学科、专业简介（导师、研究方向及其特色、学术地位、研究成果、在研项目、课程设置、就业去向等方面）：

**一、硕士点概况**

上海师范大学应用化学硕士点建立于2001年，依托《资源化学》省部共建教育部重点实验室、稀土功能材料上海市重点实验室、稀土功能材料上海市重点学科。该硕士点经过多年的建设，已经形成了一个完整的教学科研学科体系；拥有先进的实验平台，包括XPS、NMR、XRD、XPS、FTIR、SEM/TEM/AFM/STM、荧光光谱仪、紫外-可见-近红外光谱仪、光电材料测试系统、太阳能电池光谱响应测试系统等装置。

目前承担上海市基础研究重重点项目，上海市重点领域创新专项，上海市高新技术产业化重点项目计划等多项科研项目。在***J. Mater.Chem.，Cryst.Eng.Comm，Cryst. Growth Des.，Appl. Phys. Lett., J.P.C.C., ACS Appl. Mater. Interfaces，[Mater. Chem. Phys.,](http://www.medsci.cn/sci/submit.do?id=a2344702" \t "_blank)  J.Am.Ceram.Soc., J.E.S., J. Lumin.，Opt. Mater.***等重要学术刊物上发表论文100多篇；申请国家发明专利73项，其中36项获得授权。**2007年**获得上海市技术发明三等奖；**2008年**获得“宝钢优秀教师奖”、 “上汽教育杯” 优秀指导奖；**2009年**获得上海市大学生“挑战杯” 优秀指导教师奖；**2010年**获得上海市科学技术三等奖、上海市科技进步三等奖。

2001年以来招收硕士生139名，已经毕业106名。近年来，应用化学硕士点研究生科研成果突出，获得全国及上海市的一系列嘉奖。包括“中国青少年科技创新奖”、 全国大学生“挑战杯”一等奖、“宝钢优秀学生奖”、 上海市“市长提名奖”、 上海市大学生“挑战杯”一、二等奖、上海市“科创杯”、“上汽教育杯”、陈嘉庚青少年发明奖等24项。先后有8位研究生获得上海市优秀毕业生；并获得1篇上海市优秀学位论文。

**二、师资队伍**

李景焱教授、孙大志教授、梁杰副教授、彭子飞副教授、徐合副教授、黄金萍副教授、虞鸣副教授、张伯武副教授、刘洁副教授；目前硕士点负责人为孙大志教授。2001年以来招收硕士生125名，在读42名，毕业研究生全部获得硕士学位，硕士生学位论文全部达到学位条例的要求。

**三、研究方向**

本学科主要从事材料物理与化学及其相关交叉学科的新理论、新方法、新技术及应用研究。主要研究方向：

**1. 无机功能材料的合成与应用：**主要涉及：(1)稀土发光材料；(2)新型能源材料（太阳能电池材料， 制氢材料，热反射与敏化材料，新型可见光催化材料等）；(3)新型多铁性材料、铁电材料和高性能热释电材料相变特性、老化机理及其应用。

**2. 环境与健康材料的合成与应用：**包括：(1)有机-无机复合抗菌材料的合成、结构、抗菌机理以及在纺织品、涂料等方面的应用；(2)新型卤胺化合物抗菌材料的制备及其在水处理等方面的应用；主要开展简易水质测定剂、环境保护试纸、溶解氧测定仪、纳米粒子的特效性研究、具有生物活性的新型稀土纳米环境净化抗菌新材料制备与应用技术开发以及利用环境废弃物制备新型高效净水剂应用研究。

**四、学科特色：**

(1) 结合我国稀土资源综合利用的战略目标，强化稀土功能材料的研究与开发；(2) 紧扣环境友好、节能和可持续发展主题，实现资源开发、环境保护和能源利用协调发展；(3) 面对能源危机，高度重视节能和新能源材料的研发工作；(4) 产学研相结合，在基础理论研究的同时，扩大与国内外企业的合作，通过建立联合实验室和联合科技攻关，解决生产实际中的难题；加快科研成果的转化与产业化进程。

**五、代表性论文**

1. Hongde Luo, Jie Liu, Xiao zheng, Lixian Han, Kuaixia Ren and Xibin Yu\*, “Enhanced Photoluminescence of Sr3SiO5:Ce3+ and Tuneable Yellow Emission of Sr3SiO5:Ce3+,Eu2+ by Al3+ Charge Compensation for W-LEDs”,***J. Mater. Chem.,*** 2012, doi:10.1039/C2JM32293E. **(IF=5.1)**
2. Kun Zhang, Dieqing Zhang, Jie Liu, Kuaixia Ren, Hui Luo, Yingjie Peng, Guisheng Li and Xibin Yu\*, “A novel nanoreactor framework of iodine-incorporated BiOCl core–shell structure: enhanced light-harvesting system for photocatalysis”,***Cryst Eng Comm.*** 2012,14, 700. **(IF = 4.0)**
3. Kun Zhang, Jie Liang, Shan Wang, Jie Liu, Kuaixia Ren, Xiao Zheng, Hui Luo, Yingjie Peng, Xing Zou, Xu Bo, Jihong Li, and Xibin Yu\*, “BiOCl Sub-Microcrystals Induced by Citric Acid and Their High Photocatalytic Activities”， ***Cryst. Growth Des.*** 2012,12, 793−803. **(IF = 4.4)**
4. Jie Liu, Xing Zou, Bo Xu, Hongde Luo, Hongbin Lv, Lixian Han, Xibin Yu\* , “Y2O3:Eu3+ nanotubes self-assembled into flower aggregates, unifirm nanotubes, monodisperse nanospheres: shape controlled synthesis and luminescent properties”, ***Cryst Eng Comm.*** 2012,14,3149–3155.**(IF = 4.0)**
5. Jie Liu, Bo Xu, Song Chao, Hongde Luo, Xing Zou, Lixian Han, Xibin Yu\*, “Shape-controlled synthesis of monodispersed nano-/micro- NaY(MoO4)2 (doped with Eu3+) without capping agents by hydrothermal process”, ***Cryst Eng Comm.*** 2012, 14, 2936. **(IF = 4.0)**
6. Xing Zou, Jie Liu, Yingjie Peng, BoXu, Xibin Yu\*, “Selective and Controlled Synthesis of Multiform Morphologies, Y2O3:Eu3+ and Luminescence properties”, ***J. of Nanosci. and Nanotech.***, 2012,12,2767.**(IF = 1.4)**
7. Lixian Han, Jie Liu, Zhengjun Wang, Xibin Yu\*, “Shape-Controlled Synthesis of ZnSn(OH)6 Crystallites and their HCHO-Sensing Properties”,***Cryst Eng Comm***, 2012,14 (10), 3380.**(IF = 4.0)**
8. Bo Xu, Jie Liu, Chao Song, Hui Luo, Ying jie Peng, and Xibin Yu\*. “ Synthesis and tunable luminescent properties of red phosphor Li1-mAgmLa0.99-nYnPr0.01Mo2O8 with blue excitation for white LEDs”. ***J. Am. Ceram. Soc.*** 2012,95(1),250.**(IF = 2.2)**
9. Kuaixia Ren, Kun Zhang, Jie Liu, Hongde Luo, Yunbo Huang,Xibin Yu\*,”Controllable synthesis of hollow/flower-like BiOI microspheres and highly efficient adsorption and photocatalytic activity”，***CrystEngComm***2012，14, 4384.***(IF = 4.0)***
10. Xuyong Yang, Tan Swee Tiam, Xibin Yu,\* Hilmi Volkan Demir, and Xiao Wei Sun，”Europium (II)-Doped Microporous Zeolite Derivatives with Enhanced Photoluminescence by Isolating Active Luminescence Centers”，***ACS Appl. Mater. Interfaces***2011,3, 4431. ***(IF = 3.0)***
11. Zhengjun Wang, Jie Liu, Feijiu Wang, Xibin Yu\*, “A facial one-pot route synthesis and characterization of Y-stabilized Sb2O3 solar reflective thermal insulating coatings”. [***Mater. Chem. Phys***](http://www.medsci.cn/sci/submit.do?id=a2344702)***.***2011.130, 466. ***(IF = 2.4)***
12. Xuyong Yang, Yongqin Zhou, Xibin Yu\*, Hilmi Demir, Xiao Wei Sun. "Bifunctional highly fluorescent hollow porous microspheres made of BaMoO4:Pr3+ nanocrystals via a template-free synthesis”. ***J. Mater. Chem.*** 2011,21, 9009***(IF = 5.1)***
13. Yingjie Peng, Jie Liu, Kun Zhang, Hui Luo, Jihong Li, Bo Xu, Lixian Han, Xiaojuan Li, and Xibin Yu\*, “Near-infrared luminescent and antireflective in SiO2/YVO4:Yb3+ bilayer films for c-Si solar cells”.***Appl. Phys. Lett.****,* 2011.99, 121110. ***(IF = 3.8)***
14. Feijiu Wang, Jie Liu, Zhengjun Wang, Ai-Jing Lin, Hui Luo, and Xibin Yu\*, “Interfacial heterostructure phenomena of highly luminescent ZnS/ZnO dots”. ***J. Electrochem. Soc,*** 2011,158, H30. ***(IF =2.4)***
15. Yongqin Zhou, Jie Liu, Xuyong Yang, Xibin Yu\*,” Self-assembly and luminescence characterization of CaMoO4:Eu3+, Na+ superstructure via a facile method”. ***J. Electrochem. Soc*.**, 2011，158, H74. ***(IF = 2.2)***
16. Hui Luo, Jie Liu, Xuxin Pu, Zhengjun Wang, Feijiu Wang, Kun Zhang, Yingjie Peng, Bo Xu, Jihong Li, Xibin Yu\*,” Hydrogen generation from highly activated Al-Ce composite materials in pure water”. ***J. Am. Ceram. Soc*.**, 2011,94(11)3976. ***(IF = 2.2)***
17. Jie Liu, Hongbin Lv, Zhengjun Wang, Feijiu Wang, Hui Luo, and Xibin Yu\*, “Correlations between shape and near infrared reflective properties of Nano/Micro-Yttria”.***J. Nanosci. Nanotechno.***2011，11, 3616***(IF = 1.4)***
18. Zhengjun Wang, Pingle Zhou, Jie Liu, Feijiu Wang, Yinjie Peng, and Xibin Yu\*, “Preparation and tunable luminescent characteristics of SiO2 coated ZnO: LiAc nanoparticles”.***J. Nanosci. Nanotech,*** 2011，11, 6772. ***(IF =1.4)***
19. Jie Liu, Pingle Zhou, Zhengjun Wang, Bo Xu, HongdeLuo, and Xibin Yu\*, “Morphologies and luminescence properties of SrZnO2 microstructure”.***J. Nanosci. Nanotechno*.** 2011,11, 6765. **(IF = 1.4)**
20. Jihong Li, Jie Liu, Xibin Yu∗, “Synthesis and luminescence properties of Bi3+-doped YVO4 phosphors”， ***J. Alloy Compd.*,** 2011,509, 9897-9900. **(IF = 2.1)**
21. JianboXiao, Feijiu Wang, Xibin Yu\*, “ZnO-ZnS QDs interfacial heterostructure for drug and food delivery application: enhancement of the binding affinities of flavonoid aglycones to bovine serum albumin”. ***Nanomed-Nanotechnol*,** 2011, 7, 850. **(IF = 4.9)**
22. Zhengjun Wang, Jie Liu, Feijiu Wang, Siya Chen, HuiLuo, and Xibin Yu\*, “Size-controlled synthesis of ZnSnO3 cubic crystallites at low temperatures and their HCHO-sensing properties”.***J. Phys. Chem. C*,** 2010,114, 13577. **(IF = 4.5)** Weiying Wang, Jie Liu, Xibin Yu\*and Guangqian Yang, “Transparent Poly(methyl methacrylate)/ZnONanocompositesBasedon KH570 Surface Modified ZnO Quantum Dots” 2010, ***J. Nanosci. Nanotechnol.*,**10, 5196. **(IF = 1.4)**
23. Yongqin Zhou, Jie Liu, Xuyong Yang, Xibin Yu z, and Jie Zhuang, “A Promising Deep Red Phosphor AgLaMo2O8:Pr3+ with Blue Excitation for White LED Application”, ***J. Electrochem. Soc.,*** 2010,157(3), H278. **(IF = 2.4)** 引用6次
24. Jieyu Liu, Yiming Lu, Jie Liu, Xuyong Yang, XiBin Yu\*, “Investigation of near infrared reflectance by tuning the shape of SnO2 nanoparticles”, ***J. Alloys Compd.*,** 2010,496, 261. **(IF = 2.1)**
25. Xuyong Yang , Jie Liu , Hong Yang , XiBin Yu\*, Yuzhu Guo , Yongqin Zhou and Jieyu Liu, “Synthesis and characterization of new red phosphors for white LED applications” ***J. Mater. Chem.*,** 2009,19, 3771. **(IF = 5.1)**
26. Xuyong Yang, XiBin Yu\*, Hong Yang, YuzhuGuo, Yongqin Zhou, “The investigation of optical properties by doping halogen in the BaMoO4:Pr3+ phosphor system”, ***J. Alloys Compd.*,** 479 (1-2), 2009,307. **(IF=2.1)**
27. Honge Wu, Xuyong Yang, Xibin Yu\*, Jie Liu, Hong Yang, HongbinLv, Kaizhong Yin, “Preparation and optical properties of Eu3+/Eu2+ in phosphors based on exchanging Eu3+-zeolite 13X”, ***J. Alloys Compd.*,** 2009,480(2), 867. **(IF=2.1)**
28. Zhenwei Tao, XiaoyanFei, Qing Zhou, Xibin Yu\*, Jie Liu, Shiping Yang, Liangzhun Yang, “Morphology conversion and highly enhanced green emission of ZnO phosphors by annealing of ZnS in KCl flux”, ***J. Alloys Compd.*,** 2009,470(1-2), 536. **(IF=2.1)**
29. Z. Zhou, X. Zhang, T. Nan, Y. Gao, X. Wang, X. He, P. Qiu, N. Sun, and D. Sun\*, Strong non-volatile voltage control of magnetism in magnetic/antiferroelectric magnetoelectric heterostructure，***Applied Physics Letters***，Vol. 104, (2014)012905，**(IF=3.5)**
30. S Jiao, F Chen, Y Zhang Y, F Wang\*, D Sun\*, et al. Phonon behaviors and dielectric functions in Bi0.5Na0.5TiO3-based ceramics by Raman scattering and optical ellipsometry. ***Journal of the American Ceramic Society***, 2019, 102(5): 2791−2799 **(IF=2.1)**

**六、主要科研项目**

1. 活性Al-Re合金催化水解制氢材料的制备及其制氢效率

2. 稀土掺杂复合纳米材料及节能隔热薄膜涂料

3. 高显色性白光LED稀土荧光粉系列开发及应用

4.太阳能电池材料

5. 梯度多铁性材料和磁电耦合效应研究

6. 择优取向铌镁钛酸铅高性能热释电薄膜研究

7. 钨掺杂对二氧化钒纳米粉体结构相变的影响

8. 新型高效卤胺抗菌材料的合成及应用

9. 极大规模集成电路超净高纯无机试剂的产业化

10.超净高纯试剂产品原材料品质评价体系及国产原材料品质的提升

**七、联系方式**

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