



陕西师范大学
SHAANXI NORMAL UNIVERSITY



化学化工学院
School of Chemistry & Chemical Engineering



新概念传感器与分子材料研究院
INSTITUTE OF NEW CONCEPT SENSORS AND MOLECULAR MATERIALS

新概念传感器与分子材料研究院 简报 10 2024

Institute of New Concept Sensors and Molecular Materials Newsletter



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研究院举行 2023 级硕士研究生开题汇报

Class of 2026 Master's Proposal Presentation Sessions Held

2024 年 9 月 26 日及 10 月 9 日，新概念传感器与分子材料研究院 2023 级硕士研究生开题汇报分别在研究院报告厅和致知楼会议室举行。

参加本次开题汇报的硕士研究生共 43 人，分为四组进行开题汇报，分别由丁立平教授、刘静教授、刘凯强教授、马佳妮教授担任组长，研究院其他教师担任评委。硕士研究生们回

答了评委老师提出的问题，评委老师针对研究生的课题工作进行了探讨和指导。

On September 26 and October 9, 2024, the proposal presentation sessions of Class 2026 master's students of the Institute of New Concept Sensors and Molecular Materials were held in the lecture hall of the Institute and the conference room of Zhizhi Building,

respectively.

A total of 43 master's students presented their graduation thesis proposals. They were divided into four groups moderated by Professors Ding Liping, Liu Jing, Liu Kaiqiang and Ma Jiani respectively, and other teachers of the Institute acted as the judges. The graduate students answered the questions raised by the judges, who discussed and guided the graduate students' project work.



彭浩南教授参观访问深圳晶泰科技有限公司

Peng Haonan visits Shenzhen XtalPi Technology

2024 年 10 月 10 日，新概念传感器与分子材料研究院彭浩南教授应邀参观访问了国内知名人工智能上市公司——深圳晶泰科技有限公司，了解该公司的技术研发成果，以期推动人工智能在教育与科研领域的融合，探讨双方未来的合作机会。

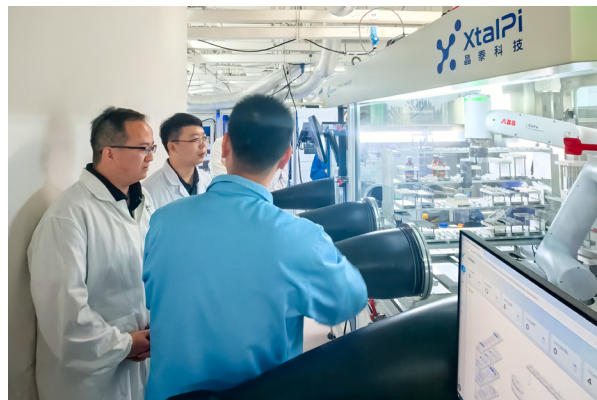
晶泰科技是一家以人工智能（AI）和机器人驱动的创新研发平台上市公司。2015 年由三位 MIT 的博士后物理学家创立，致力于实现生命科学和新材料领域的数字化和智能化革新。公司基于量子物理、人工智能、云计算及大规模实验机器人集群等前沿技术

与能力，为全球生物医药、化工、新能源、新材料等产业提供创新研发技术、服务及产品。

On October 10, 2024, Prof. Peng Haonan of the Institute of New Concept Sensors and Molecular Materials visited Shenzhen XtalPi Technology Co., Ltd.,

a well-known listed company of artificial intelligence in China, to understand the company's technological research and development results, in order to promote the integration of artificial intelligence in the field of education and scientific research, and to explore future cooperation opportunities between the two sides.

XtalPi is an innovative research platform company powered by artificial intelligence (AI) and robotics established in 2015 by three MIT postdoctoral physicists. Dedicated to driving intelligent and digital transformation in the life sciences and materials sciences sectors, XtalPi combines quantum physics, AI, cloud computing, and large-scale robotics to provide R&D solutions, services, and products for pharmaceuticals, biotechnology, renewable energy, and advanced materials industries globally.



薄鑫参加 2024 先进能源材料与化学学术研讨会并作报告

Bo Xin presents at 2024 Symposium on Advanced Energy Materials and Chemistry



2024年10月11至13日，薄鑫副研究员参加了在延安举行的“2024 先进能源材料与化学学术研讨会”，并作了题为“凝胶限域宏量制备非均相析氢催化剂”的学术报告。本次研讨会由延安大学、北京化工大学主办。

From 11 to 13 October 2024, Assoc. Prof. Bo Xin attended the “2024 Symposium on Advanced Energy Materials and Chemistry” in Yan'an and presented a report titled “Gel-limited Macro-preparation of Non-homogeneous Hydrogen Catalysts”. The symposium was hosted by Yan'an University and Beijing University of Chemical Technology.

彭浩南教授获聘 Colloids and Surfaces A 期刊编委

Peng Haonan appointed Editorial Board Member of Colloids and Surfaces A

近日，新概念传感器与分子材料研究院彭浩南教授获聘爱思唯尔旗下期刊 Colloids and Surfaces A: Physicochemical and Engineering Aspects 编委。

该期刊发表胶体和界面现象的原理及其应用方面的高质量论文，特别是介绍新材料或胶体和界面科学在食品、能源、矿物加工、制药或环境等领域的新见解。

Recently, Prof. Peng Haonan of the Institute of New Concept Sensors and Molecular Materials was appointed as an editorial board member of Elsevier's journal Colloids and Surfaces A: Physicochemical and Engineering Aspects.

The journal publishes high-quality papers on the principles of colloid and interface phenomena and their applications, in particular introducing new materials or new insights from

colloid and interface science in areas such as food, energy, mineral processing, pharmaceuticals or the environment.



房喻院士担任香山科学会议第 755 次学术讨论会执行主席并作报告

Fang Yu speaks at 755th Symposium of Xiangshan Science Conference as executive chairman

2024 年 10 月 14 至 15 日，房喻院士在北京香山饭店作为四位会议执行主席之一出席香山科学会议第 755 次学术讨论会，并作题为“创新驱动发展需要更加重视长周期基础研究”的会议中心议题评述报告。



此次会议的主题为分

子聚集发光，会议中心议题为分子聚集发光理论机制的阐述、分子聚集发光材料设计和制备及分子聚集发光材料体系的应用。

香山科学会议是由国家科学技术部于 1992 年倡导发起，在科技部和中国科学院的共同领导和支持下于 1993 年 4 月正式创办，我国科技界以探索科学前沿、促进知识创新为主要目标的高层次、跨学科、小规模、常设性学术会议。会议实行执行主席负责制，以评述报告、专题报告和深入讨论为

基本方式，探讨科学前沿与未来。

From October 14 to 15, 2024, Prof. Fang Yu attended the 755th Symposium of Xiangshan Science Conference as one of the four executive chairmen at the Xiangshan Hotel in Beijing and delivered a conference central topic review report titled “Innovation-driven Development Needs to Pay More Attention to Long-term Basic Research”.

The theme of the conference is molecular aggregation luminescence, and the central topics of the conference are the explanation of the theoretical mechanism

of molecular aggregation luminescence, the design and preparation of molecular aggregation luminescence materials and the application of molecular aggregation luminescence material system.

The Xiangshan Science Conference was initiated by the Ministry of Science

and Technology in 1992 and officially established in April 1993 under the joint leadership and support of the Ministry of Science and Technology and the Chinese Academy of Sciences. It is a high-level, interdisciplinary and small-scale standing academic conference in China's scientific and technological circles with the main goal of exploring the frontiers of science and promoting knowledge innovation. The meeting adopts the executive chairman responsibility system, and explores the frontiers and future of science in the ways of review reports, thematic reports and in-depth discussions.

房喻院士应邀为中共陕西省委办公厅授课

Fang Yu presents a lecture for officials of CPC Shaanxi Committee

2024 年 10 月 17 日下午，房喻院士应邀做客中共陕西省委办公厅“学习讲堂”，为省委办公厅班子成员和全体干部以及省委政策研究室、省委直属机关工作委员会、省委党史研究室部分同志近两百人授课，授课主题为“从基础研究的重要性看强国建设”。

On October 17 2024, Prof. Fang Yu was invited to the “Learning Lectures” of the General Office of the CPC Shaanxi Provincial Committee to give a lecture to nearly 200 members and officials of the

General Office of the Shaanxi Provincial Party Committee, as well as officials of the Policy Research Office, the Working Committee of the directly affiliated Organs, and the Research Office of Party History of the Provincial Party Committee, and the theme of the lecture was “On the Construction of a Strong Country from the Importance of Basic Research”.



研究院举行胡尧威、彭浩南专题汇报会

Hu Yaowei and Peng Haonan present reports

2024年10月18日下午，新概念传感器与分子材料研究院在报告厅举行胡尧威、彭浩南专题汇报会，研究院科研团队教师、专职科研人员、行政人员及研究生等30余人参加了汇报会，会议由副院长丁立平教授主持。

胡尧威老师以《从分子尺度到单晶纳米粒子的动力学过程》为题，介绍了自己在相关方面的研究情况。

彭浩南教授以《AI+X... (教育与科研) 的学习分享》，分享了他的人工智能赋能教育、科研等方面进行的探索和思考。

房喻院士发表总结讲话，对两个报告作了点



评，号召大家要跟上科技的发展，善于使用最新的AI工具，做出更好的工作。

On October 18, 2024, the Institute of New Concept Sensors and Molecular Materials held report sessions of Dr. Hu Yaowei and Prof. Peng Haonan in the lecture hall. About 30 research faculty members, full-time research assistants, administrative staff members and postgraduate students of the Institute attended the meeting, which was chaired by vice dean Prof. Ding Liping.

Hu Yaowei introduced his research under the title of “Kinetic Processes from Molecular Scale to Single Crystal Nanoparticles”.

With “Sharing My Learning in AI+X... (Education and Research)”, Peng Haonan shared his exploration and thinking in artificial intelligence empowering education, research and other aspects.

In his concluding speech, Prof. Fang Yu commented on the two reports, and called on everyone to keep up with the development of science and technology, be good at using the latest AI tools, so as to do better work.

彭浩南教授出席教授接待日活动并作讲座

Peng Haonan presents a lecture at Professor Reception Day

2024年10月22日晚，彭浩南教授出席化学化工学院举办的“教授接待日”活动，为化学笃学班2301全体同学作题为“AI+X (教育与科研) 的一点感悟”的讲座。

彭浩南教授介绍了人工智能的发展及其在教育、科研、传媒等诸多领域的交叉应用，以及新概念传感器与分子材料研究院未来对人工智能交叉学科的规划，并与同学们进行了互动交流。

本次活动由项目主任马佳妮教授主持，班主任薄鑫副研究员出席。

In the evening of 22 October 2024, Prof. Peng Haonan attended the “Professor

Reception Day” organized by the School of Chemistry and Chemical Engineering, and presented a lecture titled “Thoughts on AI+X (Education and Research)” to all students of Chemistry Duxue Class 2301.

Peng Haonan introduced the development of AI and its cross-applications in fields such as education, research and media, as well as the future plans of the Institute of New Concept Sensors and Molecular Materials for AI-empowered interdisciplinary research, and answered questions

raised by the students.

The event was moderated by the Program Director, Prof. Ma Jiani, and attended by Class Advisor Dr. Bo Xin.



房喻院士、彭浩南教授参加第三届催化与表界面化学青年学者学术研讨会

Fang Yu and Peng Haonan attend 3rd Symposium of Young Scholars in Catalysis and Surface/Interface Chemistry

2024年10月25至26日，房喻院士作为特邀嘉宾和彭浩南教授赴武汉参加了第三届催化与表界面化学青年学者学术研讨会。

本次会议由国家自然科学基金委员会化学科学部主办、武汉大学承办，旨在聚焦催化与表界面化学领域的前沿科学问题，为青年学者搭建学术交

流平台，研讨学科发展战略。

From October 25 to 26, 2024, Prof. Fang Yu, as an invited guest, and Prof. Peng Haonan attended the Third Symposium of Young Scholars in Catalysis and Surface/Interface Chemistry held in Wuhan.

The symposium, sponsored by the Chemical Science Department of National

Natural Science Foundation of China and hosted by Wuhan University, focuses on the cutting-edge scientific issues in the field of catalysis and surface/interface chemistry, builds an academic exchange platform for young scholars, and discusses the development strategy of the discipline.

彭浩南教授出席第二届智能科学家生态联盟大会

Peng Haonan attends 2nd Session Meeting of the Alliance of AI Scientist Ecosystem

2024年10月27至28日，“第二届智能科学家生态联盟大会暨智能科学家论坛”在合肥举行，新概念传感器与分子材料研究院彭浩南教授应邀出席大会。

陕西师范大学科技处处长、化学化工学院院长薛东教授代表陕西师范大学登台接受联盟授牌，标志着学校正式加入这一创新平台。

此次大会由中国科学技术大学主办，以“构筑人工智能科学家基础设施，点燃范式革命之火”为主题，核心议题围绕构建人工智能科学家生态系统，重点推进科研机器人指令集、实验模板库及科研智能体框架的共享，为科研领域带来深度的智能化，以期推动人工智能科学的跨领域合作与技术创新。

From October 27 to 28, 2024, Prof. Peng Haonan of the Institute of New Concept Sensors and Molecular Materials attended the Second Session Meeting of the Alliance of AI Scientist Ecosystem and AI Scientist Forum held in Hefei.

Prof. Xue Dong, director of Science and Technology Department of Shaanxi Normal University and dean of the School of Chemistry and Chemical Engineering, took the stage to accept the plaque of the Alliance on behalf of Shaanxi Normal University, marking the school's official participation in this innovation platform.

The meeting, hosted by the University of Science and Technology of China, is themed “Building the infrastructure of artificial intelligence for scientists, igniting the fire of paradigm revolution”. The core topics of the meeting centers on building an ecosystem of artificial intelligence for scientists, focusing on



promoting the sharing of the instruction set for research robots, experiment template library and research agent framework, and bringing deep intelligence to the research field, so as to promote the cross-field cooperation and technological innovation of artificial intelligence science.

房喻院士出席 2024 年度化学测量学战略研讨会并作报告

Fang Yu speaks at 2024 Strategic Seminar on Chemometrics

2024 年 10 月 27 至 29 日，房喻院士赴北京出席 2024 年度化学测量学战略研讨会，并作了题为《化学测量学需要更加关注 CBRN 传感器研究》的大会特邀报告。

此次会议由国家自然科学基金委员会化学科学部主办、北京师范大学承办，旨在梳理化学测量学学科的现状、机遇和挑战，提出亟需关注的科学问题，研判未来发展路径，通过前瞻性的资金资助布局加速领军人才培养。

From October 27 to 29, 2024, Prof. Fang Yu attended the 2024 Strategic Seminar on Chemometric and presented an invited report titled “Chemometrics needs to pay more attention to CBRN sensor research”.

The conference, sponsored by the Chemical Science Department of the National Natural Science Foundation of China and hosted by Beijing Normal University, aims to sort out the current situation, opportunities and challenges of the discipline of chemometrics, put forward urgent scientific



problems, evaluate the future development path, and accelerate the training of leading talents through forward-looking funding layout.

房喻院士“‘陕’耀光芒在陕两院院士”专题片播出

Fang Yu featured in video commending “Shining Academicians in Shaanxi”

2024 年 10 月 30 日，由陕西省科协出品的“陕”耀光芒在陕两院院士专题片第二季之《“铸造”国安利器 践行教育使命——中国科学院院士房喻》在陕西广播电视台都市青春频道（陕西二套）播出，同时在陕西省科协公众号发布。

专题片片长 15 分钟，通过“少年笃志求学路”“潜心科研报国志”“学高身正为师范”“躬身科普著新篇”四个章节讲述房喻院士潜心四十载，以学术为生命，以教育为使命，用“中国制造”打破技术垄断的辉煌科研之路。

专题片特别记录了房喻带领团队克服重重困难，成功首创叠层式薄膜传感器结构，研制出了真正属于中国人自主制造的隐藏爆炸物荧光气相探测技术和装备，体现了他潜心科研，勇攀科技高峰的精神。

另外，专题片通过讲述房喻在大学任教和担任校长期间的经历，突出

了他在教育领域的贡献。专题片通过富有质感的视觉画面和真实鲜活的故事，全方位表现人物立体形象，弘扬科学家精神。

On 30 October 2024, the video featuring Academician of the Chinese Academy of Sciences Prof. Fang Yu, titled “Building tools for national security, Practicing mission of education”, was broadcasted on Shaanxi Radio and Television Urban Youth Channel (Shaanxi Channel 2), and released on the SAST WeChat public platform, as one of the second season of the video series “Shining Academicians in Shaanxi”, which is produced by Shaanxi Association for Science and Technology.

The 15-minute feature video, through the four chapters of ‘Young man’s determination to study’, ‘Dedication to research to serve the country’, ‘Example of teacher with learning and integrity’, and ‘Dedication to science popularization’, tells the story of Fang Yu’s forty years

of dedication to academic pursuit and education as his mission, using ‘Made in China’ technologies to break the monopoly of Western countries.

The video particularly records the story that Fang Yu led his team to overcome the difficulties, successfully pioneered the laminated film sensor structure, developed a truly Chinese independently manufactured hidden explosives fluorescent gas detection technology and equipment, reflecting his dedication to scientific research, and the courage to climb the peak of science and technology.

In addition, the video highlights Fang Yu’s contribution in the field of education by telling his experiences during his teaching and serving as the president of the Shaanxi Normal University. Through textured visual images and vivid stories, the video presents a multi-dimensional image of the character and promotes the spirit of scientists.

“陕”耀光芒

“铸造”国安利器者 践行教育使命
——中国科学院院士房喻

10月30日，由陕西省科协出品的“陕”耀光芒在陕两院院士专题片第二季之《“铸造”国安利器 践行教育使命——中国科学院院士房喻》在陕西广播电视台都市青春频道（陕西二套）播出。

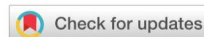


房喻出生于1956年，2021年当选中国科学院院士，主要从事薄膜荧光传感器和分子凝胶研究。他提出了用于敏感薄膜创新制备的单分子层化学策略、分子凝胶策略和组合设计思想；发明了“叠层式”传感器结构，研制了爆炸物、毒品薄膜荧光传感器和探测装备；融合分子凝胶理论解决了凝胶推进剂雾化困难和高能量密度材料长期悬浮稳定化等关键问题，为国防建设作出了重大贡献。



From the journal:
Sensors & Diagnostics

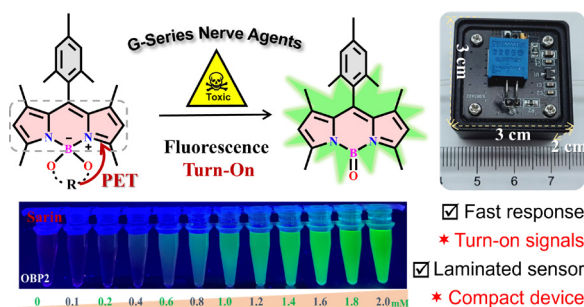
Compact device prototype for turn-on fluorescence detection of sarin based on reactive 4,4-diaryloxy-BODIPY derivatives †



Lu Liu,^{† a} Sheng Li,^{† a} Wendan Luo,^a Jiashuang Yao,^a Taihong Liu,^{† a} Molin Qin,^{* b} Zhiyan Huang,^{* a} Liping Ding,^{† a} and Yu Fang,^{† a}

沙林毒剂及其模拟物检测用便携式传感样机研制

Compact device prototype for turn-on fluorescence detection of sarin based on reactive 4,4-diaryloxy-BODIPY derivatives. Lu Liu#, Sheng Li#, Wendan Luo, Jiashuang Yao, Taihong Liu*, Molin Qin*, Zhiyan Huang*, Liping Ding, and Yu Fang. *Sens. Diagn.* 2024, 3, 1651-1658. Doi: 10.1039/D4SD00228H.



神经性毒剂具有高毒性和毁灭性效应，可对国家安全和公众健康构成严重威胁，被禁止化学武器组织（OPCW）列为附表化合物。开发原位实时、高效实用的神经性毒剂分析技术和便携式检测装备对于毒剂侦测和应急处置指导具有重要意义。客观地讲，不管采用何种技术策略，神经性毒剂侦测均离不开传感器基础，技术上必然立足于传感器准确可靠“感知”目标分析物的能力和水平。根据国家标准 GB/T 7665-2005《传感器通用术语》，传感器为能感受被测量并按照一定的规律转换成可用输出信号的器件或装置，通常由敏感元件和转换元件组成。换句话说，传感器是能够探知环境或系统中某种物理性质、化学组成或组分含量的装置或器件，兼具微型化、数字化、智能化、多功

能化、系统化或网络化等特点。基于新概念传感器与分子材料研究院多年的研究基础，薄膜基荧光传感器（FFSs）作为一种使用荧光敏感薄膜作为关键信号组件的小型分析装置，能够满足原位和实时检测的要求，越来越受到关注并发展成为继离子迁移谱之后的新一代超灵敏便携式分析技术。

该研究工作设计合成了两种 4,4-二氧基修饰 BODIPY 衍生物 OBPI 和 OBP2，系统评估了该类衍生物对神经毒剂及其模拟物的传感性能。在乙腈溶剂中，两种衍生物可以与神经毒剂模拟物氯磷酸二乙酯（DCP）迅速反应，反应过程伴随着化合物主峰吸光度的降低和荧光强度的增加，化合物溶液颜色在紫外灯下由无色转变为亮绿色，呈现明显的“Turn-on”型响应，且具有大的摩尔消光系数。该类衍生



物对神经毒剂及其模拟物表现出优异的传感性能，计算可得 OBPI 和 OBP2 对 DCP 的检出限分别低至 1.32×10^{-8} mol/L 和 8.21×10^{-9} mol/L。

为实现便携式传感测试，该工作自主搭建了由控制系统、传感单元、

数据处理系统组成的便携式传感器和传感平台, 实现了原位、快速、实时地测试神经毒剂及其模拟物, 对真实样品沙林的检出限低至 2.04×10^{-5} mol/L。该研究工作和传感策略对有机小分子荧光探针的设计和神经毒剂的选择性检测具有一定的指导意义和借鉴价值。

此工作为 *Sensors & Diagnostics* 杂志主编邀请稿件, 文章用图被选为杂志当期封面文章。

共同第一作者: 陕西师范大学硕士研究生刘璐、李胜
通讯作者: 陕西师范大学刘太宏副教授、军事科学院防化研究院秦墨林博士和陕西师范大学黄治炎副教授
全文链接: <https://doi.org/10.1039/d4sd00228h>

Nerve agents, listed as lethal weapons of mass destruction due to their extreme toxicity and devastating effects by OPCW, can pose a serious threat to the global security and public health. Therefore, developing in-situ, real-time, efficient, and practical analysis technologies and portable devices is of great strategic significance for detecting chemical warfare agents and guiding emergency response. Of course, all related progresses should be based on the efficient sensor technologies. It is worth noting that some literatures generalized the concept of sensors, and even refer to a molecule with sensing or analytical functions as a sensor. In principle, a sensor should be a device usually composed of sensitive components and conversion components, can sense and convert the specific measured signal into usable output signal according to a certain pattern. Thanks to satisfying in-situ and real-time detection, fluorescent film sensors have attracted increasing attention and evolved into a new generation of super-sensitive portable analytical technique after ion mobility spectroscopy (IMS). Based on the research progresses of our group, this article provides an research example on fluorescent film sensors (FFSs) specially for detecting nerve agents.

Development of fluorescence indicators for efficient and accurate detection of lethal nerve agents has evoked extensive interest recently. Herein, we presented two spiranic 4,4-diaryloxy-BODIPY derivatives for efficient and fluorescence turn-on detection of sarin in solution media. A colorimetric mode featured the merits of obvious color changes from dark to greenish fluorescence under UV light. The generated new fluorescence emissions reached their maxima within several minutes and the peaks were assigned to the generated by-product oxo-BDP with a fluorescence quantum yield (Φ) \sim 20% in acetonitrile. The detection

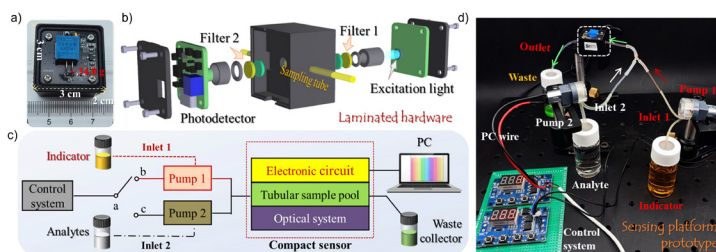


图 1. 叠层管式荧光传感器实物图 (a) 与结构示意图 (b); 由控制系统、传感单元、数据处理系统组成的原型传感平台的结构示意图 (c) 及真实传感测试场景图 (d)。
Figure 1. Photograph (a) and exploded view (b) of the laminated tubular sensor. Schematic representation (c) and picture (d) of the home-made sensing platform.

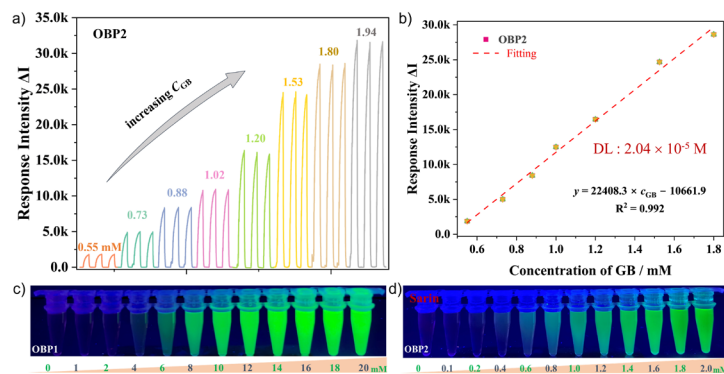


图 2. (a) 衍生物 OBP2 对不同浓度沙林 GB 的响应测试; (b) 衍生物 OBP2 响应强度与沙林 GB 浓度的线性关系; 衍生物 OBP1 (c) 和 OBP2 (d) 对不同浓度沙林 GB 的荧光可视化测试结果。
Figure 2. (a) Response traces of OBP2 in ACN to different concentrations of GB conducted by the home-made compact device prototype. (b) Response plot and linear fitting of OBP2 to different concentrations of GB. Fluorescence color changes of compound OBP1 (c) and OBP2 (d) to sarin (GB).

limits of two 4,4-diaryloxy-BODIPYs for a simulant diethylchlorophosphate (DCP) were determined to be 13.2 nM and 8.2 nM, respectively. The underlying sensing mechanism was clarified as the synergistic effect of 4,4-bond cleaving and fluorescence turn-on related to the photoinduced electron transfer process.

Furthermore, a compact tubular sensor and a sensing platform prototype were fabricated properly. Superior detection results and further evaluation for real samples and simulants could be conducted at the sub-mM level on-site. Successful

trials aid in understanding the structure–function relationship of 4,4-disubstituted BODIPY chromophores as well as the future development of a miniaturized device prototype for on-site detection of chemical warfare agents.

This work has been published in the *Journal of Sensors & Diagnostics* as an invited paper from the editor-in-chief, and the abstract figure selected as the feature cover for the current issue.

First Authors: Liu Lu and Li Sheng, Master's candidates, Shaanxi Normal University
Correspondence Authors: Assoc. Prof. Liu Taihong, Shaanxi Normal University; Dr. Qin Molin, State Key Laboratory of NBC Protection for Civilian; Assoc. Prof. Huang Zhiyan, Shaanxi Normal University

Full Text Link: <https://doi.org/10.1039/d4sd00228h>

西安交通大学孟庆之博士应邀作报告

Dr. Meng Qingzhi from Xi'an Jiaotong University invited to give a report

2024年10月8日上午，西安交通大学孟庆之博士受邀访问新概念传感器与分子材料研究院，并作题为 High Sensitive Micro-sized Terahertz Detector 的学术报告。

孟庆之博士介绍了太赫兹技术及其发展现状，以及其团队在太赫兹探测器、太赫兹薄膜检测技术等领域的研究工作。

报告会由彭浩南教授主持，房喻院士以及研究院部分教师及研究生参加了此次报告会，并与孟庆之博士围绕太赫兹技术的挑战以及相关材料需求等方面进行了讨论。

On October 8, 2024, Dr. Meng Qingzhi from Xi'an Jiaotong University was invited to visit the Institute of New Concept Sensors and Molecular Materials and give a report titled "High Sensitive Micro-sized Terahertz Detector."

Dr. Meng introduced the terahertz technology and its development status, as well as the research work carried out by his team in the fields of terahertz detector and terahertz film detection technology.



The report session was hosted by Prof. Peng Haonan. Prof. Fang Yu and faculty members and graduate students of the Institute attended the session, and discussed the challenges of terahertz technology and related material requirements with Dr. Meng.

田家炳基金会田庆先主席一行来访

Tin Ka Ping Foundation visitors received

2024年10月12日，田家炳基金会董事局主席田庆先先生和副总干事萧开廷先生到访新概念传感器与分子材料研究院，看望房喻院士，并叙旧座谈。

房喻院士还接受了田家炳基金会的采访，讲述了第一次见到田家炳老先生的印象、和田老交往中最记忆犹新的事情及田老对我国教育的贡献等。

陕西师范大学教育基金会杨高环副秘书长陪同来访。

On October 12, 2024, Mr. Tin Hing Sin, chairman of the Board of Directors of Tin Ka Ping Foundation, and deputy chief executive director Mr. Siu Hoi Ting, visited the Institute of New Concept Sensors and Molecular Materials and met and talked with Prof. Fang Yu.

Fang Yu also accepted an interview by the Foundation, and spoke about the impression of the first time he met Mr. Tin Ka Ping, the most memorable things in the communication with him, and Mr. Tin's contribution to China's education.

Yang Gaogan, deputy secretary-general of Shaanxi Normal University Education Foundation, accompanied the visit.



高雄厚院士和王育华教授应邀作报告

Academician Gao Xionghou and Prof. Wang Yuhua invited to give reports



2024年10月12日下午,作为“陕西师范大学建校80周年系列活动”和“庆祝陕西师范大学化学学科建立80周年系列学术报告”的一部分,中国工程院院士、中国石油兰州石化公司首席专家高雄厚教授和兰州大学王育华教授应邀在新概念传感器与分子材料研究院一层报告厅作学术报告。

高雄厚院士作了题为“我国石油化工技术发展趋势与新进展”的学术报告,报告主要介绍了石油化工技术的重要性、多项石油化工技术新进展及对石油化工高质量发展的思考。

王育华教授作了题为“照明及显示用发光材料的设计与性能调控”的学术报告,报告提到的Micro-LED引起到场师生的广泛兴趣。

报告会由化学化工系统院长薛东教授主持,研究院科研团队教师及研究生等40余人参会。

On the afternoon of October 12, 2024, as part of the “Series of Activities for the 80th Anniversary of Shaanxi Normal University” and the “Series of Reports Celebrating the 80th Anniversary of the Establishment of Chemistry Discipline of Shaanxi Normal University”, Prof. Gao Xionghou, academician of the Chinese Academy of Engineering and chief expert of PetroChina Lanzhou Petrochemical Company and Prof. Wang Yuhua of Lanzhou University were invited to visit the Institute of New Concept Sensors and Molecular Materials and gave reports in the lecture hall.

In his report titled “Development

Trend and New progress of Petrochemical Technology in China”, Gao Xionghou introduced the importance of petrochemical technology, new advances in petrochemical technology and his thoughts on the high-quality development of petrochemical technology.

In Wang Yuhua’s report titled “Design and Performance Control of Light-emitting Materials for Lighting and Display”, the Micro-LED mentioned in the report attracted wide interest from teachers and students present.

The session was hosted by School of Chemistry and Chemical Engineering dean Prof. Xue Dong and attended by more than 40 research faculty and graduate students.

李灿院士和黄胜雄研究员应邀作报告

Academician Li Can and Researcher Huang Shengxiong invited to give reports

2024年10月13日下午,作为“庆祝陕西师范大学化学学科建立80周年系列学术报告”的一部分,中国科学院院士、中国科学院大连化学物理研究所李灿教授和昆明植物研究所黄胜雄研究员应邀在新概念传感器与分子材料研究院一层报告厅作学术报告。

李灿院士作了题为“人工光合成

的机遇和挑战:科学与技术”的报告,阐述了人工光合成的基本原理、研究进展以及可能面临的科学与技术挑战。

黄胜雄研究员作了题为“植物天然药物生物合成 vs 化学合成及应用”的学术报告,分享了他在天然药物领域的研究成果与见解。

报告会由陕西师范大学前党委书

记程光旭教授和化学化工学院副院长刘成辉教授主持,研究院科研团队教师及研究生等40余人参会。

On the afternoon of October 13, 2024, as part of the “Series of Activities for the 80th Anniversary of Shaanxi Normal University” and the “Series of Reports Celebrating the 80th



Anniversary of the Establishment of Chemistry Discipline of Shaanxi Normal University”, Prof. Li Can, academican of the Chinese Academy of Sciences, of CAS Dalian Institute of Chemical Physics and Researcher Huang Shengxiong of Kunming Institute of Botany were invited to visit the Institute of New Concept Sensors and Molecular Materials and gave reports in the lecture hall.

In his report titled “Opportunities and Challenges of Artificial Light Synthesis: Science and Technology”, Li Can elaborated the basic principles of artificial light synthesis, research progress and possible scientific and technical challenges.

In his report titled “Biosynthesis vs Chemical Synthesis and Application of Plant Natural Medicine”, Huang



Shengxiong shared his research results and insights in the field of natural medicine.

The sessions were hosted by Prof. Cheng Guangxu, former Party secretary of Shaanxi Normal University and SCCE vice dean Prof. Liu Chenghui, and attended by more than 40 research faculty and graduate students.

北京理工大学张学强副研究员应邀作报告

Beijing Institute of Technology's Zhang Xueqiang invited to give a report

2024年10月14日下午,北京理工大学前沿交叉科学研究院张学强副研究员应邀访问新概念传感器与分子材料研究院,并作题为“高比能、长循环锂电池负极/电解液界面稳定机制”的学术报告。

张学强副研究员通过引入负极/电解液界面的共性问题介绍了四个研究工作:设计锂离子溶剂化层结构来原位构建氟化表面、增强SEI的机械稳定性、改善锂离子的溶剂化结构以调控界面反应活性、晶界微区掺杂金属锂改善电极表面微观结构从而优化性能。

报告会由边红涛教授主持,大型仪器中心郭新爱老师以及研究院部分研究生参加了此次报告会,并与张学强副研究员围绕二次电池中电极/电解液界面电化学过程及调控策略展开了讨论。

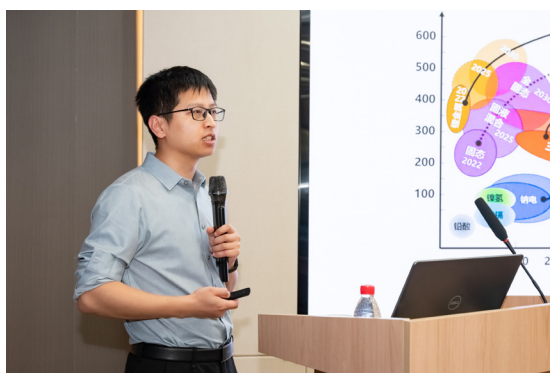
On October 14, 2024, Zhang

Xueqiang, Associate Researcher of the Institute of Frontier and Cross Science of Beijing Institute of Technology, was invited to visit the Institute of New Concept Sensors and Molecular Materials and gave a report titled “Stability Mechanism of Negative Electrode/electrolyte Interface of High Specific energy and Long Cycle Lithium Batteries”.

Zhang Xueqiang introduced four research works by introducing the common problems of the negative electrode/electrolyte interface: designing the lithium-ion solvation layer structure to construct the fluorinated surface in situ, enhancing the mechanical stability of SEI, improving the solvation structure of lithium-ion batteries to regulate the interface

reactivity, and doping lithium metal in the grain boundary micro-region to improve the electrode surface microstructure and optimize the performance.

The session was hosted by Prof. Bian Hongtao, and attended by Ms Guo Xin'ai from the Center of Large Instruments and graduate students from the Institute, who discussed with Zhang Xueqiang about the electrochemical process and control strategy of electrode/electrolyte interface in secondary batteries.



陕师大附小教育集团秦汉四校师生来院参观研学

SNNU Primary Education Group Qinhan No. 4 School teachers and students received for science popularization tour

2024年10月15日下午，陕师大附小教育集团秦汉第四学校组织初中部全体80余名师生参加“八十芳华梧桐有约”研学活动，来到新概念传感器与分子材料研究院，进行科普参观研学，感受科技魅力，领略科学风采。

张荷兰高级工程师为师生们作了题为《基于马兰戈尼效应的多孔材料制备策略》的科普讲座，通过“牛奶彩虹”和“水泡的自愈合”等进行了生动的演示，解释了背后的原理，引起了在场学生的极大兴趣。

刘太宏副教授带领同学们参观了研究院成果展厅，讲解了房喻院士团队研发的爆炸物探测仪、毒品探测仪

等科研成果转化产品，并介绍了研究院的发展理念愿景。

On October 15, 2024, Shaanxi Normal University Affiliated Primary Education Group Qinhan No. 4 School organized more than 80 teachers and students from its junior high school section to participate in a science popularization tour in celebrating the SNNU's 80th anniversary to the Institute of New Concept Sensors and Molecular Materials, to feel and appreciate the charm of science and technology.

Senior engineer Ms Zhang Helan gave the visitors a science lecture titled "Preparation Strategy of Porous Materials

based on Marangoni Effect", and explained the principle behind the vivid demonstration through "milk rainbow" and "self-healing of bubbles", which aroused great interest of the students present.

Assoc. Prof. Liu Taihong led the students to visit the achievements exhibition hall of the institute, explained the explosive detection device, drug detection device and other research results transformation products developed by Prof. Fang Yu's group, and introduced the development concept and vision of the institute.



西安中星测控有限公司董事长谷荣祥一行来访

Xi'an Chinastar M&C Limited visitors received

2024年10月23日下午，西安中星测控有限公司董事长兼总经理谷荣祥一行6人来访新概念传感器与分子材料研究院。

研究院相关研发人员就微压力传感器、超低湿度荧光传感器、防水透气膜技术成果作了专题汇报。谷荣祥一行听取了汇报，并介绍了该领域产业界发展状况、行业痛点和市场需求。双方还就技术成果转移转化进行了探讨。

房喻院士、研究院副院长丁立平教授及相关人员参加了会议。

西安中星测控有限公司是一家智能传感器制造及物联网（智慧城市/智能制造）综合解决方案提供商。

On October 23, 2024, a group of six people from Xi'an Chinastar M&C Co., Ltd. headed by chairman and general manager Mr. Gu Rongxiang visited the Institute of New Concept Sensors and Molecular Materials.

The relevant R&D personnel of the Institute presented reports on the technological achievements of micro-pressure sensor, ultra-low humidity fluorescence sensor and waterproof breathable film. Gu Rongxiang and his delegation listened to the reports and introduced the development status of the industry in the field, industry pain points and market demand. The two sides also discussed the transfer and transformation of technological achievements.

Prof. Fang Yu, INCSMM vice dean Prof. Ding Liping and related personnel attended the meeting.

Xi'an Chinastar M&C is a smart sensor manufacturer and



comprehensive solution provider of and Internet of Things (smart city/smart manufacturing).

校友动态 Alumni News

院友赖发燕在法国通过博士论文答辩

Lai Fayan passes doctoral dissertation defense in France

2024年10月23日，新概念传感器与分子材料研究院硕士生赖发燕在法国科学院配位化学实验室（图卢兹第三大学）通过博士毕业论文答辩。

赖发燕留学的专业为材料科学，博士论文题目为 Guest-promoted enhancement of electrical conductivity

and spin crossover behavior in Hofmann-type metal-organic frameworks.

答辩委员会由索邦大学的 Rodrigue Lescouezec 教授，里昂催化与环境研究所的 Aude Demessence 高级研究员，图卢兹第三大学的 Simon Tricard 教授 和 Saioa Cobo 教授，以及法国科学院配位化学实验室的

Azzedine Bousseksou 高级研究员组成。

赖发燕在答辩过程中回答了答辩委员会提出的问题，与委员们就相关问题展开了讨论，并对未来的研究方向进行了展望。答辩委员会一致认为赖发燕的研究内容充实，回答清晰且逻辑严谨，同意通过答辩并授予博士学位。

On October 23, 2024, Ms Lai Fayan, an alumna and master's degree graduate of the Institute of New Concept Sensors and Molecular Materials, passed her doctoral dissertation defense at the Laboratory of Coordination Chemistry of the Académie des Sciences de France (University of Toulouse III).

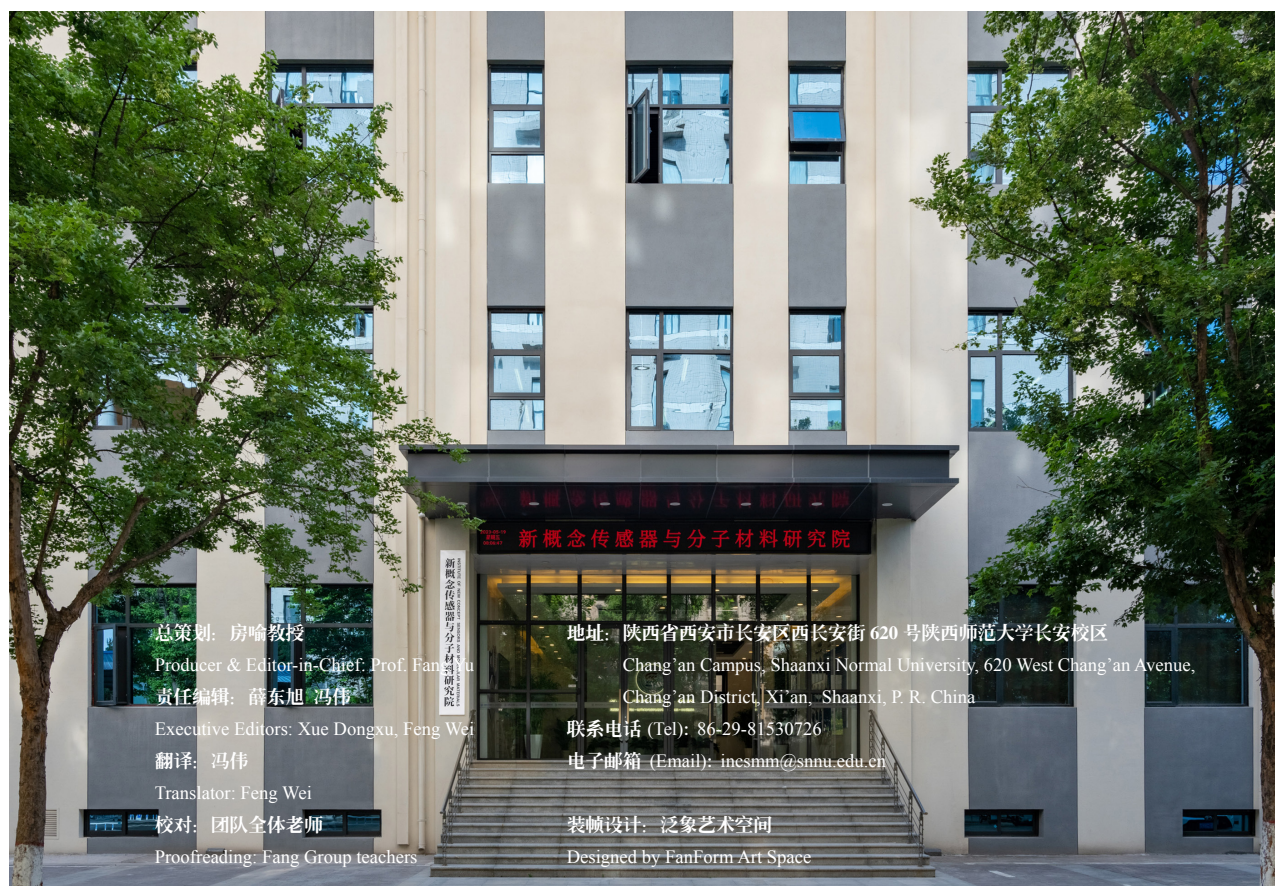
Lai Fayan's major is Materials Science, and her doctoral dissertation is titled "Guest-promoted enhancement of electrical conductivity and spin crossover behavior in Hofmann-type metal-organic frameworks".

The defense committee was composed of Prof. Rodrigue Lescouezec, Sorbonne University, Senior Researcher Aude Demessence, Institut d'Environnement et de Catalité (IECE), Lyon, Prof. Simon Tricard and Prof. Saioa Cobo, University of Toulouse III, Senior Researcher Azzedine Bousseksou, the Laboratory of Coordination Chemistry of the Académie des Sciences de France.



During the defense, Lai Fayan answered the questions raised by the defense committee, discussed related issues with the committee members, and put forward future research prospects. The

defense committee unanimously agreed that Lai Fayan's research is informative, answers clear and logical, and agreed to pass her defense and confer her the doctoral degree.



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