陕西师范大学 SHAANXI NORMAL UNIVERSITY

化学化工学院 School of Chemistry & Chemical Engineering

01 / 2023

# 光子鼻与分子材料团队 简 报

# Photonic Nose and Molecular Materials Group Newsletter


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# 房喻院士出席国家毒品实验室陕西分中心学术委员会会议

## Fang Yu attends Academic Committee meeting of National Narcotics Laboratory Shaanxi Branch


2023 年 1 月 11 日上午，国家毒品实验室陕西分中心召开第一届学术委员会全体会议暨 2023 年度第一次会议，陕西分中心学术委员会主任委员房喻院士出席会议，主持课题立项评议审核，并作会议总结。

省禁毒办常务副主任、厅禁毒总队总队长孙晓刚为房喻院士及其他与会的陕西分中心学术委员会委员赖江华、阎春霞、李涛、常明、张天啸、张爱东颁发了证书。

陕西分中心主任姚震介绍了陕西分中心自主课题管理办法及陕西分中心科研发展情况。

在房喻院士主持下，委员专家审核评议并通过立项了陕西分中心民警焦英、肖雷、廖琦汇报的《细胞膜色谱–毒品分析仪开发及技术标准建立》《微生物及其代谢物用于甄别毒品滥用的技术探索》《便携式拉曼 – 荧光联用光谱仪在毒品查缉中的研究与应用》《低场核磁对可疑毒品进行现场快检的可行性研究》四个自主研究课题。

房喻院士在会议总结中指出，此次汇报的四个自主科研课题是结合基层实战需求展开的，具有一定可行性和研究价值，表示自己和团队非常乐意参与项目研究指导，共谋合作发展。他同时希望陕西分中心要在全面承担西北区域检验监测任务的同时，大力加强人才培养，积极引育高尖端人才；要奋力开展科研攻关，在出成果、出项目、出对策上下功夫、谋创新；要加深与各位专家、科研院所合作，深入谋划在研课题，积极开展国内外毒品检测前沿技术调研，聚焦新型毒品难点问题，集中力量开展科技攻关，切实为禁毒实战提供全方位技术支撑。


On January 11, 2023, the Shaanxi Branch of the National Narcotics Laboratory held the first plenary meeting of its Academic Committee and its 2023 first meeting, and Prof. Fang Yu, chairman of the Academic Committee of Shaanxi Branch, attended the meeting, presided over the review of research projects, and made a summary of the meeting.

Sun Xiaogang, executive deputy director of the Provincial Narcotics Control Office and chief of the Shaanxi Provincial Public Security Department's anti-narcotics corps, presented certificates to Prof. Fang Yu and other members of the academic committee Lai Jianghua, Yan Chunxia, Li Tao, Chang Ming,

Zhang Tianxiao and Zhang Aidong.

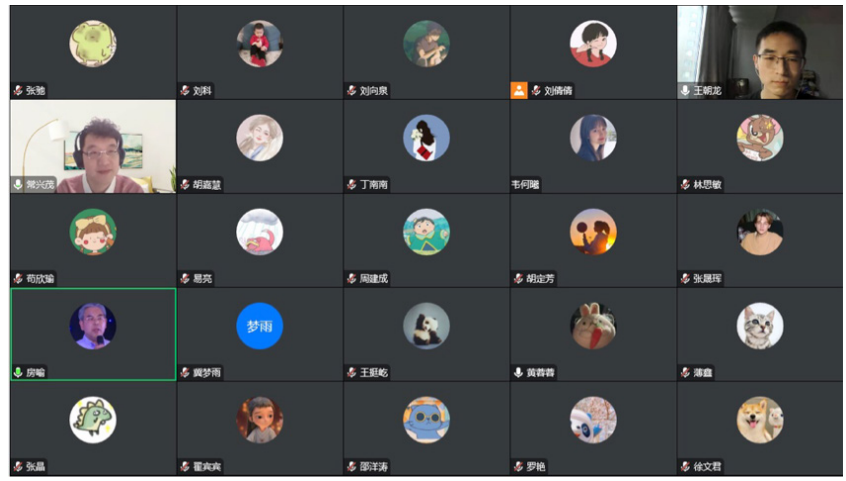
Yao Zhen, director of the Shaanxi Branch, briefed about the management methods of independent research projects and the research development of the Shaanxi Branch.

Presided over by Prof. Fang Yu, the committee members reviewed and approved the four independent research projects reported by Shaanxi Branch officers Jiao Ying, Xiao Lei and Liao Qi: Development of and Technical Standards Establishment for Cell Membrane Chromatography - Drug Analyzer, Technical Exploration of Microorganisms and Their Metabolites for Screening Drug Abuse, Research and Application of Portable Raman-Fluorescence Combined Spectrometer in Drug Seizure, and Feasibility Study of Low-Field Nuclear Magnetic Rapid On-site Detection of Suspicious Drugs.

Prof. Fang Yu said in his summary of the meeting that the four research projects reported are proposed in connection with the practical frontline needs and have certain feasibility and research value, and said that he and his team are willing to participate in the research guidance of the projects and seek cooperation and mutual development with the branch. At the same time, he hoped that the Shaanxi Branch would vigorously strengthen talent training and actively attract high-end talents while undertaking the task of inspection and monitoring in the northwest region; Strive to tackle difficulties in research, and make efforts and innovations in producing research results; Deepen cooperation with experts and research institutes, carefully plan in-progress research projects, actively carry out investigation and survey on cutting-edge technology of drug detection at home and abroad, focus on difficult problems of new drugs, concentrate on scientific and technological breakthroughs, so as to effectively provide all-round technical support for the actual combat of anti-drug campaign.

# 房喻教授课题组举行线上科研经验与学习生活分享会

## Fang Group holds online sharing session on research experience and learning life




2023 年 1 月 14 日下午，光子鼻与分子材料团队房喻教授课题组举行线上科研经验与学习生活分享会，邀请到博士毕业生王朝龙、常兴茂为课题组成员作报告和分享。

会议由黄蓉蓉同学主持，房喻教授、薄鑫老师、组内的博士后、博士和硕士研究生出席了会议。

王朝龙博士以“当好自己科研的第一责任人”为主题分享了自己读博期间及做博士后以来的经历，以及在科研生活中遇到的问题和解决方法。他分享了自己在科研探索过程中保持良好心态的经验，鼓励低年级同学们好好努力，保持勤奋与坚持，当好自己科研的第一责任人。

常兴茂博士以“STUDYING & LIVING IN GERMANY”为主题讲述自己在德国学习生活期间的所见所闻、所思所想，介绍了自己目前的研究课题以及对课题的总结展望，展示了组内生活、介绍组内的成员架构以及实验室的特色管理，分享了在德国的多姿多彩的学习和科研生活。

会议最后，房喻教授在总结讲话中感谢了两位博士的真诚分享，表达了自己对化学学科的信心，鼓励同学们趁着年轻好好努力、多多交流，培养自己的责任心，成为对自己、对家庭、对国家乃至对全人类负责任的人。

On January 14, 2023, Prof. Fang Yu's Photonic Nose and Molecular Materials Group held an online research experience and learning life sharing meeting, and doctoral graduates Wang Zhaolong and Chang Xingmao were invited to give reports and share experiences for Fang Group members.

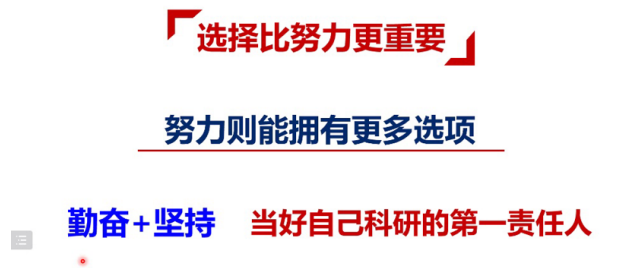
The meeting was chaired by Huang Rongrong, and attended by Prof. Fang Yu, Dr. Bo Xin, and postdocs, doctoral and master’s students in the group.

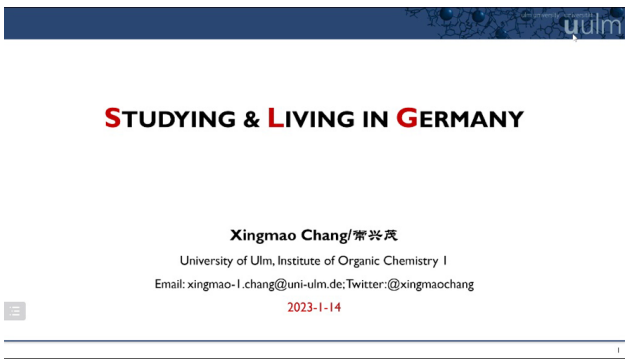
Dr. Wang Zhaolong shared his experience during his doctoral studies and since he was a postdoctoral fellow in a report titled "Act as the first responsible person for your own research", and shared the problems he encountered and solutions he found in his research process.

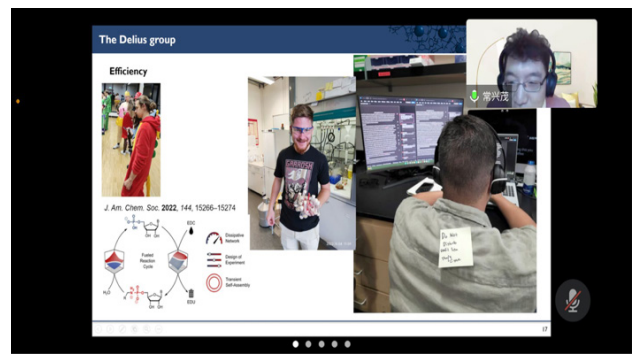
Chang Xingmao talked about what

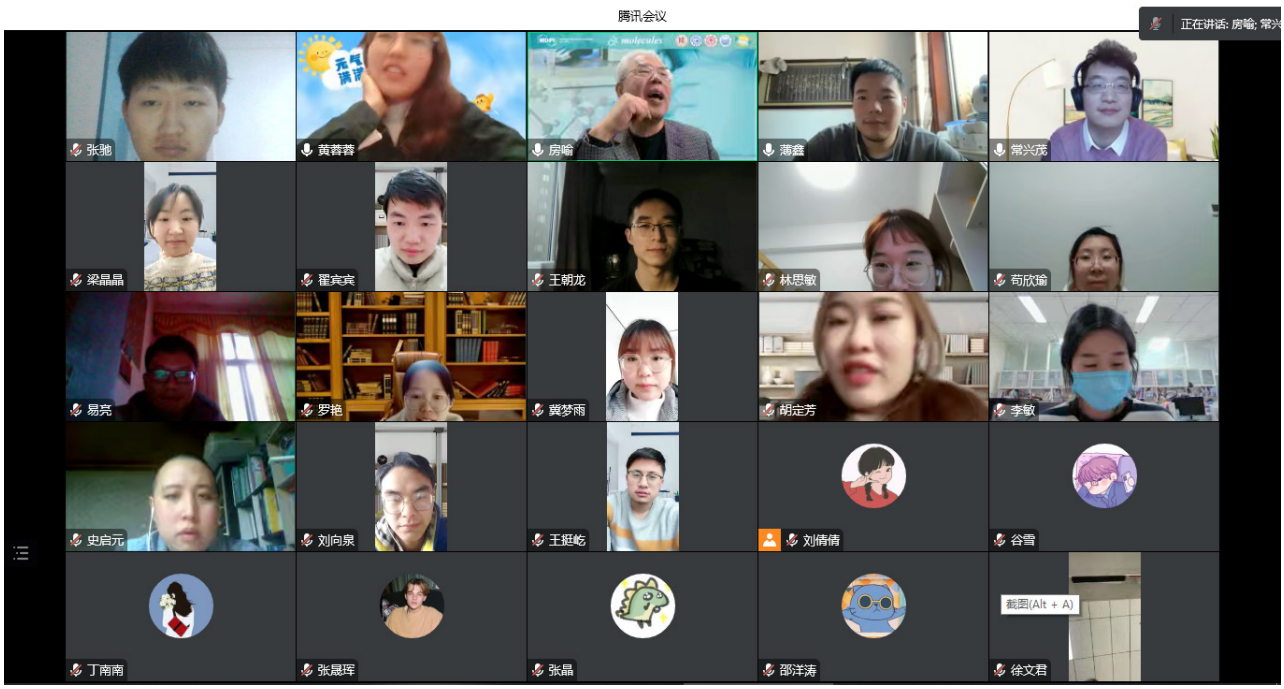
he saw, heard and thought during his study and life in Germany under the title "Studying and Living in Germany". He introduced his current research topics and summarized the prospects of the topics, showed the life in the group, introduced the member structure of the group and the characteristic management of the lab, and shared the colorful learning and research life in Germany.

In his concluding remarks, Prof. Fang Yu thanked Wang Zhaolong and Chang Xingmao for their sincere sharing, expressed his confidence in the discipline of chemistry, and encouraged the students to take advantage of their youth to work hard and communicate more, cultivate their sense of responsibility, and become responsible people for themselves, their families, the country and even all mankind.

# 团队召开 2022 年工作汇报总结会

## Fang Group holds 2022 work report and summary meeting

2023 年 1 月 29 日，农历正月初八，光子鼻与分子材料团队在致知楼 1668 会议室召开了 2022 年度汇报总结会，总结了 2022 年团队在教学、科研与团队建设方面的重要进展，规划 2023 年度团队工作安排。

团队负责人房喻院士、团队成员教师及博士后出席本次会议。

首先，新概念传感器与分子材料研究院办公室主任杨小刚汇报了研究院基础建设的进展、规章制度制定、中英文网站制作、文创产品研发等方面的情况。

接下来，团队成员刘忠山、刘小燕、彭浩南、刘太宏、薛东旭、马佳妮、彭军霞、边红涛、刘凯强、刘静和丁立平老师分别围绕胶体与界面化学、超分子化学、光化学在荧光传感、分离、保湿及界面粘合等方面的应用等研究进展及团队服务等工作进行了汇报，并提出了新一年的计划。

从汇报可以看出，在过去的一年里，虽然经历了疫情反复的影响，但团队在动态共价键有机框架材料晶态控制与应用、仿生润滑功能高分子化学、荧光传感的传能和传质调控、双光子技术及其应用拓展、金属有机骨架材料的功能化、超快反应机制、多孔纳米滤膜和吸湿性凝胶、阵列荧光传感、阴离子识别的超快动力学、基于超分子平衡控制的超分子界面粘合与应用以及交互响应性荧光传感等方面均取得了重大进展。

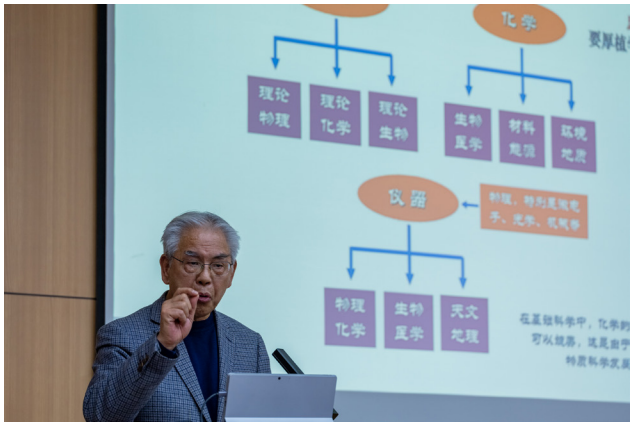
汇报结束后，房喻院士首先向在瑞典完成博士后研究归队的刘小燕老师和师从澳大利亚新南威尔士大学赵川教授新加入团队的薄鑫博士表示欢迎。接着他在总结讲话中肯定了团队在 2022 年所取得的研究成果，提出大家未来的研究要面向世界科技前沿、面向经济主战场、面向国家重大需求、面向人民生命健康。房喻院士指出，一个合格的科研工作者，必须厚植科研情怀，在有限的生命中做最重要的事，要加强合作、博采众长，将科学技术真正转化为生产力，将科学与艺术完美结合起来，让看似枯燥的学术研究满含人文关怀的真善美。

总结会后，各位老师还就国家自然科学基金申报进行了讨论交流。

On January 29, 2023, the eighth day of the first lunar month, the Photonic Nose and Molecular Materials Group held the 2022 annual report and summary meeting in No. 1668 conference room of Zhizhi Building, summarizing major progress of the group in teaching, research and team building in 2022, and planning the group's work arrangement in 2023.

Group leader Prof. Fang Yu, group members and postdoctoral fellows attended the meeting.

First of all, Yang Xiaogang, director of the administrative office of the Institute of New Concept Sensors and Molecular Materials, reported on the progress of the Institute's infrastructure construction, the formulation of rules and regulations, the production of Chinese and English websites, and the development of cultural creative



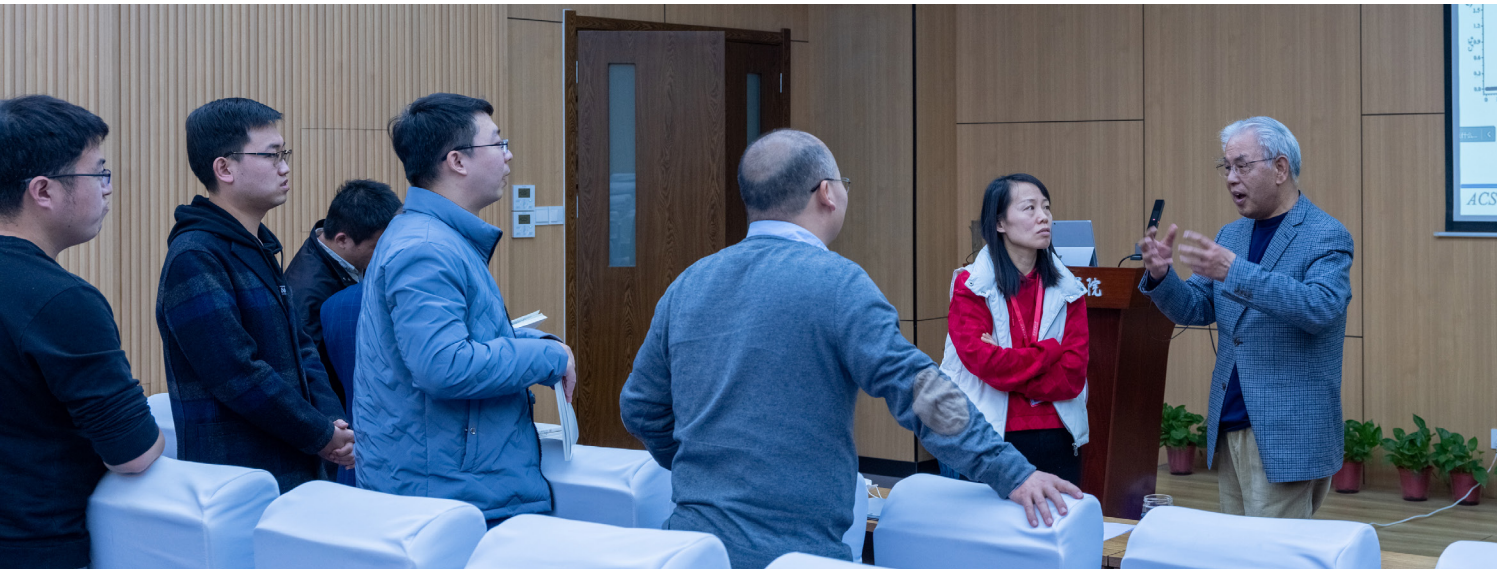

products.

Next, group members Liu Zhongshan, Liu Xiaoyan, Peng Haonan, Liu Taihong, Xue Dongxu, Ma Jiani, Peng Junxia, Bian Hongtao, Liu Kaiqiang, Liu Jing and Ding Liping reported on the research progress of colloidal and interface chemistry, supramolecular chemistry, photochemistry in fluorescence sensing, separation, moisturizing and interfacial adhesion and group service, and put forward plans for the new year.

It can be seen from the reports that in the past year, although under repeated impact of the COVID outbreaks, the group has made significant progress in the control of crystalline dynamic covalent bonding organic framework materials and their applications, biomimetic lubrication functional polymer chemistry, energy transfer and mass transfer regulation of fluorescence sensing, two-photon technology and its application, functionalization of metal-organic framework materials, ultrafast reaction mechanism, porous nanofiltration membranes and hygroscopic gels, fluorescence sensing arrays, ultrafast kinetics of anion recognition, supramolecular interfacial adhesion from supramolecular equilibrium control strategy and interactive responsive fluorescence sensing.

After the presentations, Fang Yu first welcomed Dr. Liu Xiaoyan, who returned from her postdoctoral program in Sweden, and Dr. Bo Xin, who graduated from the University of New South Wales in Australia under the mentorship of Prof. Zhao Chuan. Then, in his concluding speech, Fang Yu affirmed the research results achieved by the group in 2022, and proposed that future research should be oriented to the world's scientific and technological frontier, the main economic battlefield, the major needs of China, and the life and health of the people. Fang Yu said that a qualified researcher must cultivate a bond with scientific research, do the most important thing in a limited life, learn to cooperate and learn from everyone's strengths, transform science and technology into productivity, combine science and art as one, and make seemingly boring academic research full of humanistic care for truth, goodness and beauty.

After the report and summary, the teachers discussed and exchanged views on the application of the National Natural Science Foundation of China.




# 房喻院士主持 Molecules 首届院士杰青高峰论坛

## Fang Yu presides over the first Molecules Summit Forum

2023 年 1 月 14 日，房喻院士作为会议主席主持了 Molecules 首届院士杰青高峰论坛。四位国家杰出青年科学基金获得者陕西师范大学杨鹏教授、吉林大学刘堃教授、上海交通大学姜学松教授和同济大学王启刚教授作为主讲专家分别作了报告。此次论坛的主题为高分子表界面化学：反应性、功能性和可持续性的实现策略。

On January 14, 2023, Prof. Fang Yu, as the chairman of the conference, presided over the first Molecules Summit Forum for Academician and Distinguished Young Scholars. Prof. Yang Peng of Shaanxi Normal University, Prof. Liu Kun of Jilin University, Prof. Jiang Xuesong of Shanghai Jiao Tong University and Prof. Wang Qigang of Tongji University presented their reports. The theme of the forum was Polymer Surface Interface Chemistry: Strategies for Reactivity, Functionality and Sustainability.


# 房喻院士应邀赴火箭军工程大学出席会议

## Fang Yu attends meeting at the Rocket Force Engineering University

2023 年 1 月 15 日上午，房喻院士应邀出席火箭军工程大学智剑实验室学术委员会会议。在会议上，房喻院士听取了王煜军主任向学术委员会作的年度工作报告，并参与审议了实验室开放基金指南。

On January 15, 2023, Prof. Fang Yu was invited to attend the Academic Committee meeting of Zhijian (Smart Sword) Laboratory of the Rocket Force Engineering University. At the meeting, Fang Yu listened to the annual work report made by Director Wang Yujun to the Academic Committee, and participated in the review of the guidelines for laboratory open fund.

88 Univ. Chem. 2023, 38 (1), 88–96 大学化学

•知识介绍• doi: 10.3866/PKU.DXHX202201037 www.dxhx.pku.edu.cn

# 双光子吸收表征及相关光物理机制

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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，西安 710119

# 双光子吸收表征及相关光物理机制

## Nonlinear Characterization and Related Photophysics of Two-Photon Absorption

双光子吸收材料在高分辨生物成像、光动力学治疗和光限幅等领域备受关注。新型双光子吸收材料创制涉及非线性光学性质表征、光物理机制解析和构效关系构建。本文探讨了双光子吸收相关的光物理跃迁机制、开孔 Z– 扫描与双光子激发荧光方法的区别联系以及激光光源特性对双光子吸收性能测试结果的影响，最后对该领域进行展望。

第一作者：陕西师范大学硕士研究生张楠

通讯作者：陕西师范大学刘太宏副教授

全文链接：http://www.dxhx.pku.edu.cn/CN/10.3866/PKU.DXHX202201037

Two-photon absorption (2PA) and two-photon excited fluorescence (2PEF) have received extensive attention due to their potential applications in the fields of high-resolution bioimaging, photodynamic therapy, optical power limiting, three-dimensional microfabrication, and high-capacity data storage, etc. Innovative preparation of novel 2PA materials involves nonlinear optical characterization, photophysical studies and the underlying structure-property relationships. 2PA and 2PEF feature the characteristics of interdisciplinary and cross-fields. Aiming to prompt the development of 2PA mechanics and guide for designing efficient 2PA materials, we identify several key questions related to the photophysical processes and characterization methods of 2PA. The effect of laser characteristics on the nonlinear results is illustrated based on our research contributions and the future perspective and challenges in this field are also laid out.

First Author: Master's candidate Zhang Nan, Shaanxi Normal University

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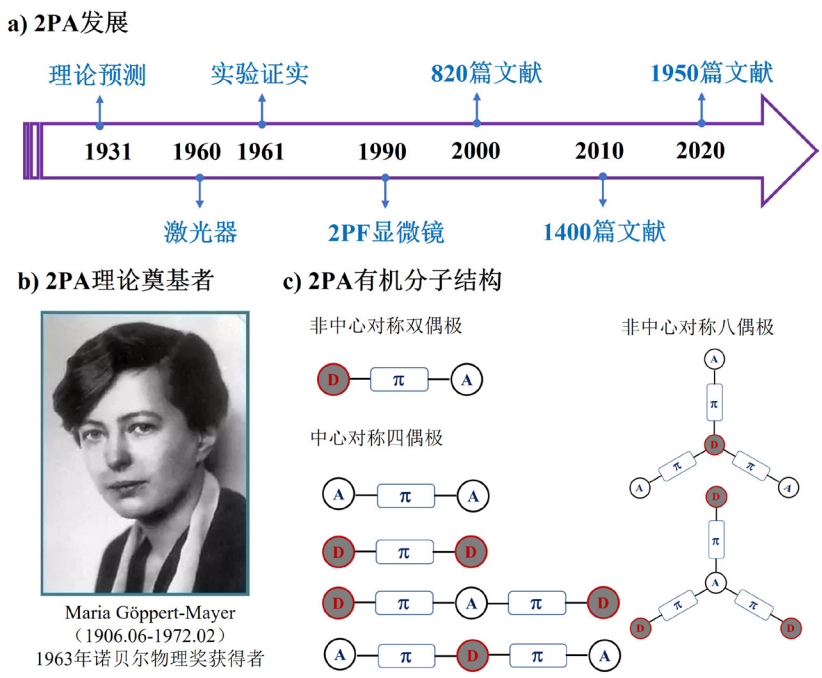
Full Text Link: http://www.dxhx.pku.edu.cn/CN/10.3866/PKU.DXHX202201037



# 咸阳市副市长李忠平一行慰问房喻院士

## Xianyang vice mayor Li Zhongping visits Prof. Fang Yu

2023 年 1 月 12 日下午，咸阳市副市长李忠平一行来访，慰问房喻院士并举行座谈交流。

李忠平副市长感谢房喻院士作为科技顾问为咸阳市科技事业发展所做的工作，并表达了节日问候。房喻院士对咸阳市的关心表示感谢，并表示乐意为咸阳市的科技及社会经济发展出谋出力。

化学化工学院院长薛东教授、新概念传感器与分子材料研究院办公室主任杨小刚等参加座谈。咸阳市政府副秘书长吴凯、市科技局局长杨冲锋、市科技局局长助理申艳等陪同来访。

On the afternoon of January 12, 2023, Li Zhongping, vice mayor of Xianyang City, visited Prof. Fang Yu.

Li Zhongping thanked Fang Yu for his work as a scientific and technological consultant for the development of science and technology in Xianyang City, and expressed holiday greetings. Fang Yu thanked for the care and support received from Xianyang and expressed his willingness to contribute to Xianyang's scientific and technological and social and economic development.

Prof. Xue Dong, dean of the School of Chemistry Chemical Engineering, and Yang Xiaogang, director of the Administrative Office of the Institute of New Concept Sensors and Molecular Materials, attended the meeting. Wu Kai, deputy secretary-general of Xianyang Municipal Government, Yang Chongfeng, director of Xianyang Municipal Science and Technology Bureau, and Shen Yan, assistant director of S&T Bureau, accompanied Li Zhongping during the visit.

4 中国科学报 2022 年 12 月 27 日 星期二
主编 / 计红梅 编辑 / 陈彬 校对 / 何工劳、唐晓华 Tel:(010)62580616 E-mail:bchen@stimes.cn



中国科学院院士、陕西师范大学原校长房喻：

## 师范教育“破局”当此时

2022 年底，我参加了一次很有意义的会议。

两年前，上海交通大学正式成立教育学院。在成立两周年之际，学院召开了一次顾问委员战略咨询会，我受邀参会并受聘成为该院 2022 年顾问委员会主任之一。

事实上，在上海交大计划成立教育学院之初，该校常务副校长丁奎岭院士就曾和我聊起过此事，当时我便表达了极力赞成之意。因为在我看来，综合类院校，尤其是如上海交大这样的高水平综合类院校成立教育学院，是目前我国师范类教育“破局”的重要途径。而作为一个浸淫师范教育几十年的老“师范人”，我觉得目前的师范教育也的确到了需要“破局”的时候。

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（本报记者陈彬采访整理）

# 师范教育“破局”当此时

## It's time to "Break new ground" in teacher education

文 / 房 喻 by Fang Yu

2022 年底，我参加了一次很有意义的会议。

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At the end of 2022, I attended a very meaningful meeting.

Two years ago, Shanghai Jiaotong University officially established its School of Education. On the occasion of its second anniversary, the School held a meeting of the Strategic Advisory Board, which I was invited to attend and appointed as one of the directors of the Advisory Committee in 2022.

In fact, at the beginning of the establishment of the School of Education of Shanghai Jiaotong University, Chinese Academy of Sciences Academician Ding Kuiling, the executive vice president of the university, talked to me about this matter, and I strongly agreed with him. Because in my opinion, the establishment of education schools in comprehensive universities, especially high-level comprehensive universities such as Shanghai Jiaotong University, is an important way to "break new ground" in teacher education in China. As an old "teacher in a teacher education university" who has been immersed in teacher education for decades, I think the current teacher education has indeed reached the time when it needs to "break new ground".

Teacher education has a long history in China, but for a long time, the first problem that needs to be solved is the number of teachers, that is, to provide enough teachers for basic education. However, with the development of social economy and the continuous progress in education, the main contradiction between the supply and demand of basic education teachers in China is no longer a matter of quantity, but replaced by the supplement of excellent teachers.

At this point, it is particularly important to attract high-quality university students to become basic education teachers, and these students often exist in high-level universities.

Take the School of Education of Shanghai Jiaotong University as an example. At the meeting, I learned that most of the students in the master's degree program offered by the school are from the former "985 Project" universities, so the quality of its students is naturally guaranteed. What's more, these students are 22 years old or older when they enter graduate school, and their plans for future careers are clearer and more determined than when they graduated from high school. This means that these high-quality students are more likely to enter and eventually stay in the teaching profession after graduation.

China was aware of this problem at the national level a few years ago. For example, in 2018, the Central Committee of the Communist Party of China and the State Council have issued a document clearly supporting high-level comprehensive universities to run teacher education programs, and promoting a number of high-level comprehensive universities with teacher education foundation to offer teacher training majors and establish teacher education schools. The School of Education of Shanghai Jiaotong University also came into being in this context. In May this year, the Department of Education of Guangdong Province also clearly proposed to promote the construction of teacher education schools in three to five high-level comprehensive universities in the province in its Implementation Plan for the Construction of Guangdong "New Teacher Education" (2022-2025).

All these are obviously conducive to the reform and quality of China's teacher education.

In addition, in the context of the current "double first-class" construction, traditional normal universities also need to be more determined in planning their own development paths. I personally

disagree with the blind pursuit of so-called "world-class" of some teacher training universities in recent years. As we know, in major developed countries, there is actually no so-called "teacher training major". As a "local" major, instead of pushing for the so-called "world-class" in form, domestic normal colleges and universities should sink down and solidly carry out the construction of professional disciplines.

Specifically, it is to maximize students' understanding and awareness of a certain subject. For a teacher, it is not important whether you can make a beautiful PowePoint presentation, and the mastery of certain "teaching skills" is not a key issue. The core factors that determine a teacher's teaching ability are his or her love of education, his or her understanding of the subject he or she is teaching, and his or her mastery of the cutting-edge content of the relevant subject. Only when they truly master a subject, stand outside the discipline, and systematically teach relevant knowledge, can they become a qualified or even excellent teacher.

This year, the report of the 20th National Congress of the Communist Party of China put together the three major strategies of education, science and technology, and talents, and I think this is very correct - the development of science and technology depends on talents, and talents need to be cultivated through education. Of course, "education" here does not refer to higher education alone, but to the entire education system from primary and secondary education to higher education. In fact, primary and secondary education plays a more important role in the early discovery and early cultivation of certain characteristics of talents. From this point of view, it is also debatable whether some of the current practices that overly pursue the "all-round development" of primary and secondary school students are appropriate.

In short, in the face of the new situation of talent education in China, the importance of a high-quality teaching team cannot be overemphasized. To build such a team, teacher education must break new ground through the traditional education model. Such a "break" should begin now.

Published in *China Science News* (Higher Education Focus, Page 4, 2022-12-27)

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