陕西师范大学 化学化工学院 School of Chemistry & Chemical Engineering

04 / 2023

光子鼻与分子材料团队 简 报

Photonic Nose and Molecular Materials Group Newsletter

目 录 Contents

总策划：房喻教授
Producer & Editor-in-Chief: Prof. Fang Yu
责任编辑：边红涛　冯伟
Executive Editors: Bian Hongtao, Feng Wei
翻译：冯伟
Translator: Feng Wei
校对：团队全体老师
Proofreading: Fang Group teachers

装帧设计：长乐央吉 | 泛象空间
Designed by Changle Yangji, FanForm Art Space

地址：陕西省西安市长安区西长安街 620 号
陕西师范大学长安校区
Chang'an Campus, Shaanxi Normal University,
620 West Chang'an Avenue, Chang'an District, Xi'an, Shaanxi, P. R. China
联系电话 (Tel): 86-29-81530726
电子邮箱 (Email): incsmm@snnu.edu.cn

第十八届全国胶体与界面化学学术会议在西安举行

The 18th Chinese Conference on Colloid and Interface Chemistry held in Xi'an

4 月 8 日至 11 日，以“聚‘胶’前沿 擘‘化’发展”为主题的第十八届全国胶体与界面化学学术会议在西安曲江国际会议中心举行。

本届会议由中国化学会胶体与界面化学专业委员会、陕西师范大学共同主办，化学化工学院和应用表面与胶体化学教育部重点实验室承办，国家自然科学基金委领导亲临指导并参与学科发展研讨。

共有来自清华大学、北京大学、复旦大学、中国科学院、国家纳米中心等 330 家大学和科研院所的 1700 多名专家学者和青年化学工作者参会。大会共收到论文摘要 1253 篇，安排高水平大会邀请报告 8 个、分会邀请报告 199 个、口头报告 237 个、墙报展示 724 个，会议规模、专题报告、科研论文及墙报数量等均创历届之最。

4 月 8 日上午大会举行开幕式，开幕式由陕西师范大学科技处处长、化学化工学院院长薛东主持。校党委常委、副校长杨祖培出席会议并致辞，她简要介绍了陕西师范大学的基本情况、办学定位、学科布局与发展方向、学校“四维驱动”的学科新布局和以化学为牵引的理工科学科发展现状，以及陕西师范大学胶体与界面化学学科的重要特色和取得的重要进展。

中国化学会胶体与界面化学专业委员会主任李峻柏研究员在开幕式讲话中代表中国化学会胶体与界面化学专业委员会向会议主办方和组委会表示感谢，总结了胶体界面化学在历经几代人的不懈努力取得的成就、蓬勃发展的趋势，以及面临新的机遇和挑战。他表示胶体与界面化学界的各位同仁将继续秉承严谨务实的科学精神、踏实奋进的工作态度、精益求精的治学理念，为我国科学事业做出新的更大贡献。

开幕式上颁发了胶体与界面化学领域四个标志性奖项。中国科学院化学研究所刘鸣华研究员主持颁奖典礼。北京大学马季铭教授获第三届中国化学会胶体与界面化学终身成就奖，山东大学郝京诚教授、中国科学院化学研究所王毅林研究员获 2021 年度中国化学会胶体与界面化学杰出贡献奖，清华大学李广涛教授、吉林大学吴立新教授获 2023 年度中国化学会胶体与界面化学杰出贡献奖，中国地质大学（北京）安琪教授、中科科学院化学研究所范雅珣副研究员获第六届“东方胶化杯”中国化学会胶体与界面化学优秀青年学者奖，陕西师范大学黄蓉蓉、中科学

院兰州物理化学研究所张芝芝获第二十一届“东方胶化杯”全国胶体与界面化学研究生优秀成果一等奖，哈尔滨工业大学（深圳）陈曦、中科院化学研究所胥夏与樊华华获二等奖，厦门大学余诗洁、哈尔滨工业大学刘君、中科院过程工程研究所任小康、大连理工大学李冲、天津大学王朝获三等奖。房喻院士等专家为获奖代表颁奖，获奖代表分别作了获奖感言。

开幕式当天，浙江大学彭笑刚教授、山东大学郝京诚教授、中国科学院化学研究所王毅琳研究员、中国科学院理化技术研究所江雷院士等专家学者，分别从胶体半导体纳米晶体、胶体分散体系、表面活性剂自组装及功能、仿生超浸润界面材料等视角先后作大会报告，探讨了该领域热点动态、关键问题与重大研究进展。

本届大会共设立“胶体与界面化学中的新理论和新技术”“两亲分子有序组合体”“软物质化学与超分子组装”“功能微纳米材料”“超浸润界面与物质输运”“光电功能组装体与表界面”“生物分子自组装与生物胶体”“胶体马达”“食品胶体”“应用胶体与界面化学”等 10 个分会场。与会专家和同仁将相互交流胶体与界面化学领域的研究热点、最新成果和胶体与界面化学在工农业生产中的重要应用，共同探讨国际上胶体与界面化学近年来发展所表现出来的新特点与新趋势，以及我国胶体与界面化学学科所面临的新问题。

4 月 11 日上午，大会举行闭幕式，闭幕式由北京大学黄建滨教授主持。李峻柏主任公布了本届大会决议。会议期间，胶体与界面化学新一届专业委员会召开了全体委员会议，讨论了胶体与界面化学学科发展，听取了国家自然科学基金委杨俊林主任的意见和建议，批准了青年委员会的职能及运行机制。李峻柏向大会组委会成员和全体志愿者的辛勤付出致以衷心感谢。

闭幕式上公布了下一届大会的承办单位，第十九届中国化学会胶体与界面化学学术会议将在江西赣州举行，承办单位负责人赣南师范大学副校长罗序中发布了参会邀请。

会议期间，来自国内外 40 多家化学化工仪器设备生产商，在现场展览了各类仪器、设备、产品、工具和专业期刊等实物和图片达 200 余种，众多专家学者和企业进行了洽谈交流。

大会围绕 10 个主题进行了墙报展讲及评选工作，共展演墙报 724 个，经专家现场评审，共选出 20 个优秀墙报，其中苟欣瑜、李月、彭奕鑫、孙楠、温馨、刘荣娟、马骋、宋超、谭喆、闫珍等 10 人获“中国化学会第十八届全国胶体与界面化学学术会议”优秀墙报奖，常蕊、胡定芳、蒋航、李康、孟利利、冯时、黄小凌、卢国新、李艳艳、祝宇微等 10 人获“中国化学会第十八届全国胶体与界面化学学术会议”Royal Society of Chemistry 优秀墙报奖。


届中国化学会胶体与界面化学终身


颁奖典礼 主持人


杯”中国化学会胶体与界面化学
安 琪 教授
中国地质大学
范雅珣

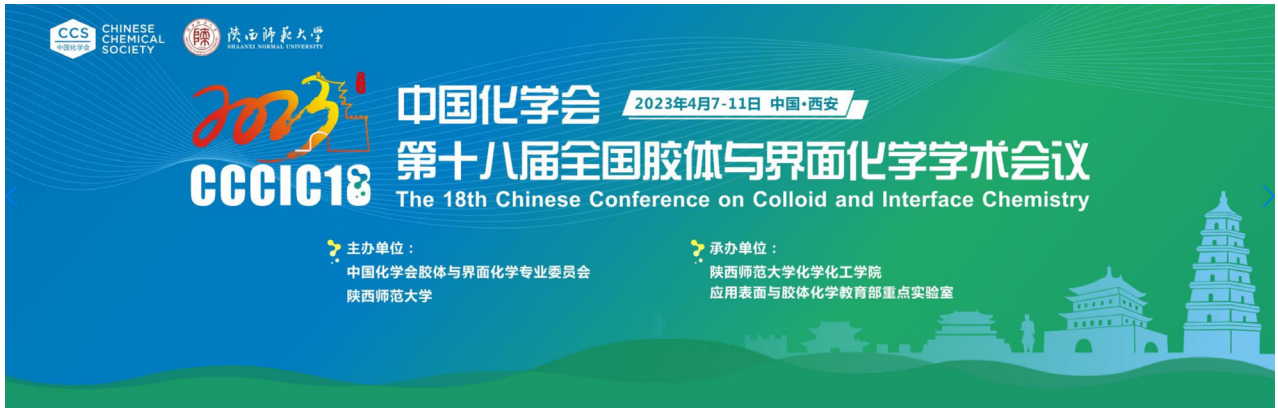

“东方胶化杯”全国胶体与界面化学研究生优秀成
西师范大学
张芝芝
中科院兰州化学物理研究所
中科院化学研究所


江 雷
中国科学院理
原创科研选题的
CHINESE CHEMICAL SOCIETY
2023 CCCIC16
中国化学会
第十八届全国胶体与界面化学学


吴骊珠 院士
CHINESE CHEMICAL SOCIETY
2023 CCCIC16
中国化学会
第十八届全国胶体与界面化学学术会议
主办单位：
中国化学会胶体与界面化学专业委员会
陕西师范大学
承办单位：
陕西师范大学化学化工学院
应用表面与胶体化学教育部重点实验室
2023年4月7-11日 中国·西安
MDPI


彭笑刚
浙江大
New Era of Colloidal Chemistry:
Colloidal Semiconductor Nanocrystals
Xiaogang Peng
Department of Chemistry, Zhejiang University
CHINESE CHEMICAL SOCIETY
2023 CCCIC16
中国化学会
第十八届全国胶体与界面化学学术会议


大会报告
王毅琳 研究员 中国科学院化学研究所
题目：表面活性剂的动态组装与功能
CHINESE CHEMICAL SOCIETY
2023 CCCIC16
中国化学会第十八届全国胶体与界面化学学术会议
The 18th Chinese Conference on Colloid and Interface Chemistry


CCS CHINESE CHEMICAL SOCIETY
陕西师范大学 SHAANXI NORMAL UNIVERSITY
2023
CCCIC18
中国化学会 2023年4月7-11日 中国·西安
第十八届全国胶体与界面化学学术会议
The 18th Chinese Conference on Colloid and Interface Chemistry
主办单位：
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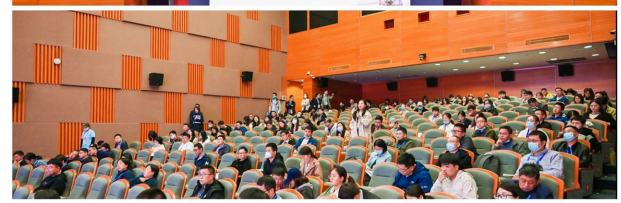
承办单位：
陕西师范大学化学化工学院
应用表面与胶体化学教育部重点实验室


主题二


基于胶体粒子的功能材料和
化学体系构筑
李广涛




主题四
功能微纳米材料
金属气凝胶的可控制备与
（光）电催化应用
主题四
功能微纳米材料


主题五

全国胶体与界面化学学术会议每两年举办一次，旨在交流胶体与界面化学领域最新研究热点、发展趋势、人才培养以及在工农业各领域的广泛应用。近年来，会议规模不断扩大，影响力不断提升，已经成为胶体与界面化学及相关领域门类

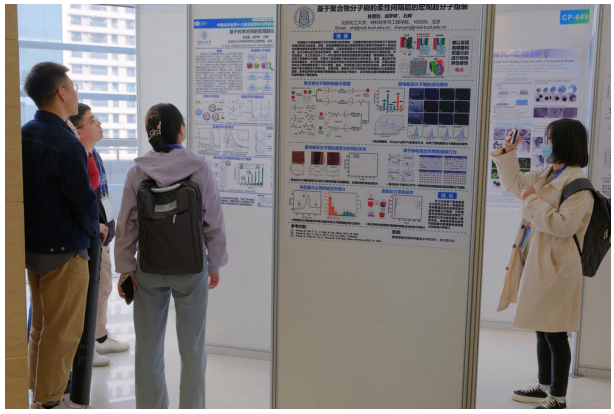
最全、规模最大、层次最高的综合性学术交流平台。本届大会也是自 2004 年由陕西师范大学承办的第十届胶体与界面化学会议在西安成功举办之后，时隔 19 年再度由陕西师范大学共同主办。

光子鼻与分子材料团队的各位老师和学生志愿者们在总负责人丁立平教授的带领下具体承办了此次大会，获得广泛好评。

For the conference, more than 1,700 experts, scholars and young chemists from 330 universities and research institutes, including Tsinghua University, Peking University, Fudan University, Chinese Academy of Sciences and National Nanocenter, attended the conference. The conference received 1,253 abstracts of papers, arranged 8 high-level invitation reports, 199 parallel session invited reports, 237 oral reports, and 724 poster presentations. The scale of the conference, and the number of special reports, research papers and posters all hit a record high.

On the morning of April 8, the conference opened with the welcome from Prof. Xue Dong, director of Science and Technology Department and dean of School of Chemistry and Chemical Engineering of Shaanxi Normal University. CPC SNNU Standing Committee member and SNNU vice president Ms. Yang Zupei spoke at the opening ceremony, briefing about Shaanxi Normal University, including its basic information, educational positioning, disciplinary layout and development direction, the “Four Dimensional Driving” new disciplinary planning, and the development status of science and engineering disciplines guided by chemistry, as well as the characteristics and progress of the colloid and interface chemistry discipline of the university.

In his opening speech, Prof. Li Junbai, director of the Colloid and Interface Chemistry Professional Committee of the Chinese Chemical Society, thanked the organizers and organizing committee on behalf of the Committee, and summarized the achievements and development trends of colloid and interface chemistry after the unremitting efforts



of several generations, as well as the new opportunities and challenges faced. He said that colleagues in the field of colloid and interface chemistry would continue to uphold the rigorous and pragmatic scientific spirit, practical and enterprising work attitude, and academic philosophy of excellence, and make new and greater contributions to China's scientific cause.

At the opening ceremony, four landmark awards in the field of colloid and interface chemistry were awarded. Prof. Liu Minghua of the CAS's Institute of Chemistry anchored the award ceremony. Prof. Ma Jiming of Peking University was awarded the 3rd Lifetime Achievement Award of Colloid and Interface Chemistry of Chinese Chemical Society, Prof. Hao Jingcheng of Shandong University and Prof. Wang Yilin of CAS's Institute of Chemistry were awarded CCS's 2021 Outstanding Contribution Award in Colloid and Interface Chemistry, Prof. Li Guangtao of Tsinghua University and Prof. Wu Lixin of Jilin University were awarded CCS's 2023 Outstanding Contribution Award in Colloid and Interface Chemistry, Prof. An Qi of China University of Geosciences (Beijing) and associate researcher Fan Yaxun of CAS's Institute of Chemistry were awarded the 6th CCS's "Oriental Colloid and Interface Chemistry Cup" Outstanding Young Scholar Award in Colloid and Interface Chemistry, Huang Rongrong of Shaanxi Normal University and Zhang Zhizhi of CAS's Lanzhou Institute of Physical Chemistry were awarded the first prize of the 21st "Oriental Colloid and Interface Chemistry Cup" National Colloid and Interface Chemistry Postgraduate Outstanding Achievement Award, Chen Xi of Harbin Institute of Technology (Shenzhen) and Xu Xia and Fan Huahua of CAS's Institute of Chemistry were awarded the second prize, Yu Shijie of Xiamen University, Liu Jun of Harbin Institute of Technology, Ren Xiaokang of CAS's Institute of Process Engineering, Li Chong of Dalian University of Technology and Wang Chao of Tianjin University were awarded the third prize. Prof. Fang Yu and other experts presented the awards to the winners, and their representatives made acceptance speeches respectively.

On the first day of the conference, Prof. Peng Xiaogang of Zhejiang University, Prof. Hao Jingcheng of Shandong University, researcher Wang Yilin of CAS's Institute of Chemistry, CAS academician Prof. Jiang Lei of CAS's Institute

of Physical and Chemical Technology and other experts and scholars gave conference reports from the perspectives of colloidal semiconductor nanocrystals, colloidal dispersion systems, surfactant self-assembly and functions, bionic super-wetting interface materials, exploring the hot trends, key issues and major research progress in the fields.

Ten parallel sessions, including New Theory and Technology in Colloid and Interface Chemistry, Amphiphilic Molecular Ordered Combination, Soft Matter Chemistry and Supramolecular Assembly, Functional Micro-nano Materials, Superwetting Interface and Material Transport, Optoelectronic Functional Assembly and Surface Interface, Biomolecular Self-assembly and Biocolloid, Colloidal Motor, Food Colloid, and Applied Colloidal and Interface Chemistry, were organized. Experts, scholars and graduate students attending the conference exchanged research hotspots, latest achievements and important applications of colloid and interface chemistry in industrial and agricultural production, and discussed the new characteristics and trends of the international development of colloid and interface chemistry in recent years, as well as the new problems faced by the discipline in China.

On the morning of April 11, the conference held a closing ceremony, which was anchored by Prof. Huang Jianbin of Peking University. Director Li Junbai announced the resolution of the conference. During the meeting, the new professional committee of colloid and interface chemistry held a plenary committee meeting to discuss the development of colloid and interface chemistry, listened to the opinions and suggestions of director Yang Junlin of the National Natural Science Foundation of China, and approved the functions and operating mechanism of its Youth Committee. Li Junbai expressed his heartfelt thanks to the members of the organizing committee and all volunteers for their hard work.

At the closing ceremony, the organizer of the next conference was announced as Gannan Normal University. The 19th Chinese Conference on Colloid and Interface Chemistry will be held in Ganzhou, Jiangxi Province, and GNU vice president Luo Xuzhong issued an invitation to participate in the conference.

During the conference, more than 40 chemical and chemical engineering instrument and equipment manufacturers from home and abroad exhibited more than 200 instruments, equipment, products, tools and professional journals, and many experts and scholars conducted negotiations and exchanges with representatives of the enterprises.

A total of 724 posters in ten themes were exhibited and reviewed, and 20 outstanding posters were selected. Gou Xinyu, Li Yue, Peng Yixin, Sun Nan, Wen Wen, Liu Rongjuan, Ma Cheng, Song Chao, Tan Zhe and Yan Zhen won the 18th CCCIC Excellent Poster Award, Chang Rui, Hu Dingfang, Jiang Hang, Li Kang, Meng Lili, Feng Shi, Huang Xiaoling, Lu Guoxin, Li Yanyan and Zhu Yuwei won the 18th CCCIC Royal Society of Chemistry Excellent Poster Award.

The Chinese Conference on Colloid and Interface Chemistry is held every two years, which aims at exchanging the latest research hotspots, development trends, talent training and wide application in various fields of industry in the field of colloid and interface chemistry. In recent years, with expanding scale and the improved influence, it has become a comprehensive academic exchange platform with the most complete, largest scale and highest level in colloid and interface chemistry and related fields. This 18th conference is co-hosted by Shaanxi Normal University again after 19 years since its 10th conference was hosted by the university in Xi'an in 2004.

The teachers and student volunteers of the Photonic Nose and Molecular Materials Group received wide praise from the participants, for their hard work in the preparation and operation of the conference under the leadership of Prof. Ding Liping.

房喻院士出席秦创原创新发展国际论坛并作报告

Fang Yu speaks at Qinchuangyuan International Forum on Innovation and Development

2023 年 4 月 14 日上午，房喻院士出席在在西安国际会展中心举行的第七届陕西国际科技创新创业博览会开幕式，并在秦创原创新发展国际论坛上作报告。

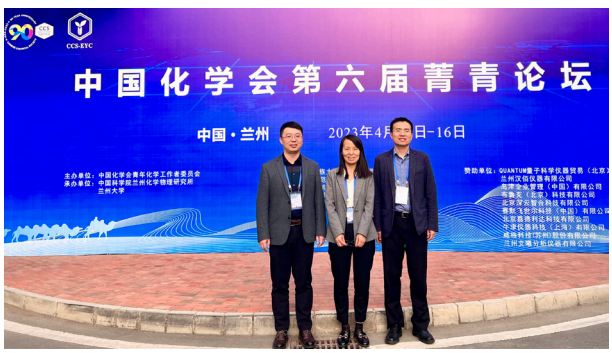
诺贝尔奖得主 Barry C. Barish 及中国工程院院士卢秉恒、林鸣，中国政府友谊奖获得者霍迪，澳大利亚外籍院士刘科，复旦大学教授艾剑良等作报告，围绕秦创原创新驱动平台建设、国际科技合作、智能制造等科技创新重点领域和陕西优势产业展开交流，推动秦创原建设，为陕西高质量发展贡献科创力量。

On April 14, 2023, Prof. Fang Yu attended the opening ceremony of the 7th Shaanxi International Expo for Science Technology Innovation and Entrepreneurship held at the Xi’an International Convention and Exhibition Center, and gave a report at the Qinchuangyuan International Forum on Innovation and Development.

Nobel Prize laureate Barry C. Barish and Chinese Academy of Engineering academicians Lu Bingheng and Lin Ming, Chinese Government Friendship Award winner Hodi, Australian foreign academician Liu Ke, Fudan University professor Ai Jianliang gave reports, focusing on the construction of Qinchuangyuan innovation-driven platform, international scientific cooperation, intelligent manufacturing and other key areas of scientific and technological innovation and Shaanxi province’s advantageous industries, so as to promote the construction of Qinchuangyuan, and contribute to the high-quality development of Shaanxi province.

团队教师参加中国化学会第六届菁青论坛

Fang Group teachers participate in the 6th Jingqing Forum of Chinese Chemical Society



2023 年 4 月 14 至 16 日，团队成员刘静教授、边红涛教授和彭浩南教授参加了由中国科学院兰州化学物理研究所和兰州大学承办的中国化学会第六届菁青论坛，并分别作了题为“荧光自组装膜的构筑及传感应用”“溶液中离子识别的超快动力学研究”和“薄膜荧光传感表界面物理化学”的邀请报告。

From April 14 to 16, 2023, Prof. Jing Liu, Prof. Hongtao Bian and Prof. Haonan Peng, members of the Photonic Nose and Molecular Materials Group, participated in the 6th Jingqing Forum of Chinese Chemical Society, which was organized by Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences and Lanzhou University. They gave invited reports titled Construction and Sensing Application of fluorescence Self-assembled membrane, Ultrafast Kinetic study of ion recognition in solution and Physical chemistry of membrane fluorescence sensor surface respectively.

房喻院士赴西安市八十三中学参加院士科学家进校园科普活动

Fang Yu participates in science popularization activity at Xi'an No. 83 Middle School

2023 年 4 月 17 日下午，中国科学院西安分院、陕西省科学院与西安市第八十三中学举办科教融合示范基地揭牌仪式暨院士科学家进校园科普活动，房喻院士应邀参加活动并作报告。

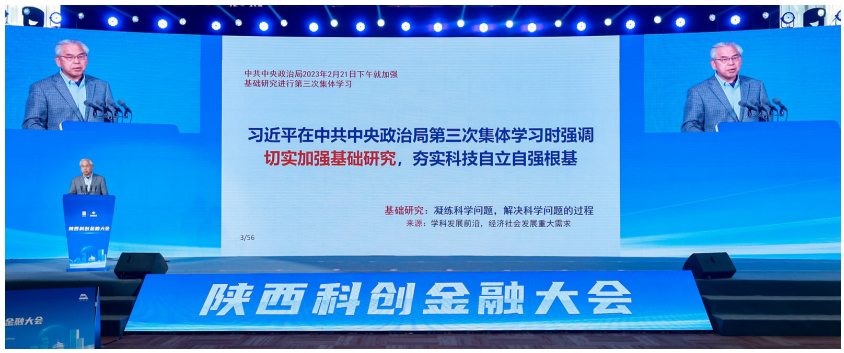
在参加了分省两院与西安市八十三中的联合共建战略合作签约仪式和科教融合示范基地揭牌仪式之后，房喻院士以“《基础科学的重要性》--- 以化学为例”为题，从科学就是未来、化学学科的地位和作用等三个方面为八十三中师生们做了一场科普讲座。

On April 17, 2023, Xi’an Branch of the Chinese Academy of Sciences, Shaanxi Academy of Sciences and Xi’an No. 83 Middle School held the unveiling ceremony of the Demonstration Base for Integration of Science and Education and the science popularization activity of academicians and scientists visiting middle school. Prof. Fang Yu was invited to participate in the events and give a report.

After attending the signing ceremony of the joint strategic cooperation between the two institutions and Xi’an No. 83 Middle School and the unveiling ceremony of the demonstration base, Fang Yu gave a lecture titled “The Significance of Basic Science - Taking Chemistry as an Example” for the teachers and students.

房喻院士出席陕西科创金融大会并作报告

Fang Yu speaks at Shaanxi Science Technology Innovation and Finance Conference



2023 年 4 月 26 日，房喻院士出席陕西科创金融大会并作主题报告。

房喻院士介绍了其团队在薄膜荧光传感器与分子材料领域的研究成果。他指出没有科学就没有未来，没有创新就没有主动，基础研究是原始创新的源头活水，从根本上扭转“卡脖子”问题必须重视基础研究、重视基础学科人才培养，不仅要聚焦科技成果产

业化，同时也要加大对基础研究的投入，助力科技创新发展。

陕西科创金融大会由陕西省西咸新区开发建设管理委员会、陕西金融资产管理股份有限公司共同主办。

On April 26, 2023, Prof. Fang Yu attended Shaanxi Conference on Science Technology Innovation and Finance and gave a keynote speech.

Fang Yu introduced the research results of his research group in the field of film fluorescent sensors and molecular materials. He said that "without science there is no future, and without innovation there is no initiative". He argued that basic research is the source of original innovation, and if we want to fundamentally reverse the "stranglehold" problem, we must attach importance to basic research and the cultivation of talents in basic disciplines, not only focusing on the industrialization of scientific and technological achievements, but also increasing investment in basic research to help the development of scientific and technological innovation.

Shaanxi Conference on Science Technology Innovation and Finance is co-sponsored by Shaanxi Xixian New Area Development and Construction Management Committee and Shaanxi Financial Assets Management Co., Ltd.

应用表面与胶体化学创新引智基地召开第七次专家委员会会议

Seventh expert committee meeting of Applied Surface and Colloid Chemistry 111 Center held

2023 年 4 月 27 日上午，应用表面与胶体化学创新引智基地在长安校区新概念传感器与分子材料研究院会议室召开了第七次专家委员会会议。

专家委员会成员张生勇院士、房喻院士、肖建良教授、高子伟教授、张成孝教授、薛东教授、刘昭铁教授、杨鹏教授、雷志斌教授出席会议，台湾中山大学陈正隆教授、新加坡科技与设计大学刘晓刚教授列席会议。

副校长周正朝出席会议并讲话。基地负责人房喻院士汇报了 2020 至 2022 年度引智基地工作情况，与会专家讨论了引智基地下阶段工作安排。

出席会议的还有科学技术处、计划财务处、国际交流与合作处、学科建设处、人力资源部、科学技术处、化学化工学院等单位及研究院相关负责人。

On April 27, 2023, the 7th Expert Committee Meeting of the Overseas Expertise Introduction Center for Discipline Innovation in Applied Surface and Colloid Chemistry was held in the conference room of the Institute of New Concept Sensors and Molecular Materials on Shaanxi Normal University's Chang'an Campus.

Chinese Academy of Engineering academician Zhang Shengyong, Prof. Fang Yu, Prof. Xiao Jianliang, Prof. Gao Ziwei, Prof. Zhang Chengxiao, Prof. Xue Dong, Prof. Liu Zhaotie, Prof. Yang Peng and Prof. Lei Zhibin attended the meeting, and Prof. Cheng-Lung Chen of Sun Yat-sen University in Taiwan and Prof. Liu Xiaogang of Singapore University of Technology and Design attended the meeting as observers.

SNNU vice president Zhou Zhengchao attended the meeting and delivered a speech. Fang Yu presented the work of the base from 2020 to 2022, and the participating experts discussed future work arrangement of the base.

Also attending the meeting were the officials of Science and Technology Department, Planning and Finance Office, International Exchange and Cooperation Office, Discipline Construction Office, Human Resources Department, School of Chemistry and Chemical Engineering, and INCSMM.

边红涛教授当选中国化学会时间分辨谱学专业委员会委员

Bian Hongtao elected member of Time-resolved Spectroscopy Committee of Chinese Chemical Society

2023 年 4 月 27 日，中国化学会时间分辨谱学专业委员会召开成立大会，边红涛教授当选委员会首届委员会委员。此次会议共有来自全国高校、科研院所等 34 个单位的 45 位代表参加，经选举产生了首届主任委员和副主任委员，共有 59 人当选首届委员会委员，西部地区有陕西师范大学和中国科学院西安光学精密机械研究所两家单位入选会员单位。

On April 27, 2023, the Time-resolved Spectroscopy Committee of the Chinese Chemical Society held its inaugural meeting, and Prof. Bian Hongtao was elected as a member of the first committee. The meeting was attended by 45 representatives from 34 universities and research institutes, during which the first chairman and vice chairmen were elected and fifty nine people were elected as members of the first committee. Shaanxi Normal University and Xi'an Institute of Optics and Fine Mechanics of Chinese Academy of Sciences in western China region were selected as member institutions.

团队召开工作汇报暨讨论会

Fang Group holds work report and discussion meeting

2023 年 4 月 27 日下午，光子鼻与分子材料团队在红烛院士楼一楼报告厅召开了工作汇报暨讨论会。

讨论会由丁立平教授主持，房喻教授、台湾中山大学陈正隆教授、新加坡科技与设计大学刘晓刚教授、计算机科学学院副院长马苗教授、党静霜副教授、团队博士后、博士及硕士研究生参加了本次讨论会。

林思敏同学、张晶同学、刘向泉同学和邵洋涛同学进行了工作汇报。参会的老师和同学们就同学们实验中的困惑和待解决的问题进行了讨论。

On April 27, 2023, the Photonic Nose and Molecular Materials Group held a work report and discussion meeting in the lecture hall on the first floor of the Red Candle Academician Building.

The meeting was chaired by Prof. Ding Liping, and attended by Prof. Fang Yu, Prof. Cheng-Lung Chen of Sun Yat-sen University in Taiwan, Prof. Liu Xiaogang of Singapore University of Technology and Design, School of Computer Science associate dean Prof. Ma Miao, associate professor Dang Jingshuang, and postdoctoral fellows, doctoral and master's students of the group.

Graduate students Lin Simin, Zhang Jing, Liu Xiangquan and Shao Yangtao reported their research work. The participating teachers discussed with students about the confusion and problems to be solved in their experiments.

房喻院士参加“典赞·科普三秦”发布盛典并致颁奖词

Fang Yu delivers awarding speech at “Science Popularization in Shaanxi” release ceremony

2023 年 4 月 3 日，房喻院士出席“典赞·科普三秦”发布盛典，并为获奖者致颁奖词。

On April 3, 2023, Prof. Fang Yu attended the “Science Popularization in Shaanxi” release ceremony and delivered an awarding speech.

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Supramolecular Adhesives with Extended Tolerance to Extreme Conditions via Water-Modulated Noncovalent Interactions

Wang Guan, Wenhe Jiang, Xinling Deng, Wansheng Tao, Jiaqi Tang, Yuangang Li, Jianhong Peng, Cheng-Lung Chen, Kaiqiang Liu, and Yu Fang*

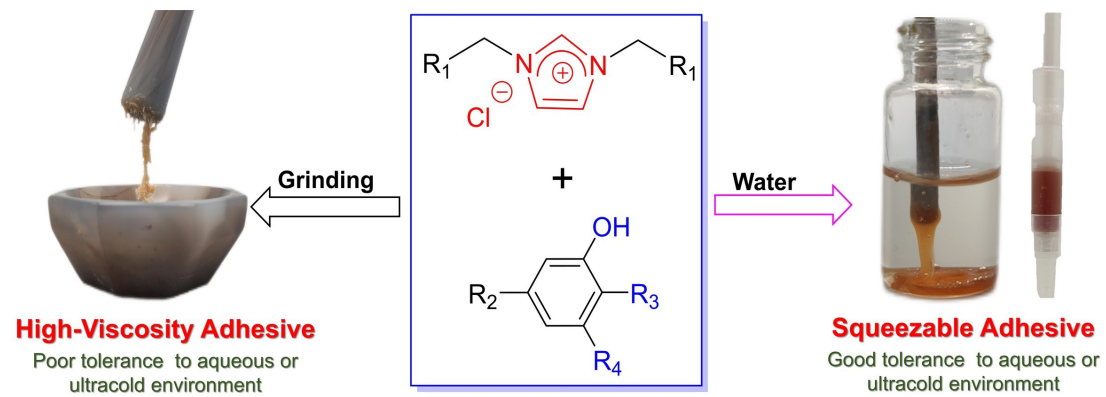
超分子粘合剂的极端环境耐受性扩展——水诱导非共价键作用平衡调控策略

超分子粘合剂因其具有可设计性强及界面粘合动态可逆等优势，已经引起了人们的广泛关注。然而，正是因为超分子粘合剂的非共价键作用平衡相比共价键作用更易受到外界影响，因此发展环境耐受性与粘合性能优良的超分子粘合剂必将面临诸多挑战。其中，决定超分子粘合剂应用性能的关键在于其是否能够适应不同的应用场景（如空气、水、酸、有机溶剂或液化气等）并实现多种基材的高效界面粘合，并从分子层面上明确超分子作用是如何影响超分子粘合剂的界面粘合性能。

在开展超分子凝胶中限域结晶研究的基础上，团队以小分子咪唑基离子液体和多酚类单宁酸为原料，采用水诱导非共价键作用平衡调控策略，借助研磨或水溶液沉淀法，发展了系列无水或含水组合超分子粘合剂。该类粘合剂具有广泛的界面适应性与环境适应性，可在不锈钢、铜、铝、铁、木头和玻璃等表面实现高效界面粘合，粘合强度高达 10.0 MPa。研究证实了水参与大大拓展了超分子粘合剂界面粘合的超低温耐受性与溶剂耐受性，使粘合剂的环境适应性更为广泛。

采用分子裁剪策略，通过 ^{1}H 核磁滴定和分子动力学模拟探究了粘合剂的界面粘合机理，明确了粘合机理和水参与前后体系的超分子作用变化规律。^{1}H 核磁滴定和分子动力学模拟揭示了阴阳离子的水合过程是影响分子间阳离子 – π 相互作用、溶剂 – 粘合剂作用、粘合剂 – 基质间相互作用的关键所在。在此基础上，进一步采用分子裁剪策略发展了离子液体与酚类组合制备粘合剂的通用策略。

该研究的重大意义在于：（1）发现了水参与改变了粘合剂–粘合剂、粘合剂 – 基质间的超分子作用，这是低温耐受性、溶剂耐受性的关键，并



从分子层面上揭示了水参与对超分子作用平衡的影响；（2）通过超分子组合策略发展了双组分超分子粘合剂制备的通用方法。这些发现为后续功能粘合剂的研制奠定基础。

第一作者：陕西师范大学硕士研究生关望
通讯作者：陕西师范大学刘凯强教授
全文链接：https://onlinelibrary.wiley.com/doi/abs/10.1002/anie.202303506

Supramolecular adhesives have attracted widespread attention due to their advantages, e.g. strong designability and dynamic reversibility of interfacial adhesion. However, it is precisely because the noncovalent interactions are more vulnerable to external influences than the covalent bond, developing supramolecular adhesives with excellent environmental tolerance is of great challenges. As is well-known, the key to determining the application performance of supramolecular adhesives for multiple substrates lies in their ability to adapt to various environments (e.g., air, water, acids, organic solvents, or liquefied gas, etc.) and clarifying at the molecular level how supramolecular interactions affect the interfacial adhesion performance of supramolecular adhesives.

On the basis of the research on spatially confined crystallization in supramolecular gels, we have developed a series of supramolecular adhesives derived from small molecule imidazole-based ionic liquids and polyphenolic tannins as raw materials by using the supramolecular balance regulation strategy. The resulting adhesives exhibit efficient interfacial adhesion performance under various conditions on various substrates with a bonding strength of up to 10.0 MPa. The results confirmed that the water participation extends the ultralow temperature resistance and solvent resistance of interfacial adhesion, also making the environmental adaptability of the adhesive more extensive.

Furthermore, the mechanism of the interfacial adhesion was explored through ^{1}H NMR titration and molecular dynamics simulation, and the differences in supramolecular interactions of the system before and after water participation were clarified. The analysis revealed that the hydration of anions and cations is the key factor affecting adhesive-adhesive interactions, solvent-adhesive interactions, and adhesive-substrate interactions, etc. On this basis, a universal strategy for preparing adhesives by combining ionic liquids with phenols was further developed.

The significance of this work lies in: (1) discovering that water participation changes the interactions between adhesive-adhesive, and adhesive-substrate, which is the key to low temperature tolerance and solvent tolerance of the adhesive, and revealing that water participates in balancing supramolecular interactions at the molecular level; (2) A general method for preparing two-component supramolecular adhesives has been developed through supramolecular combination strategy. All the findings lay the foundation for the subsequent development of functional adhesives.

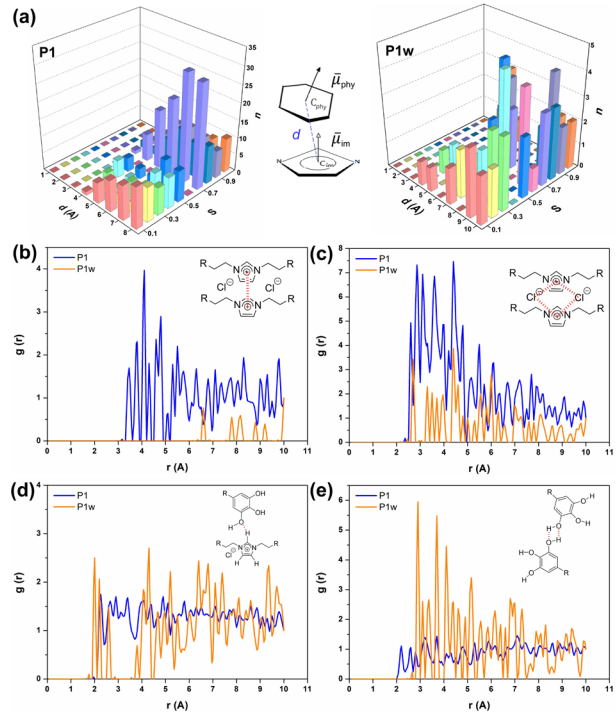


图 1. 分子动力学模拟：水参与的超分子作用平衡变化
Figure 1. Molecular dynamics simulation: Changes of balancing supramolecular interactions with the participation of water in the adhesive system

图 2. 粘合剂的界面适应性：实际应用
Figure 2. Interfacial adaptability: Cases for real applications

First Author: Guan Wang, master's candidate, Shaanxi Normal University
Corresponding author: Prof. Liu Kaiqian, Shaanxi Normal University
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陈正隆教授和刘晓刚教授应邀作报告

Prof. Cheng-Lung Chen and Prof. Liu Xiaogang invited to give reports

2023 年 4 月 25 日下午，光子鼻与分子材料团队邀请台湾中山大学陈正隆教授和新加坡科技与设计大学刘晓刚教授在致知楼 1668 报告厅为团队成员作报告。报告由丁立平教授主持，团队全体教师，博士、硕士研究生参加了本次报告会。

陈正隆教授的研究兴趣主要集中于分子模拟在化学、材料、生物、药物等领域的应用，在国际期刊发表学术论文百余篇，在计算方面具有独到见解，一直致力于推广计算模拟在工业领域中的应用。在题为《计算机模拟在材料中的应用》的报告中，陈正隆教授介绍了用分子动力学模拟研究导电凝胶自组装过程及其导电性能，研究了胆固醇 – 二茂铁 – 胺基酸胶凝剂在不同溶剂中的胶凝行为，利用模拟的系统轨迹，结合量子力学模型推断凝胶的导电性，并利用分子动力学模拟研究氧化石墨烯添加物与石腊的热传导行为，借助计算的权谱剖析氧化石墨烯增加导热的原因。

刘晓刚教授重点研究有机染料的结构与性能的关系，开发了应用广泛的高性能荧光产品，在国际期刊发表学术论文百余篇。在题为《荧光团的计算机辅助》的报告中，刘晓刚教授以提高荧光团的亮度，增强光稳定性和自发闪烁的超分辨率成像，以及免水洗生物成像的荧光特性为例，讨论了使用量子化学计算来帮助定量设计各种具有定制特性荧光染料，以克服传统染料化的试错法导致的成功率低、开发成本高、进展缓慢等问题。他以设计为中心，为将化学从试错法转变为分子工程提供了一条新的途径，加速了新型荧光团和探针的开发。

报告结束后，陈正隆教授、刘晓刚教授分别回答了在场师生的提问，并就相关问题进行了热烈的讨论。多位老师表示听了报告后受益匪浅，对计算模拟有了进一步的了解，并表示希望与两位老师开展合作研究。最后两位老师与团队参会老师合影留念。

On April 25, 2023, the Photonic Nose and Molecular Materials Group invited Prof. Cheng-Lung Chen of Sun Yat-sen University in Taiwan and Prof. Liu Xiaogang of Singapore University of Technology and Design to give presentations in the Lecture Hall No. 1668 of Zhizhi Building. The report was chaired by Prof. Ding Liping, and all the faculty, doctoral and master's students of the group attended the session.

Prof. Chen's main research interest is the application of molecular simulation in chemistry, materials, biology, medicine and other fields, and he has published more than 100 papers in international journals. With unique insights in computing, he has been committed to promoting the application of computational simulation in the industrial field. In the report titled "Application of

Computer Simulation in Materials", Prof. Chen introduced the self-assembly process and conductivity of conductive gels by molecular dynamics simulation. He studied the gelling behavior of cholesterol-ferrocene-amino acid gelling agent in different solvents, used the simulated system trajectory to infer the conductivity of the gel based on the quantum mechanical model, studied the heat conduction behavior of graphene oxide additives and paraffin using molecular dynamics simulation, and analyzed the reasons for the increase of heat conductivity of graphene oxide with the help of calculated weight spectrum.

Prof. Liu main research interest is the relationship between the structure and properties of organic dyes, and he has developed high-performance fluorescent products with a wide range of applications, and published more than 100 papers in international journals. In the report titled "Computer Aided Fluorophores", Prof. Liu discussed the use of quantum chemical calculation to help quantitatively design a variety of fluorescent dyes with customized properties to overcome the low success rate, high development cost, and slow progress caused by the trial and error method of traditional dyeing. His design-centric approach provides a new path for moving chemistry from trial and error to molecular engineering, accelerating the development of novel fluorophores and probes.

After the reports, Prof. Chen and Prof. Liu answered the questions from the teachers and students present and they had a lively discussion on related issues. Several teachers said that they benefited a lot after listening to the reports, gained a better understanding of computational simulation, and expressed their hope to cooperate with the two professors in future research. Finally, the two professors took a group photo with Prof. Fang Yu and other teachers.

房喻院士访问西安和其光电科技公司

Fang Yu visits Xi'an Optsensor Technology Company

2023 年 4 月 28 日上午，房喻院士应邀赴西安和其光电科技股份有限公司访问考察，并与公司董事长张文松、首席科学家方强教授、副总经理路小青等会面座谈。丁立平教授、刘太宏副教授陪同房喻院士参观考察。

张文松董事长对房喻院士一行表示欢迎，并介绍了公司技术产品、发展现状、产业布局和远景规划等，随后带领房喻院士一行参观了公司生产线。

在座谈会上，房喻院士与和其光电技术研发团队、方强教授等就双方关心的问题进行了交流。双方均表示愿意加强沟通，寻求技术合作，共同促进荧光薄膜 / 光纤传感器技术进步和发展。

和其光电成立于 2011 年，是由中科院西安光机所孵化的高科技公司，从事光纤传感测量等高端仪器设备的研发、生产、销售、应用与技术服务。

On April 28, 2023, Prof. Fang Yu was invited to visit Xi'an Optsensor Technology Co., Ltd., and met with the company's chairman Zhang Wensong, chief scientist Prof. Fang Qiang, and deputy general manager Lu Xiaoqing. Prof. Ding Liping and Assoc. Prof. Liu Taihong accompanied Fang Yu during the visit.

Zhang Wensong welcomed Fang Yu and his colleagues, briefed about Optsensor 's products, development status, industrial layout and long-term planning, and led the guests to visit the company's production line.

At the meeting, Fang Yu exchanged views with Optsensor’s research and development team and Prof. Fang Qiang on issues of interest to both sides. Both sides expressed their willingness to strengthen communication and seek cooperation, so as to promote the progress and development of fluorescent film/optical fiber sensor technology.

Founded in 2011, Optsensor, a high-tech company incubated by Xi'an Optics and Machinery Institute of the Chinese Academy of Sciences, is engaged in the research and development, production, sales, application and technical service of high-end instruments and equipment such as optical fiber sensing and measurement.