陕西师范大学 SHAANXI NORMAL UNIVERSITY

西安交通大学 XIAN JIAOTONG UNIVERSITY

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简报
Newsletter

新概念传感器与分子材料研究院
Institute of New Concept Sensors and Molecular Materials

目录 Contents

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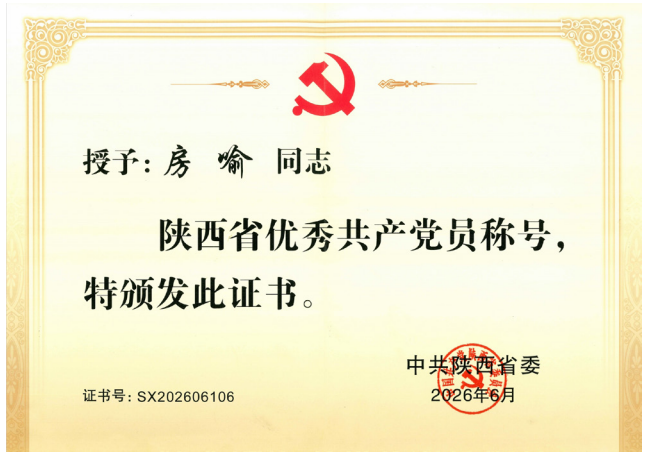
房喻院士荣获“陕西省优秀共产党员”称号

Fang Yu honored as Outstanding Communist Party Member of Shaanxi Province



2026 年 7 月 1 日，陕西省“两优一先”表彰大会上宣布了中共陕西省委的表彰决定，陕西师范大学房喻院士荣获“陕西省优秀共产党员”称号。

On July 1, 2026, at the Shaanxi Province Commendation Conference for “Outstanding Communist Party Members, Outstanding Party Affairs Workers, and Advanced Grassroots Party Organizations”, the Shaanxi Provincial Committee of the Communist Party of China announced its commendation decision, and Prof. Fang Yu of Shaanxi Normal University was honored with the title of “Outstanding Communist Party Member of Shaanxi Province”.

房喻院士出席历史文化遗产保护教育部工程研究中心 2026 年技术委员会会议

Fang Yu attends 2026 Technical Committee Meeting of MOE Engineering Center of Historical Cultural Heritage Conservation

2026 年 7 月 1 日下午，房喻院士出席了在陕西师范大学长安校区召开的历史文化遗产保护教育部工程研究中心 2026 年技术委员会会议。

房喻院士作为委员，与委员会主任杨玉良院士和其他委员们听取了中心主任李玉虎教授关于中心近年在感光影像保护、纸质档案与文物保护、古代壁画与文物彩绘保护、土遗址与砖石文物保护、文物耐久收藏装具等方面工作的汇报，肯定了中心取得的成绩，并提出了意见和建议。

On July 1, 2026, Prof. Fang Yu attended the 2026 Technical Committee Meeting of the Ministry of Education

Engineering Research Center Center of Historical Cultural Heritage Conservation, held at the Chang'an Campus of Shaanxi Normal University.

Fang Yu, as a committee member together with committee chair Academician Yang Yuliang and other members, listened to a report by center director Prof. Li Yuhu on the center's recent work in the conservation of photographic images, paper archives and cultural relics, ancient murals and painted cultural relics, earthen archaeological sites and brick-and-stone cultural relics, and durable storage and display systems for cultural relics. They acknowledged the center's achievements and offered opinions and suggestions.

研究院党支部获评先进党支部和先进基层党组织

INCSMM Party Branch recognized as Advanced Party Branch and Advanced Grassroots Party Organization

2026 年 7 月 1 日，在陕西师范大学“两优一先”表彰大会上，化学化工学院新概念传感器与分子材料研究院党支部获评学校先进党支部。

研究院党支部书记丁立平代表支部上台领奖并发言。此外，研究院党支部还获评陕西高校先进基层党组织。

On July 1, 2026, at Shaanxi Normal University's Commendation Ceremony for Outstanding Communist Party Members, Outstanding Party Affairs Workers, and Advanced Grassroots Party Organizations, the Party Branch of the Institute of New Concept Sensors and Molecular Materials at the School of Chemistry and Chemical Engineering was recognized as an Advanced Party Branch by the university.

Ding Liping, secretary of the INCSMM Party Branch, took the stage on behalf of the branch to accept the award and deliver a speech. In addition, the INCSMM Party Branch was recognized as an Advanced Grassroots Party Organization among Shaanxi higher education institutions.

房喻院士参加中国科学院第二十二次院士大会

Fang Yu attends 22nd General Assembly of the Chinese Academy of Science

2026 年 7 月 8 日，房喻院士参加了在北京人民大会堂召开的国家科学技术奖励大会、中国科学院第二十二次院士大会和中国工程院第十八次院士大会、中国科学技术协会第十一次全国代表大会。

7 月 9 日，房喻院士还参加了两院院士大会第二次全体会议等活动。

On July 8, 2026, Prof. Fang Yu attended the National Science and Technology Awards Ceremony, the 22nd General Assembly of the Chinese Academy of Sciences, the 18th General Assembly of of the Chinese Academy of Engineering, and the 11th National Congress of the China Association for Science and Technology, held at the Great Hall of the People in Beijing.

On July 9, Fang Yu also attended activities including the second plenary session of the Joint Conference of Academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering.

刘凯强教授为宁夏师范大学 2026 年暑期教师培训班作报告

Liu Kaiqiang lectures at Ningxia Normal University's 2026 Summer Faculty Training Program

2026 年 7 月 11 日，应陕西师范大学教师干部培训学院邀请，新概念传感器与分子材料研究院刘凯强教授赴宁夏师范大学，为 2026 年暑期教师培训班作了题为“新教师科研能力提升路径浅谈”和“高校基金项目申报与学术团队建设”的专题报告，分享了中青年教师科研能力提升、学术方向凝练、对外合作拓展、基金项目申报与学术团队建设等方面的内容。

On July 11, 2026, at the invitation of the School of Teacher and Administrator of Shaanxi Normal University, Prof. Liu Kaiqiang from the Institute of New Concept Sensors and Molecular Materials presented two lectures - “A Brief Discussion on Pathways to Enhancing Research Capabilities for New Faculty” and “Grant Proposal Submission and Academic Team Building in Higher Education Institutions”- at Ningxia Normal University for its 2026 summer faculty training program, where he shared insights on enhancing the research capabilities of mid-career and young faculty, refining academic research directions, expanding external collaborations, grant proposal submission, and academic team building.

房喻院士、边红涛教授参加第十一届全国高校物理化学课程教学研讨会

Fang Yu and Bian Hongtao presents at 11th Symposium on Teaching of Physical Chemistry in Higher Institutions

2026 年 7 月 10 日至 13 日，陕西师范大学新概念传感器与分子材料研究院房喻院士和边红涛教授参加了在山东省青岛市举行的第十一届全国高等学校物理化学（含实验）课程教学研讨会，并分别作题为“AI 赋能与发展新阶段的教育——我的点滴思考”和“国外物理化学教材对比研究——化学动力学部分”的报告。

From July 10 to 13, 2026, Prof. Fang Yu and Prof. Bian Hongtao from the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University attended the 11th National Seminar on the Teaching of Physical Chemistry (including Experiments) in Higher Education Institutions, held in Qingdao, Shandong Province, where they presented reports titled “AI-Empowered Education and a New Stage of Development: My Reflections” and “A Comparative Study of International Physical Chemistry Textbooks: The Section on Chemical Kinetics”, respectively.

房喻院士为全军研究生导师培训班授课

Fang Yu lectures at Army Training Course for Graduate Advisors

2026 年 7 月 13 日上午，房喻院士应邀赴国防科技大学试验训练基地（西安），为第十二期全军研究生导师培训班学员授课，作题为“科学的价值与学者的使命——我的点滴思考”的报告

On July 13, 2026, Prof. Fang Yu was invited to the National University of Defense Technology’s Experimental and Training Base (Xi’an) to deliver a lecture to participants in the 12th Army-wide Graduate Advisor Training Program, presenting a lecture titled “The Value of Science and the Mission of Scholars: Some of My Thoughts”.

房喻院士出席第四届 Aggregate《聚集体》研究生论坛并作报告

Fang Yu speaks at Fourth Aggregate Graduate Student Forum

2026 年 7 月 18 至 20 日，房喻院士在西安出席第四届 Aggregate《聚集体》研究生论坛，并作题为“面向未来技术的分子材料——从纳米膜构筑到太赫兹应用”的辅导报告。

新概念传感器与分子材料研究院副院长丁立平教授作为点评专家对青年科研人员的报告进行了现场点评与指导。

研究院 2026 级博士研究生新生张晟珲作题为“连续介电梯度材料的可控构筑与波前调控”的报告。

From July 17 to 20, 2026, Prof. Fang Yu attended the 4th Aggregate Graduate Student Forum in Xi’an and delivered a keynote lecture titled “Molecular Materials for Future Technologies: From Nanomembrane Construction to Terahertz Applications”.

Prof. Ding Liping, vice dean of the Institute of New Concept Sensors and Molecular Materials, served as a reviewer and provided on-site feedback and guidance on the presentations given by young researchers.

Zhang Shenghui, a Class 2029 doctoral student at the institute, presented a report titled “Controlled Fabrication and Wavefront Modulation of Continuous Graded Materials”.

房喻院士出席第七届中学化学思维课堂暨“核心素养教育”教学研究成果交流会议并作报告

Fang Yu speaks at 7th Conference on Secondary School Chemistry Thinking Classes and Research Findings on Core Competency Education

2026 年 7 月 27 日，房喻院士出席了在陕西师范大学长安校区举办的“第七届中学化学思维课堂暨‘核心素养教育’教学研究成果交流会议”，并作题为“AI 赋能与发展新阶段的教育教学”的主题报告。

On July 27, 2026, Prof. Fang Yu attended the “7th Conference on Secondary School Chemistry Thinking Classes and the Exchange of Research Findings on ‘Core Competency Education’” held at the Chang’an Campus of Shaanxi Normal University, where he delivered a keynote report titled “AI-Empowered Education and Teaching in a New Phase of Development”.

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Article

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Harnessing interfacial click polymerization using pyridinium-yne films as photochromic, radical generation and sensing platforms

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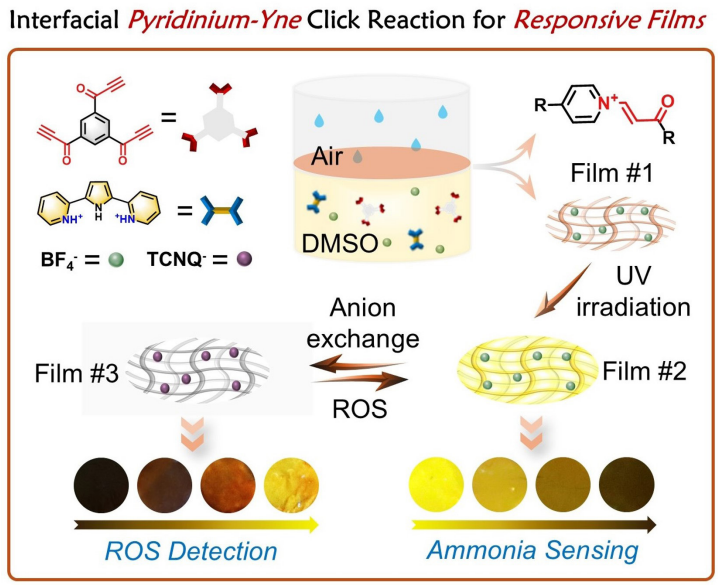
面吡啶鎓 – 炔聚合点击聚合薄膜用于光致变色、光生自由基和传感平台

Xinyu Gou, Xue Gu, Zhaolong Wang, Binbin Zhai, Hongyan Xu, Lingya Peng, Xingmao Chang*, Taihong Liu*, Liping Ding*, Yu Fang*. Nat. Commun., 2026, 17, 5589, DOI: https://doi.org/10.1038/s41467-026-74956-3



有机聚合物薄膜因其结构可调和功能多样，在分离、催化、传感、能源等领域备受关注。然而，传统界面聚合方法多依赖动态共价反应，往往需要催化剂、高温等苛刻条件，且难以直接制备可独立使用的自支撑薄膜。如何在温和条件下高效原位合成大面积、无缺陷的功能性聚合物薄膜，是材料科学领域的一项长期挑战。

围绕这一目标，本工作开创性地提出了一种无需催化剂且具有原子经济性的“吡啶鎓 – 炔界面点击聚合”策略用于聚合物薄膜的原位制备。以双功能化的吡啶鎓盐（HDPP–BF_4）和三羰基活化的苯炔（TFB–3EK）作

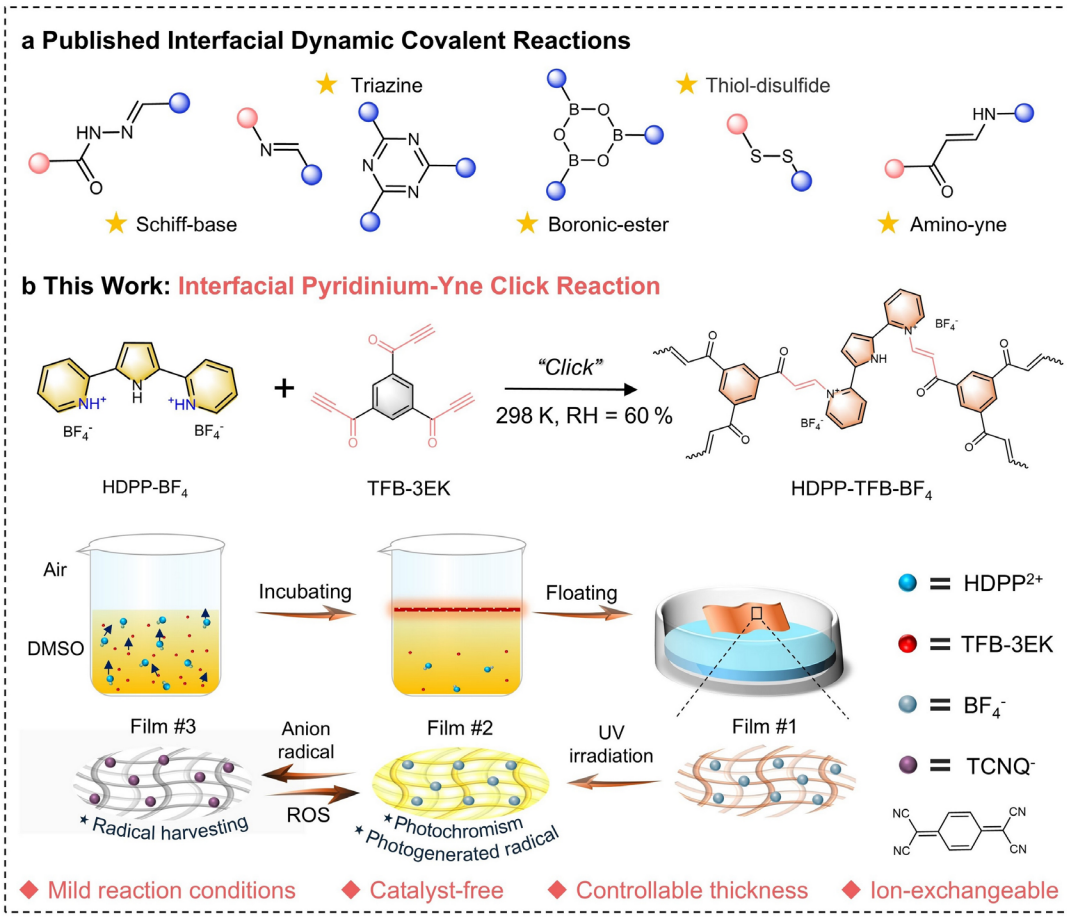


图 1. 用于薄膜制备的代表性界面聚合反应。a. 气—液界面的代表性界面聚合反应类型；b. HDPP−TFB−BF4 界面薄膜的制备过程及功能应用示意图。

Figure 1. Representative interfacial polymerization reaction used for film preparation. a Representative interfacial polymerization reaction types at an air-liquid interface; b Schematic illustration of the interfacial preparation of HDPP-TFB-BF4 (Film #1) via pyridinium-yne click chemistry and its conversion to Films #2 and #3.

为反应单体，在空气 –DMSO 界面成功制备了均匀、无缺陷、可自支撑且厚度可调的 D–A 型有机聚合物薄膜（HDPP–TFB–BF_4，Film #1）（图 1）。该薄膜在连续紫外光照下具有显著的光致变色行为，表现出 100 nm 的荧光蓝移和 5 倍的荧光增强，并诱导形成了自由基薄膜（Film #2）。Film #2 可作为气态 NH_3 的便携式可视化传感平台，检测限低至 0.16 ppm，并成功用于检测海鲜的腐败过程。此外，通过阴离子交换可将 Film #2 进一步功能化，通过将其与 7,7,8,8– 四氰基对醌二甲烷阴离子自由基（$TCNQ^-$）进行交换获得 Film #3，进而实现了对活性氧物种（ROS）的检测和清除。该研究不仅为自支撑有机聚合物薄膜的制备提供了一种温和、高效的新策略，更通过合理的分子设计，为开发新型多功能自由基材料提供了重要的理论基础与实验依据。

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Multi-responsive organic polymer films have attracted extensive attention in various fields including molecular storage and separation, catalysts, energy storage, sensing, and phototherapy due to their tunable design features and

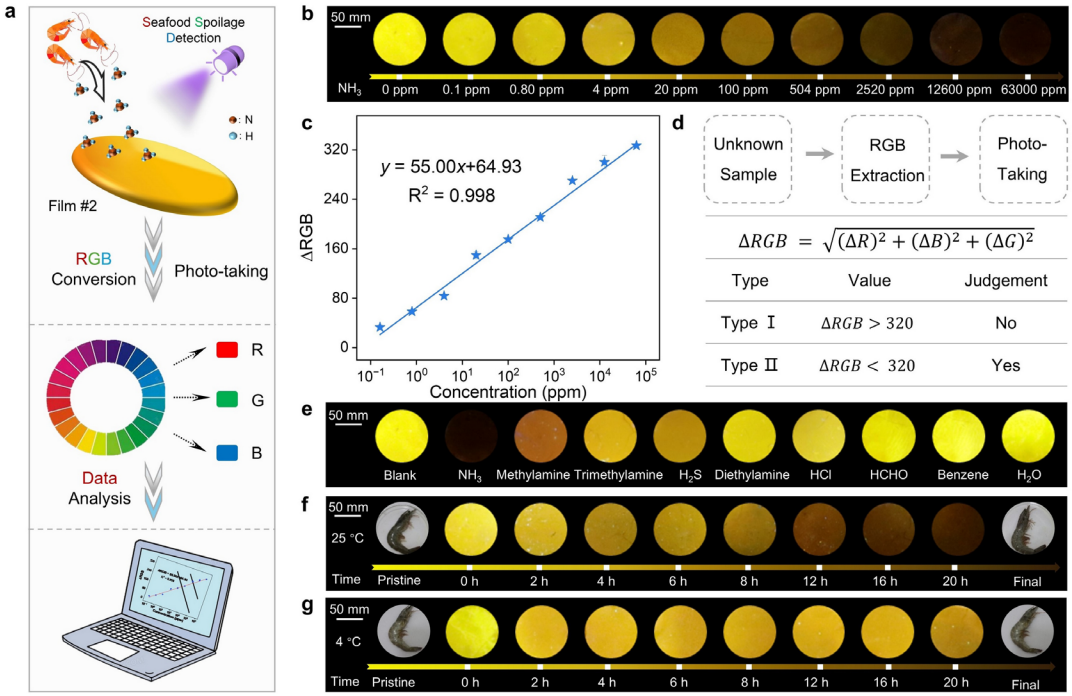

图 2. Film #2 的传感性能。a. 利用 RGB 分析评估 NH_3 含量的示意图；b. Film #2 在不同浓度 NH_3 下的照片（365 nm 紫外光下拍摄）；c. Film #2 的 ΔRGB 值与 NH_3 浓度之间的关系；d. 海鲜样品评估过程的示意图；e. Film #2 对不同分析物的 ΔRGB 响应；f. 室温（25 °C）和冷藏（4 °C）条件下储存的海鲜释放 NH_3 的实时监测；g. 对应的 ΔRGB 变化循环曲线。

Figure 2. Sensing performance of Film #2. **a** Schematic illustration of RGB analysis to evaluate the content of ammonia (NH_3) using the established calibration equation; **b** Photographs of Film #2 toward various concentrations of NH_3 taken under 365 nm ultraviolet (UV) light; **c** Relationship between ΔRGB value of Film #2 and the concentration of NH_3. **d** Schematic illustration of the sample evaluation process in applications. **e** Photographs of Film #2 toward various potential distractions under saturated vapor pressures at 25 °C. **f**–**g** Photographs of Film #2 in detecting NH_3 produced by shrimp spoilage at room temperature (25 °C) and in refrigerator (4 °C) taken under 365 nm UV light.

broad monomer scope. However, most interfacial polymerizations rely on dynamic covalent reactions. Some require specific catalysts and elevated reaction temperature. Therefore, there is an urgent need for developing a catalyst-free, atom-economical, and efficient interfacial polymerization strategy under ambient conditions to fabricate free-standing organic polymer films.

Herein, we pioneered an innovative interfacial pyridinium-yne click polymerization strategy to in situ fabricate uniform, defect-free, and large-area films. Using pyridinium salt (HDPP-BF_4) as an acceptor and tricarbonylbenzene activated alkyne (TFB-3EK) as a donor, a free-standing HDPP-TFB-BF_4 film (Film #1) with precisely tunable thickness from tens to hundreds of nanometers was formed at the air-DMSO interface. Interestingly, Film #1 exhibited promising photochromism, showing a 100 nm hypsochromic shift and a 5-fold fluorescence enhancement under continuous UV irradiation, which induced the formation of a radical-based Film #2. Film #2 served as a portable visual sensing platform for gaseous ammonia, achieving a detection limit as low as 0.16 ppm, and was successfully applied as a colorimetric chart for seafood spoilage. Strategically, an anion exchange of Film #2 with TCNQyielded a fluorescencesilent Film #3, which enabled efficient detection and elimination of reactive oxygen species through turn-on fluorescence visualization. This work not only provides a straightforward approach for in situ fabricating versatile polymer films but also establishes a generalizable strategy for developing multiresponsive visualization systems through the rational molecular design and controlled polymer variability.

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Chemical Science

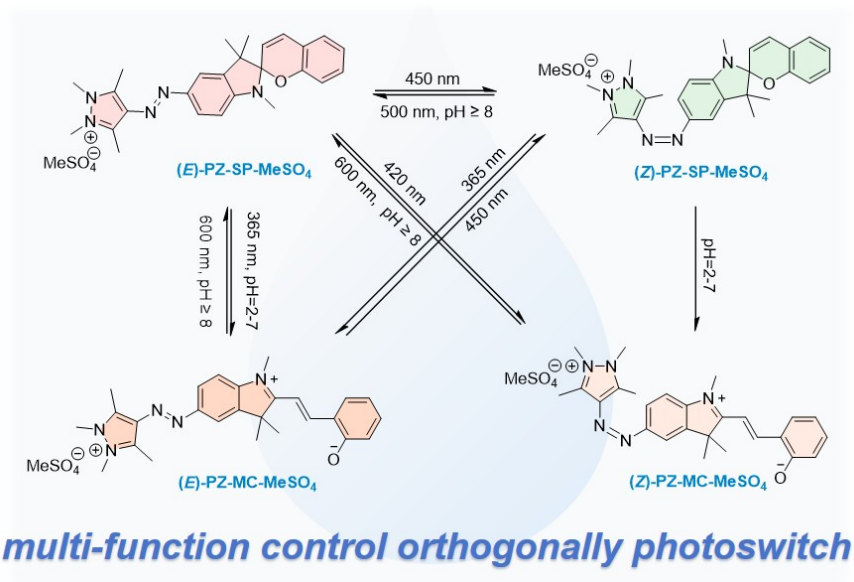
Edge Article | 28 July 2026

A Multi-State Photoswitch Regulated by Higher Excited States

Shuang Xu; Le Yu; Yang Cheng; Yidan Li; David Lee Phillips; Tomáš Slanina; Jiani Ma; Yu Fang

高激发态调控的离子型正交光开关

Shuang Xu+, Le Yu+, Yang Cheng, Yidan Li, David Lee Phillips, Tomáš Slanina,* Jiani Ma,* and Yu Fang. Chem. Sci. 2026.
DOI: https://doi.org/10.1039/D6SC05127H



分子光开关是一种通过光照改变其结构和性质的分子，近年来在化学生物学、材料科学、催化和分子机器等多个化学领域得到了广泛应用。在单个分子中融合多个光开关单元，通过选择性定向激发单个光响应基团实现分子几何结构调控是一种具有挑战性的方法。实现真正正交的光开关，需满足多个平衡态中任意两个态之间足够的光谱分离。正交开关必然涉及多个激发态对于分子的调控作用，其机制研究的不足阻碍了此类复杂光功能分子体系的开发设计及实际应用。

本工作将芳基偶氮吡唑鎓（PZ）与螺吡喃（SP）通过共价键连接，设计并合成了离子型正交光开关 PZ–SP–$MeSO_4$，利用 365 nm、420 nm、450 nm 三种波长光源可实现该分子四态间的可逆切换，离子基团的引入实现了正交光开关优异的水溶性（18.4 mM），吡唑鎓正电荷与螺吡喃苯环间的阳离子 –π 相互作用使 Z 异构体的室温热半衰期延长至 717 天。该体系还兼具 pH 协同调控能力，可用于搭建多值分子逻辑门，为光学信息存储与分子计算提供全新构建策略。

结合瞬态吸收光谱实验和理论计算，阐明了 PZ –SP–$MeSO_4$ 的波长调控机制：450 nm 激发至 S_1，电子跃迁完全局域在 PZ 单元，以无势垒过程完成 N=N 双键扭转异构；355 nm 激发至高能 S_3 态，在激发态完成螺吡喃部分 C–O 键断裂，基态进行螺吡喃开环后

的异构化，仅实现 SP → MC 的转化；420 nm 激发至 S_2 态，分子在激发态先快速完成 PZ 单元的 E → Z 异构，随后，热基态物种 (Z)–PZ–SP–$MeSO_4$ 中过剩的振动能量进一步驱动基态下 C–O 断裂，实现 SP → MC 转化。机理研究表明，激发态电子密度的空间局域与离域特征是实现双光响应单元选择性激活的核心。该规律具备普适性，为后续各类正交型光开关的分子设计提供了理论指导，填补了高能激发态驱动的多态光调控的机理空白。

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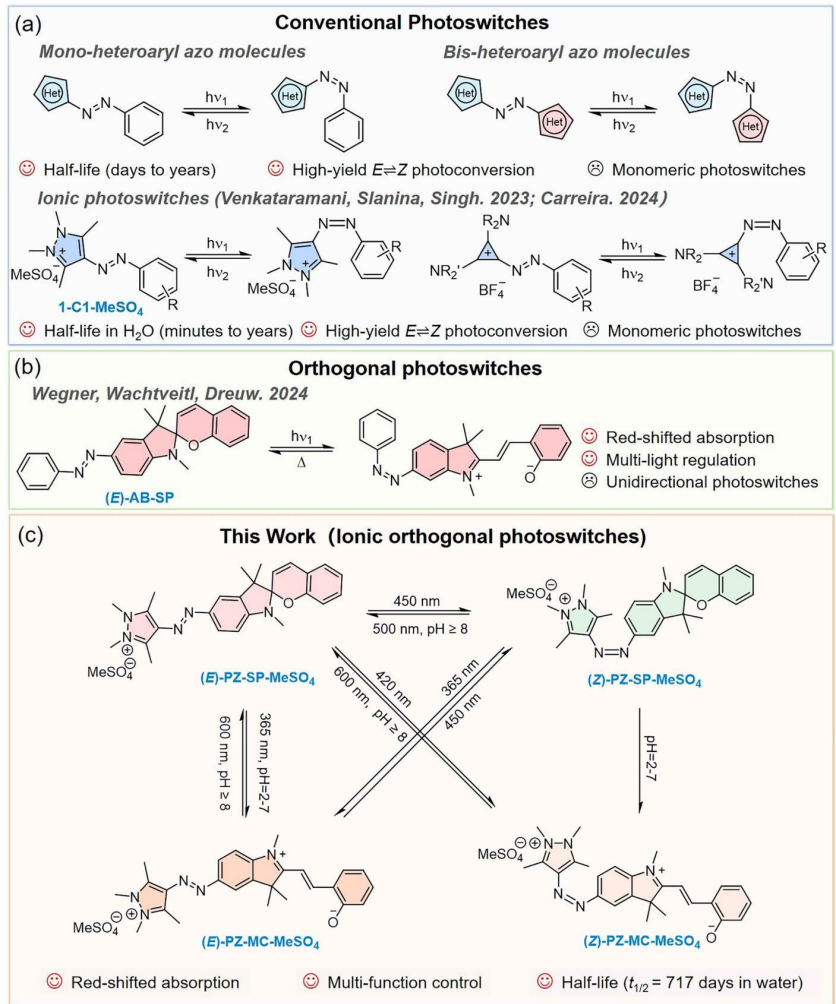

图 1.（a）典型单杂环、双杂环偶氮分子及离子型光开关，（b）已报道的正交光开关，（c）本研究设计的离子型正交光开关。

Figure 1. (a) Photoswitch properties of typical mono-heteroaryl, bis-heteroaryl azo molecules and ionic photoswitches, (b) comparison of the reported orthogonal photoswitches, (c) ionic orthogonal photoswitches designed in this work.

Molecular photoswitches are molecules that alter their structures and properties in response to light irradiation, and have found widespread applications across various chemical fields in recent years, including chemical biology, materials science, catalysis, and the study of molecular machines. Integrating multiple photoswitchable units within a single molecule and achieving precise regulation of molecular geometry through selective activation of individual photoresponsive groups represents a challenging endeavor. To realize truly orthogonal photoswitching, sufficient spectral separation between any two of the four states is required. Moreover, the lack of mechanistic understanding in this field has hindered further development and practical applications of such systems.

By covalently linking an aryl azopyrazolium (PZ) moiety with a spiropyran (SP) moiety, the authors designed and synthesized an ionic orthogonal photoswitch, PZ-SP-$MeSO_4$. Reversible switching among the four states of this molecule was achieved using three wavelengths of light—365 nm, 420 nm, and 450 nm. The ionic character endows the molecule with excellent water solubility up to 18.4 mM, and the cation-π interaction between the pyrazolium positive charge and the benzene ring of the spiropyran extends the thermal half-life of the Z-isomer at room temperature to 717 days. This system also exhibits pH-cooperative tunability, enabling the construction of multi-valued molecular logic gates, which offers a novel strategy for optical information storage and molecular computing.

By combining transient absorption spectroscopy experiments with theoretical calculations, this work elucidates the wavelength-dependent regulation mechanism of PZ-SP-$MeSO_4$. Upon 450 nm excitation to the S_1 state, the electronic transition is entirely localized on the PZ unit, and the N=N double-bond twisting isomerization proceeds through a barrierless process. Upon 355 nm excitation to the high-lying S_3 state, the C-O bond cleavage of the spiropyran moiety occurs in the excited state, followed by isomerization after spiropyran ring-opening in the ground state, achieving exclusively the SP→MC conversion. Upon 420 nm excitation to the S_2 state, the molecule first undergoes rapid E→Z isomerization of the PZ unit in

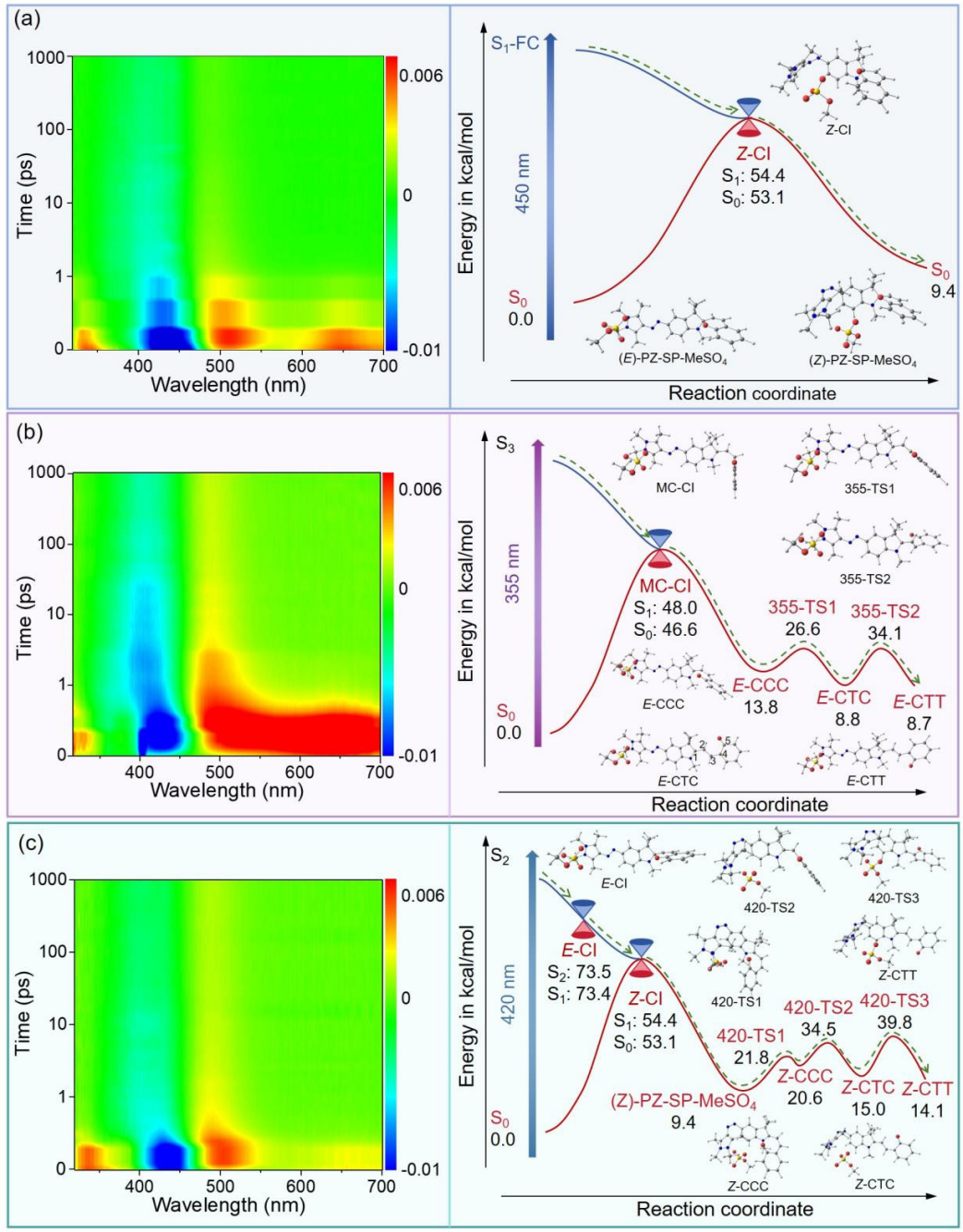

图 2. PZ−SP−$MeSO_4$ 在 H_2O 中经（a）450 nm、（b）355 nm 和（c）420 nm 光激发后的瞬态吸收光谱及 B3LYP−D3BJ/6−311G(d, p) SMD(H_2O) 理论水平下的势能曲线。

Figure 2. TAS and potential energy profiles at B3LYP-D3BJ/6-311G(d, p) SMD (H_2O) level of theory of PZ-SP-$MeSO_4$ in H_2O after excitation with (a) 450 nm, (b) 355 nm and (c) 420 nm light.

the excited state; subsequently, the excess vibrational energy in the hot ground-state species (Z)-PZ-SP-MeSO4 further drives C-O bond cleavage in the ground state, realizing the SP→MC conversion. Mechanistic studies reveal that the spatial localization and delocalization of excited-state electron density are key to the selective activation of the two photoresponsive units. This principle is general in nature and provides theoretical guidance for the molecular design of various orthogonal photoswitches in the future, filling the mechanistic gap in high-lying excited-state-mediated multiphotochromic regulation.

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Atmospheric hygroscopic eutectogel for highly efficient and long-term stable evaporative cooling based on moisture sorption–desorption processes

Yan Dong, Huanhuan Dong,† Juan Wang, Zhiyuan Li, Xinyao Meng, Dongxu Xue, Yu Fang and Junxia Peng *

基于吸 – 脱湿过程构建具备高效长效稳定蒸发冷却性能的大气吸湿性低共熔凝胶

Shuang Xu+, Le Yu+, Yang Cheng, Yidan Li, David Lee Phillips, Tomáš Slanina,* Jiani Ma,* and Yu Fang. Chem. Sci. 2026.
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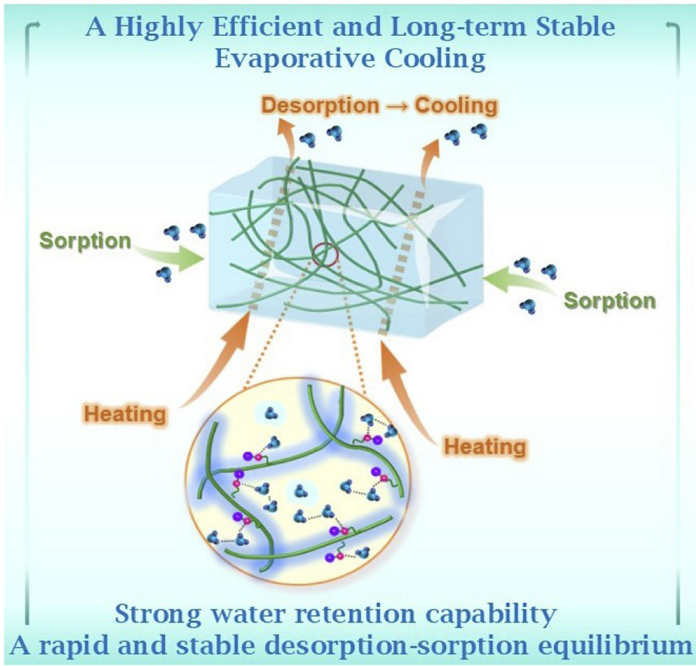

凝胶类降温材料在长时间运行过程中常出现降温性能衰减甚至失效的问题，原因是过度的水分脱附会导致网络结构坍塌与界面分层。本研究提出了一种可兼顾强锁水能力与可控水分脱附的设计策略，以延长凝胶类降温材料的使用寿命。我们将吸湿性低共熔溶剂与两性离子网络相结合，制备出一种大气吸湿性低共熔凝胶（EG–SBMA）。该 EG–SBMA 具备良好的可压缩性与黏附性，即便在高湿环境下达到吸湿饱和（相对湿度 90%，放置 12 小时），仍可牢固黏附在各类基底表面不脱落。它表现出优异的亲水性能，在 25℃、相对湿度

90% 的环境中放置 12 小时，吸水量可达 1.2 g g^{-1}。将其应用于商用太阳能电池时，在 1 kW m^{-2} 的光照强度下，EG–SBMA 最高可实现 15℃的降温效果，且有效降温时长可达 12 小时。值得注意的是，EG–SBMA 仅需在夜间通过大气吸湿即可完成再生，再生后可再次实现约 15℃的降温效果并持续 12 小时。得益于快速的吸脱附平衡能力与稳定的锁水性能，这种“再生–降温”循环可连续重复 10 次，在第 10 次循环时仍可保持 11℃的降温幅度。上述研究结果充分展现了吸湿性低共熔凝胶在长期实际热管理场景中的应用潜力。

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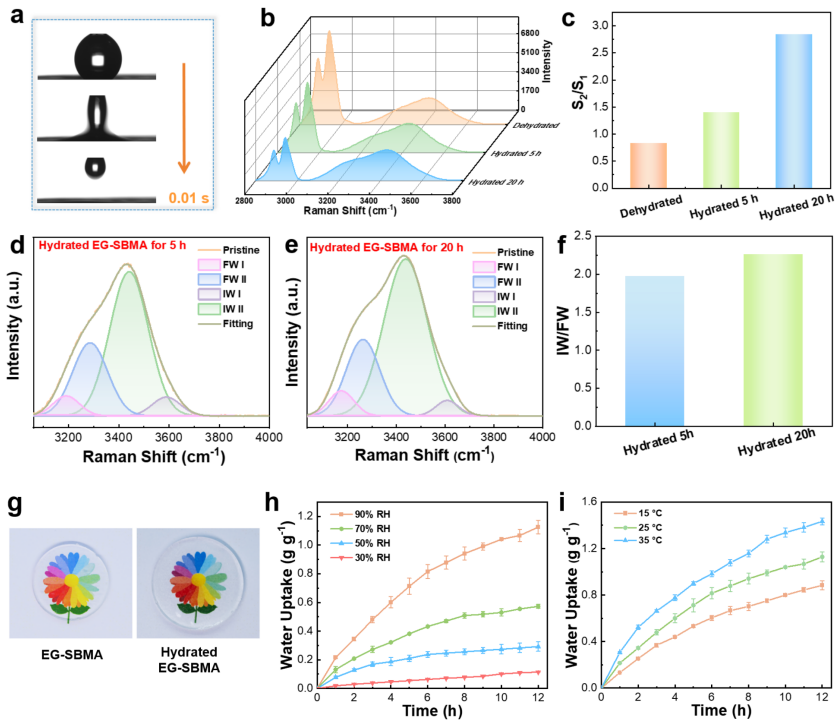

图 1. EG–SBMA 凝胶的吸湿性能
Figure 1. Hygroscopic performance of the EG-SBMA eutectogel

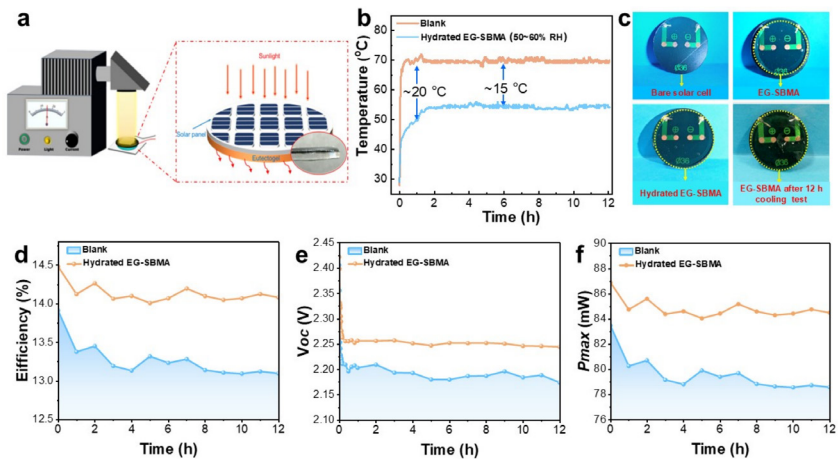

图 2. EG–SBMA 凝胶通过蒸发冷却对太阳能板的降温性能
Figure 2. Application of EG-SBMA eutectogel in passive cooling of solar cells

The cooling performance of gel-like cooling materials often declines or fails during prolonged operation because excessive water desorption can cause network collapse and interfacial delamination. Here we present a design strategy that balances strong water retention with controlled water desorption to extend the service lifetime of gel-like cooling materials. An atmospheric hygroscopic eutectogel (EG-SBMA) was prepared by integrating a hygroscopic deep eutectic solvent with a zwitterionic network. The EG-SBMA exhibits good compressibility and adhesiveness, allowing it to adhere to various substrates without detachment even after moisture saturation (90% RH, 12 h). It exhibits good water affinity with a water uptake of 1.2 g g^{-1} at 90% RH and 25°C (12 h). When applied to commercial solar cell, EG-SBMA achieves a maximum temperature reduction of 15°C under 1 kW m^{-2} illumination and sustains effective cooling for 12 h. Notably, EG-SBMA can be regenerated by overnight atmospheric moisture sorption and subsequently provides ~15°C cooling for another 12 h. The regeneration-cooling cycle is repeatable for ten consecutive cycles, retaining an 11°C temperature drop in the tenth cycle, owing to rapid sorption/desorption equilibration and robust water retention. These results highlight the potential of hygroscopic eutectogels for long-term practical thermal management.

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陕师大附中长安校区学生来院科普参观学习

SNNU Affiliated Middle School Chang'an Campus students received for science popularization tour

2026 年 7 月 1 日，陕西师范大学附中长安校区 120 余名初三学生和老师来到陕西师范大学新概念传感器与分子材料研究院，进行科普参观学习。

副院长丁立平教授和刘太宏教授向同学们介绍了研究院基本情况、科研团队、科研概况和发展理念，随后研发工程师文瑞娟、王佩和罗艳彦带领同学们分批次参观了研究院成果展厅和实验室。

On July 1, 2026, about 120 ninth-grade students and teachers from the Chang'an Campus of Shaanxi Normal University Affiliated Middle School visited the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University for a science popularization tour.

Vice dean Prof. Ding Liping and Prof. Liu Taihong introduced the institute's basic profile, research team, research overview, and development philosophy to the students. Subsequently, R&D engineers Wen Ruijuan, Wang Pei, and Luo Yanyan led the students in groups to tour the institute's exhibition room and laboratories.

研究院赴西安天和防务交流洽谈

INCSMM delegation visits Xi'an Tianhe Defense

2026 年 7 月 8 日，陕西师范大学新概念传感器与分子材料研究院杨小刚副院长、彭军霞教授、西安方格分子材料科技有限公司韩鹏总经理、研究院研发工程师何怡楠、马剑飞赴西安天和防务技术股份有限公司开展技术交流与项目合作洽谈。

On July 8, 2026, vice dean Yang Xiaogang, Prof. Peng Junxia, R&D engineers He Yinan and Ma Jianfei, of the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University, and general manager Han Peng of Xi'an Fonge Molecular Materials Co., Ltd. visited Xi'an Tianhe Defense Technology Co., Ltd. to engage in technical exchanges and discuss potential project collaborations.

参加第九届对口支援青海师大高校联席会议领导来院参观

Officials attending 9th Conference of Universities Providing Pairing Assistance to Qinghai Normal University received

2026 年 7 月 13 日，青海省人民政府副省长杨志文等在陕西师范大学参加第九届对口支援青海师范大学高校联席会议的政府和高校领导，在校党委书记李晓兵等的陪同下来到新概念传感器与分子材料研究院参观。研究院副院长杨小刚陪同来访领导参观并讲解。

On July 13, 2026, Qinghai Province vice governor Yang Zhiwen, along with other government and university officials attending the 9th Joint Conference of Universities Providing Pairing Assistance to Qinghai Normal University held at Shaanxi Normal University, visited the Institute of New Concept Sensors and Molecular Materials, accompanied by SNNU Party Secretary Li Xiaobing. INCSMM vice dean Yang Xiaogang accompanied the visitors on the tour and provided explanations.

固原市第二中学学生来院科普参观学习

Guyuan No. 2 High School students received for science popularization tour

2026 年 7 月 14 日，宁夏固原市第二中学 70 余名师生在副校长妥成山（陕西师范大学 2011 届化学专业首届公费师范生）带领下，来到陕西师范大学新概念传感器与分子材料研究院进行科普参观学习。研发工程师罗艳彦带领同学们参观并进行了讲解。

On July 14, 2026, more than 70 teachers and students from Guyuan No. 2 High School in Ningxia, led by vice principal Tu Chengshan (a member of the first cohort of government-sponsored teacher education students majoring in chemistry at Shaanxi Normal University, Class of 2011), visited the Institute of New Concepts Sensors and Molecular Materials at Shaanxi Normal University for a science popularization tour, where R&D engineer Luo Yanyan led the students on a tour and provided explanations.

深圳瑞华泰薄膜科技股份有限公司一行来访

Shenzhen Rayitek Film Technology guests received

2026 年 7 月 14 日，深圳瑞华泰薄膜科技股份有限公司总经理汤昌丹一行到访陕西师范大学新概念传感器与分子材料研究院。

汤昌丹一行参观了研究院成果展厅，并与房喻院士及研究院相关人员进行了座谈交流。研发工程师王佩、何怡楠分别作了关于传感器阻隔膜材料和宽频低损耗介电常数可定制材料的报告。双方还就研究院开发的相关技术应用前景进行了交流与探讨。

会议由副院长杨小刚主持，彭军霞教授，西安方格分子材料科技有限公司总经理韩鹏参加了座谈会。

On July 14, 2026, a delegation led by Shenzhen Rayitek Film Technology Co., Ltd. general manager Tang Changdan visited the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University.

Tang Changdan toured the institute's exhibition room and held a discussion with Prof. Fang Yu and INCSMM staff members. R&D engineers Wang Pei and He Yinan presented reports on sensor barrier film materials and customizable materials with a wide-frequency, low-loss dielectric constant, respectively. The two sides also discussed the application prospects of the relevant technologies developed by the institute.

The meeting was chaired by vice dean Yang Xiaogang. Prof. Peng Junxia and Xi'an Fonge Molecular Materials Technology Co., Ltd. general manager Han Peng, attended the meeting.

房喻院士与陕师大陈新兵校长一行访问西交大

Fang Yu joins SNNU president Chen Xinbing on a visit to XJTU

2026 年 7 月 14 日，陕西师范大学校长陈新兵率队访问西安交通大学，房喻院士参加访问，并与西安交通大学校长、中国工程院院士张立群、中国工程院院士、西安交通大学教授蒋庄德及西交大副校长邵金友等会见交谈。

房喻院士建议两校进一步发挥各自优势，抓住“十五五”时期发展机遇，在学科交叉、平台共建等方面建立更紧密的联系，共同服务国家重大战略需求。

陕师大新概念传感器与分子材料研究院副院长丁立平教授参加了会见。

On July 14, 2026, Prof. Fang Yu joined a delegation led by Shaanxi Normal University president Chen Xinbing on a visit to Xi'an Jiaotong University, and met with Zhang Liqun, president of Xi'an Jiaotong University and an academician of the Chinese Academy of Engineering; XJTU Prof. Jiang Zhuangde, an academician of the Chinese Academy of Engineering; and XJTU vice president Shao Jinyou for discussions.

Fang Yu suggested that the two universities further leverage their respective strengths, seize the development opportunities presented by the 15th Five-Year Plan period, establish closer ties in areas such as interdisciplinary collaboration and the joint construction of research platforms, and work together to serve the nation's major strategic needs.

SNNU Institute of New Concept Sensors and Molecular Materials vice dean Prof. Ding Liping attended the meeting.

阿卜杜拉国王科技大学 Omar F. Mohammed 教授应邀作报告

Prof. Omar F. Mohammed of King Abdullah University of Science and Technology invited to give a report

2026 年 7 月 15 日上午，阿卜杜拉国王科技大学 Omar F. Mohammed 教授应邀到访陕西师范大学新概念传感器与分子材料研究院，并作题为 Glassy X-ray Imaging Scintillators: From Laboratory Discovery to Market Translation 的学术报告。

Mohammed 教授介绍了 X 射线成像闪烁材料的发展现状及应用需求，阐述了新型玻璃态铜碘团簇闪烁体材料在高效发光、大面积制备、柔性加工以及高分辨率 X 射线成像等方面的优势，并介绍了团队在推动新型闪烁材料从实验室研究走向实际应用方面取得的最新进展。

On July 15, 2026, Prof. Omar F. Mohammed of King Abdullah University of Science and Technology (KAUST) visited the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University and presented a report titled “Glassy X-ray Imaging Scintillators: From Laboratory Discovery to Market Translation”.

Prof. Mohammed provided an overview of the current state of development and application needs for X-ray imaging scintillator materials. He elaborated on the advantages of a new type of glassy copper-iodide cluster scintillator material in terms of high-efficiency luminescence, large-area fabrication, flexible processing, and high-resolution X-ray imaging, and also presented his team’s latest progress in advancing this new scintillator material from laboratory research to practical applications.

西安市科技局一行来访

Xi'an Science and Technology Bureau guests received

2026 年 7 月 16 日，西安市科技局党组成员、副局长楼文晓和基础研究与实验室建设处处长李岗到访陕西师范大学新概念传感器与分子材料研究院，参观了研究院成果展厅，并与房喻院士座谈交流。

On July 16, 2026, Xi’an Municipal Science and Technology Bureau deputy director Lou Wenxiao and its Division of Basic Research and Laboratory Construction director Li Gang visited the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University, where they toured the institute’s exhibition room showcasing its achievements and held a discussion with Prof. Fang Yu.

汉威科技集团一行来院交流

Hanwei Technology Group guests received

2026 年 7 月 22 日，汉威科技集团股份有限公司总经理张小水、产学研研究院副院长高胜国等一行到访陕西师范大学新概念传感器与分子材料研究院，并与房喻院士及研究院相关人员进行了座谈交流。

双方就研究院开发的薄膜荧光传感器的产业化推广、盐桥砂芯材料、防水透气膜材料等技术的应用前景进行了交流与探讨。

会议由副院长杨小刚主持，研发工程师罗艳彦、王佩参加了座谈。

On July 22, 2026, Hanwei Technology Group general manager Zhang Xiaoshui and its Industry-Academia-Research Institute deputy director Gao Shengguo visited the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University and held a meeting with Prof. Fang Yu and other staff members of the institute.

The two sides exchanged views and discussed the industrialization and promotion of the film fluorescent sensors developed by the institute, as well as the application prospects of technologies such as salt-bridge sand-core materials and waterproof, breathable membrane materials.

The meeting was chaired by INCSMM vice dean Yang Xiaogang, and R&D engineers Luo Yanyan and Wang Pei attended the meeting.

陕师大、西交大和西工大“国优计划”研究生来院参观

SNNU, XJTU and NPU Graduate Students participating in “National Outstanding Program” received

2026 年 7 月 22 日上午，陕西师范大学、西安交通大学和西北工业大学三所学校“国优计划”（国家优秀中小学教师培养计划）研究生 150 余人到陕师大新概念传感器与分子材料研究院参观学习。

副院长丁立平教授向同学们介绍了研究院基本情况、科研团队、科研概况和发展理念，随后研发工程师王佩带领同学们参观了研究院成果展厅并进行了讲解。

On July 22, 2026, more than 150 graduate students participating in the “National Outstanding Program” (National Program for the Training of Outstanding Primary and Secondary School Teachers) from Shaanxi Normal University, Xi’an Jiaotong University,

and Northwestern Polytechnical University visited the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University for a study tour.

INCSMM vice dean Prof. Ding Liping introduced the students to the institute's basic profile, research team, research overview, and development philosophy. Subsequently, R&D Engineer Wang Pei led the students on a tour of the institute's exhibition room and provided explanations.

电子科技大学王东升教授应邀作报告

Prof. Wang Dongsheng from University of Electronic Science and Technology of China invited to give a report

2026 年 7 月 29 日上午，电子科技大学王东升教授应邀到访陕西师范大学新概念传感器与分子材料研究院，并作题为“自适应光致变色”的学术报告。

王东升教授介绍了其团队研发的自适应光致变色依靠材料，可凭借自身物理化学特性实现随环境色自发变色，具备无需额外供电、可直接作为涂料覆盖于多种基材表面的独特优势，在国防伪装、智能防护及民用装饰等领域展现出广阔的应用潜力。

On July 29, 2026, Prof. Wang Dongsheng from University of Electronic Science and Technology of China was invited to visit the Institute of New Concept Sensors and Molecular Materials at Shaanxi Normal University, where he presented a report titled “Self-adaptive Photochromism”.

Prof. Wang introduced the adaptive photochromic material developed by his team, which can spontaneously change color in response to ambient light based on its own physicochemical properties. It offers the unique advantage of requiring no additional power supply and can be applied directly as a coating to the surfaces of various substrates, demonstrating broad application potential in fields such as military camouflage, smart protection, and civilian decoration.

在日复一日的坚守中遇见成长

彭灵雅

2024年9月，在房老师的推荐下，我有幸前往新加坡进入刘晓刚老师课题组学习交流，开启了为期一年的博士后访学生涯。这是我人生中第一次踏出国门、奔赴陌生的国度，出发的满心兴奋里始终夹杂着一丝对未知的忐忑。落地狮城，满目葱郁的热带绿植、温润潮湿的海风，还有街头巷尾各式口音的英语，交织成我对这座城市最鲜活、最深刻的初印象。

进入课题组后，我快速调整状态，融入全新的科研生活。每次组会，刘老师会先关心大家的生活状态与周末日常，再正式开启学术研讨。我们会集体开展文献批判性研读，逐篇剖析优质论文的创新亮点、研究优势与可优化、可拓展的方向，最后汇报阶段性工作、交流科研困惑、探讨创新思路。也是在一次次组会的思维碰撞中，我感受到科研的多元与包容：同样深耕发光材料领域，每个人的研究切入点与核心侧重点却不相同。过往我的研究更偏向于深挖底层机理、剖析内在规律。后续通过日常组会学习、学术交流，逐步积累了大量实验相关知识，实现了理论与实验认知的互补。

刘老师课题组的研究聚焦于分子设计，依托理论计算总结科学规律，针对性地对分子结构进行修饰与优化，从而获取理想的物理化学性质。他善于从理论计算角度预判实验方向、设计实验方案、提出优化改进策略。刘老师会专门用文档记录每一个科研灵感、课题思考与可落地的分子设计思路，日积月累，便积攒了大量可深挖、可落地的科研方向。

科研之路从无坦途，日复一日的探索中，有突破的欣喜，也有停滞的困惑。我慢慢找到了属于自己的调节方式与科研节奏。每天下午，我都会来到校园操场缓步慢行，起初只是放空思绪、舒缓压力，很多困扰许久的课题难题，往往就在松弛的状态里豁然开朗，全新的研究思路随之涌现。

每当课题陷入瓶颈、进展不顺时，我便站在阳台，伴着漫天落日余晖，吃上一盒新鲜的榴莲，短暂卸下科研压力。也正因新加坡室内严禁食用、存放榴莲的规定，这份独处的治愈时光，更显珍贵。片刻休整后，便重整心态、回归实验室。我见过新加坡凌晨一点到六点的天空，见证过深夜实验室的灯火通明，也慢慢沉淀了专业能力，打磨了科研心性。

满心感恩这一路的遇见与相助。由衷感谢房老师的悉心支持与暖心鼓励，让我能够放下顾虑、卸下重担，安心奔赴异国完成访学深造。每当我遇到科研困惑、心生焦虑时，房老师总会耐心开导、宽慰鼓励，让我能够从容面对难题、坚定前行。同时也深深感谢学校与学院各位老师的悉心帮扶，以及课题组全体师生在这一年里给予我的所有支持与助力。

在新加坡日复一日的科研与生活中，我褪去迷茫、沉淀自我，找准了科研方向，明晰了人生本心。这场跨越山海的求学之旅，不仅是一次学术的精进，更是一场自我的成长与蜕变。

Finding Growth Through Day-to-Day Perseverance

Peng Lingya

In September 2024, on the recommendation of Prof. Fang Yu, I had the privilege of traveling to Singapore to join Prof. Liu Xiaogang's research group for study and exchange, marking the beginning of my one-year postdoctoral fellowship. This was the first time in my life that I had set foot outside my home country to travel to an unfamiliar land; my excitement at departure was always tinged with a hint of anxiety about the unknown. Upon landing in Singapore, the lush tropical greenery, the warm and humid sea breeze, and the English spoken with various accents on every street corner all blended together to form my most vivid and profound first impression of this city.

After joining the research group, I quickly adjusted to my new environment and immersed myself in this entirely new world of scientific research. At every group meeting, Prof. Liu would first check in on everyone's well-being and ask about our weekend activities before formally beginning the academic discussion. We would collectively engage in critical readings of the literature, dissecting high-quality papers one by one to identify their innovative highlights, research strengths, and areas for optimization and further exploration. Finally, we would report on our progress, share our research challenges, and discuss innovative ideas. It was through these repeated exchanges of ideas during group meetings that I came to appreciate the diversity and inclusivity of scientific research: although we all specialize in the field of luminescent materials, each person's research approach and core focus differ. In the past, my research tended to focus more on delving into underlying mechanisms and analyzing intrinsic patterns. Later, through regular group meetings and academic exchanges, I gradually accumulated a wealth of experimental knowledge, achieving a complementary balance between theoretical and experimental understanding.

Prof. Liu's research group focuses on molecular design. By leveraging theoretical calculations to identify scientific principles, he specifically modifies and optimizes molecular structures to achieve ideal physicochemical properties. He excels at using theoretical calculations to predict experimental directions, design experimental protocols, and propose strategies for optimization and improvement. He meticulously documents every research insight, project consideration, and actionable molecular design concept in dedicated files. Over time, this has resulted in a vast collection of research directions ripe for further exploration and practical application.

The path of scientific research is never easy. In the day-to-day process of exploration, there is both the joy of breakthroughs and the frustration of stagnation. I have gradually found my own way to manage stress and establish a research rhythm. Every afternoon, I take a leisurely stroll around the campus track. At first, it was simply a way to clear my mind and relieve stress, but many research problems that had troubled me for a long time often became crystal clear in that relaxed state, and entirely new research ideas would emerge as a result.

Whenever my research hits a roadblock or progress stalls, I step out onto the balcony, where, bathed in the glow of the setting sun, I enjoy a box of fresh durian to briefly relieve the pressure of my work. Precisely because of Singapore's strict regulations prohibiting the consumption or storage of durian indoors, these moments of solitude and healing feel all the more precious. After a brief respite, I refocus my mind and return to the lab. I've seen the Singaporean sky between 1:00 a.m. and 6:00 a.m., witnessed the bright lights of the lab late at night, and gradually honed my professional skills while refining my scientific mindset.

I am deeply grateful for all the encounters and support I have received along the way. I would like to express my heartfelt thanks to Prof. Fang for her thoughtful support and warm encouragement, which allowed me to set aside my concerns, shed my burdens, and travel abroad with peace of mind to pursue my studies. Whenever I encountered research challenges or felt anxious, Prof. Fang would always patiently guide me, offer comfort, and encourage me, allowing me to face difficulties with composure and move forward with determination. I am also deeply grateful to the faculty members at Shaanxi Normal University and the School of Chemistry and Chemical Engineering for their attentive assistance, as well as to all the faculty and students in our research group for all the support and encouragement they have given me over the past year.

Through my daily life and research in Singapore, I shed my confusion, found inner peace, identified my research direction, and gained clarity about my true purpose in life. This academic journey across mountains and seas has not only deepened my academic knowledge but has also been a journey of personal growth and transformation.