体膜等）的关键集成技术和器件测试方法；
2. 优化器件结构设计研制柔性完整光子回路所需的多种无源、有源核心组件；
3. 功能性柔性光电芯片在可穿戴传感，光互连和生物技术领域的研究和应用。

RESEARCH INTERESTS:

The primary focus of our laboratory's research is the technology development as well as the practical implementation of flexible integrated photonics. The related research directions include but are not limited to the following:
1. Photonic integration development with novel materials such as infrared optical glass materials, biocompatible oxides, polymer, 2D materials, semiconductor membrane, etc.;
2. Design, fabrication and testing of passive and active components with new functionalities;
3. Investigation and application of flexible photonic chip in the field of wearable sensing, optical interconnect, and biotechnology.

代表性成果 REPRESENTATIVE OUTCOMES:

Free-spectral-range-free filters with ultrawide tunability across the S + C + L band, Photon. Res. 9, 1013-1018，2021
Monolithic stretchable integrated photonics, Light: Science & Applications, 7, 17138，2018
High-performance flexible waveguide-integrated photodetectors, Optica, 5, 44-51，2018

Eco-Environmental Research Laboratory
生态环境研究实验室

PI: Ling Li
李 凌

李凌,1988年获清华大学环境工程工学学士，于1994年和1998年分别获得西澳大利亚大学环境工程工学硕士、博士。1997-1998年任澳大利亚迪肯大学工程技术学院讲师，1999-2022年任英国爱丁堡大学土木与环境工程学院讲师，2022-2015年任澳大利亚昆士兰大学工学院高级讲师，2005年晋升土木工程学院教授。2018年任西湖大学环境水文学讲席教授。2020年任西湖大学工学院常务副院长。

Prof. Ling Li received his B.Eng. degree from Tsinghua University and Ph.D. degree from the University of Western Australia. He became a professor in the School of Civil Engineering, University of Queensland, in 2005. He joined the School of Engineering at Westlake University as Chair Professor of Environmental Hydrology in September 2018. He has been the Associate Dean of the School of Engineering in 2019.

研究成果:

李凌教授主要从事复杂环境系统的模拟研究，是“地下河口”理论的创建人之一；在研究陆地、海洋交界带地表水与地下水的相互作用方面取得了多项突破性成果，极大地促进我们对这一区域复杂环境、生态系统的认识。在国际期刊发表学术论文逾 230 篇。他先后获得澳大利亚研究基金委青年研究奖、昆士兰大学杰出研究奖、中国国家自然科学奖二等奖、教育部自然科学奖一等奖和中国国家自然科学基金委员会杰出青年基金资助。他主持过澳大利亚国家地下水研究中心重大专项和科技部“973”项目课题。现任 *Water Science and Engineering* 杂志主编、*Advances in Water Resources* 杂志编委。

RESEARCH ACHIEVEMENTS:

Prof. Li’ s principal research interests lie in the mathematical modelling of complex environmental systems. He was a pioneer researcher on subterranean estuaries. His work addresses fundamental aspects of ocean-land interactions and has contributed to the development of many emerging concepts and research directions in the field. He developed the first theoretical model of submarine groundwater discharge that incorporates oscillating groundwater flow and circulation driven by tides and waves. He was awarded an Early Career Researcher Award by the Australian Research Council, University of Queensland Foundation Research Excellence Award, National Natural Science Award of China (2nd Class), Natural Science Award of the Ministry of Education of China (1st Class), and National Science Fund for Distinguished Young Scholars from National Natural Science Foundation of China. He is currently a co-editor of *Water Science and Engineering* and a member of the editorial board of *Advances in Water Resources*.

代表性成果 REPRESENTATIVE OUTCOMES:

Quantification of Natural CO2 Emission Through Faults and Fracture Zones in Coal Basins, Geophysical Research Letters 48 (7), e2021GL092693, 2021
Missing water from the Qiangtang Basin on the Tibetan Plateau, Geology (2021) 49 (7): 867–872
Mitigation of impact of a major benzene spill into a river through flow control and in-situ activated carbon absorption, Water Research，Volume 172, 1 April 2020, 115489

Materials Modeling and Design Lab
材料模拟与设计实验室

PI: Wenbin Li
李文彬

2008 年本科毕业于浙江大学；2011 年获美国宾夕法尼亚州大学硕士学位；2015 年获美国麻省理工学院材料科学与工程博士学位。2015-2017 年在麻省理工学院电子研究实验室从事博士后。2017-2019 年任英国牛津大学玛丽居里研究员。曾获得欧盟 Marie Sklodowska-Curie Individual Fellowship 和牛津大学 Wolfson 学院 Junior Research Fellowship，并作为团队成员获 2016 年美国百大科技研发奖（R&D 100 Award）。

Dr. Wenbin Li received his bachelor’ s degree from Zhejiang University (2008), master’ s degree from the University of Pennsylvania (2011), and Ph.D. degree from MIT (2015), all in Materials Science and Engineering. From 2015 to 2017, he was a postdoctoral associate at the Research Laboratory of Electronics of MIT. Between 2017 and 2017, he worked at the University of Oxford as a Marie Curie Fellow. He has received a number of awards, including the Marie Sklodowska-Curie Individual Fellowship and the Junior Research Fellowship of Wolfson College. He was also a member of the research team that won the 2016 R&D 100 Award.

实验室研究方向:

主要从事硫系功能材料电声子相互作用、电学输运性质，以及低维相变的第一性原理研究。同时开展自组装软物质材料，特别是多肽凝胶体系的分子模拟与人工智能辅助设计研究。致力于开发和运用第一性原理计算、多尺度模拟，以及机器学习等手段，在基本物理层面实现对材料性能及其变化规律的深入理解，并结合物理规律和人工智能来预测和筛选新材料，以期实现新型功能材料的加速研发。

RESEARCH INTERESTS:

The research of our group is centered on first-principles understanding of the electron-phonon interactions, charge transport properties, and low-dimensional phase transitions of advanced functional chalcogenides. The group is also interested in molecular modeling and artificial intelligence assisted design of self-assembling soft materials, in particular peptide-based gels. By developing and employing first-principles calculations, multiscale modeling, and artificial intelligence, we aim to provide fundamental insights into the structure and properties of advanced functional materials, with the hope of accelerating the discovery of new materials for the benefit of society.

代表性成果 REPRESENTATIVE OUTCOMES:

Giant modulation of the electron mobility in semiconductor Bi_2O_2Se via incipient ferroelectric phase transition, Journal of the American Chemical Society, 144, 4541-4549, 2022
Phase transitions in 2D materials, Nature Reviews Materials 6, 829–846, 2021
Dimensional crossover in the carrier mobility of 2D semiconductors: the case of InSe, Nano Letters, 19, 1774-1781, 2019

Audio Signal and Information Processing Lab
音频信号与信息处理实验室

PI: Xiaofei Li
李晓飞

2007 年本科毕业于北京机械工业学院；2013 年获北京大学理学博士学位；2014 年 2 月至 2019 年 12 月在法国国家信息与自动化研究所 (Inria Grenoble Rhône-Alpes) 工作，历任博士后、Starting Researcher。研究方向为音频与语音信号处理。

Dr. Xiaofei Li received his bachelor's degree from Beijing Institute of Machinery, China, in 2007, and Ph.D. degree from Peking University, China, in 2013. He worked in PERCEPTION group at Inria Grenoble Rhône-Alpes as a post-doctoral researcher from Feb. 2014 to Jan. 2016, and as a starting researcher from Feb. 2016 to Dec. 2019. His field of expertise is audio and speech signal processing.

实验室研究方向:

应用麦克风阵列信号处理与机器 / 深度学习技术，致力于以下三个研究方向：

1. 音频信号处理：语音 / 声音增强、声源分离等；
2. 音频内容理解：声音事件检测与识别、鲁棒的语音 / 说话人识别等；
3. 空间声学：声学环境及传播通道辨识、声源定位与跟踪、声场重建等。

RESEARCH INTERESTS:

Based on microphone array signal processing and machine/deep learning techniques, research topics include:

1. Audio signal processing: speech/sound enhancement, sound source separation;
2. Audio content understanding: sound event detection and recognition, environmental robust speech/speaker recognition;
3. Spatial acoustic: acoustic environment and propagation identification, sound source localization and tracking, sound field reproduction.

代表性成果 REPRESENTATIVE OUTCOMES:

Online localization and tracking of multiple moving speakers in reverberant environments, IEEE Journal of Selected Topics in Signal Processing, 13(1): 88-103, 2019
Multichannel speech separation and enhancement using the convolutive transfer function, IEEE/ACM Transactions on Audio, Speech, and Language Processing 27 (3): 645-659, 2019
Estimation of the direct-path relative transfer function for supervised sound-source localization, IEEE/ACM Transactions on Audio, Speech, and Language Processing, 24(11): 2171-2186, 2016

AI Research and Innovation Laboratory
人工智能研究与创新实验室

PI: Stan Z. Li
李子青

李子青（Stan Z. Li），1982 年获湖南大学学士学位，1986 年获国防科技大学硕士学位，1991 年至 2000 年任新加坡南洋理工大学研究员、讲师、高级讲师、副教授。2000 年辞去新加坡南洋理工大学终身教职，加盟微软亚洲研究院担任 Research Lead。2004 年至 2019 年任中科院自动化研究所资深研究员、生物识别与安全技术研究中心主任。2019 年任西湖大学人工智能技术讲席教授。

Stan Z. Li received his Ph.D. degree from Surrey University, UK, in 1991. He was elected IEEE Fellow in 2009, and awarded an Honorary Doctorate from Oulu University, Finland in 2013. He worked at Microsoft Research Asia as a Research Lead between 2000 and 2004, and as the director of the Center for Biometrics and Security Research, Chinese Academy of Sciences between 2004 and 2019. Before that, he was an associate professor (tenure) at Nanyang Technological University, Singapore. He joined Westlake University as Chair Professor of Artificial Intelligence in 2019. His current interests include AI, data analytics, machine learning, and AI+ cross-disciplinary research.

研究成果:

李子青教授主要从事人工智能理论与技术研究，包括数据科学和机器学习基础理论与方法研究，以及人工智能跨学科应用研究。2009 年当选 IEEE Fellow, 2013 年获芬兰 Oulu 大学荣誉博士。发表论文 400 余篇，著作 10 部，谷歌引用 59000 余次；获准发明专利 20 余项 制定国际／国家／行业标准共 20 余项。2004 年来担任 100 余个国际学术会议大会主席、程序主席，或程序委员；代表中国撰写了中国第一个生物识别国际标准获采纳，并在 ISO 全会上作了“生物特征识别在中国”的主题演讲。曾任人工智能顶级刊物 IEEE T-PAMI 等学术期刊副编，自然科学基金、国家科技支撑计划、国家重大专项、国家科学技术奖、EU projects 等评审专家。2001 年在微软研发了世界首个实时人脸识别系统（比尔盖茨接受 CNN 专访为之讲解），2005 年设计实施了罗湖自助通关系统，2008 年设计实施了北京奥运人脸识别系统。作为项目负责人或课题负责人，主持研发了 10 余项国家和省部级项目或课题，包括国家自然科学基金、科技创新 2030、863、115 和 125 国家科技支撑计划、135 国家重大专项等。

RESEARCH ACHIEVEMENTS:

Stan Z. Li has published 400+ papers in international journals and conferences, and authored and edited nine books, with over 59,000 Google Scholar citations. Among these are *Markov Random Field Models in Image Analysis* (Springer), *Handbook of Face Recognition* (Springer) and *Encyclopedia of Biometrics* (Springer). He served as an associate editor of *IEEE Transactions on Pattern Analysis and Machine Intelligence* and organized over 100 international conferences or workshops as a co-chair or PC member. The EyeCU face recognition system he developed at Microsoft Research was showcased by Bill Gates during a CNN interview. He delivered a plenary speech “*Biometrics in China*” at ISO/IEC JTC1/SC37 on behalf of the China National Body.

代表性成果 REPRESENTATIVE OUTCOMES:

Learning Meta Face Recognition in Unseen Domains, Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2020
Relation-aware pedestrian attribute recognition with graph convolutional networks, Proceedings of the AAAI Conference on Artificial Intelligence, 2020
Phenotype Classification using Proteome Data in a DataIndependent Acquisition Tensor Format, Journal of the American Society for Mass Spectrometry, 31(11):2296-2304, 2020

Learning and INference Systems (LINs) Laboratory
学习与推理系统实验室

PI: Tao Lin
林 涛

林涛博士 2014 年毕业于浙江大学电气工程学院，并分别于 2017 年和 2022 年在瑞士洛桑联邦理工学院 (EPFL) 获得硕士与博士学位。林涛博士将于 2023 年初加入西湖大学工学院任特聘研究员、助理教授，并独立创建西湖大学“学习与推理系统实验室” (LearningandINferenceSystems (LINs) Labora-tory)。

Tao LIN obtained a Bachelor of Engineering degree at Zhejiang University (ZJU) in 2014, a Master of science degree at École Polytechnique Fédérale de Lausanne (EPFL) in 2017, and a Ph.D. degree from EPFL in 2022. He will be joining the Westlake University as a tenure-track assistant professor in Winter 2022.

实验室研究方向:

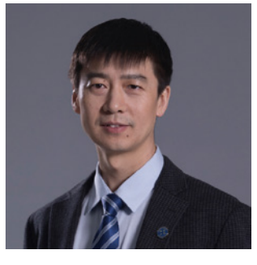
林涛博士的研究领域为：
(1) 深度学习与优化；
(2) 分布式深度学习与推理系统。
相关成果达 20 余篇论文，其中以一作 / 共同一作身份在顶级机器学习会议如 ICML/NeurIPS/ICLR 上发表论文 9 篇。在 localSGD，error-feedbackframework 方面的代表性成果极大推进了整个领域的发展。根据谷歌学术统计，论文引用达 1500 余次（截至 2022 年 06 月），H 指数 16。

RESEARCH INTERESTS:

Dr. Tao LIN developed some pioneering algorithms for the field of distributed deep learning, including local SGD, error-feedback framework for decentralized compressed communication. He has published ~20 papers, including 9 first-author (co-first author) papers on the top-tire conferences like ICML/NeurIPS/ICLR. He also serves as a regular reviewer or program committee member for conferences and journals e .g ., ICML, NeurIPS, ICLR, AAAI, AISTATS, TPAMI, TMLR, TNNLS, and IEEE TSP.

代表性成果 REPRESENTATIVE OUTCOMES:

Don't Use Large Mini-Batches, Use Local SGD. ICLR 2020.
Decentralized Deep Learning with Arbitrary Communication Compression. ICLR 2020.
Quasi-Global Momentum: Accelerating Decentralized Deep Learning on Heterogeneous Data. ICML 2021.



Advanced Optoelectronic Materials & Devices Lab
先进光电子材料与器件实验室

PI: Dianyi Liu
柳佃义

2004 年毕业于烟台师范学院，获得理学学士学位；2009 年毕业于兰州大学无机化学专业，获得理学博士学位。曾先后在北京大学、加拿大萨斯喀彻温大学和美国密歇根州立大学从事博士后研究，研究主要集中于太阳能电池材料与器件、纳米能源材料等方向。

Dr. Dianyi Liu received his B.S. from Yantai Normal College in 2004, and obtained his Ph.D. in Inorganic Chemistry from Lanzhou University in 2009. He worked as the postdoc in Peking University, University of Saskatchewan and Michigan State University before he joined Westlake University. His research focuses on photovoltaic materials and devices.

实验室研究方向:

实验室目前的研究主要集中于柔性光电子材料与器件领域，相关工作涉及新型光伏材料的设计与制备、透明太阳能电池和柔性光电子器件的制备等方面；今后将重点面向新型柔性光电子材料和器件在能源、环境、生命及健康医疗等领域的应用，包括智能窗户、利用人工光合作用合成复杂产物、人工视网膜假体和柔性可穿戴电子设备等。

RESEARCH INTERESTS:

The research interests of Dr. Dianyi Liu's lab include the design and synthesisthe novel photovoltaic materials and the fabrication of transparent/flexible photovoltaic devices. The future research will focus on the applications of novel photovoltaic/nano optoelectronic materials on energy, environment and life area, which include smart windows, artificial photosynthesis, artificial retinal prostheses and flexible wearable electronic devices, etc.

代表性成果 REPRESENTATIVE OUTCOMES:

Intracellular InP quantum dots facilitate the conversion of carbon dioxide to value-added chemicals in non-photosynthetic bacteria. Nanotoday, 47: 101681, 2022
Balancing Efficiency and Transparency in Organic Transparent Photovoltaics. npj Flexible Electronics, 6: 39, 2022
Highly Efficient Fiber-Shaped Solar Cells Toward Wearable Flexible Electronics. npj Flexible Electronics, 6: 38, 2022

Water-Energy Resilience Research Lab
水与能源弹性可持续技术研究实验室

PI: Kai Liu
刘 剴

刘剴先后在路易斯安娜州立大学（LSU）、休斯顿大学（UH）获化学学士、硕士学位，清华大学获环境科学与工程博士学位，加州理工学院博士后。刘博士主要研究方向为新型纳米环境功能材料在水体污染物的高效吸附、高级氧化去除中的应用，以及水体中化学、生物污染物（如病原体）等的快速检测。他通过理论与实际结合，为人类所面临的水—能源挑战提供弹性、可持续的解决方案，并致力于产学研结合。他曾参与法国威立雅水务、美国科勒等公司的研发项目，并在比尔和梅琳达·盖茨基金会的资助下，推动第三世界国家用水安全。刘剴博士于2020 年 9 月加入西湖大学工学院，目前是水—能源弹性可持续发展研究实验室（水实验室）的负责人。

实验室研究方向:

人口的增长、生活水平的不断提高与资源的匮乏使得世界正面临前所未有的水—能源危机。本实验室旨在根据新材料理论设计与实验制备方法，通过环境功能材料用于水体污染物的高效吸附、高级氧化去除和水体中化学、生物污染物（如病原体）等的快速检测等整合技术，来为世界水——能源问题提供弹性可持续的解决方案。研究方向主要包含但不仅限于水处理技术的新型纳米功能材料的设计与制备、高性能吸附催化剂开发、智能系统整合及水处理设备人工智能优化等。本实验室始终以国际前沿材料技术和器件制备为基础，研发和推进分散式高效节能与智能水处理技术在相关领域的应用，目的是实现节能减排、废水资源化和水资源可持续的综合利用。

代表性成果
REPRESENTATIVE OUTCOMES:

Understanding the adsorption of PFOA on MIL-101 (Cr)-based anionic-exchange metal–organic frameworks: comparing DFT calculations with aqueous sorption experiments, Environmental Science & Technology, 49(14): 8657-8665, 2015
Photoreactivity of metal–organic frameworks in aqueous solutions: metal dependence of reactive oxygen species production, Environmental Science & Technology, 50(7): 3634-3640, 2016
Understanding the adsorption of PFOA on MIL-101 (Cr)-based anionic-exchange metal–organic frameworks: comparing DFT calculations with aqueous sorption experiments, Environmental Science & Technology, 52(21): 12667-12674, 2018

Dr. Kai Liu's expertise ranges from synthesis of environmental functional nano-materials, environment monitoring, contaminant sensing, and water treatment technologies. Liu received B.S. degree in Chemistry from Louisiana State University in Baton Rouge, Louisiana, US. Liu later received M.S. in Chemistry from University of Houston, Texas, US, where he worked on synthesis of fluorescent sensors, automated nano-patterning, and silicon surface functionalization. Liu obtained Ph.D. degree in Environmental Science and Engineering from Tsinghua University, where he combined theoretical prediction and chemical functionalization to create novel adsorbents and fluorescent sensors for environmental pollutants. He was a former postdoctoral researcher at California Institute of Technology in Pasadena, California, US, where he continued his research on water treatment and pollutant sensing using nano-functional materials. Besides fundamental research, Liu worked with international companies include Veolia and Kohler on product R&D and pilot-scale testing. Liu joined Westlake University in September 2020, he is currently an Assistant Professor in the Environment and Resource Division (DER) and PI of the Water-Energy Resilience Research Laboratory (WATER Lab).

RESEARCH INTERESTS:

The WATER Lab aims to provide resilient solutions to the interrelated water-energy challenges that the world is facing, by using state-of-art computational and experimental approaches. The areas of interest of our lab include but are not limited to advanced water treatment technologies, intelligent system integration and AI optimization of water treatment equipment, predictive understanding of catalytic performance of nanomaterials for energy production. These technologies and systems are designed to reduce the cost and improve the reliability and resilience of global water treatment and energy production industry. We firmly believe that diversity, equity, and inclusion are key elements for our success. At WATER Lab, we will work with students, faculties and collaborators regardless of their orientation, identity, financial means, and education.

Computer Vision and Geometric Learning Lab
计算机视觉与几何深度学习实验室

PI: Peidong Liu
刘沛东

刘沛东博士，2012年获新加坡国立大学电子工程学士学位，2015年获新加坡国立大学电子工程硕士学位，2021年获得苏黎世联邦理工学院（ETH Zurich）计算机科学博士学位。2021年12月起正式加入西湖大学工学院，担任助理教授并独自成立计算机视觉与几何深度学习实验室。

研究成果:

刘沛东博士的研究主要集中在三维计算机视觉，机器人和深度学习在计算机视觉中的应用。他已在计算机视觉、机器人领域的国际期刊和会议发表研究论文20余篇。主要代表性研究成果为基于多相机的即时定位和建图，以及在恶劣环境下的相机运动估计和三维稠密建图等。刘沛东博士目前是多个国际顶级期刊和会议的审稿人（比如TPAMI, IJCV, RA-L, CVPR, ICCV, 3DV, IROS和ICRA等）。刘沛东博士曾获得一系列奖项，其中包括Dean’s list（新加坡国立大学），关肇直最佳论文奖，多次获得国际空中机器人比赛第一名等奖项。

Peidong Liu obtained a bachelor degree in Electrical Engineering at National University of Singapore (NUS) in 2012, a master degree in Electrical Engineering at NUS in 2015, and a Ph.D. degree in Computer Science at the ETH Zurich in 2021 with Professor Marc Pollefeys. He then joined the School of Engineering of Westlake University as Assistant Professor of Computer Science, December 2021.

RESEARCH ACHIEVEMENTS

Dr. Peidong Liu’s research mainly lies at the intersection of robotics and 3D computer vision, with the applications to robotics, autonomous driving, virtual reality and augmented reality etc. He has received several awards from international robotic competitions and academic conference. For example, the first prize in the International Micro Aerial Vehicle Competition, the second prize in the International UAV Innovation Grand Prix, Dean’s list from the National University of Singapore and the Guan Zhao-zhi best paper award.

代表性成果 REPRESENTATIVE OUTCOMES:

MBA-VO: Motion Blur Aware Visual Odometry, International Conference on Computer Vision, 2021
Deep Shutter Unrolling Network, IEEE Conference on Computer Vision and Pattern Recognition, 2020
Towards Robust Visual Odometry with a Multi-Camera System, International Conference on Intelligent Robots and Systems, 2018

Solid State Ionics Lab
固态离子学实验室

PI: Qiyang Lu
陆启阳

2012 年毕业于清华大学材料科学与工程系，获工学学士。本科毕业后在美国麻省理工学院（MIT）攻读博士学位。2018 年 1 月取得工学博士学位，并荣获当年度 MIT 材料系最佳博士生论文奖。随后先后在斯坦福大学和劳伦斯伯克利国家实验室先进光源进行博士后研究。曾获得美国材料研究学会研究生金奖（MRS GSA Gold），美国陶瓷学会 Ross Coffin Purdy 奖等荣誉。

Dr. Qiyang Lu received his bachelor's degree from Tsinghua University (2012) and his Ph.D. degree from MIT (2018), both in Materials Science and Engineering. His Ph.D. work was awarded best Ph.D. thesis award from MIT. He did his postdoctoral study at Stanford University with a joint fellowship at Advanced Light Source, Lawrence Berkeley National Laboratory. He received several prestigious awards, including Graduate Student Gold Award from Materials Research Society and Ross Coffin Purdy award from American Ceramic Society.

实验室研究方向:

主要致力于表面科学、固态电化学与材料科学的交叉领域研究工作。研究领域方向包括：

1. 功能氧化物薄膜中的离子输运现象及在固态氧化物燃料电池 / 电解池中的应用研究；
2. 氧化物中的离子缺陷对于固液界面电催化反应的影响；
3. 固态离子学应用于新型计算存储器件相关基础研究。

RESEARCH INTERESTS:

Qiyang's research focuses on the fundamental understanding and new applications in solid state ionics, applied surface science and solid state electrochemistry. Our current research interests include:
1. Designing mixed electronic and ionic conducting oxide thin films for reversible solid state electrochemical cells;
2. Understanding the role of ionic defects in determining reaction kinetics in electrocatalysis;
3. Prototyping neuromorphic computing devices enabled by ion transport and intercalation.

代表性成果 REPRESENTATIVE OUTCOMES:

Protonation-Induced Colossal Chemical Expansion and Property Tuning in $NdNiO_3$ Revealed by Proton Concentration Gradient Thin Films, Nano Letters, 22 (2022) 8983-8990
Bi-directional tuning of thermal transport in SrCoOx with electrochemically induced phase transitions, Nature Materials, 19 (2020) 655-662
Improved chemical and electrochemical stability of perovskite oxides with less reducible cations at the surface, Nature Materials 15 (2016) 1010-1016

Smart Polymer Materials Lab
智能形变材料实验室

PI: Jiu-an Lv
吕久安

2005 年毕业于西北大学化学系应用化学专业，获理学学士学位。同年保送西北大学化学系高分子化学与物理专业研究生，2008 年获得理学硕士学位。同年进入中国航天科技集团 771 研究所工作。2011 年考入复旦大学材料科学系攻读博士，2016 年初获得材料物理与化学专业工学博士学位。2016-2018 年在复旦大学进行博士后研究。2017 年在美国哈佛大学应用科学与工程学院开展为期半年的合作研究。

Dr. Jiu-an Lv received his B.S. and M.S. degrees in the department of chemistry from Northwest University, China, in 2005 and 2008 respectively. After that, he served as a process engineer at the China aerospace science and technology corporation for three years. In 2011, he began to study liquid crystal polymer materials at Fudan university and completed with Ph.D. in 2016. From 2016 to 2018, he did postdoctoral research at Fudan University and Harvard University (half a year) respectively. In March 2018, he joined Westlake University. Dr. Lv is currently a principal investigator of Smart Polymer Materials Laboratory.

实验室研究方向:

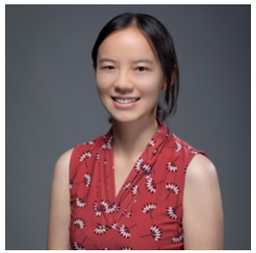
1. 智能形变液晶高分子材料的设计与制备；
2. 液晶高分子柔性执行器的设计与组装；
3. 智能柔性器件的功能开发及应用探索。

RESEARCH INTERESTS:

1. Design and preparation of deformable liquid crystal polymer materials;
2. Design and fabrication of liquid crystal polymer soft actuators;
3. Development and application of flexible smart device.

代表性成果 REPRESENTATIVE OUTCOMES:

Phototunable Self-Oscillating System Driven by a Self-Winding Fiber Actuator, Nature Communications, 12: 3211, 2021
Optocapillarity-Driven Assembly and Reconfiguration of Liquid Crystal Polymer Actuators, Nature Communications, 11: 5780, 2020
Photocontrol of Fluid Slugs in Liquid Crystal Polymer Microactuators, Nature, 537: 179-184, 2016



Nanophotonic Materials Laboratory
纳米光学材料实验室

PI: Siying Peng
彭斯颖

2017 年获得加州理工学院物理学博士学位，师从美国工程院院士、Plasmonics 领域开创者、保持单结太阳能电池效率世界纪录的 Alta Devices 公司创始人 Harry A. Atwater 教授。2017 年获得斯坦福大学 GLAM 先进材料青年科学家博士后奖，合作导师为斯坦福大学材料系系主任 Paul McIntyre 教授，开展冷冻电镜应用在材料和纳米科学的研究。2011 获 Texas A&M University 数学与物理双专业学士学位。彭斯颖博士在二维、三维光学拓扑绝缘体的精准纳米合成和红外波段光学机理表征领域开展了原创性工作；首次用冷冻电镜阐明钙钛矿薄膜的相变机制，率先用表面等离激元加速高能化学键断裂反应。

Dr. Siying Peng received her Ph.D. degree in Physics from California Institute of Technology in 2017, advised by Professor Harry Atwater, who is a pioneer in plasmonics and nanophotonics, and a member of the U.S. National Academy of Engineering. In 2017, she was selected for the prestigious GLAM postdoctoral fellowship, working aside with Professor Paul McIntyre, who is the Department Chair in the Department of Materials Science and Engineering at Stanford University. Dr. Peng received her dual bachelor's degrees in physics and mathematics from Texas A&M University in 2011. Dr. Siying Peng has made pioneering contributions in high-resolution (~10nm) characterization of angle and polarization resolved nanophotonics. She has applied cryo-electron microscopy and spectroscopy to investigate mechanisms of phase change materials with high spatial and temporal resolution. Dr. Peng was the first to utilize ultraviolet plasmonics for low temperature synthesis of wide bandgap materials.

实验室研究方向:

本课题组主要开展纳米光学材料与冷冻电镜的交叉学科研究，主要应用场景为：

1. LED, 太阳能电池以及光存储器件
2. 量子计算与量子信息科学
3. 纳米孔生物分子测序表征器件

RESEARCH INTERESTS:

Dr. Siying Peng's group performs interdisciplinary research on understanding unconventional nanophotonic materials with advanced techniques such as cryo-electron microscopy. Our research has specific focuses on:
1. energy materials for high efficiency photovoltaics, LEDs and memory devices
2. quantum information science
3. bio-nanophotonics

代表性成果 REPRESENTATIVE OUTCOMES:

Probing the band structure of topological silicon photonic lattices in the visible spectrum, PRL, 122, 117401, 2019
Plasmons and inter-band transitions of hexagonal close packed gold nanoparticles, APL, 115, 051107, 2019
Three-dimensional single gyroid photonic crystals with a mid-infrared bandgap, ACS photonics, 3, 1131, 2016

Machine Perception and Learning (MAPLE)
机器感知与学习(MAPLE)实验室

PI: Guojun Qi
齐国君

2005 年和 2009 年在中国科学技术大学自动化系获得工学学士和博士学位，并于 2013 年获得美国伊利诺伊大学香槟分校电子与计算机工程专业哲学博士学位。2014 年任 IBM T.J. Watson 研究中心研究员，同年被聘为中佛罗里达大学计算机系助理教授。2018 年就任华为美国研究中心 AI 首席科学家，2021 年创立 OPPO 西雅图研究中心，并任首任院长。因在多模态人工智能领域的突出贡献，2021 年底当选国际电气和电子工程师协会会士（IEEE Fellow），2022 年当选国际模式识别联合会会士（IAPR Fellow）。

Dr. Qi received his bachelor and doctorate degrees from the University of Science and Technology in 2005 and 2009, and Ph.D. degree from Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign in 2013. He worked as a Research Staff Member in IBM T.J. Watson Research Center, Assistant Professor in University of Central Florida, and Chief AI Scientist in Huawei USA and OPPO Research. Dr. Qi made pioneering achievements in multimodal AI research with multiple applications to multimedia computing, AI generated contents, virtual reality and interactions. He has published over 200 research papers in top-tier conferences and journals. For his outstanding contributions to AI, he was elected IEEE and IAPR Fellows in 2021 and 2022, respectively.

实验室研究方向:

主要开展机器感知和学习方向的研究，致力于研究与开发可以对现实和虚拟场景进行多模态感知与交互的人工智能系统，并应用于多媒体计算、智慧创作、数字虚拟人和虚拟现实交互等多个领域：(1) 人工智能与计算机视觉方向：2D/3D 场景与人体感知、重建与交互，(2) 人工智能在虚拟现实与计算机图形学上的理论与应用，特别是自动 2D/3D 场景与人体动作生成模型与算法；(3) 基于人工智能的智慧创作，如 GAN、扩散模型、自编码模型等理论与应用。

RESEARCH INTERESTS:

1. Artificial Intelligence and applications to 2D/3D scene and human body perception, reconstruction and interaction;
2. Artificial Intelligence for applications to virtual reality and computer graphics, especially 2D/3D scene and human motion generation;
3. AI-based content generations, such as GAN, diffusion model, auto-encoders.

代表性成果 REPRESENTATIVE OUTCOMES:

Tingting Liao, Xiaomei Zhang, Yuliang Xiu, Hongwei Yi, Xudong Liu, Guo-Jun Qi, Yong Zhang, Xuan Wang, Xiangyu Zhu, Zhen Lei. High-fidelity Clothed Avatar Reconstruction from a Single Image, in Proceedings of IEEE/CVF Conferences on Computer Vision and Pattern Recognition (CVPR 2023), Vancouver, Canada, June 18-22, 2023.
Qianjiang Hu, Xiao Wang, Wei Hu, Guo-Jun Qi*. AdCo: Adversarial Contrast for Efficient Learning of Unsupervised Representations from Self-Trained Negative Adversaries, in Proceedings of IEEE/CVF Conferences on Computer Vision and Pattern Recognition (CVPR 2021), Virtual, June 19th - June 25th, 2021.
Guo-Jun Qi, Xian-Sheng Hua, Yong Rui, Jinhui Tang, Tao Mei, Hong-Jiang Zhang.Correlative Multi-Label Video Annotation, in ACM Multimedia 2007 (ACM MM 2007), Augsburg, Germany, Sep. 23-29, 2007. (Full Paper, Oral Presentation). Best Paper Award.

Laboratory of Photonics And Instrumentation for NanoTechnology
纳米光子学与仪器技术实验室

PI: Min Qiu
仇 旻

仇旻教授于1995年和1999年获浙江大学理学学士和凝聚态物理博士学位，并于2001年获瑞典皇家工学院电磁理论工学博士。2001年被聘为瑞典皇家工学院助理教授，2005年晋升副教授，2009年晋升为光子学正教授。2010年任浙江大学光电科学与工程学院教授，曾任浙江大学现代光学仪器国家重点实验室主任。2018年任西湖大学国强讲席教授和西湖大学副校长。

研究成果:

仇旻教授主要研究方向为微纳光电子学，包括微纳加工技术及仪器装备、微纳光子理论及光电器件、面向智能应用的关键理论与技术。2013 年当选美国光学学会会士（OSA Fellow）和国际光学工程学会会士（SPIE Fellow），2015 年当选国际电气和电子工程师协会会士（IEEE Fellow），2019 年当选中国光学学会会士（COS Fellow）。曾获瑞典战略研究基金会资助的“未来科研带头人”基金、瑞典国家科学研究基金会高级研究员专门基金、国家杰出青年科学基金等。2017 年和 2020 年作为项目负责人分别牵头“纳米科技”国家重点研发计划项目和国家重大科研仪器研制项目（自由申请类）。2022 年，凭借“微纳尺度光热调控及应用”这一成果荣获 2021 年度浙江省自然科学奖一等奖。现担任国际期刊 *Light: Science & Applications (LSA)* 专题编辑 (Topical Editor)、*Science Bulletin (Science China Press)* 工程类副主编 (Associate Editor)、*PhotoniX* 主编等。

Prof. Min Qiu received his Ph.D. degree in Physics from Zhejiang University, China, in 1999 and his second Ph.D. degree in Electromagnetics Theory from Royal Institute of Technology (KTH), Sweden, in 2001. He joined the School of Information and Communication Technology, KTH, as an assistant professor in 2001, then became an associate professor in 2005, and a full professor (Professor of Photonics) in 2009. Since 2010, he was appointed as a distinguished professor at Zhejiang University, China, where he was the Director of State Key Laboratory of Modern Optical Instrumentation, Zhejiang University. He joined Westlake University as Guoqiang Endowed Chair Professor and Vice President in 2018.

RESEARCH ACHIEVEMENTS:

Prof. Qiu's research interest covers micro/nano optoelectronics, including micro/nano fabrication technology and instruments, micro/nano photon theory and optoelectronic devices, and the key theories and technologies for intelligent applications. He is currently leading a project on solar thermal energy utilization through the National Key Research and Development Program of China (No. 2017YFA0205700) and a project on ice-assisted electron beam lithography through National Major Scientific Instruments and Equipments Development Project of National Natural Science Foundation of China (No. 61927820). He was the recipient of the Individual Grants for the Advancement of Research Leaders (INGVAR) from the Swedish Foundation for Strategic Research (SSF), a Senior Researcher Fellowship from Swedish Research Council and the National Science Fund for Distinguished Young Scholars from National Natural Science Foundation of China.
He was elected as a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) in 2015, a Fellow of the Optical Society of America (OSA) and a Fellow of the International Society for Optics, Photonics (SPIE) in 2013, and a Fellow of the Chinese Optical Society (COS) in 2019. He won the first prize of the 2021 Zhejiang Province Natural Science Award for the distinguished work "Micro/nano-scale photothermal regulation and application" in 2022. He is currently Editor-in-Chief of *PhotoniX* (Springer Nature), a topical editor of *Light: Science and Applications* (Springer Nature), an associate editor of *Science Bulletin* (Science China Press).

代表性成果
REPRESENTATIVE OUTCOMES:

Nanoscale Lamb wave–driven motors in nonliquid environments, Science Advances, Vol.5, Iss.3, eaau8271, 2019
Active control of anapole states by structuring the phase-change alloy Ge2Sb2Te5, Nature Communications, Vol.10, 396, 2019
Three-Dimensional in Situ Electron-Beam Lithography Using Water Ice, Nano Letters, Vol.18, Iss.8, pp.5036–5041，2018

Cutting Edge Net of Biomedical Research and INnovation
生物医学研究与创新尖端实验室

PI: Mohamad Sawan
默罕默德 萨万

默罕默德・萨万,加拿大工程院院士、加拿大工程研究院院士、IEEE Fellow，国际著名智慧生物医疗器械领域科学家，在基于智能微系统技术的可植入式和可穿戴式智慧医疗器械方面作出了重大贡献。萨万院士 1990 年在加拿大舍布鲁克大学获得电子工程博士学位，1991 年在加拿大麦吉尔大学从事生物医学工程博士后研究，1991-2018 在加拿大蒙特利尔大学历任助理教授、副教授和教授。2001-2015 任加拿大研究主席(智慧医疗器械领域)。目前是国际著名期刊 *IEEE Transactions on Biomedical Circuits and Systems* 的主编。2018 年加入西湖大学，任工学院微系统与生物工程讲席教授。2019 年任 IEEE-CAS Society 副主席。

研究成果:

Sawan 教授领导了魁北克微系统战略联盟 (ReSMiQ, 1999-2019)。已发表超过 800 篇同行评议论文、两本专著、十部专著章节、以及十二项发明专利。为 *IEEE Transactions on Biomedical Circuits and Systems* 的共同创办人和主编、*IEEE Transactions on Biomedical Engineering* 的副主编。他是 Polystim 神经技术实验室和 IEEE-NEWCAS 国际会议的创始人、以及 IEEE-BioCAS 国际会议的共同创始人。Sawan 博士作为大会主席在蒙特利尔主持了 2016 年 IEEE 国际电路与系统大会 (ISCAS)，并且将于 2020 年在蒙特利尔主持 IEEE 国际工程、医学与生物学会议 (EMBC)。曾获得多项国际大奖，包括杭州市钱江友谊使者奖、上海市国际科技合作奖、伊丽莎白二世禧年钻石奖、黎巴嫩总统奖、Barbara Turnbull 奖（因脊髓研究的成就）、ACFAS-Bombardier 奖、ACFAS Jacques Rousseau 奖、加拿大年度十大发明奖、加拿大魁北克官佐勋章 (魁北克最高荣誉) 等。

Prof. Mohamad Sawan is a Fellow of the Canadian Academy of Engineering, a Fellow of the Engineering Institute of Canada, a Fellow of the IEEE, and an Emeritus Professor of Microelectronics and Biomedical Engineering at the University of Montreal. He joined the School of Engineering at Westlake University as a Chair Professor of Microsystems and Bioengineering in 2018. He was elected as Vice President for Publications of the IEEE- CAS Society in 2019. His research interests include Neurotechnology, Medical Devices, Wearable and implantable brain-machine interfaces.

RESEARCH ACHIEVEMENTS:

Prof. Sawan was leading the Microsystems Strategic Alliance of Quebec (ReSMiQ), a Canadian research center (1999-2019). He has published more than 800 peer-reviewed papers, two books, ten book chapters, and 12 patents. Prof. Sawan is a cofounder and editor-in-chief of the *IEEE Transactions on Biomedical Circuits and Systems*, an associate editor of the *IEEE Transactions on Biomedical Engineering*, and a deputy editor-in-chief of the *IEEE Transactions on Circuits and Systems II*. He is the founder of the International IEEE- NEWCAS Conference and the Polystim Neurotechnologies Laboratory, and a cofounder of the International IEEE-BioCAS Conference. He received several awards, among them the Shanghai Municipality International Collaboration Award, the Queen Elizabeth II Diamond Jubilee Medal, the medal of merit from the President of Lebanon, the Barbara Turnbull Award for spinal cord research, and the ACFAS-Bombardier and Jacques-Rousseau Awards. He is an Officer of National Order of Quebec.

代表性成果 REPRESENTATIVE OUTCOMES:

Artificial Intelligence in Healthcare: Review and Prediction Case Studies, Engineering,6: 291–301, 2020
From Seizure Detection to Smart and Fully Embedded Seizure Prediction Engine: A Review, IEEE Transactions on Biomedical Circuits and Systems, 14 (5): 1008-1023, 2020
Towards wearable and implantable continuous drug monitoring: A review, Journal of Pharmaceutical Analysis, 11(1): 1-14, 2021

Nano Semiconductor Materials Laboratory (NSML)
纳米半导体材料(NSML)实验室

PI: Enzheng Shi
师恩政

2010 年于山东大学材料科学与工程学院获得学士学位，并保送进入北京大学材料科学与工程系，2015 年获得博士学位。之后在美国爱荷华州立大学（2015-2017 年）和普渡大学（2017-2020 年）进行博士后研究。师恩政博士在二维卤素钙钛矿及其异质结、低维纳米材料组装领域做出了开创性的工作，曾以第一作者或通讯作者在 *Nature, Nature Communications, Advanced Materials, Chemical Society Reviews, ACS Nano* 等期刊发表论文 14 篇。

Dr. Shi received his bachelor's degree from School of Materials Science & Engineering, Shandong University in 2010, and Ph.D. degree from Department of Materials Science & Engineering, Peking University in 2015. He worked as a postdoc research associate in Iowa State University from 2015 to 2017, and in Purdue University from 2017 to 2020. Dr. Shi made pioneering achievements in two-dimensional halide perovskite heterostructures and low-dimensional nanomaterials assembly. He has published 14 research papers as the 1st author or corresponding author on *Nature, Nature Communications, Advanced Materials, Chemical Society Reviews, ACS Nano* etc.

实验室研究方向:

主要从事低维材料的合成及其在功能器件的应用，在二维卤素钙钛矿及其异质结、低维纳米材料组装领域开展了原创性的工作；现阶段的主要研究方向包括：（1）新型二维卤素钙钛矿材料、异质结构的制备，以及在太阳能电池、铁电半导体、热电器件中的应用；（2）一维纳米材料（如碳纳米管）的化学气相沉积合成、组装和操控；（3）纳米电极在晶体管小型化中的探索。

RESEARCH INTERESTS:

1. Novel two-dimensional halide perovskite materials and heterostructures: controlled synthesis and applications in photovoltaics, ferroelectric semiconductors, thermoelectrics etc.
2. One-dimensional materials (e.g. carbon nanotubes) synthesis via chemical vapor deposition, assembly, and manipulation.
3. Exploration of nanometer contact in transistor miniaturization.

代表性成果 REPRESENTATIVE OUTCOMES:

Two-Dimensional Halide Perovskite Lateral Epitaxial Heterostructures, Nature 2020, 580, 614-620.
Soft-lock drawing of super-aligned carbon nanotube bundles for nanometer electrical contacts, Nat. Nanotechnol. 2021, accepted.
Layer-by-Layer Anionic Diffusion in Two-Dimensional Halide Perovskite Vertical Heterostructures, Nat. Nanotechnol. 2021, 16, 584-591.

Computational (Geo) Mechanics Laboratory
计算（地质）力学实验室

PI: Sergio Andres Galindo Torres
佘吉鸿

2003（2006）年毕业于哥伦比亚国立大学（物理学院），获得学士（硕士）学位；2010 年获哥伦比亚国立大学计算物理博士学位。随后在澳大利亚昆士兰大学从事博士后研究。2015-2017 年历任昆士兰大学研究院和讲师。2016 年获澳大利亚昆士兰政府颁发的推动昆州杰出 奖（Advance Queensland Fellowship）。2017 年加入英国利物浦大学任高级讲师（副教授），同时兼任昆士兰大学荣誉副教授。

Dr. Sergio Andres Galindo Torres graduated from the National University of Columbia (School of Physics) in 2003 (2006) with a bachelor's (master's) degree. In 2010, he received a Ph.D. in computational physics from the National University of Colombia. He then worked as a postdoctoral research fellow at the University of Queensland, Australia. He was a senior research fellow and lecturer at the University of Queensland from 2015 to 2017. In 2016, he was awarded the Advance Queensland Fellowship by the Queensland Government of Australia. In 2017, he joined the University of Liverpool as a Senior Lecturer (Associate Professor) and holds an Honorary Associate Professor position at the University of Queensland.

实验室研究方向:

我们团队的研究针对复杂系统中的力学问题，采用多尺度建模的方法，力求解决土木与环境工程所涉及的重大计算力学难题。主要研究方向：

1. 微尺度颗粒、流体相互作用；
2. 尺度放大效应的理论分析；
3. 多相、多尺度、多过程的耦合模拟；
4. 大变形多孔介质流。

RESEARCH INTERESTS:

The work of his team focuses on the mechanics of complex systems, applying multi-scale modeling approaches and methods to solve major computational mechanics problems involved in civil and environmental engineering. The main research directions are:
1. microscale particle and fluid interactions;
2.theoretical analysis of upscale effect;
3.coupled multiphase, multiscale, multi-process simulations;
4.flow in largely deformable porous media.

代表性成果 REPRESENTATIVE OUTCOMES:

Smooth particle hydrodynamics and discrete element method coupling scheme for the simulation of debris flows, Computers and Geotechnics: 125(2020)136669
Metaball based discrete element method for general shaped particles with round features, Computational Mechanics, 67: 1243–1254, 2021
Slip-Flow Regimes in Nanofluidics: A Universal Superexponential Model, PHYSICAL REVIEW APPLIED: 15, 054051, 2021

Machine Intelligence Lab (MiLAB)
机器智能实验室

PI: Donglin Wang
王东林

1999 年进入西安交通大学信息工程系，2003、2006 年分别获学士和硕士学位；2010 年获加拿大卡尔加里大学电子与计算机工程系博士学位。随后在加拿大 iRadio Lab 从事博士后研究工作，2011 年底加入美国纽约理工学院电子与计算机工程系担任助理教授，2016 年晋升副教授。

Donglin Wang received the B.E. and M.S. degrees in the School of Electronic and Information Engineering from Xi'an Jiaotong University, Xi'an, China, in 2003 and 2006, respectively, and the Ph.D. degree in the department of electrical and computer engineering from the University of Calgary, Calgary, Canada, in 2010. After that, he acted as a postdoc research fellow in the iRadio lab, Canada. From late 2011 to Aug. 2017, he was an assistant/associate professor in the department of Department of Electrical and Computer Engineering at New York Institute of Technology. He is now an associate professor and director of Machine Intelligent Lab (MiLAB) in the School of Engineering at Westlake University.

实验室研究方向:

机器智能实验室（MiLAB）主要从事前沿的机器人学习（Robot Learning）领域的研究，包括机器学习算法和机器人智能化。具体来讲，MiLAB 专注于以下几个方向的研究：

1. 深度强化学习理论和应用；
2. 元学习 / 小样本学习理论和应用；
3. 迁移学习理论和应用；
4. 机器人智能化：基于机器学习算法的机器人高度灵活性、快速适应性和自主学习能力。

RESEARCH INTERESTS:

Machine Intelligence Laboratory (MiLAB) conducts the pioneering research of Robot Learning, including Machine Learning Algorithms and Robot Intelligence. More specifically, MiLAB focuses on such topics:

1. Deep Reinforcement Learning Theory and Applications;
2. Meta-Learning Theory and Applications;
3. Transfer Learning Theory and Applications;
4. Robot Intelligence: Highly Flexible, Fast Adaptable and Learning Ability.

代表性成果 REPRESENTATIVE OUTCOMES:

Pareto Self-Supervised Training for Few-Shot Learning, IEEE Conference on Computer Vision and Pattern Recognition, CVPR-21
Learning How to Propagate Messages in Graph Neural Networks, ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD-21
Independent Skill Transfer for Deep Reinforcement Learning, the 29th International Joint Conferences on Artificial Intelligence, IJCAI

Energy Storage & Conversion Laboratory
新能源存储与转化实验室

PI: Jianhui Wang
王建辉

2001 年获全国化学竞赛一等奖，2002 年保送浙江大学材料系，大二进入实验室开始镍氢二次电池相关研究。2006-2011 年，接受浙江大学、新加坡国立大学（2 年）、中科院大连化物所（1 年）直攻博联合培养，从事固态化学储氢研究。随后在日本九州大学国际氢能中心从事博士后研究。2013-2018 年，加入东京大学从事锂离子电池与电解液研究，历任特任研究员、日本学术振兴会 JSPS Fellow、主任研究员（Chief Researcher）。代表工作包括研发了首例高效非过渡金属（钾）储氢催化剂、首例“单一溶质单一溶剂”的 5V 级锂离子电解液、具有灭火功能的有机锂离子和钠离子电解液、新型“core-shell”溶剂化结构水系电解液（在空气中组装高电压锂离子电池）、-20 ~ +100 ° C 宽温锂离子全电池（构想无热管理系统的动力电池）。2022 年获得国际材料联盟 (IUMRS) 前沿材料青年科学家奖（IUMRS Frontier Materials Young Scientists Award）。

Jianhui Wang won the first prize of China High School Chemistry Competition in 2001. He received his bachelor's degree from Zhejiang University in 2006. Then he took a joint Ph.D. training among National University of Singapore (two years), Dalian Institute of Chemical Physics (one year) and Zhejiang University (two years), studying on solid-state hydrogen storage materials. After obtaining his Ph.D. degree, he worked as a Postdoctoral Fellow at Kyushu University. In August 2013, he joined the University of Tokyo and served successively as a Project Researcher, JSPS Fellow and Chief Researcher, studying on lithium-/sodium-ion batteries and their electrolytes. Since September 2018, he has become the Principle Investigator of Energy Storage & Conversion Laboratory at Westlake University. In 2022, he was awarded "IUMRS Frontier Materials Young Scientist".

实验室研究方向:

探索和开发新一代清洁能源存储与转化关键技术，包括：

1. 可充放二次电池；
2. 新型储氢技术；
3. 电催化合成制备燃料。

RESEARCH INTERESTS:

Dr. Wang's group aims to develop highly efficient storage technologies for clean energies via an interdisciplinary research programme of electrochemistry, catalysis, physical chemistry and materials engineering. With research efforts on energy storage in the past 15 years, Dr. Wang accomplished three main work:

1. developing the first-case nontransition metal (potassium) catalyst for hydrogen storage materials and revealing its mechanism (Angewandte Chemie-International Edition 2009, ChemSuschem 2013);
2. developing the first-case “single salt single solvent” high-voltage lithium-ion electrolyte and realizing a 5V-class battery (Nature Communications 2016);
3. developing fire-extinguishing lithium-/sodium-ion electrolytes and realizing safe and long-life batteries (Nature Energy 2018). In the future, Dr. Wang's group will go on designing and developing next-generation energy storage technologies, including various rechargeable batteries and new approaches to hydrogen storage.

代表性成果 REPRESENTATIVE OUTCOMES:

Concentrated electrolytes widen the operating temperature range of lithium-ion batteries, Advanced Science, 2021
Advances and issues in developing salt-concentrated battery electrolytes, Nature Energy, 4: 269-280, 2019
Fire-extinguishing organic electrolytes for safe batteries, Nature Energy, 3: 22-29, 2018

Biomass Energy and Materials Lab (BEM)
生物质能源与材料实验室

PI: Lei Wang
王蕾

王蕾博士本科毕业于清华大学化学工程与工艺专业，并于英国帝国理工大学先后获得硕士和博士学位。2012 年获得欧盟玛丽居里基金资助，于帝国理工大学环境政策研究中心从事研究。加入西湖大学前，于荷兰皇家壳牌环境战略组担任高级研究员。2019 年 8 月全职加入西湖大学，担任工学院特聘研究员，现任中植助理教授。近三年来，申请人以第一和（共同）通讯作者在 *Nat. Commun*、*Green Chem*、*Nano Let*、*Chem. Eng. J*、*Water Res*. 期刊上发表了 14 篇高影响力研究论文，申请发明专利 4 项，其中授权 1 项。目前受聘担任中国循环经济协会分会专家委员、中国能源学会专家委员，Biofuels, Bioproducts & Biorefining 编辑顾问委员会委员，Carbon Management 编委会委员。

Dr. Lei Wang obtained her BSc from Tsinghua University, Master’ s and PhD degrees from Imperial College London with research interests in biofuels from biomass. Later, she became Marie-Curie Research Fellow where she strengthened her expertise in Life Cycle Assessment (LCA). She has published over 30 papers on top journals. Before joining Westlake, she became Scientist and Senior Scientist in Group Carbon at Shell where she contributed to organizational strategic decisions making related to climate change and energy transition. She obtained final nomination awards for “2018 Shell CEO HSSE award” and obtained several Special Recognition Rewards during her time in Shell. Now she is the Zhong Zhi Endowed Assistant Professor, School of Engineering.

实验室概况:

课题组围绕生物质转化技术开发、产业链的经济可行性和环境可持续性评价展开研究。方向包括但不限于:

1. 生物质高效组分分离技术开发
2. 生物质基材料的改性及应用拓展
3. 基于生命周期理论，开发多尺度可持续性评估模型，对绿色化学、固废资源化技术及全产业链进行评价与优化设计，涉及人工智能与环境领域交叉研究。

RESEARCH INTERESTS:

Dr. Lei Wang joined Westlake University since 2019 August as a Principal Investigator and the Lead of Biomass Energy and Materials Lab (BEM Lab). Her group will continue the multi-disciplinary research focusing on converting lignocellulosic waste to high value-added products and materials. In additional to technology development, she is also interested in integrating multi-scale economic feasibility assessment and environmental impact assessment of products, technologies, and supply chains.

代表性成果 REPRESENTATIVE OUTCOMES:

Decoupled temperature and pressure hydrothermal synthesis of carbon sub-micron spheres from cellulose. Nature Communications, 13, 3613, 2022
Sustainable upcycling of post-consumer waste to metal-graphene catalysts for green chemicals and clean water. Cell Reports Physical Science, 101256, 2023
Efficient pretreatment using dimethyl isosorbide as a biobased solvent for potential complete biomass valorization. Green Chemistry, 24 (10): 4082-4094, 2022

Next Generation Photovoltaic Lab
新型太阳能电池实验室

PI: Rui Wang
王睿

2015 年获吉林大学工学学士学位，2016 年获加州大学伯克利分校硕士学位 ,2016 年 9 月至 2019 年 12 月就读于加州大学洛杉矶分校，师从太阳能电池专家 Yang Yang 教授，获博士学位。随后在加州大学洛杉矶分校继续从事博士后研究工作。于 2021 年 4 月全职加入西湖大学工学院。王睿博士长期从事第三代太阳能电池的研究工作，作为主要团队成员两次打破有机太阳能电池世界纪录；并且多次在钙钛矿电池稳定性方面做出很多重要突破性成果；其工作以第一或通讯作者身份在 *Science, Nature, Joule, Advanced Materials, JACS, Matter, Nano Letters* 等旗舰杂志发表论文 21 篇，研究成果被包括 *Scientific American, Forbes, Cell Press* 等多家知名媒体报道。曾入选福布斯中国 30 岁以下 30 人，福布斯亚洲 30 岁以下 30 人，以及麻省理工科技评论全球 35 岁以下创新 35 人名单等。

Dr. Wang received a bachelor’ s degree from Jilin University in 2015 and a master’ s degree from UC Berkeley in 2016. Then he joined in the solar cell pioneer-Professor Yang Yang’ s research lab at UCLA and obtained the Ph.D. degree in 2019.12. Then, he continued his postdoctoral research in UCLA. He joined the School of Engineering at Westlake University in April 2021. Dr. Wang’ s research focus on advanced fabrication and characterization of highly efficient and stable third-generation photovoltaics. To date, he has published 21 peer-reviewed papers as first (co-first) or corresponding author in prestigious journals including Science, Nature, Joule, Advanced Materials, Journal of the American Chemical Society, etc. His work has been widely reported by over 40 social media, including Scientific American, Forbes, and AAAS Eurekalert. He was named Forbes China 30 under 30, Forbes Asia 30 under 30, and MIT Technology Review Global Innovators under 35.

实验室研究方向:

课题组主要研究方向：

1. 钙钛矿光电器件的制备与表征 包括太阳能电池（单节，叠层）、发光二极管，以及光电探测器等；
2. 钙钛矿材料的稳定性的机理研究；
3. 寻找新型有机无机杂化光伏材料；
4. 其他光伏电池研究。

RESEARCH INTERESTS:

1. The fabrication and characterization of perovskite optoelectronics: including single junction and multiple junction solar cells, LED and photodetectors.
2. Study the fundamentals of perovskite stability and underlying mechanisms.
3. Explore new organic and inorganic hybrid materials for photovoltaic applications.
4. Other photovoltaics materials.

代表性成果 REPRESENTATIVE OUTCOMES:

Constructive molecular configurations for surface-defect passivation of perovskite photovoltaics, Science, 366 (6472): 1509-1513, 2019
Reconfiguring the band-edge states of photovoltaic perovskites by conjugated organic cations, Science, 371(6529): 636-640, 2021
Prospects for metal halide perovskite-based tandem solar cells, Nature Photonics, 15(6): 411-425, 2021

WangSynbio Lab
合成生物学与生物催化实验室

PI: Yajie Wang
王雅婕

2012 年获得新加坡南洋理工大学化学生物分子工程学士学位；2018 年获得美国伊利诺伊大学香槟分校化学工程博士学位；2019 年至 2021 在美国伊利诺伊大学香槟分校 ，Center for Advanced Bioenergy And Bioproducts Innovation 从事博士后研究。于 2021 年秋季加入西湖大学工程学院任特聘研究员 / 博士生导师 (独立 PI)。王雅婕博士在开发新型化学酶催化反应体系，突破有机催化及酶催化反应的瓶颈；开发基因编辑，连续定向进化等合成生物学工具，用于构建、改造高效的细胞工厂的研究工作中取得重要突破。成果发表在 *Nature, Nature Chemical Biology, ACS Catalysis, Chemical Review, Natural Product Report* 等国际著名学术期刊。曾获得新加坡 National Science Scholar 称号、美国化工协会 AIChE 年会分会场主席、美国能源部项目评审专家等荣誉。

Dr. Yajie Wang received her bachelor's degree in Chemical and Biomolecular Engineering from Nanyang Technological University, Singapore, in 2012, and the Ph.D. degree in Chemical Engineering University of Illinois at Urbana-Champaign (UIUC), USA, in 2013. She worked as a postdoc in Center for Advanced Bioenergy And Bioproducts Innovation, UIUC, before joining Westlake University in 2021. Her research has been published in *Nature, Nature Chemical Biology, ACS Catalysis, Chemical Review, Natural Product Report*, etc. The total number of citations is over 1000. Dr. Wang was the recipient of Singapore National Scholar; is the reviewer board member of USA Department of Energy Office of Science, guest associate editor of Frontiers in Bioengineering and Biotechnology, and co-chair of Bioengineering Subsection in the American Institute of Chemical Engineering (AIChE) annual meeting.

实验室研究方向:

课题组从事研发合成生物前沿技术，包括设计建造新型化学酶催化体系及人工酶，蛋白质工程，全基因组编辑、调控及细胞内定向进化和高通量筛选等，用于生物材料、药物、精细化工品的研究、改造与可持续生产。

RESEARCH INTERESTS:

Dr. Yajie Wang's group will focus on developing AI-assisted synthetic biology platforms to design, engineer, and produce next generation synthetic biological materials and bioactive compounds with new and extended functional properties affordably and sustainably way to address a wide range of unmet needs in the biomedical and manufacturing industry. Dr. Yajie Wang's research will integrate protein engineering, synthetic biology, metabolic engineering, bioinformatics, machine learning, and material science to build a "Design-Build-Test-Learn" platform to
(1) engineer microbes for producing biopolymers with new functionality and value-added chemicals such as bioactive compounds and precursors of pharmaceuticals ;
(2) design and construct living materials with outstanding properties such as self-regeneration, self-healing, self-regulation, and environmental responsiveness;
(3) engineering artificial photosynthesis system with improved CO2 fixation and light-harvesting efficiency; and enable the production of biomaterial and value-added chemicals from CO2 and sunlight.

代表性成果
REPRESENTATIVE OUTCOMES:

Cooperative tandem systems combining photocatalyzed isomerization and enzymatic reduction, Nature, 560 (7718): 355-359, 2018
Directed evolution: principles, tools and applications, Chemical Review, 2021
Stereoconvergent reduction of alkenes by a nicotinamide free synergistic photoenzymatic system, ACS catalysis, 10 (16): 9431-9437, 2020

Sustainability, Agriculture & Technology Laboratory
可持续农业科学与技术实验室

PI: Thomas Cherico Wanger
王立农

Thomas 是位具有多交叉学科背景的农业生态学家，致力于研究不同空间尺度下土地使用变化和可持续自然资源利用方面科学与技术问题。2011 年获得澳大亚阿德莱德大学与新加坡国立大学联合环境科学博士。后在斯坦福大学和瑞典农业大学开展博士后研究。鉴于在印度尼西亚土地使用变化对生物多样性影响的研究获得了多个奖项。2012 年起在德国哥廷根大学农业生态学小组担任研究员，兼任德国巴西 AMAP 项目研究主任，还曾在国际组织 (WWF) 和技术创业公司担任管理职位。

Dr. Tom Wanger is an interdisciplinary scientist, working broadly on sustainability and agriculture at multiple spatial scales. Tom is a graduate from the University of Adelaide, Australia, jointly with the National University of Singapore, Singapore (PhD, Environmental Sciences) and former Postdoc at Stanford University, US, and SLU,Sweden. In the past, he received multiple awards for excellence in research and he has published more than 40 papers including top-tier journals Nature, Science, and PNAS. He is also a Senior Researcher in the Agroecology Group at the University of Goettingen, Germany. Besides his career in research, he held senior management positions in international organizations and a technology start-up. Tom joined Westlake University in December 2019 as an Associate Professor and PI of the SAT lab.

实验室研究方向:

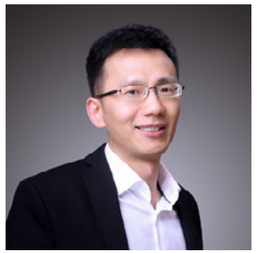
旨在通过现有和新型农业生产系统为不断增长的人口提供食物、能源和纤维，以实现联合国可持续发展的目标。作为一个追求卓越的国际团队，我们采用新技术新方法，并基于创新思维开展合作。目前正在推进一个全球项目网络，以评估农作物生产系统对生物多样性、生态系统服务、农民社会经济状况和人类健康的景观层面影响。

RESEARCH INTERESTS:

The SAT lab (https://www.sat-lab.tomcwanger.com) aims to contribute towards achieving the UN Sustainable Development Goals by providing food, energy, and fibres for an increasing human population in existing and new agricultural production systems. As an international team striving for excellence, our work is based in China and globally, we embrace new technologies and methods, and collaborate openly based on innovative thinking.
The lab is currently expanding a network of global projects to assess landscape-level effects of different crop production systems (e.g., rice and cocoa) on biodiversity, ecosystem services, socioeconomic conditions of farmers, and human health. We also use new technologies to advance sustainability in agricultural production.
We are also interested in ecosystem-based coastal protection, sustainable natural resource use, and to integrate sustainable agricultural production in recent policy initiatives.

代表性成果 REPRESENTATIVE OUTCOMES:

Ecosystem-Based Tsunami Mitigation for Tropical Biodiversity Hotspots, Trends in Ecology & Evolution 35: 96–100
Landscape and Farm-Level Management for Conservation of Potential Pollinators in Indonesian Cocoa Agroforests., Biological Conservation 257: 109106, 2021
Integrating Agroecological Production in a Robust Post-2020 Global Biodiversity Framework, Nature Ecology & Evolution 4: 1150–52, 2020



Multifunctional Nanostructured Devices Laboratory
多功能纳米结构器件实验室

PI: Liaoyong Wen
文燎勇

2006 年获郑州大学学士学位；2009 年获上海大学硕士学位；2011-2016 年先后就读于德国明斯特大学和伊尔姆瑙工业大学应用物理专业，主要从事三维纳米结构材料制备及其能源器件研究，获博士学位。2016-2019 年先后以博士后和资深研究员工作于伊尔姆瑙工业大学和康涅狄格大学，主要从事多基元纳米结构构建及其光电器件研究。曾获得国家优秀自费留学生奖学金，IEEE CT 最佳口头报告奖和康涅狄格大学博士后培育奖。

Dr. Wen received his B.S. (2006) from Zhengzhou University and Ph.D. (2016) from Ilmenau University of Technology, Germany. From 2016 to 2019, he worked as a postdoc associate and senior scientist at Ilmenau University of Technology and the University of Connecticut. He was recognized with the Chinese Government Award for Outstanding Students Abroad in 2015 and was the recipient of PostDoc Seed Grant Funding Award from the University of Connecticut and Best Oral Paper Prize from CMOC (IEEE CT) in 2018. He has published 30+ papers in top journals, including *Nature Nanotechnology, Nano Letter, Nature Communication, ACS Nano, Energy & Environmental Science* and *Advanced Energy Materials*. The number of citations is over 1600 and the h-index is 23.

实验室研究方向:

通过利用新型微纳米加工技术，结合多种物理化学方法，构筑可定制化的多基元纳米超结构材料。探索不同纳米基元间的协同耦合特性和物理化学新性质，为其在光电催化、柔性传感和仿生器件等领域的应用提供新材料基础。

RESEARCH INTERESTS:

The research fields of Dr. Wen are micro/nano fabrication techniques, customizable heterogeneous and metamaterial synthesis, as well as multifunctional device assembling. Dr. Wen focus on using these new techniques/materials to quantitatively disentangle the interplay between the sub-components and pursue oriented collective properties, which will create a new generation of multi-functional and innovative energy conversion/storage devices and sensing systems. His group will particularly focus on the following three directions:
1. Green energy-based CO2 reduction;
2. Interfacial and implantable biosensor;
3. Microenvironment-stem/cancer-cell fate correlations.

代表性成果 REPRESENTATIVE OUTCOMES:

Stable Sodium Metal Anode Enabled by an Interface Protection Layer Rich in Organic Sulfide Salt,Nano Letters 21, 619-627, 2021
Programmable Multiple Plasmonic Resonances of Nanoparticle Superlattice for Enhancing Photoelectrochemical Activity,Advanced Functional Materials, 2005170, 2020
Revealing Structure Properties of ZIF-8 Particles Prepared by Wet Chemical Etching via 3D Electron Tomography,ACS Materials Letters 171-178, 2020

AI + Science Laboratory (AI+SL)
AI+Science实验室

PI: Tailin Wu
吴泰霖

2012 年于北京大学物理学院获得学士学位，2019 年获得美国麻省理工学院理学博士学位，毕业论文主题为人工智能与物理的结合，2020 年 -2023 年在美国斯坦福大学计算机系从事博士后研究。吴泰霖在人工智能用于科学发现和科学仿真领域做出了开创性的工作，在机器学习顶级会议（NeurIPS，ICLR，UAI 等）以及顶级物理期刊（*Physical Review E* 等）发表文章 16 篇，会议研讨会文章 3 篇，其中一作 / 共同一作文章 14 篇。

Dr. Wu received his bachelor's degree from the School of Physics at Peking University in 2012, and Ph.D. degree from Department of Physics, Massachusetts Institute of Technology in 2019. His Ph.D. thesis focused on AI for physics and physics for AI. He worked as a postdoctoral scholar in the Computer Science Department at Stanford University from 2020 to 2023. Dr. Wu has made pioneering contributions in the field of AI for scientific discovery and scientific simulation. He has published 16 papers in top machine learning conferences (such as NeurIPS, ICLR, UAI) and top physics journals (such as *Physical Review E*), as well as 3 conference workshop papers, with 14 of them as first author or co-first author.

实验室研究方向:

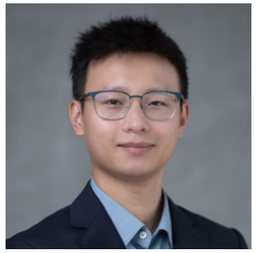
主要从事 AI+Science 学科交叉的核心、普适问题，包括：（1）开发机器学习算法用于大规模、多尺度科学仿真（用于流体、材料、等离子体）和科学设计（蛋白质设计、材料设计、机械设计）；（2）机器学习算法用于科学发现系统普适规律和内部结构；（3）开发强泛化性、鲁棒的表示学习算法（基于图神经网络、信息瓶颈、扩散模型等）。

RESEARCH INTERESTS:

1. Development of machine learning methods for large-scale scientific simulations and scientific design (fluid dynamics, mechanical engineering, materials science, life sciences);
2. Development of machine learning methods for scientific discovery (for physics, life sciences);
3. Representation learning based on graph neural networks, information theory, and diffusion models.

代表性成果 REPRESENTATIVE OUTCOMES:

Toward an Artificial Intelligence Physicist for Unsupervised Learning, Physical Review E, 2019, 100(3).
Learning Controllable Adaptive Simulation for Multi-scale Physics, ICLR 2023, notable top-25%.
Learning to Accelerate Partial Differential Equations via Latent Global Evolution, NeurIPS 2022.



Advanced Characterization Laboratory for Energy Materials
能源材料先进表征实验室

Westlake Fellow: Yuxuan Xiang
向宇轩

2016 年于南京航空航天大学获得学士学位，并保送进入厦门大学化学化工学院，2021 年获得博士学位。向宇轩博士长期开展可充二次电池（锂、钠离子电池）的基础与应用研究。主要通过发展高时空分辨的先进表征技术：如原位电化学固体核磁共振技术，高分辨魔角旋转核磁共振技术等对电池材料的构效关系进行深入探究，对高比能电池的失效过程进行实时，定量的分析。曾以第一作者身份在 *Nature Nanotechnology, Science Advances, Advanced Materials, Nano Letters* 等期刊发表论文 9 篇。

Dr. Xiang received his bachelor's degree from Nanjing University of Aeronautics and Astronautics in 2016, and Ph.D. degree from Department of Chemistry, Xiamen University in 2021. He focuses on the fundamental research of lithium/sodium ion batteries by developing advanced characterization tools, including electrochemical in-situ solid-state NMR techniques and high-resolution solid-state NMR techniques. He has published 9 research papers as the 1st author on *Nature Nanotechnology, Science Advances, Advanced Materials, Nano Letters* etc.

实验室研究方向:

1. 面向能源材料的固体核磁表征方法与装置研发；
2. 高比能锂 / 钠离子电池材料的合成及其电化学机理探究；
3. 面向商业化高比能电池的失效分析机理研究。

RESEARCH INTERESTS:

1. Development of solid-state NMR characterization methods for energy storage materials;
2. High specific energy lithium/sodium ion battery materials: synthesis and electrochemical mechanism;
3. Failure mechanism of commercialized high specific energy batteries.

代表性成果 REPRESENTATIVE OUTCOMES:

1.Visualizing the growth process of sodium microstructures in sodium batteries by in-situ 23Na MRI and NMR spectroscopy. Nature Nanotechnology 15: 883-890.
2.Quantitatively analyzing the failure processes of rechargeable Li metal batteries. Science Advances 7(46): eabj3423.
3.Advanced characterization techniques for solid state lithium battery research. Materials Today 36: 139-157.

Optical Communication and Sensing Laboratory
光通信与传感实验室

PI: William Shieh
谢伟

谢伟教授分别于 1994 和 1996 年在南加州大学获得电气工程硕士和物理博士学位。他曾在美国的多个知名机构工作，例如加利福尼亚州帕萨迪纳的喷气推进实验室和新泽西州霍姆德尔的贝尔实验室。2004 年至 2022 年在澳大利亚墨尔本大学电气与电子工程系执教。2022 年，他回国加入西湖大学，担任光通信与传感讲席教授。由于他在光正交频分复用的杰出贡献，他当选了国际电气和电子工程师协会会士（IEEE Fellow）和美国光学学会会士（OSA Fellow）。他现任国际期刊 *IEEE Transactions on Communications* 的分域主编（Area Editor），以及 *Optica*（前美国光学学会）、*Optics Letters* 副主编（Deputy Editor）。

Professor William Shieh received the M.S. degree in electrical engineering and the Ph.D. degree in physics from the University of Southern California, Los Angles, in 1994 and 1996, respectively. He had worked in various previous renowned institutions such as Jet Propulsion Laboratories, Pasadena, California, and Bell Laboratories, Holmdel, New Jersey. From 2004 to 2022, he had been with the Department of Electrical and Electronic Engineering, University of Melbourne, Australia. In 2022, he joins the Westlake University as Chair Professor in Optical Communication and Sensing.Professor Shieh has published more than 300 journal and conference papers and submitted 14 U.S. patents (nine issued). He has been awarded Australian Future Fellowship, 2011-2014. He is a fellow of both IEEE and Optical Society of America (OSA).

研究成果

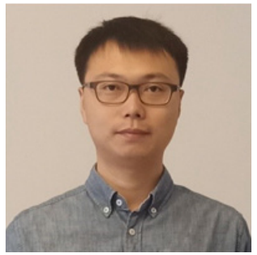
谢伟教授在光通信和光子学方面取得了根本性和重大的进步，包括相干光正交频分复用、光空间分复用、高等光调制格式和光纤中的偏振效应。谢教授在 2006 年的一篇开创性论文中提出了一种称为相干光学 OFDM（CO-OFDM）的新型调制格式。2011 年，谢教授在 OFC 截止日期后的一篇论文（post-deadline paper, PDP）中展示了世界上第一个克服单模光纤容量限制的少模传输，为高容量光传输领域做出了另一项重大贡献。2021 年谢教授构思了一种称为载波辅助差分检测的新接收方案，发表在 Nature Journal 和 Light: Science & Applications 期刊上，他扩展了经典差分检测的概念，以适应光通道中在不诉诸相干检测的情况下进行信号恢复。

RESEARCH ACHIEVEMENTS:

Professor Shieh has made fundamental and significant advances to optical communications and photonics including coherent optical OFDM, optical space-division-multiplexing, advanced optical modulation formats, and polarization effects in optical fibers. Professor Shieh proposed the novel modulation format called coherent optical OFDM (CO-OFDM) in a seminal paper in 2006. Many of the concepts under the context of optical OFDM has eventually adopted into the high-speed communication products. In 2011, Professor Shieh's team demonstrated world-first few-mode transmission to overcome the capacity limit of single-mode fibers in an OFC post-deadline paper. This work along with similar independent works from Bell Labs at the same time has set off huge interest in few-mode transmission, or broadly optical space-division multiplexing (SDM) around the world.

代表性成果 REPRESENTATIVE OUTCOMES:

1.Shieh, W., Sun, C. & Ji, H. 2020, ‘Carrier-assisted di□erential detection’, Light: Science and Applications, vol. 9, no. 1, pp.1-9.
2.Shieh, W. & Ho, K.-P. 2008, ‘Equalization-enhanced phase noise for coherent-detection systems using electronic digital signal processing’, Optics Express, vol. 16, no. 20, pp. 15718-15727.
3.Li, A., Chen, X., Al Amin, A., Ye, J. & Shieh, W. 2012, ‘Space-division-multiplexed high-speed superchannel transmission over few-mode fiber’, Journal of Lightwave Technology, vol. 30, no. 24, pp. 3953-3964.



Low-Dimensional Functional Materials and Devices Lab
低维功能材料与器件实验室

PI: Yuxi Xu
徐宇曦

2007年6月本科毕业于武汉大学化学与分子科学学院，获理学学士学位；2011 年 6 月博士毕业于清华大学化学系，获理学博士学位。随后在华盛顿大学、加州大学洛杉矶分校从事博士后研究，于 2015 年 7 月加入复旦大学高分子科学系 / 聚合物分子工程国家重点实验室任研究员 / 博导（独立 PI），于 2019 年 4 月底加入西湖大学工学院任研究员 / 博导（独立 PI）。获得 2013 年度教育部自然科学一等奖和 2016 年度国家自然科学二等奖（均为第二获奖人）、中国化学会首届箐青化学新锐奖（2019）、Young Innovator Award of Nano Research（2020），国家优秀青年科学基金资助（2020），入选上海市东方学者特聘教授（2015）、中国科协青年托举人才工程（2017）、Clarivate Analytics 全球高被引科学家（2018-2020）和 Elsevier“中国高被引学者”（2019）。

Dr. Yuxi Xu received his bachelor's degree from Wuhan University in 2007, and Ph.D. degree in Chemistry from Tsinghua University in 2011. He then worked as a postdoc in University of Washington and University of California, Los Angeles before joining Fudan University in July of 2015. He moved to Westlake University in April of 2019. Dr. Xu has published more than 60 research papers about graphene and 2D polymers in high-impact journals such as *Nat. Commun., J. Am. Chem. Soc., Angew. Chem. Int. Ed., Adv. Mater.* His work has been recognized with >20000 citations and some honors and awards including the 2nd Class Award for National Natural Science (2nd winner) in 2016, 2018 Hall of Fame of Advanced Materials Interfaces, 2018 Emerging Investigators of Journal of Materials Chemistry A, 2019 Young Cutting-Edge Award of Chinese Chemical Society, 2020 Young Innovator Award of Nano Research, and Highly Cited Researcher by Clarivate Analytics (2018-2020).

实验室研究方向：

围绕国家重大战略需求，通过化学、材料、物理等学科的交叉手段，致力于新型高分子和石墨烯等低维功能材料的化学制备、可控组装复合及其在能源、环境和催化中的性能和应用突破，并推进相应新材料的产业化进程。

RESEARCH INTERESTS:

The research of Dr. Yuxi Xu's group is mainly focuses on the controllable synthesis and assembly of low-dimensional functional materials including graphene, two-dimensional polymers, covalent-organic frameworks and silicene, and realizing their high-performance applications in energy storage and conversion, catalysis and environment remediation.

代表性成果 REPRESENTATIVE OUTCOMES:

A Universal Strategy toward Ultrasmall Hollow Nanostructures with Remarkable Electrochemical Performance, Angew. Chem. Int. Ed. 2020, 59, 8247-8254
3D MXene Architectures for Efficient Energy Storage and Conversion, Adv. Funct. Mater. 2020, 30, 2000842
Interface Engineering between Metal-Organic Framework Nanocrystal and Graphene toward Ultrahigh Potassium-Ion Storage Performance, ACS Nano, 2020, 14, 10210-10218

Biomechanics and Quantitative Biology
生物力学与定量生物学（BQB）实验室

PI: Shilei Xue
薛时磊

2012 年于南京航空航天大学飞行器设计与工程专业获得学士学位，2018 年于清华大学固体力学专业获得博士学位。之后在奥地利科学技术研究所（2018-2023 年）从事博士后研究。薛时磊博士主要从事组织发育成形的多尺度、多场耦合力学研究，相关工作发表在 *Nat.Cell Biol.*，*Nat. Phys.* 和 *JMPS* 等学术期刊。

Dr. Xue obtained B.S. degree in Engineering from Nanjing University of Aeronautics and Astronautics in 2012, and Ph.D. degree in Solid Mechanics at Tsinghua University in 2018. He worked as a postdoctoral research fellow at Institute of Science and Technology Austria from 2018 to 2023. He focuses on multi-scale/multi-field coupling mechanics of tissue development and morphogensis. The main innovations have been published in peer-reviewed journals such as *Nat. Cell Biol.*, *Nat. Phys.* and *JMPS.*

实验室研究方向：

课题组运用定量化的研究方法探究组织发育成形的力学原理，主要研究方向包括：(1) 组织的“自组装原理”；(2) 多要素的协同与耦合机制；(3) 活性软物质力学理论与计算方法。

RESEARCH INTERESTS:

The group aims at the mechanical principles behind tissue development and morphogenesis，with research topics including (1) self-organization principle of tissue; (2) coordination and coupling; (3) active mechanics theory.

代表性成果 REPRESENTATIVE OUTCOMES:

Cell fate coordinates mechano-osmotic forces in intestinal crypt formation, Nature Cell Biology, 2021, 733–744.
Cell monolayers sense curvature by exploiting active mechanics and nuclear mechanoadaptation, Nature Physics, 2021, 1382–1390.
Biochemomechanical poroelastic theory of avascular tumor growth, Journal of the Mechanics and Physics of Solids, 2016, 94, 409–432.

Artificial Intelligence and Biomedical Image Computing Lab
人工智能与医学影像分析实验室

PI: Lin Yang
杨林

本科和硕士毕业于西安交通大学电子与信息工程学院。博士毕业于罗格斯大学（Rutgers）电子与计算机工程。原为美国佛罗里达大学（University of Florida）生物医学工程系、电子与计算机工程系和计算机系三个系的终身副教授（Tenured）。长期从事医学图像分析、模式识别、机器学习（深度学习）、计算机视觉和高性能计算等领域的研究。在国际权威期刊发表 SCI 期刊论文 100 余篇，包括 2 篇自然 - 医学（*Nature Medicine*）杂志和 1 篇自然—机器学习（*Nature Machine Intelligence*）。论文总计被引用 10000 余次，杨林博士的创新性研究成果获得了 MICCAI 2015 Young Scientist Best Paper Award（青年科学家奖），并于 2017 年参与编撰了一本基于深度学习的医学图像分析的最新前沿专著“基于深度学习和卷积神经网络的医学图像分析”。发表同行评审会议论文 50 多篇（其中双盲评审顶级会议例如 CVPR、MICCAI 等 30 余篇）。

Dr. Lin Yang received his bachelor's degree and master's degree in Electrical and Computer Engineering from Xi'an Jiaotong University, China, in 1999, and Ph.D. degree in Electrical and Computer Engineering from Rutgers University in 2009. He worked an Assistant Professor at Rutgers Unviersity and University of Kentucky. He was recruited as a tenured associate professor in 2014 by University of Florida before joining Westlake University in 2019. Dr. Yang has published more than 100 peer reviewed research papers, among them ten are in *Nature Medicine, Nature Machine Intelligence*, IEEE Transaction on Pattern Analysis and Machine Intelligence in various emerging areas including machine learning, computer vision, data mining and biomedical image analysis. The total number of citations is over 10,000. Dr. Yang has published more than 30 premium conference papers in CVPR, ECCV, MICCAI, etc. He received the 2015 Best Paper and Young Investigator Awards in International Conference on Medical Image Computing and Computer Assisted Intervention for his pioneering work in digital pathology and machine leanring.

实验室研究方向:

主要从事机器学习、计算机视觉
医学影像分析和图像信息学相关研究。实验室在大尺度显微图像分析、人工智能／数字病理学、深度学习网络的可解释性，以及三维医学影像、二维显微图像和视频流的分析方面做出了很多显著成果。

RESEARCH INTERESTS:

Dr. Yang's major research interests are focus on biomedical image analysis and imaging informatics, computer vision, biomedical informatics, and machine learning. He is also working on high performance computing and computed aided health care and information technology using big data. He serves in many funding review panels and the associate editors of two journals. He is the co-author of the award winning papers for 2008 ISBI NIH Young Investigator Best Paper Award, 2014 NANETS Young Investigator Paper Award, 2015 Young Scientist Best Paper Award Runner-up, and 2015 MICCAI Young Scientist Best Paper Award.

代表性成果 REPRESENTATIVE OUTCOMES:

Pathologist-level interpretable whole-slide cancer diagnosis with deep learning, Nature Machine Intelligence, 1(5): 236-245, 2019
Deep Convolutional Hashing for Low-Dimensional Binary Embedding of Histopathological Images, IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS, 23(2): 805-816, 2019
Texture analysis for muscular dystrophy classification in MRI with improved class activation mapping, PATTERN RECOGNITION, 86: 368-375, 2019

Research Group of Extractive Metallurgy
提取冶金实验室

PI: Xiao Yang
杨肖

杨肖，本科和硕士分别毕业于北京航空航天大学和中国科学院过程工程研究所，2009 年在东京大学获冶金工程博士学位。随后历任日本产业技术综合研究所研究员、江苏省（沙钢）钢铁研究院研究员、京都大学研究助理教授、美国德州大学奥斯丁分校博士后、东京大学助理教授。于 2020 年加入西湖大学工学院，创立“资源提取与工艺创新”实验室。

Dr. Xiao Yang is an extractive metallurgist. He has 10+ years of research experience from both academia and industry, with well-trained fundamental skills and active industrial/international collaboration.He received his B.S. from Beihang University in 2003, M.S. from Institute of Process Engineering-CAS in 2006, and Ph.D. in Metallurgical Engineering from The University of Tokyo in 2009. He was a research associate at National Institute of Advanced Industrial Science and Technology, a researcher at Shasteel Group, a research assistant professor at Kyoto University, and a research fellow at The University of Texas at Austin. In 2017, he was appointed as an assistant professor at The University of Tokyo. He joined Westlake University in 2020.

实验室研究方向:

杨肖实验室聚焦于有价元素资源提取技术，定位是应用基础研究，以化学热力学和动力学为主要理论指导，通过理解复杂体系中物质传递、相分离、相变以及氧化还原反应的科学本质，展开新技术的探索与新工艺的设计，最终目标是推动我国传统资源型产业向绿色化高端化转型升级。具体研究方向包括：高纯度元素制备、固废资源化、海洋资源提取、稀贵金属综合回收、材料表面处理强化等。

RESEARCH INTERESTS:

Dr. Yang's group is committed to support the upgrading of the resource-based manufacturing sector toward more sustainable development. The primary focus is design of eco-friendly processes for resources extraction or recycling based on chemical thermodynamics and electrochemistry. The group tries to understand in depth the principle of mass transfer, phase separation, phase change, and redox reactions in complex metallurgical systems. Recent research topics include: preparation of high purity elements, reutilization of solid wastes, extraction of marine resources, recycling of rare metals, and materials surface treatment technologies.

代表性成果 REPRESENTATIVE OUTCOMES:

A New Concept for Producing White Phosphorus: Electrolysis of Dissolved Phosphate in Molten Chloride, ACS Sustainable Chemistry & Engineering, 8: 13784–13792, 2020
Nutrient Supply to Seawater from Steelmaking Slag: The Coupled Effect of Gluconic Acid Usage and Slag Carbonation, Metallurgical and Materials Transactions B, 51: 1039–1047, 2020
Electrochemical Preparation of Water-Reactive Silicon with Potential Applications in Hydrogen Generation, Journal of the Electrochemical Society, 167: 022510, 2020

Multi-dimensional Electron Microscopy Laboratory
多维电子成像实验室实验室

PI: Yao Yang
杨尧

2015 年于清华大学材料科学与工程系获得学士学位；2021 年获得加州大学洛杉矶分校博士学位。2021 年至 2022 年在加州大学洛杉矶分校和劳伦斯伯克利国家实验室进行博士后研究。曾获清华大学学校优秀毕业论文奖，国家自费留学生奖学金，美国自然基金委 DMREF 奖学金，美国电子显微年会博士后奖。相关研究成果发表在 *Nature*、*Nature Materials* 等期刊上，研究成果被国内外多家媒体报道；并被自然、NSF 和 DOE 多部门列为亮点。

Dr. Yao Yang received his bachelor's degree from Tsinghua University (2015) and his Ph.D. degree from University of California, Los Angeles (UCLA, 2021), both in Materials Science and Engineering. He then got a joint postdoctoral position in Department of Physics at UCLA and National Center for Electron Microscopy, Lawrence Berkeley National Laboratory as a National Science Foundation (NSF) STROBE postdoctoral fellow. He has received NSF DMREF Fellowship, Outstanding student award from China Scholarship Council (CSC), postdoc award from Microscopy Society of America, thesis award in Tsinghua University, etc. His research has been published in Nature, Nature Materials, etc, which are highlighted by Nature, NSF and DOE.

实验室研究方向:

主要致力于原子分辨率下的多维电子成像以及新型电子显微学方法的开发和应用。具体的研究领域方向包括但不限于：

（1）纳米催化剂材料和量子材料等功能性材料的三维原子重构以及原子分辨率下材料在不同反应中的多维度动态过程。

（2）开发新型电子成像方法，如电子叠层电子成像（Electron Ptychography)、基于叠层电子成像的三维原子重构和基于机器学习的自动化三维原子重构等。

（3）非晶体的三维原子结构以及非晶体 - 晶体转变过程中的原子扩散模式。

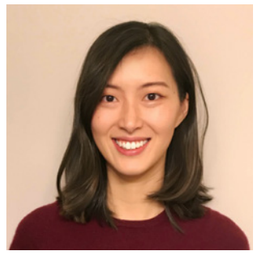
RESEARCH INTERESTS:

The research in Dr. Yang's group works at the research frontiers on atomic-level structural studies, with atomic electron tomography (AET) as the main tools. His research mainly focuses on using microscopes solving cutting edge science and technology questions such as:

(1) The 3D atomic structure of nano-catalysts, 2D materials and quantum materials and its related properties.
(2) Development of advanced electron microscopy methods include ptychography and machine learning based algorithm.
(3) The 3D atomic structure of amorphous materials and atomic movement during amorphous-crystalline transition.

代表性成果 REPRESENTATIVE OUTCOMES:

Determining the three-dimensional atomic structure of an amorphous solid. Nature, 592, 60–64, 2021.
Observing crystal nucleation in four dimensions using atomic electron tomography. Nature, 570, 500–503, 2019
Atomic-scale identification of the active sites of nanocatalysts. arXiv preprint, arXiv:2202.09460



Optical Imaging and Spectroscopy Laboratory
多维度和跨尺度生物表征实验室

Westlake Fellow: Xiao You
尤晓

2014 年于复旦大学高分子科学与工程学院获得学士学位，2019 年在美国北卡罗莱纳大学教堂山分校获得材料科学博士学位。之后在美国德州大学奥斯汀分校（2019-2022 年）和 SLAC 国家加速器中心下属斯坦福同步辐射光源（2022-2023 年）进行博士后研究。尤晓博士致力于开拓前沿高分辨率近场成像和时间分辨光谱技术，结合理论计算，探究生物活性分子纳米尺度结构和皮秒动力学，其工作在 *Advanced Materials, Angew. Chem. Int. Ed.*, *JPCL, Cell Rep. Physical Science.* 等期刊发表论文共 18 篇。

Dr. You earned her Bachelor's degree in Macromolecular Science and Engineering from Fudan University in 2014 and her PhD in Materials Science from the University of North Carolina at Chapel Hill in 2019. During her post-doctoral research at the University of Texas at Austin (2019-2022) and the Stanford Synchrotron Radiation Lightsource under the SLAC National Accelerator Laboratory (2022-2023), Dr. You continued to develop cutting-edge high-resolution near-field microscopy and time-resolved spectroscopy techniques, combined with theoretical computations, to investigate the complex interactions and dynamics in biological systems. Dr. You's research has been published in highly regarded journals, including *adv. Mat.*, *Angew. Chem. Int. Ed.*, *JPCL*, and *Cell Rep. Physical Science.*

实验室研究方向：

本实验室旨在利用多维度、跨尺度的动态表征手段，探索生物大分子在生物系统中的结构、动力学和相互作用机制。目前，我们的主要研究方向包括以下三个方面：（1）研究蛋白与磷脂相位分离的调控机制；（2）探索生物大分子的相变过程的机理与调控；（3）在分子尺度上理解和操控光激发酶蛋白的结合和相互作用力。我们致力于开发先进的纳米时间分辨光谱技术，以及其在生物领域的应用，研究生物大分子的动态过程，并为生命科学研究和药物研发提供理论基础和技术支持。

RESEARCH INTERESTS:

Our lab utilizes cutting-edge multidimensional and multi-scale characterization techniques to investigate the structure, dynamics, and interactions of biological macromolecules in living systems. Our research focuses on: understanding the regulation of protein-lipid phase separation, the effects of phase transitions on biological function, and the molecular mechanisms of photoreceptor protein binding and interaction. By developing advanced nanoscale time-resolved spectroscopy techniques, we aim to provide a theoretical foundation and technical support for life science research and drug development.

代表性成果 REPRESENTATIVE OUTCOMES:

Importance of Hydrogen Bonding in Crowded Environments: A Physical Chemistry Perspective. J. Phys. Chem. A, 2022, 126 (35), 5881-5889
Molecular Mechanism of Cell Membrane Protection by Sugars: A Study of Interfacial H-bond Networks, J. Phys. Chem. Lett., 2021, 12, 39, 9602–9607
Short- and Long-range Crowding Effects on Water's Hydrogen Bond Networks. Cell Rep. Physical Science., 2021, 2 (5):100419.

Lab for Representation Learning
表征学习实验室

PI: Fajie Yuan
原发杰

2021 年初加入西湖大学 AI 系，任助理教授，2018 年底至 2021 年初就职于腾讯，任职机器学习研究员。2014 年至 2018 年，在英国格拉斯哥大学计算机系获博士学位。2018 年上半年由 Jim Gatheral Travel Scholarship 资助为新加坡国立大学访问学者。原发杰博士以第一作者 / 相同贡献在机器学习与数据挖掘相关顶会发表论文十余篇，并获得 ICTAI2016 最佳学生论文，多项科研成果，如 LambdaFM，NextItNet，PeterRec 被广泛应用于工业场景。

Dr. Fajie Yuan formerly was a senior machine learning researcher at Tencent. He obtained his Ph.D. degree at University of Glasgow, UK in 2018. He was also a visiting scholar at National University of Singapore and research intern in Telefonic Research. He has published over 10 research papers in top-tier AI conference (Core Rank A*/A) as the first or co-first author. Several of his AI algorithm were applied in real production systems, such as LambdaFM, NextItNet, and PeterRec.

实验室研究方向:

主要从事机器学习算法相关研究与应用。涉及 AI 技术包括：表征学习、迁移学习、终生学习、元学习、AutoML 等技术，应用场景包括用户表征建模、信息检索与推荐系统和计算生物学。

RESEARCH INTERESTS:

The research field of Dr. Fajie Yuan's group includes machine learning, user modeling and and LifeAI. He is particularly interested in transfer learning, lifelong learning, meta learning, AutoML and their applications for user representation learning and user medicine/ disease representation modeling.

代表性成果 REPRESENTATIVE OUTCOMES:

A Simple Convolutional Generative Network for Next Item Recommendation, WSDM: 582-590, 2019)
Future data helps training: Modeling future contexts for session-based recommendation, WWW: 303-313, 2020
Parameter-efficient transfer from sequential behaviors for user modeling and recommendation, SIGIR: 1469-1478, 2020

Sensing and Computational Imaging (SCI) Lab
感知与计算成像实验室

PI: Xin Yuan
袁 鑫

2003 到 2009 年在西安电子科技大学本硕连读，获得雷达信号处理重点实验室硕士学位。2012 年获得香港理工大学博士学位之后到美国杜克大学做博士后，主要从事机器学习和压缩感知相关方向研究。于 2015 年 3 月加入位于美国新泽西州的贝尔实验室工作至今，担任视频分析与编码首席研究员。目前主要研究方向为计算成像，包含成像系统的研发和基于机器学习的算法研究。是单次曝光压缩成像 (Snapshot Compressive Imaging) 的主要推动者之一。已在相关方向发表文章 100 多篇，并获得多个会议的最佳论文奖；同时拥有国际专利 20 余项。

Dr. Xin Yuan received B. Eng. and M. Eng. from Xidian University, China, in 2007 and 2009 respectively. He earned his Ph.D. from The Hong Kong Polytechnic University in 2012. He worked as a post-doc at Duke University in Durham, NC, USA from 2012 to 2015. After that, Dr. Yuan moved to Bell Labs in Murry Hill, NJ, USA as a video analysis and coding lead researcher. Dr. Yuan has published more than 100 research papers in computational imaging, machine learning, computer vision, optics and signal processing. The total number of citations is over 3200. Dr. Yuan is the co-author of several best paper awards and the inventor/co-inventor of more than 20 international patents.

实验室研究方向:

感知与计算成像实验室 (SCI Lab) 以服务和方便人类生活为使命，致力于开发低成本、低功耗的成像系统用于感知周边世界的高维信息，从而提高我们的生活质量。现阶段实验室主要研究方向为计算成像，包含硬件系统的设计、搭建和基于机器学习的算法的研究。代表性成像系统有：高速视频、高光谱、大视场、高速三维以及相干高速压缩成像等。算法研究包括 基于深度学习的高光谱、高速视频重建，基于元学习、目标检测和识别的自适应信息重构以及基于增强学习的自适应成像系统的研发。目前 SCI Lab 与合作者共同研发了这些方向最先进的算法，并与国内外同方向知名学者长期保持合作关系。SCI Lab 同时致力于各种图像和视频的压缩、恢复、增强等逆问题研究；基于贝叶斯统计模型的自适应学习如域自适应学习等方向的研究。

RESEARCH INTERESTS:

The mission of Sensing and Computational Imaging Lab, dubbed SCI Lab, is to serve human with low-cost, low-power sensing systems to improve the quality of our life.The main research direction is computational imaging, including hardware development and algorithm investigation. Exemplar hardware systems are compressive 3D imaging, video, hyperspectral imaging; algorithms include high-dimensional signal reconstruction, meta-learning based adaptive sensing and reinforcement learning based adaptive sensing system design. SCI Lab has developed state-of-the-art algorithms on these research directions and is closely collaborating with other researchers in this field. Meanwhile, SCI Lab is interested in image/video compression, restoration and enhancement; SCI Lab is also developing algorithms for Bayesian machine learning and domain adaptation.

代表性成果 REPRESENTATIVE OUTCOMES:

MetaSCI: Scalable and Adaptive Reconstruction for Video Compressive Sensing, CVPR: 2083-2092, 2021
Single-Pixel Neutron Imaging with Artificial Intelligence: Breaking the Barrier in Multi-Parameter Imaging, Sensitivity and Spatial Resolution, The Innovation: Cell Press: 100100, 2021
Snapshot Compressive Imaging: Theory, Algorithms and Applications, IEEE SPM: 65-88, 2021

Synthetic Biology and Bioengineering Lab
合成生物学及生物工程实验室

PI: Anping Zeng
曾安平

德国工程院第一位德藉华人教授院士，原汉堡工业大学终身教授，生物过程与生物系统工程研究所所长。15 岁考入现南昌大学，1982 年获化学工程学士，1984 年在北京石油化工研究院提前硕士毕业，1990 年获布朗瑞克工业大学自然科学博士学位。在德国国家生物技术研究中心（现亥姆霍兹感染研究中心）博士后工作一年后，于 1991 年获永久研究（人）员席位，历任生化工程部和基因组学部实验室负责人至 2006 年，期间在澳大利亚 CSIRO 及美国明尼苏达大学访问研究。2005 年获聘三所德国大学不同专业终身正教授。2021 年秋受聘于西湖大学，任合成生物学和生物工程讲席教授、校级合成生物学与生物智造中心创始主任。

实验室研究方向:

主要研究方向为工业生物技术、动物细胞培养技术、系统代谢及合成生物学；近期研究重点为电驱动生物合成、CO_2 等一碳化合物生物利用、以及具有催化性能的智能蛋白质生物材料。在国际上率先将系统生物学及基于蛋白质结构的代谢工程应用于工业生物过程研究，尤其在二元醇及氨基酸生物合成领域，从基础研究到工艺过程开发进行了系统的创新性工作，成果实现工业应用。代表性工作包括对 1,3- 丙二醇这一重要工业生物过程的从代谢途径的定量分析、设计、调控到生物反应器与产品分离过程的系统性研究，开发了原创的工艺过程。在电生物合成技术方面，开发出新颖的 All-in-One 电极，将其成功应用于 CO_2 生物转化，脂肪酸合成，及 1,3- 丙二醇 - 有机酸脂联产工艺。在一碳代谢的研究中，曾安平团队首次发现了具有催化性能的蛋白质水凝胶，阐述了其成胶机理，正在开展其作为智能生物材料在合成生物学和生物医学中的基础及应用研究。发表学术论文 300 多篇。

代表性成果
REPRESENTATIVE OUTCOMES:

An aldolase-based new pathway for condensation of formaldehyde and ethanol to synthesize 1,3-propanediol in Escherichia coli. ACS Synthetic Biology, 10, 799–809, 2021
Structure-based dynamic analyses of the glycine cleavage system suggests key residues for control of a key reaction step. Communications Biology. 3, 1-12, 2020
Discovery of feed-forward regulation in L-tryptophan biosynthesis and its use in metabolic engineering of E. coli for efficient tryptophan bioproduction. Metabolic Engineering, 47, 434-444, 2018

He is the first Chinese-German Professor elected as Member of the German National Academy of Science and Engineering. He entered Nanchang University at the age of 15 and obtained there a Bachelor degree in Chemical Engineering in 1982. He went to Germany in 1986 and earned a PhD in Biochemical Engineering at the Technical University of Braunschweig in 1990. He then worked at the German Research Center for Biotechnology (now Helmholtz Center for Infection Research) first as Postdoc, then as permanent research scientist starting from 1991, and later on as group leader in the Departments of Biochemical Engineering and Genome Research till 2006. In between he did researches at CSIRO of Australia and in the Department of Chemical Engineering and Material Sciences, University of Minnesota. In 2006 he became chair professor and director of the Institute of Bioprocess and Biosystems Engineering at Hamburg University of Technology. In 2021 he obtained an offer as Chair Professor of Synthetic Biology and Bioengineering at Westlake University.

RESEARCH INTERESTS:

The main research directions are industrial biotechnology, cell culture technology, system metabolic engineering and synthetic biology; his recent researches focus on electro-biotechnology, bioconversion of one-carbon compounds (e.g. CO_2) and responsive protein hydrogels with catalytic properties. The research ranges from fundamental study to engineering details, pushing thus discovery (0 to 1) to application (1 to 100). He was among the first to apply genomics and protein structure based metabolic engineering to develop industrial bioprocesses, especially for the biosynthesis of diols and amino acids. Representative work includes systematic studies on bioproduction of 1,3-propanediol, ranging from quantitative analysis, design and regulation of metabolic pathways to large scale fermentation and product purification. His group developed the world-wide first industrial bioprocess for coupled production of 1,3-propanediol and organic acid esters. In the area of electro-biotechnology, his group developed novel All-in-One electrodes for in situ supply of H_2 and O_2 and for process control which are successfully used for CO_2 bioconversion, biosynthesis of fatty acids, and the coupled diol-ester process.
In the study of one-carbon metabolism, Zeng’ s team discovered for the first time a LCST type stimuli-responsive protein hydrogel with catalytic property, elaborated the gel formation mechanism, and is exploiting its uses as a smart biomaterial in biosynthesis and 3D cell culture. He published more than 300 peer-reviewed papers.

Laboratory of Biomanufacturing and Advanced Materials
生物制造和新材料实验室

PI: Kechun Zhang
张科春

1996-2001 年中国科技大学高分子科学与工程本科。2001-2007 年加州理工学院化学博士。2007-2010 年加州大学洛杉矶分校化学工程和分子生物工程系博士后。2010-2016 年明尼苏达大学化学工程与材料系助理教授。2016 年晋升为化学工程专业终身副教授。曾获得 2015 年明尼苏达大学年轻教授的最高荣誉 McKnight Land-Grant Professorship，2014 年 University of Minnesota Innovator award，2013 年 3M Nonten-ured Faculty award。

实验室研究方向:

改变传统工业化模式，走资源消耗低、环境污染少的新型工业化路线，是制造业的一个重要目标。张科春实验室综合应用合成生物、绿色化学、材料科学和工程优化等知识，设计绿色新化工生产路线和开发环保新材料，为循环经济向前发展提供新的解决方案。

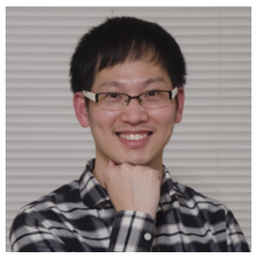
Dr. Kechun Zhang obtained his bachelor's degree from USTC in 2001, and Ph.D. in Chemistry from Caltech in 2007. After postdoctoral training at UCLA, Dr. Zhang became an assistant professor at the Department of Chemical Engineering and Materials Science of the University of Minnesota and was promoted to tenured associate Professor in 2016. Since July 2019, Prof. Zhang has become a full-time faculty member at the College of Engineering of Westlake University. Professor Zhang has received various awards including McKnight Land-Grant Professorship, University of Minnesota Innovator award and 3M Non-tenured Faculty award.

RESEARCH INTERESTS:

The modern society faces significant challenges from growing population, depleting resource and increasing environmental pollution. Changing the traditional production process and developing a new industrialization route with low resource consumption and less environmental pollution is an important goal for the manufacturing industry. Zhang's Lab employs synthetic biology, green chemistry, materials science and engineering optimization to design green chemical production processes and develop new environmentally-friendly materials. The research aims to provide new solutions for the Circular Economy.

代表性成果 REPRESENTATIVE OUTCOMES:

Scalable production of mechanically tunable block polymers from sugar, Proc. Natl. Acad. Sci. USA 2014 111(23): 8357-62
Engineering nonphosphorylative metabolism to generate lignocellulose-derived products, Nat. Chem. Biol. 2016 Apr; 12 (4): 247-53
Engineering the production of dipicolinic acid in E. coli, Metab. Eng. 2018 Jul; 48: 208-217



Laboratory of Nanostructures for Electronics and Electromechanics (NE^2)
纳米结构电子及机电（NE^2）实验室

PI: Qicheng Zhang
张启宬

2012 年本科毕业于浙江大学高分子材料与工程系。2016 年取得香港科技大学化学工程及生物分子工程学系博士学位。之后于 2018 年在宾夕法尼亚大学物理及天文学系开展博士后研究。他的研究领域既包括具有拓扑效应的范德华材料的物相工程等基础课题，又含有开发基于碳纳米管的电子鼻系统这类产业化的课题。他的交叉学科背景帮助他在具有拓扑物理效应的集成声子电路领域做出了一些开创性工作。

Qicheng Zhang got his bachelor's degree in Polymer Materials and Engineering at Zhejiang University in 2012. In 2016, he earned his Ph.D. in Chemical and Biomolecular Engineering at the Hong Kong University of Science and Technology. He became a postdoc at the Department of Physics and Astronomy, University of Pennsylvania, in 2018. His work includes both fundamental projects like topological phase engineering of van der Waals materials and application projects like the industrialization of the “electronic nose” based on carbon nanotubes. Benefiting from such interdisciplinary research experiences, he has done some seminal work in integrated topological phononics.

实验室研究方向:

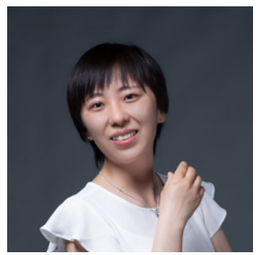
主要研究兴趣是在纳米结构以及功能之间建立联系——尤其是那种之前从未被认识过的联系——并且基于这些联系开发新型器件。研究课题之一是微波波段、具有拓扑性质的集成声子系统的进一步开发。这项研究具有在无线通讯（如 5G）以及量子信息等领域的应用前景。对此目前有两个主要研究方向：（1）使用已有的材料开发基于拓扑物理的声子晶体器件及电路；（2）开发新材料在声子系统中实现一些新现象、新功能。实验室的研究方法和内容高度学科交叉。其他利用纳米结构的电子及机电器件（譬如纳米生物传感器）也是实验室的研究内容。

RESEARCH INTERESTS:

Linking structures with functions, especially in ways they haven't connected before, and developing novel devices from the discoveries. More specifically:
1. Integrated topological phononic devices and circuits, either using existing material systems or developing new material systems for novel phenomena and functions.This work has interesting applications in wireless communications (such as 5G) and quantum information science.
2. Other electronic and electromechanical devices with nanostructures, for example, nano-bio hybrid sensors.

代表性成果 REPRESENTATIVE OUTCOMES:

General duality and magnet-free passive phononic Chern insulators, Nature Communications, 14, 916
Observation of Gigahertz Topological Valley Hall Effect in Nanoelectromechanical Phononic Crystals, Nature Electronics, 5, 157-163
Large-area epitaxial growth of curvature-stabilized ABC trilayer graphene, Nature Communications 11, 546



Environmental Fate and Degradation of Organic Contaminants Lab
环境有机污染物与降解技术实验室

PI: Yanyan Zhang
张岩岩

张岩岩，2010 年获武汉大学环境科学学士学位；2015 年获北京大学环境地理学博士学位；2013-2014 年美国康州农业研究所环境化学联合培养博士生；2016-2020 年在加拿大麦吉尔大学从事环境工程方向的博士后研究。于 2021 年 2 月全职加入西湖大学，担任工学院助理教授（特聘研究员），建立新污染物分析与降解实验室，在环境化学、分析化学、计算化学和环境工程交叉领域开展研究。

Dr. Yanyan Zhang joined Westlake University in February 2021 and established the Analysis and Degradation of Emerging Contaminants Lab. Before that, she earned her PhD degree from Peking University in 2015 and worked as a postdoc researcher at McGill University in Canada from 2016 to 2020. She also spent one year in U.S. through a Joint PhD Program in 2013-2014. Her lab works at the interfaces of analytical chemistry, quantum chemistry, environmental chemistry, and environmental engineering.

实验室研究方向:

致力于结合实验和理论计算的方法研究新污染物的赋存特征和环境过程，并开发和优化降解技术，解析降解机理和反应路径，为环境风险评估、污染管理与调控、低成本修复技术研发、及替代物绿色设计提供科技支撑。研究方向包括 非靶向识别与高通量靶向分析技术、新污染物（PFAS、PPCP）降解技术与效能优化，量子化学计算与反应路径解析、地下水修复技术优化与机理解析等。

RESEARCH INTERESTS:

Dr. Zhang efforts in combing experimental investigations and quantum chemistry to elucidate the environmental fate and degradation mechanism of emerging contaminants and to develop innovative materials and processes for water treatment and site remediation. The key research subjects include nontarget analysis and high-throughput targeted analysis of emerging contaminants, transformation and degradation of PFAS and PPCP, DFT calculations on the reaction mechanisms and pathways, dechlorination and defluorination by functionalized zerovalent iron, soil and groundwater remediation, et al.

代表性成果 REPRESENTATIVE OUTCOMES:

Zhang, Y. Y.*; Liu, J.X.; Ghoshal, S.; Moores, A.* Density functional theory calculations decipher complex reaction pathways of 6:2 fluorotelomer sulfonate to perfluoroalkyl carboxylates initiated by hydroxyl radical. Environ. Sci. Technol. 2021, 55, 24, 16655–16664.
Zhang, Y. Y.; Liu, J.X.; Moores, A.; Ghoshal, S. Transformation of 6:2 fluorotelomer sulfonate by cobalt (II) -activated peroxymonosulfate. Environ. Sci. Technol. 2020, 54, 4631−4640.
Zhang, Y. Y.; Moores, A.; Liu, J.X.; Ghoshal, S. New insights into the degradation mechanism of perfluorooctanoic acid by persulfate from density functional theory and kinetics data. Environ. Sci. Technol. 2019, 53, 8672−8681.

Atmospheric Environment Research Lab
大气环境研究实验室

PI: Yuzhong Zhang
张羽中

2006-2010 年北京大学城市与环境学院环境科学本科。2010-2015 期间佐治亚理工大学地球与大气科学学院博士，从事大气污染化学和气候变化的耦合响应的研究。2016-2017 年在佐治亚理工大学以及 2017-2019 年在哈佛大学担任博士后研究员，研究内容主要包括温室气体的卫星反演、大气中棕碳的分布和辐射效应、区域臭氧污染的形成机制等课题。

Yuzhong Zhang received his bachelor's degree in Environmental Sciences from Peking University, China in 2010, and his Ph.D. degree in Atmospheric Chemistry from the Georgia Institute of Technology, USA in 2015. He worked as a postdoc at the Georgia Institute of Technology from 2016 to 2017 and Harvard University from 2017 to 2019, before joining Westlake University in 2020. Dr. Zhang's research has been focusing on air quality, climate change, and their interactions. He has published 20+ papers on topics including greenhouse gas emissions, brown carbon, and ozone pollution.

实验室研究方向:

通过发展过程和统计模型等分析工具，挖掘来自卫星、飞机、地面监测网等多平台多参数的环境数据中的信息，研究大气中关键化学成分在各个时空尺度的变化和相应机制，评估人类活动对大气污染和气候变化的影响，致力于为环境政策的设计和制定提供坚实的科学支持。

RESEARCH INTERESTS:

The research in Dr. Yuzhong Zhang's group aims to improve our understanding of key atmospheric chemicals, their changes and distributions, and their implications for environmental issues, on varied spatial and temporal scales. This is done through developing process and statistical models to interpret environmental observations from satellite, aircraft, surface networks, and other platforms. Our goal is to deliver science and data that drive the solution to environmental problems.

代表性成果 REPRESENTATIVE OUTCOMES:

Quantifying methane emissions from the largest oil-producing basin in the United States from space, Science Advances, 6 (17): eaaz5120, 2020
NOx emission reduction and recovery during COVID-19 in East China, Atmosphere, 11(4): 433, 2020
Attribution of the accelerating increase in atmospheric methane during 2010–2018 by inverse analysis of GOSAT observations, Atmospheric Chemistry and Physics, 21(5): 3643-3666, 2021

Natural Language Processing Lab
自然语言处理实验室

PI: Yue Zhang
张 岳

2003 年毕业于清华大学计算机科学专业，获得学士学位；2006 年毕业于牛津大学计算机科学专业，获得硕士学位；2009 年毕业于牛津大学计算机科学专业，获得博士学位。2010 年 3 月 -2012 年 6 月在剑桥大学计算机科学专业从事博士后研究，2012 年 7 月 -2018 年 8 月在新加坡科技与设计大学担任助理教授。2018 年 9 月至 2022 年 6 月，在西湖大学担任终身副教授。现任西湖大学终身教授。

Dr. Yue Zhang currently works as a tenured full professor at Westlake University. From Sep 2018 to Jun 2022, he worked as a tenured associate professor at Westlake University. From Jul 2012 to Aug 2018, he worked as an assistant professor at Singapore University of Technology and Design (SUTD). Before joining SUTD, Yue Zhang worked as a postdoctoral research associate at University of Cambridge. He received Ph.D. degree from University of Oxford in Dec 2009, working on statistical Chinese processing for his thesis. He received MSc degree from University of Oxford in Oct 2006, working on statistical machine translation from Chinese to English by parsing. Yue Zhang received his undergraduate degree on Computer Science from Tsinghua University, China.

实验室研究方向:

1. 中英文基础自然语言处理中的词法、句法及语义表示和分析；
2. 信息抽取中的实体、关系、事件以及情感抽取；
3. 自然语言生成及其在对话系统、文本总结与机器翻译中的应用；
4. 金融领域、生物医药领域以及文学领域的文本挖掘。

RESEARCH INTERESTS:

1. Natural language processing, information extraction and text mining;
2. NLP related machine learning, including deep learning;
3. Natural language generation, dialogue systems text summarization and machine translation.
4. Text-based computational finance, computation literature research and bioinformatics.

代表性成果 REPRESENTATIVE OUTCOMES:

Yafu Li, Yongjing Yin, Yulong Chen and Yue Zhang. On Compositional Generalization of Neural Machine Translation. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL). Online, July.
Xuefeng Bai, Yulong Chen, Linfeng Song and Yue Zhang. Semantic Representation for Dialogue Modeling. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL). Online, July.
Cunxiang Wang, Pai Liu and Yue Zhang. Can Generative Pre-trained Language Models Serve As Knowledge Bases for Closed-book QA? In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL). Online, July.

Infection and Immunomodulation Laboratory
感染与免疫调节实验室

PI: Yue Zhang
张 越

张越博士2014年本科毕业于华中科技大学药学院，受国家留学基金委“优秀本科生国际交流项目”资助前往德国马尔堡大学药学院进修。同年受到国家留学基金委“国家建设高水平大学公派研究生项目”资助前往加州大学圣地亚哥分校纳米工程系攻读博士研究生，并于2019年获博士学位。随后进入加州大学洛杉矶分校生物工程系进行博士后研究。张越博士将于2022年秋季加入西湖大学工学院任特聘研究员、助理教授，建立“感染与免疫调节实验室”。

Dr. Zhang currently work with Prof. Gerard C.L Wong as a postdoctoral researcher at Bioengineering department at University of California, Los Angeles. (UCLA). Before starting her postdoc research, Dr. Zhang received PhD degree in NanoEngineering at University of California San Diego (UCSD) under the mentorship of Prof. Liangfang Zhang. Her research interest lies primarily in the molecular framework involved in the host-pathogen interaction, with a specific focus on engineering cell-membrane-coated nanoparticles to block the pathogenesis. Her current research is to apply multidisciplinary tools to understand the immune disorder in COVID-19. She will be joining Westlake University as an assistant professor in the fall of 2022.

研究成果:

张越博士在纳米药物递送领域有着丰富研究经验，通过将人体体细胞的细胞膜包裹于聚合物纳米粒上，该仿生纳米体系可模拟源细胞的结构和功能，在靶向性药物递送、毒素吸附和病原微生物检测方面有着广阔的应用前景。实验室主要的研究方向包括以下两点：1）应用细胞膜仿生纳米技术实现大分子药物递送；2）结合人工智能研究病原微生物入侵免疫系统的分子机制。张越博士已发布同行评议学术论文20篇，分别发表在*Nature nanotechnology, Advanced Materials, ACS Nano, Nano Letter, Angewandte chemie international edition*等国际期刊上。

RESEARCH ACHIEVEMENTS:

Dr. Zhang has developed series tools to study and clear the virulent molecules released by the invading pathogens. By coating cell membrane onto the polymeric core, these nanoparticles carry the full antigenic profile from the resource cells, and, as a result, serve as the natural target for the bacterial virulent molecules, including pore-forming toxins, adhesins, destructive enzymes, etc. As our understanding to the pathogen's virulent profile is still quite limited, especially for those newly emerged viral infection, Dr. Zhang applied machine learning to screen the pro-inflammatory motifs in those new pathogens. Currently, Dr. Zhang has published 20 peer-reviewed articles in the prestigious journals including *Nature Nanotechnology, Advanced Materials, ACS Nano, Nano Letter, Angewandte chemie international edition*, etc.

代表性成果 REPRESENTATIVE OUTCOMES:

Self-assembled colloidal gel using cell membrane-coated nanosponges as building blocks, ACS Nano 2017(11), 11923-11930.
Inhibition of pathogen adhesion by bacterial outer membrane-coated nanoparticles", Angewandte Chemie International Edition 2019 (58) 11404-11408
Neutrophil membrane-coated nanoparticles inhibit synovial inflammation and alleviate joint damage in inflammatory arthritis, Nature Nanotechnology 2018 (13), 1182-1190.

Laboratory of Photonic Integration
集成光学实验室

PI: Ziyang Zhang
张紫阳

2003 年毕业于浙江大学光电系。2003-2008 年在瑞典皇家工学院 (KTH) 微电子及应用物理系攻读硕士、博士，研究方向为硅光子器件。2008 年获得博士学位后即加入德国弗琅合费学院赫兹研究所 Fraunhofer Heinrich Hertz Institute (HHI)，从博士后到资深研究员，负责开发聚合物光子器件与混合集成技术，磷化铟高速光电子器件晶圆与芯片的制备，并领导了多项欧盟项目。2016 年转入德国莱布尼茨天文物理学院 Leibniz Institute for Astrophysics Potsdam（AIP）出任天文光学课题组负责人。

Dr. Ziyang Zhang received his Ph.D. on silicon-based photonic devices from Royal Institute of Technology (KTH), Sweden in 2008. In the same year, he joined Fraunhofer Heinrich-Hertz-Institute (HHI) in Berlin, Germany and worked eight years on polymer photonics, InP-based optoelectronics and hybrid photonic integration. He was also developing front-line prototypes for industry partners. In 2016, he accepted the position at the Leibniz Institute for Astrophysics (AIP) in Potsdam, Germany as head of Astro-Optics group, to address pressing issues in astronomy with the development of “smart” fibers and integrated photonic modules.

实验室研究方向:

随着光通讯领域的迅速发展，基于单模光纤的传输带宽已经接近物理极限。光子本身可提供多维自由度：波长，相位，幅度，极化和空间模式都可用作信号载体。光学工程实验室将深入开发光子学这门关键“使能技术”，设计制造高性能低功耗的集成光子芯片和灵巧、轻便、易更换的新型光纤器件，从多个维度利用光子的特性，突破传输带宽极限。除光通讯以外，实验室还将为医疗诊断、智能传感、天文观测等重要领域开发关键的物理层器件。

RESEARCH INTERESTS:

Our society is witnessing an information era with exponentially growing internet traffic for the last two decades and still sees no signs of decelerating. Upon this development, photonics has been recognized as one of the key enabling technologies of the 21st century, for and beyond optical communication. Laboratory of Photonic Integration will establish expertise in the design, fabrication, characterization, and hybrid integration of photonic components. The target is to develop high-performance, power-efficient, integrated photonic modules as well as novel optical fiber devices for applications in communication, intelligent sensing networks, safety monitoring, medical diagnosis, astronomical instruments, etc.

代表性成果 REPRESENTATIVE OUTCOMES:

Multiport all-logic optical switch based on thermally altered light paths in a multimode waveguide, Optics Letters, vol. 46, pp. 3025-3028, 2021
D integrated wavelength demultiplexer based on square-core fiber and dual-layer arrayed waveguide gratings, Optics Express, vol. 29, pp. 2090–2098, 2021
2D tactile sensor based on multimode interference and deep learning, Journal of Optics and Laser Technology, vol. 136, pp. 106760, 2021

Intelligent Unmanned Systems Laboratory
智能无人系统实验室

PI: Shiyu Zhao
赵世钰

分别于 2006 年和 2009 年在北京航空航天大学获得本科和硕士学位，于 2014 年在新加坡国立大学获得博士学位。随后在以色列理工学院和加州大学河滨分校各从事了一年的博士后研究，并于 2016 年成为英国谢菲尔德大学的讲师和博士生导师。2019 年初加入西湖大学工学院并独立创建智能无人系统实验室。

Dr. Shiyu Zhao received the B.Eng. and M.Eng. degrees from Beijing University of Aeronautics and Astronautics, China, in 2006 and 2009 respectively. He got the Ph.D. degree in Electrical Engineering from National University of Singapore in 2014. From 2014 to 2016, he did post-doctoral research at the Technion - Israel Institute of Technology and University of California at Riverside, respectively. He then worked as a Lecturer and Ph.D. supervisor in the Department of Automatic Control and Systems Engineering at the University of Sheffield, UK, from 2016 to 2018. He has joined Westlake University and independently created the Intelligent Unmanned Systems Laboratory since January 2019.

实验室研究方向:

微小型无人机在民用和军事领域有广泛的应用，涉及到众多重要而有趣的科学问题。西湖大学“智能无人系统实验室”关注于微小型无人机的基础理论与应用研究，专注于从事高影响力的研究工作，研究领域包括单无人机系统的导航制导与控制、多无人机系统的协同控制与估计、以及基于视觉和多种传感器的智能感知系统。

RESEARCH INTERESTS:

The Intelligent Unmanned Systems Laboratory studies fundamental theories and novel applications of small-scale unmanned aerial vehicle (UAV) systems. In particular, the technical research areas include (i) guidance, navigation, and control of single UAVs, (ii) swarm systems of multiple UAVs, and (iii) intelligent sensing systems based on vision and other types of sensors. Now the lab has more than ten excellent researchers including postdocs, Ph.D. students, and research assistants, who graduated from many top universities in China and overseas. The lab has top-notch research facilities and creative research culture. For more information, please visit our lab's website: https://shiyuzhao.westlake.edu.cn.

代表性成果 REPRESENTATIVE OUTCOMES:

Bearing rigidity theory and its applications for control and estimation of network systems: life beyond distance rigidity, IEEE Control Systems Magazine, vol. 39, no. 2, pp. 66-83, 2019
Networks with diagonal controllability Gramian: Analysis, graphical conditions, and design algorithms, Automatica 102, 10-18, 2019
Distributed cooperative guidance for multivehicle simultaneous arrival without numerical singularities, Journal of Guidance, Control, and Dynamics 43 (7), 1365-1373, 2020

Advanced Lithography for opto-Electronic Nanochips Lab (Alien Lab)
先进制造与纳米芯片实验室

PI: Xiaorui Zheng
郑小睿

2009 年毕业于武汉大学物理科学与技术学院，物理学基地班专业，获学士学位，并保送至中国科学院物理研究所，获凝聚态物理专业硕士学位。2012 年进入澳大利亚斯威本科技大学微光子学研究中心攻读博士学位，师从贾宝华教授和顾敏院士，于 2016 年获博士学位，研究方向为激光制造低维纳米光子器件，博士期间获“国家优秀自费留学生奖学金”。2016 年获得澳大利亚基金资助，在美国加州大学圣地亚哥分校从事博士后研究，研究方向为低维纳米光电器件制造。2017 年获得 SwissLitho 公司资助，先后在美国纽约城市大学及纽约大学从事博士后研究，研究方向为扫描探针制造低维纳米电子器件。

Dr. Xiaorui Zheng received his bachelor's degree in Physics Base Class from Wuhan University, China in 2009, and had been recommended to Institute of Physics, Chinese Academy of Sciences, where he received his master's degree in Condensed Matter Physics. Dr. Zheng joined Centre for Micro-Photonics at Swinburne University of Technology, Australia to pursue his Ph.D. under the supervision of Professor Baohua Jia and Professor Min Gu, where he received his Ph.D. in 2016. Dr. Zheng' s Ph.D. research focused on the laser fabrication of low-dimensional photonic nanodevices, for which he was awarded “Chinese Government Award for Outstanding Self-Financed Students Abroad”. In 2016, Dr. Zheng was appointed as a postdoc research fellow at University of California, San Diego, USA under the support of Australian Nanotechnology Network Fellowship Scheme, where his research was on low-dimensional optoelectronics. In 2017, Dr. Zheng was sponsored by SwissLitho Industrial Research Fellowship to continue his postdoc research on scanning probe lithography for low-dimensional nanoelectronics at City University of New York and New York University, USA.

实验室研究方向:

实验室致力于先进纳米制造技术的基础研发及应用研究，以新型纳米材料为基础，探索其光电子学基础特性及纳米功能器件，在智能纳米芯片制造、超快光通讯、红外波段探测、高分辨率医学成像、生物分子快速检测等领域开展应用研究，并着眼于新材料、人工智能、数字经济、生命健康等国家重大发展战略方向，不断积累基础研究及产业化应用的经验，培养未来科技人才，为国家科学和技术发展贡献绵薄之力。主要研究方向包括：1. 扫描探针纳米制造技术；2. 超快激光三维打印技术；3. 新型材料原子缺陷操控；4. 低维光电芯片制造与应用。

RESEARCH INTERESTS:

Alien Lab develops advanced nanofabrication technology to explore the optical and electrical properties of novel nanomaterials and their optoelectronic devices for the applications in smart nanochips, ultrafast optical communication, infrared detection, high resolution medical imaging, rapid molecular detection, etc. Based on the guidance of National STEM Strategy, Alien Lab commits to fundamental science, applied research and student training, aiming at making its own contributions to the development of science and technology. The research directions include:1. Scanning Probe Lithography; 2. Ultrafast Laser 3D Printing; 3. Atomistic Defects Engineering of Novel Nanomaterials; 4. Low-dimensional Optoelectronic Nanochips

代表性成果 REPRESENTATIVE OUTCOMES:

Spatial defects nanoengineering for bipolar conductivity in MoS2, Nature Communications 11 (1), 1-12, 2020
Patterning metal contacts on monolayer MoS2 with vanishing Schottky barrier via thermal nanolithography, Nature Electronics 2 (1), 17-25, 2019
Highly efficient and ultra-broadband graphene oxide ultrathin lenses with three-dimensional subwavelength focusing, Nature Communications 6, 1-7, 2015

Intelligent Micro/Nano Manufacturing Laboratory
精密智造实验室

PI: Nanjia Zhou
周南嘉

2009 年毕业于匹兹堡州立大学，2015 年获得美国西北大学取得材料科学与工程博士学位，并获得国际材料协会（MRS）最佳博士生奖。随后获得 Dreyfus 荣誉博士后基金加入哈佛大学，3D 打印领域国际领军人物 Jennifer A. Lewis 团队。2018 年 4 月 -7 月任新加坡国立大学机械学院助理教授。自 2018 年 9 月全职加入西湖大学以来，开创性地提出以研发新材料作为 3D 打印精度极限的突破口，设计了全新的 3D 打印功能材料，研发了超高精度 3D 打印工艺，实现了百纳米至微米级别的超高精度多材料功能 3D 打印技术，并应用于显示、柔性电子、光通讯、微型机器人、生物芯片和能源等领域 2019 年被评为《麻省理工科技评论》中国区“35 岁以下科技创新 35 人”，2020 年获得求是基金会杰出青年学者奖；2020 年孵化西湖大学工学院首家企业——西湖未来智造，以新型加工技术助力电子产业升级。

Dr. Nanjia Zhou received his Ph.D. from Northwestern University in Materials Science and Engineering before moving to Harvard University as a Camille and Henry Dreyfus Postdoctoral Fellow. He started his academic career as an assistant professor in National University of Singapore in early 2018 before moving to Westlake University in September 2018. His current research focuses on developing novel functional materials for 3D printed soft electronics, optics, robotics, and bioelectronics, as well as new 3D printing processes which will enable high resolution, high throughput, digitally programmable multi-material assembly for a variety of applications. He was a recipient of MIT TR35 China award in 2019 and Qiushi Young Investigator award in 2020. In 2020, He founded the first Westlake SoE startup company, Enovate3D, which focuses on 1-10 micrometer feature size electronics 3D printing technologies.

实验室研究方向:

课题组主要研究增材制造领域新材料与新工艺结合的交叉学科研究。试图结合材料科学与机械工程原理打破传统材料制备与加工的局限，实现增材制造在多学科多领域的实际应用。在功能材料制备方面，我们的研究针对高精度3D打印需求，研究新型功能墨水合成方案及打印工艺，以获得具有特定机械、电学、光学、生物性能的功能结构。在新型打印技术方面，我们的研究主要针对现有3D打印技术存在的缺陷，创新性的提出新型多材料集成打印技术，拓广材料选择范围、提升打印速度及打印精度。最后在应用方面，我们的研究聚焦基于自主研发的增材制造技术的新型显示技术、柔性电子、光电子集成系统、生物电子器件、微型机器人、能源器件等。我们希望我们的研究能够为突破我国微电子、光电系统加工关键技术的“卡脖子”问题提供新的思路。

RESEARCH INTERESTS:

My research interests center on using advanced manufacturing (3D printing) methods to hierarchically pattern functional materials with controlled compositions, structures, and properties over multiple length scales. More specifically, our lab will focus on the following areas:1. New functional materials development for 3D printing; 2. Programmable nanomaterials assembly via digital manufacturing; 3. Advanced 3D printing technologies;4. Multimaterial printing heterogeneously integrated devices, with applications in optoelectronics, sensors and soft robots.

代表性成果 REPRESENTATIVE OUTCOMES:

Perovskite nanowire–block copolymer composites with digitally programmable polarization anisotropy, Science advances 5 (5), eaav8141, 2019
Lanthanide-ion-coordinated supramolecular hydrogel inks for 3D printed full-color luminescence and opacity-tuning soft actuators, Chemistry of Materials 32 (20), 8868-8876, 2020
Customizable and stretchable fibre-shaped electroluminescent devices via mulitcore-shell direct ink writing, Journal of Materials Chemistry C 8 (43), 15092-15098, 2020

Laboratory of Flexible Electronics
柔性电子实验室

PI: Bowen Zhu
朱博文

2006-2010 年吉林大学化学学院化学专业本科。2011-2016 年新加坡南洋理工大学材料科学与工程学院博士，从事柔性压力传感器及忆阻器的研究。2016-2017 年美国加州大学洛杉矶分校材料科学与工程系博士后，主要研究氧化物半导体薄膜晶体管。2017-2019 年作为 DECRA Fellow 进入澳大利亚 Monash University 化学工程系工作，2019 年 8 月全职加入西湖大学工学院，为柔性电子实验室负责人。

Dr. Bowen Zhu received his bachelor's degree from Jilin University, China, in 2010, and Ph.D. degree in Materials Science and Engineering from Nanyang Technological University, Singapore, in 2016. He worked as a project officer in Nanyang Technological University from 2015 to 2016. After his postdoctoral fellow training at UCLA, he joined Monash University in 2017, Australia, as a Discovery Early Career Researcher Award (DECRA) fellow funded by Australian Research Council. He joined Westlake University in August 2019, and his research focuses on flexible electronics based on metal oxide thin-film transistors (TFTs).

实验室研究方向:

柔性电子器件以其独特的可变形性、轻柔舒适的可穿戴性、以及低成本的制造工艺，在健康监测、医疗诊断、人工智能、仿生机器人等领域具有广阔的应用前景。薄膜晶体管是构建有源驱动柔性电子器件阵列的核心电子元件。西湖大学柔性电子实验室致力于开发高性能氧化物半导体材料，通过印刷等溶液方法制备柔性氧化物薄膜晶体管阵列，为力学传感器、生物传感器、和柔性显示等器件提供有源驱动阵列，为集成柔性电子系统提供一个全新的硬件平台。

RESEARCH INTERESTS:

The research in the Laboratory of Flexible Electronics in Westlake University is focuses on developing high-performance flexible metal oxide thin-film transistors (TFTs), via solution-processes including inkjet-printing, to construct large-area active-matrix sensing electronics by integrating TFT arrays with physical sensors, biosensors, and displays. Flexible devices with disruptive properties including transparency, light-weight, and ultrathin-thickness will be endeavoured for emerging applications in electronic skins and human-machine interfaces.

代表性成果 REPRESENTATIVE OUTCOMES:

A Skin-Inspired Artificial Mechanoreceptor for Tactile Enhancement and Integration. ACS Nano, 2021, 15, DOI: 10.1021/acsnano.1c05836.
Flexible and Air-Stable Near-Infrared Sensors Based on Solution-Processed Inorganic–Organic Hybrid Phototransistors. Advanced Functional Materials. 2021, 31, 2105887.
Fully Printed High-Performance n-Type Metal Oxide Thin-Film Transistors Utilizing Coffee-Ring Effect. Nano-Micro Letters, 2021, 13, 164.

Computational Materials Lab
计算材料学实验室

PI: Yizhou Zhu
朱一舟

2011 年于北京大学物理学院获得学士学位；2014 年于北京大学物理学院获得硕士学位；2018 年于美国马里兰大学帕克分校获得材料科学与工程博士学位。2018 年至 2021 年在美国西北大学材料科学与工程系从事博士后研究工作。2021 年 9 月全职加入西湖大学工学院。主要开展计算材料学的研究工作

Dr. Yizhou Zhu obtained her B.S. degree in Physics (2011) and M.S. degree in Nuclear Technology (2014) both from Peking University. She earned her Ph.D. degree in Materials Science and Engineering at the University of Maryland, College Park in 2018. She worked as a postdoctoral research associate at Northwestern University from 2018 to 2021. Zhu joined the Westlake University as a tenure-track Assistant Professor since September 2021.

实验室研究方向:

课题组研究方向为计算材料学，致力于通过计算来理解、发现、设计、改性新型无机固体材料。传统的材料研发往往高度依赖于研发人员经验性的直觉和大量的试错，其研发过程周期长，成本高，不能满足当前社会和工业高速发展中对高性能材料的需求。通过结合人工智能算法和多种材料计算手段，我们可以从微观原子尺度对材料科学中核心的结构 - 性质关系建立深入的基础性理解，并通过高通量计算和数据挖掘等手段，发现和设计出符合实际应用需求的新型材料。

RESEARCH INTERESTS:

Our research group focus on the fundamental understanding and rational design of functional materials through computational approaches.
Traditionally, materials are developed using trial-and-error method, which is tedious and expensive. Computation approaches provide a way to do “in silico” experiments, which can greatly accelerate the screening and testing processes, cutting down the time and expense for materials development.
Currently, our group focus on the following research topics:
1. Understanding and engineering of point defects in inorganic materials;
2. Materials and interfaces in all-solid-state batteries;
3. High entropy alloys and high entropy ceramics.

代表性成果 REPRESENTATIVE OUTCOMES:

Materials Design Principles for Air‐Stable Lithium/Sodium Solid Electrolytes, Angewandte Chemie International Edition, 59 (40), 17472-17476, 2020
First principles study on electrochemical and chemical stability of solid electrolyte-electrode interfaces in all-solid-state Li-ion batteries, Journal of Materials Chemistry A, 4, 3253-3266, 2016
Origin of outstanding stability in the lithium solid electrolyte materials: insights from thermodynamic analyses based on first principles calculations, ACS Applied Materials & Interfaces, 7, 23685-23693, 2015

5

CENTERS AND LABORATORIES

创新平台与实验室

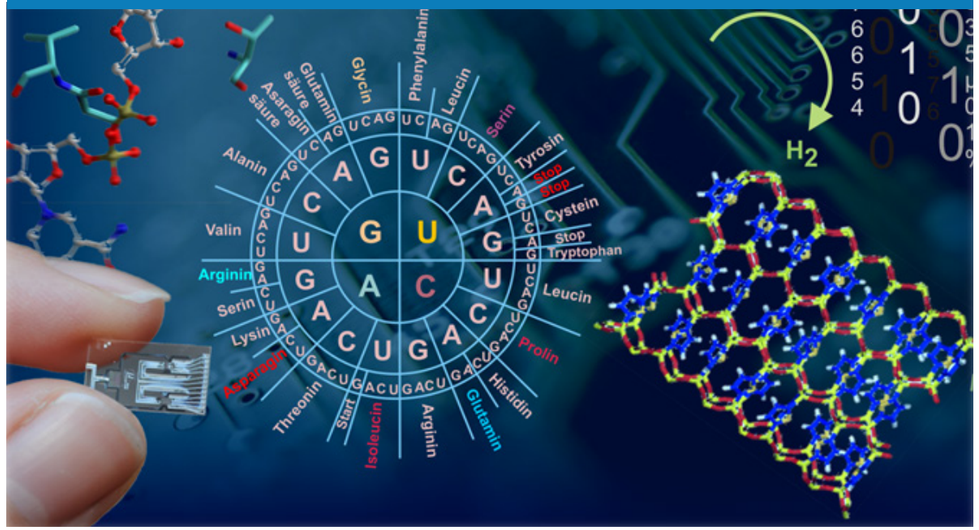
Westlake Center of Synthetic Biology and Integrated Bioengineering (WE-SynBio)

西湖大学合成生物学与生物智造中心

Director:
Anping Zeng
主任：曾安平

西湖大学合成生物学与生物智造中心(简称WE-SynBio)是以工学院为依托，联合生命学院和理学院共同建设的校级中心，由德国工程院院士、西湖大学合成生物学和生物工程讲席教授曾安平领衔组建。中心的目标是结合生命科学、生物工程、材料科学、绿色化学与人工智能等，开展交叉学科基础研究,致力于开发前沿合成生物学方法、具有重大影响的生物产品及原创的高效生物智造过程；中心聚焦于新一代生物药物、生物材料、以及基于二氧化碳和太阳能的大规模绿色生物制造核心技术。中心将打造BT-IT相结合的合成生物学基础研究平台和微小型技术开发与生物制造系统，并以合作研究方式向西湖大学相关PI开放，为企业提供技术和产品开发。

The Westlake University “Center of Synthetic Biology and Integrated Bioengineering” (WE-SynBio) is affiliated to the School of Engineering and jointly built by the School of Life Sciences and the School of Science. The director of the center is Prof. Anping ZENG, member of the German National Academy of Science and Engineering and a chair professor of synthetic biology and bioengineering at Westlake University. The goal of WE-SynBio is to integrate expertise from life sciences, bioengineering, materials science, green chemistry and artificial intelligence etc. to carry out cutting-edge interdisciplinary research, especially to develop original synthetic biology methods, high-impact bioproducts, and highly efficient biomanufacturing processes. The center focuses on new generation of biopharmaceuticals, biomaterials and key technologies for large-scale bio-manufacturing based on carbon dioxide and solar energy. The center will build a BT-IT synthetic biology platform and a miniplant biomanufacturing system which will be opened to PIs for cooperative researches and to enterprises for joint technology or product development.



Center of Excellence in Biomedical Research on Advanced Integrated-on-chips Neurotechnologies (CenBRAIN Neurotech)

西湖大学
先进神经芯片中心

Director:
Mohamad Sawan
主任：默罕默德 萨万

西湖大学先进神经芯片中心（简称CenBRAIN　Neurotech）是以西湖大学工学院为依托的科研机构，由加拿大皇家学会院士、加拿大工程院院士、西湖大学工学院讲席教授Mohamad　Sawan领衔创立。中心旨在凝聚生命科学、生物医学工程、微纳电子、光子与光电子等领域的创新人才，目标是开展多学科交叉研究，致力于神经退行性疾病诊治、类脑智能等重大工程和科学问题的探索和突破，通过开发新一代基于人工智能的医疗设备来提高人类生活质量。中心聚焦于用于脑机接口的片上系统、类器官微芯片、生物传感与检测、多模态神经成像等核心技术。中心与西湖大学和国内外多个重点医疗单位展开合作。

CenBRAIN Neurotech, Center of Excellence in Biomedical Research on Advanced Integrated-on-chips Neurotechnologies, is based in the School of Engineering of Westlake University. It was founded by Prof. Mohamad Sawan, Fellow of the Royal Society of Canada, Fellow of the Canadian Academy of Engineering, and chair professor at the School of Engineering of Westlake University. The center aims to gather innovative talents in the fields of sciences, life sciences, biomedical engineering, nano/microelectronics, photonics, and optoelectronics. The goal is to carry out multidisciplinary research focusing in both science and engineering issues such as the diagnosis and treatment of neurodegenerative diseases, and neuromorphic intelligent design. It aims to improve human life quality by introducing a new generation of artificial intelligence based medical devices. CenBRAIN Neurotech Center focuses on core technologies such as System-on-chips intended for brain-computer Interfaces, organoid microchips, biological sensing and detection, and multimodal neuroimaging. The Center cooperates with several groups from Westlake University and other key medical institutions from both national and international levels.

Key Laboratory of 3D Micro/Nano Fabrication and Characterization of Zhejiang Province

浙江省 3D 微纳加工和表征研究重点实验室

Director:
Min Qiu
主任:仇 旻

浙江省3D微纳加工和表征研究重点实验室于2019年1月正式由浙江省科学技术厅、浙江省发展和改革委员会、浙江省财政厅等部门批准成立。实验室依托工学院先进微纳加工与测试平台以及校内与微纳技术相关的课题组和实验室共同建立。学术委员会成员由相关领域著名专家、学者担任。

研究内容和方向：

结合微电子集成技术和微纳加工的未来发展方向，在利用现有平面加工工艺研制微纳结构和器件的同时，重点研究和开发 3D 微纳米加工与表征技术，并通过这些技术在相关学科研究应用中探索学科交叉领域，开拓新的应用和研究方向。

The Key Laboratory of 3D Micro/Nano Fabrication and Characterization of Zhejiang Province was established in January 2019 under the official approval from the Science and Technology Agency of Zhejiang Province, Zhejiang Provincial Development and Reform Commission and Zhejiang Provincial Department of Finance. The lab is amongst the first batch of labs in Westlake University. The lab brings cohort resources from the school-level research platform for advanced micro-nano processing and testing in the School of Engineering and the university-wide research platform, the Westlake Center for Micro/Nano Fabrication.

The interdisciplinary-minded lab sets its key missions on the innovative research and application of 3D micro-nano processing and characterization technology based on the existing surface processing processes enabled micro-nano structures and components, coupled with its vision to create the futuristic synergy of the microelectronics integration technology and the micro-nano processing.

Key Laboratory of Coastal Environment and Resources of Zhejiang Province

浙江省海岸带环境与资源研究重点实验室(培育建设)

Director:
Ling Li

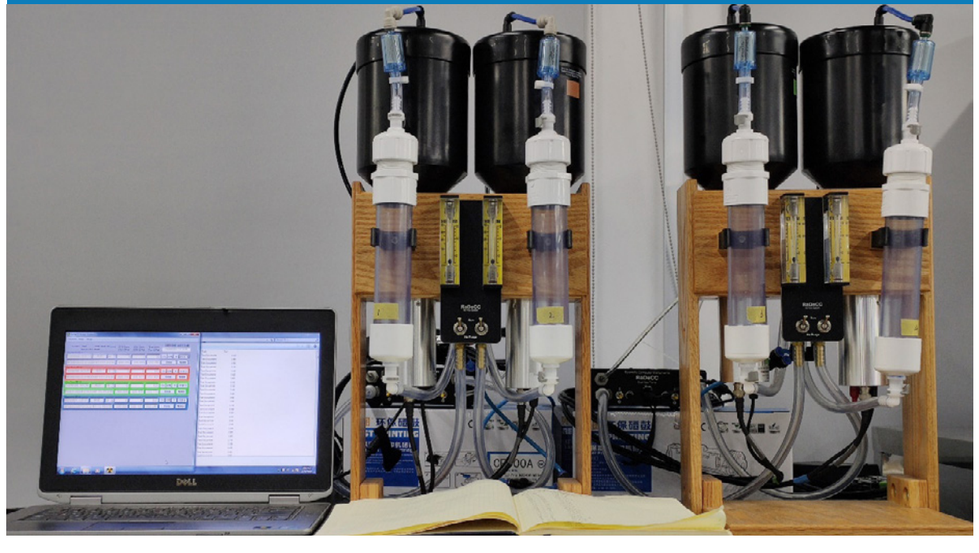
主任:李 凌

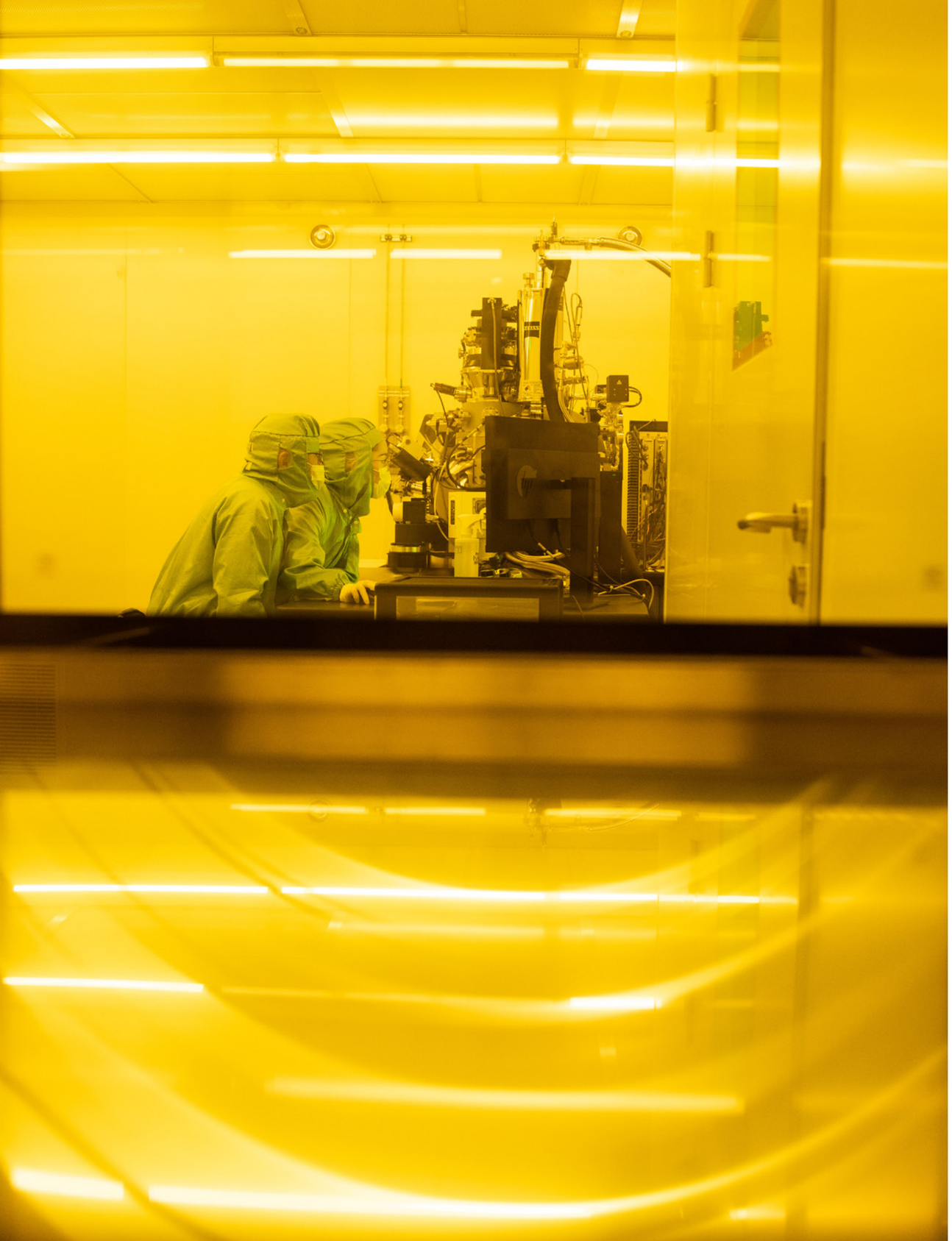
浙江省海岸带环境与资源研究重点实验室是浙江省科技厅 2021 年培育建设的省重点实验室。实验室将致力于研究海岸带陆 - 海 - 气多界面、跨圈层的耦合作用机理及相关过程的预报预测，以便更好认识海岸带问题的成因，并研发解决这些问题的新方法、新技术和新装备。实验室设置三个研究方向：(1)海岸带陆海气相互作用机制及模拟；(2)沿海污染治理及生态修复的新方法、新技术；(3)海洋资源勘探与开发。旨在为解决浙江省、全国和世界其它地区海岸带的生态环境和资源利用问题提供有力的科技支撑，成为一个世界领先的海岸带研究中心。

海岸带环境与资源研究重点实验室依托西湖大学工学院环境资源公共实验室、仪器平台以及校内与海岸带生态环境和资源相关的实验室共同建立，拥有三重串联四极杆 UPLC/MSMS、GC FID/TCD/ECD、HPLC LC-40D、总有机碳分析仪 (TOC)、超纯水制备仪、超速离心机(最大转速 100000rpm)、水质全自动化的分析仪等先进仪器、设备。

Key Laboratory of Coastal Environment and Resources of Zhejiang Province (KLaCER) was established in 2021 with strong support from the provincial Science and Technology Agency. KLaCER endeavors to advance our understanding of the coupling mechanisms of land-ocean-atmosphere interactions that underlie various eco-environmental and resource utilization problems in the coastal zone, and to develop innovative methodologies and techniques to tackle these problems. The main research objectives are to (1) Discover and understand land-ocean-atmosphere interactions in the coastal zone; (2) Develop sustainable technologies for coastal pollution control and ecological restoration; (3) Explore and develop marine resources. KLaCER aims to become a world-leading center of excellence in coastal zone research, providing strong scientific and technological support for solving the eco-environmental and resource utilization problems in coastal zones in Zhejiang Province, China, and other parts of the world.

KLaCER is well equipped with analytical instruments including UPLC-MS/MS, GC- FID/TCD/ECD, HPLC, total organic carbon analyzer (TOC), ultra-fast centrifuge (maximum speed 100000rpm), fully automated water quality analyzer, ultrapure water provision device, and other advanced instruments and equipment.





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RESEARCH PLATFORMS

科研平台

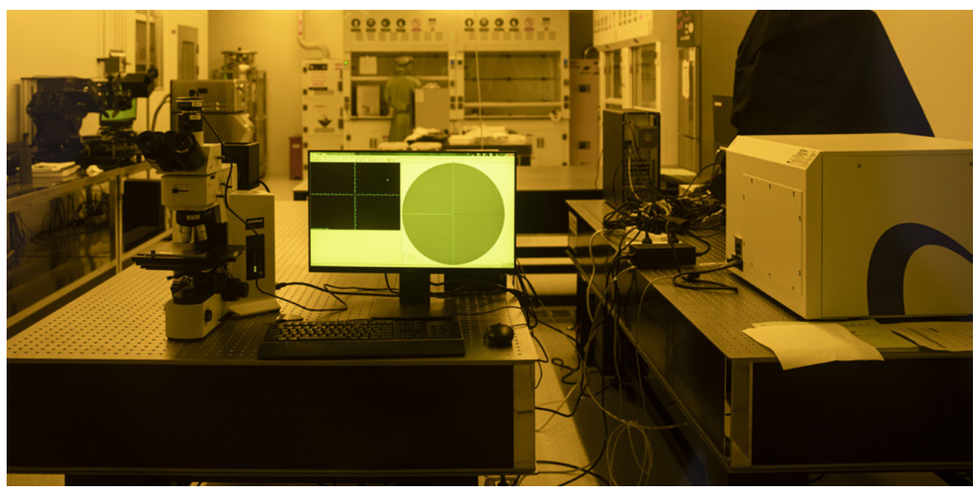
Westlake Center for Micro/Nano Fabrication

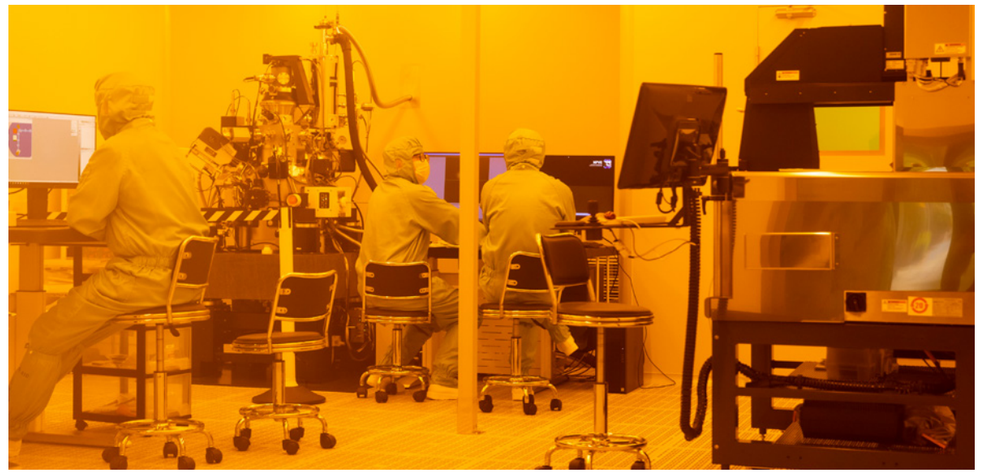
先进微纳加工与表征平台

先进微纳加工与表征平台旨在构建由顶尖的设备、优秀的人才打造一个先进的微纳器件加工和微纳结构表征平台，在满足西湖大学相关科学研究和学科建设需求的条件下，和相关企业合作培养工艺人才、攻关产业技术难题，通过培养产业人才和提升产业技术为地方经济发展做应有的贡献。

云栖校区总占地1100平米的微纳平台将秉承“顶尖、科学、经济”的发展理念，通过购置先进可靠的微纳加工设备，如电子束曝光、反应等离子刻蚀、各类先进镀膜设备和表征工具，组织优秀的微纳加工人才协同攻关，开发Si基和有机微纳器件的加工和集成工艺，支撑其他新型微纳器件的开发，满足学校科研和人才培养的需要，在5年内建成一个在国内有特色的微纳加工平台。

云谷校区占地3500平米的微纳平台将在云栖校区平台工艺能力的基础上，全面完善先进微纳电子器件研究和研发所需要的关键工艺装备，实现III-V族，II-VI族材料成长和器件加工，并把微纳结构的表征能力提升到亚纳米精度，在8-10年内打造一个国际先进并在部分工艺领域达到国际领先水平的平台。





Westlake Center for Micro/Nano Fabrication is equipped with advanced micro/nano fabrication facilities and is operated by a group of experienced engineers. This center houses Suss mask aligner, Raith e-beam lithography（EBL）system, Samco ICP etching system, deep reactive ion etching (DRIE) system, ULVAC thin film deposition system, etc. These equipments endow fabrication capability for silicon and organic micro/nano devices that can fulfill the requirements from physics, chemistry, electronics, photonics, biomedicine, materials science to multidiscipline. Besides the traditional fabrication tools mentioned above, the center owns focused helium ion nanofabrication, femtolaser writing and laser direct writing tools and offers a lot of flexibility for creating novel complex 3D nanostructure for both scientific researches and industry prototyping projects.

With the future expansion of this center at Yungu campus of Westlake University, it will fully expand its electronics research capability by merging ion implanter, stepper scanner, materials growth and device fabrication tools for III-V and II-VI semiconductors, and its structure characterization to sub-nanometer resolution and to 3D nano complex.

Westlake Center for Micro/Nano Fabrication will support the university to become one of the first-tier universities in the world by substantially exploring the center’ s hardware and intellectual resources and being actively involved in the university’ s research, development and educational programs.

Westlake University High-Performance Computing Center

高性能计算中心

高性能计算中心提供高质量的科学计算和数据分析解决方案，为西湖大学高起点创新性研究提供坚实高性能计算基础支持。中心目前在云栖校区占地420平方米，拥有科学计算集群、冷冻电镜集群、人工智能集群三套核心高性能集群资源。共计15844个CPU核心和570个GPU核心，理论浮点运算能力CPU 782Tflop/s，GPU单精度9.1Pflop/s；存储总量17.2PB，总合并读写带宽60GB/s；采用InfiniBand高速互联网络联通集群节点间数据交互，最高带宽为200Gbps。三套核心集群全面支持人工智能，材料科学，计算物理/化学，生物医学数据分析等重要研究方向，助力各研究方向快速推进。

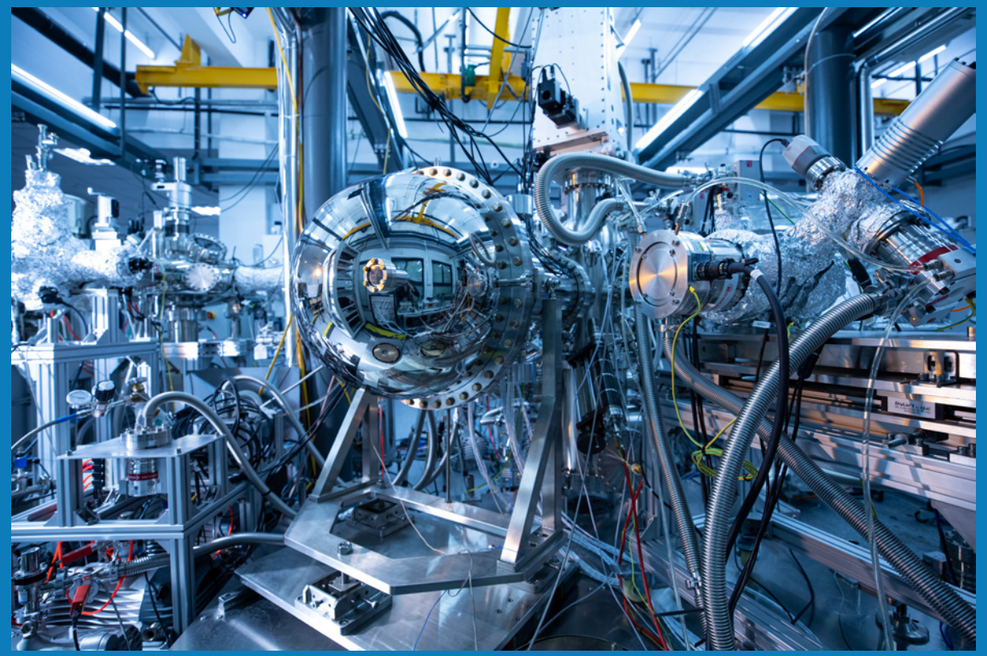
Westlake High-Performance Computing Center (Westlake HPC Center) provides state-of-art platform for scientific computation and strong support for data analysis solutions. HPC Center now occupies 420 square meters for machine room and supporting facilities. Three HPC clusters has been set up, including Scientific & Engineering Cluster(SE Cluster, for general purpose computation), Cryo-EM Cluster(for cryo-em data analysis), AI Cluster(for deep learning training and testing). The three resources altogether have 15,844 CPU cores and 570 GPUs, 17.2 PB parallel storage (60 GB/s read-write bandwidth), 200 Gbps InfiniBand inter-connection network, and theoretical computing power of 782 Tflop/s of CPU and 9.1 Pflop/s of GPU in single precision. All the three clusters provide comprehensive computation support and empower the research for AI, material sciences, computational physics and chemistry, biological and medical data analysis and other important aspect in School of Engineering.

Instrumentation and Service Center for Physical Sciences

物质科学公共实验平台

西湖大学物质科学公共实验平台秉承“先进、科学、创新”理念，聚焦服务于物质科学前沿领域中量子、能源、环境、光电信息等材料及相关器件的研究，辅以大型共享设施与设备和资深专业人才，提供整体系统的表征分析技术支撑。在云栖校区，平台重点密切围绕西湖大学物质科学相关学科的建设方向，在形貌表征、结构分析、表面分析、成分分析、磁电物性、热力光综合性能表征和材料制备等多个领域配备了系列高端的先进设备。目前平台拥有超高真空互联系统（集成有STM、Laser-ARPES、XPS、OxMBE、PLD）、单晶/薄膜/粉末XRD、PDF、PPMS、MPMS、稀释制冷机、SEM、AFM、激光导热仪、流变仪、动态光散射仪、浮熔区单晶生长炉等尖端科研设备，并配有经验丰富的高水平专业人才，不但兼顾常规分析表征的研究需求，更能够追踪学科前沿，不断进取，为当今世界最前沿的科学研究提供良好的表征支撑。

Initiated by the School of Science, the Instrumentation and Service Center for Physical Sciences (ISCPS) hosts state-of-the-art facilities not only to meet routine analysis needs, but also to collaborate with our faculty and researchers in developing novel instrumental technologies or methodologies that address problems emerging from dynamic, cutting-edge research. ISCPS has currently installed a series of instruments covering magnetic resonance, chromatography-mass spectrometry, in-situ chemical characterization, X-ray diffraction and spectroscopy, surface physics analysis, cryogenic measurement, electron microscopy and physical property characterization, which together provide strong support for the development of Westlake University.

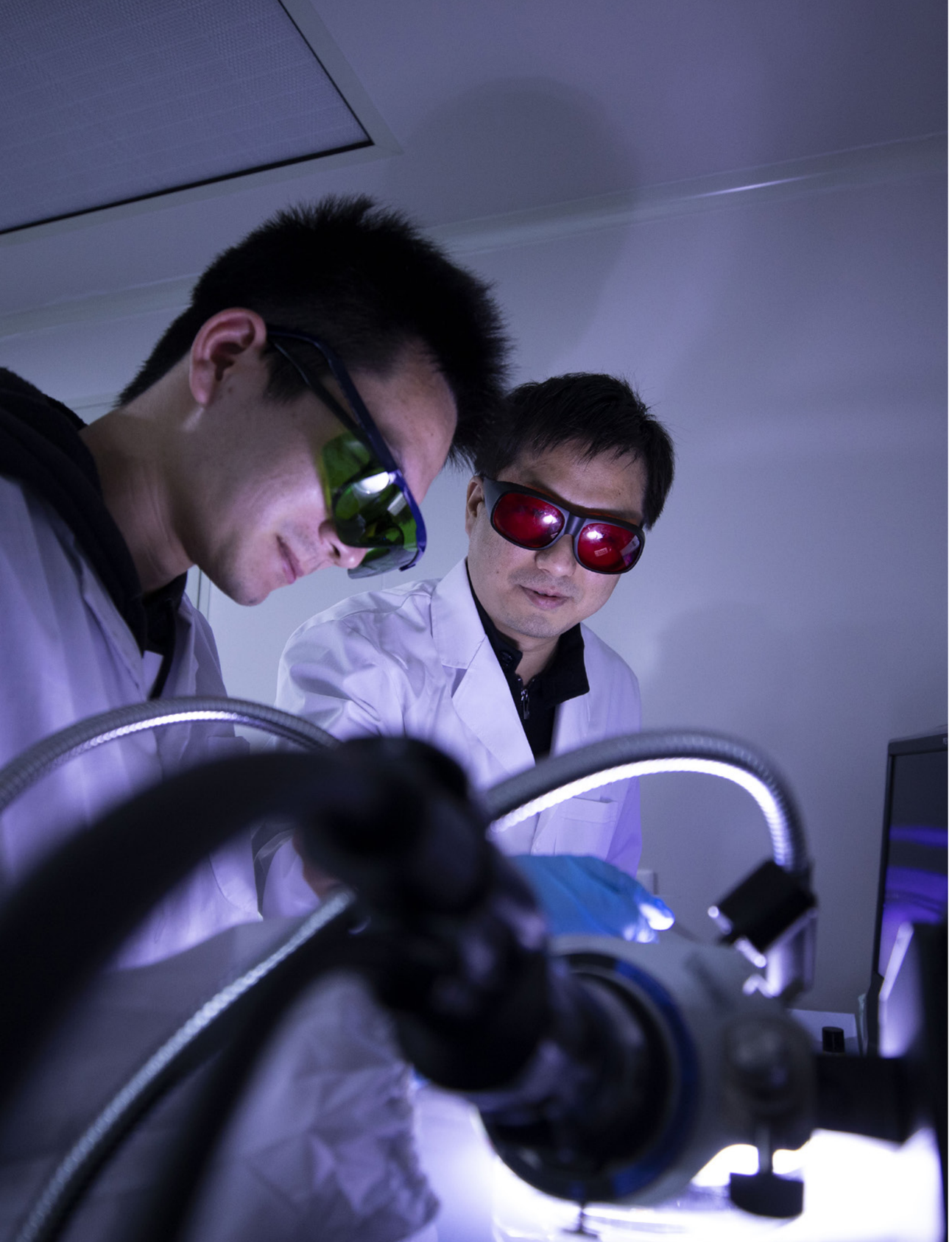


Instrumentation and Service Center for Molecular Sciences

分子科学公共实验平台

分子科学公共实验平台秉承“技术驱动创新”的理念，以新工具促进新科学的发展，完备光谱、色质谱、磁共振波谱及X射线谱等为技术核心的原位、高分辨分子科学表征体系，服务功能分子合成、绿色催化、能源材料、环境生态及化学生物等科研创新方向，为全校师生提供最新一代原子/分子谱学表征的7*24小时自主、开放仪器使用环境，并积极开发原位、高分辨创新表征技术，支撑方向包含有机/无机成分与结构分析，药物及聚合物定性/定量分析，材料结构及功能分析，多肽及蛋白构象/动力学 和稳定性分析，以及复杂水质、食品药品、环境污染物检测等。

The Instrumentation and Service Center for Molecular Sciences (ISCMS) is a shared-use core facility at Westlake University to provide a collaborative multi-disciplinary research environment to support of the creation and evolution of world-class molecular sciences and technical expertise, for the Westlake research community as well as the larger community of external researchers both from academia and industry. ISCMS is composed of three professional analytical laboratories: Magnetic Resonance Lab, GC/LC-MS Lab, and Spectroscopy Lab, focusing on the exploration of molecular structure, intra- and inter-molecular interactions, and molecular dynamics. The characterization service covers qualitative and quantitative measurements of compounds and polymers, structural determination of functional materials, polypeptides and biomolecules, stability and dynamics analysis of pharmaceuticals and clinical markers, inspections of quality for water, food and drug, as well as detection of environmental pollutant etc. The focus of ISCMS technical team has been not only to serve a broad, diverse, international set of researchers who are focus on pioneering scientific innovations, but also to develop specialized methodologies, protocols, instrumentation, and expertise to help simulate, characterize, and analyze novel molecules, materials, and systems going beyond conventional approaches.



7

DOCTORAL STUDENT ADMISSION AND TRAINING

博士生招生与培养

工学院夏令营
Summer Camp

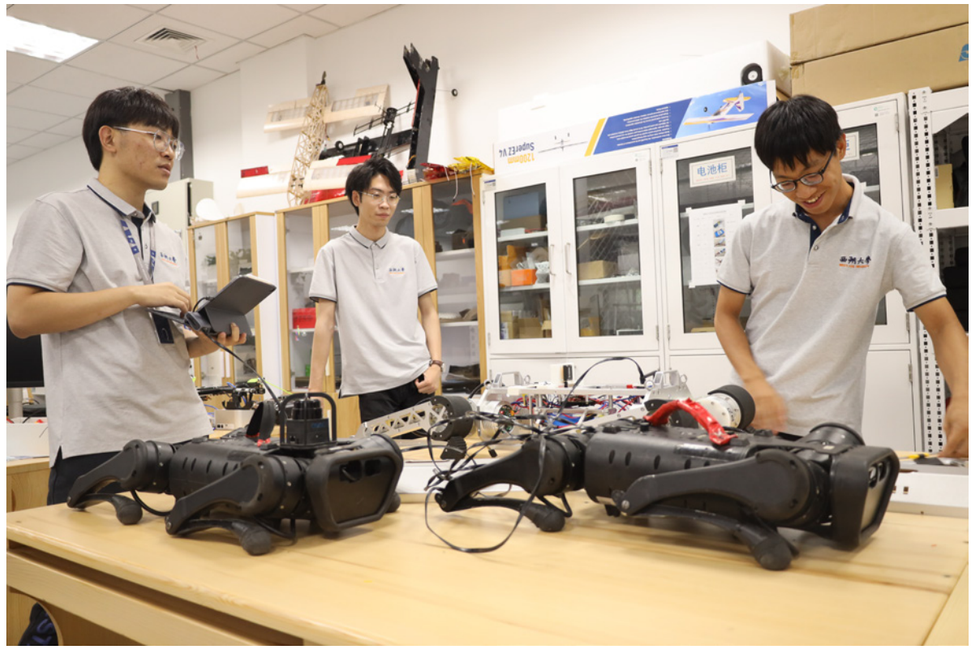
为推进高校优秀学生间的学术交流，方便广大学子更加深入地了解西湖大学，选拔有科研潜质的优秀学生继续深造，学校在每年7-8月份开展暑期夏令营项目，其中，工学夏令营对来自国内外高校计算机科学与技术、电子科学与技术、光学工程、材料科学与工程、化学、信息与通信工程、控制科学与工程、软件工程、机械工程、环境科学与工程、土木工程等工学相关专业的优秀应届本科毕业生开放。主要开展学校介绍、学术讲座、与讲席教授面对面、博士生交流会、实验室参观和优秀夏令营营员选拔等活动。

The Summer Camp is an academic exchange among outstanding students to have a deeper understanding of Westlake University, and to select students with scientific research potential to continue their studies here. The school conducts summer camp projects from July to August every year and excellent students in engineering-related majors are welcomed to participate in the programs. The main activities include school introductions, academic lectures,-face-to-face meetings with famous chair professors, doctoral student exchange meetings, laboratory visits and selection of outstanding summer campers.

暑期科研实习
Summer Internship

为让更多的学生了解西湖大学，培养科学研究兴趣，奠定未来发展基础，西湖大学工学院每年举办“暑期科研实习”项目，持续时间大约 4 周。实习期间，各实验室导师根据学生实际情况制订个性化科研计划，同时学生可参与西湖大学举办的各类学术活动。

Westlake University organizes summer internships to promote the university to talented young students. The School of Engineering organizes a "Summer Internship" project every year, which lasts about 4 weeks. During the internship period, each laboratory tutor formulates a personalized scientific research plan based on the actual situation of the students. Meanwhile, students can participate in various academic activities organized by Westlake University.



学科开放日
Open Day

为了广大学子更加深入地了解西湖大学工学院的学科发展状况，了解工学院各个实验室，并与博士生导师们有近距离的交流，工学院不定期开展学科开放日活动。

In order to help the students to have a more in-depth understanding of the disciplinary research of the School of Engineering, the school conducts open days from time to time, in which students can have close interactions with PIs.

西湖大学工学院本科生科研训练计划
Westlake Engineering Undergraduate Research Program（WESearch）

WESearch 是一项针对国内高校优秀本科生开展的科研训练项目。本项目将激发本科生的科技创新意识和科技创新潜能，让本科生深度体验科学研究的乐趣。

科研项目时间：春季 3 月 -6 月（part-time），暑期 7 月 -8 月 (full-time)

参与对象：热爱科研，善于思考，主动热情，乐于探索的大二或大三在读本科生

The Westlake Engineering Undergraduate Research Program (WESearch) is a research training program for outstanding undergraduate students from universities in China. This program will stimulate the undergraduate students' awareness and potential of science and technology innovation, and allow them to experience the fun of scientific research in depth.

Research project period: Spring March-June (part-time),Summer July-August (full-time)

Target group: Sophomore or junior undergraduates who are passionate about research, enthusiastic and willing to explore in research.

8

ACADEMIC EVENTS & CAMPUS LIFE

学术活动与学院生活

西湖名师论坛 丁一汇院士
WESTLAKE MASTER FORUM YIHUI DING

工学院积极搭建学术交流平台，组织开展“西湖名师论坛”、“西湖工程讲座系列”、“工学院专题学术讲座”、“工学院学术进展交流会”、“工学院博士生学术交流会”、“西湖工学国际研讨会 WISE”、“学术海报交流活动”等形式多样的学术交流活动，促进学院师生与校内外学者之间的学术交流和沟通。

The School of Engineering continuously offers programs and workshops to encourage interdisciplinary collaborations. Here we list just a few of the activities where we, students and faculties alike, share big new ideas, solve societal problems, learn from each other, and invent a better future: The Westlake Master Forum, Westlake Engineering Lecture Series, and School of Engineering academic seminar, Research Seminar Series, Westlake International Symposium in Engineering, Academic poster exchange activities.

西湖大学咨询委员会是西湖大学战略发展和重大决策的咨询机构，由在学术和教育相关方面享有盛誉的著名学者组成。工学院学术咨询委员会定期召开会议，旨在让专家们就西湖大学工学院的学科建设、人才培养、科研创新等方面进行充分交流、讨论。

The Advisory Committee of Westlake University is a consultant organization for strategic development and critical decision-making at Westlake University. The committee members include nationally and internationally recognized researchers and distinguished experts in academic and educational fields. The committee organizes meetings regularly to communicate and discuss on a wide range of topics, including disciplines development, talent cultivation, and research innovation in the engineering field at Westlake University.

西湖大学工学咨询委员会第二次会议
THE SECOND MEETING OF THE ADVISORY COMMITTEE ON ENGINEERING, WESTLAKE UNIVERSITY

2021 WISE西湖工学国际研讨会

WISE 2021 WESTLAKE INTERNATIONAL SYMPOSIUM IN ENGINEERING

2019 WISE西湖工学国际研讨会

WISE 2019 WESTLAKE INTERNATIONAL SYMPOSIUM IN ENGINEERING

名师论坛“100期”谭蔚泓院士

THE 100TH WESTLAKE MASTER FORUM, PROF. WEIHONG TAN

PI学术进展交流会

PI EXCHANGE SEMINAR

博士后学术交流会

POSTDOCTORAL ACADEMIC EXCHANGE MEETING OF SOE

博士生学术交流会

PH.D. STUDENT SEMINAR

工学院实验室交流活动

OLD BOTTLES WORKSHOP

微纳光电系统集成MINI WORKSHOP（2021年9月）

ACADEMIC EXCHANGE MINI WORKSHOP

学术海报交流活动

ACADEMIC POSTER EXCHANGE ACTIVITIES

工学院年度会议·杭州湘湖（2021年8月）

FACULTY RETREAT OF SOE

2021年工学院新生见面会
2021 NEW STUDENT ORIENTATION

工学院党委秋游活动·杭州径山（2021年）
AUTUMN OUTING

2020年马里亚纳海试与科考航次汇报会
MARIANA SEA TRIAL AND SCIENTIFIC EXPEDITION REPORT MEETING

“情暖西湖”新年联谊会（2020年12月）
NEW YEAR PARTY

工学院年度会议·杭州临安（2020年12月）
FACULTY RETREAT OF SOE

工学院工会春游活动·浙江余姚（2019年）
SPRING OUTING

工学院工会秋游活动·湖州长兴（2019年）
AUTUMN OUTING

“三八”遇见茶香之美茶艺沙龙
TEA ART ACTIVITIES