



所受教育 职称职位 主持项目 研究领域 讲授课程 获得奖励 发表论文 会议论文 专利 论著 返

## 所受教育

- 学士 (1983年) 安徽师范大学
- 硕士 (1994年) 中国科学技术大学
- 博士 (2004年) 厦门大学

## 职称职位

- 1983年-现在 安徽师范大学 助教 讲师 副教授 教授 博士生导师
- 2004年-现在 安徽师范大学 化学与材料科学学院 副院长 院长

## 主持项目

1. 纳米晶体的功能化修饰及化学发光研究, 99 年安徽师范大学科研专项基金
2. 纳米晶体的功能化修饰及其在生物分析中的应用, 2001 年安徽省教育厅自然科学基金重点项目
3. 无机纳米粒子作为红区荧光探针的研究, 2004 年安徽师范大学博士科研资助计划项目
4. 物种敏感量子点新型荧光探针的制备及应用, 2005 年国家自然科学基金 (20575002)
5. 高选择性量子点传感系统的构建与应用, 2007 年安徽省自然科学基金 (070416239)
6. 量子点尺寸以依赖荧光猝灭研究及其分析应用, 2008 年国家自然科学基金 (20875003)
7. 分析物诱导的零维和一维CdTe纳米结构间的快速转换与荧光偏振传感研究, 2011年国家自然科学基金 (21175003)

## 研究领域

1. 化学发光新体系研究
2. 有机荧光探针合成、性质及应用研究
3. 纳米荧光探针合成、性质及应用研究
4. 荧光传感研究

## 讲授课程

- 《分析化学》, 《仪器分析》, 《近代仪器分析》, 《化学发光分析》, 《专业英语》

## 获奖情况

1. 1995 年获校首届“皖泰优秀教学奖”
2. 1997 年《发光分析》(合作) 获安徽省高等学校科学技术进步三等奖
3. 2000 年《ICP 仿真实验系统》(合作) 获 CIETE 全国多媒体教育软件大奖赛三等奖
4. 2000 年《分析化学三级教学模式研究》(合作) 获安徽省教学成果三等奖。

## 发表论文

1. Changqin Zhu, Donghui Li, Qingzhi Zhu, Hong Zheng, Qiuying Chen, Huanghao Yang, Jingou Xu\*, Determination of proteins at nanogram levels by their quenching effect on large particle scattering colloidal silver chloride, *Fresenius J. Anal. Chem.*, 2000, 366 (8): 863-868.
2. Changqin Zhu, Donghui Li, Qingzhi Zhu, Hong Zheng, Qiuying Chen, Jingou Xu\*, Application of manganese-tetrasulfonatophthalocyanine as a new mimetic peroxidase in the determination of hydrogen

- peroxide in marine surface water samples with p-hydroxyphenyl acetic acid as a substrate, *Anal. Sci.*, 2000, 16 (3): 253-256
3. Yongxin Li, Danhua Zhao, Changqin Zhu\*, Lun Wang, Jingou Xu, Determination of proteins at nanogram levels by their quenching effect on the chemiluminescence reaction between luminol and hydrogen peroxide with manganese-tetrasulfonato-phthalocyanine as a new catalyst, *Anal. & Bioanal. Chem.*, 2002, 374 (3): 395-398
  4. Lun Wang, Yongxin Li, Danhua Zhao, Changqin Zhu\*, A novel flow-injection chemiluminescence method for determination of glutathione using the reaction of luminol with hydrogen peroxide, *Microchim. Acta*, 2003, 141(1-2): 41-45
  5. Changqing Zhu\*, Shujuan Zhuo, Yongxin Li, Lun Wang, Danhua Zhao, Jinlong Chen, Yuqin Wu, Determination of nucleic acids with tetra-(N-hexadecyl-pyridiniumyl) porphyrin sensitized by cetyltrimethylammonium bromide (CTMAB) using a rayleigh light-scattering technique, *Spectrochim. Acta* 2004, 60 (4): 959-964
  6. Chang Qing Zhu\*, Dan Hua Zhao, Jin Long Chen, Yong Xin Li, Le Yu Wang, Lun Wang, Yun You Zhou, Shu Juan Zhuo, Yu Qin Wu, Application of L-cysteine-capped nano-ZnS as a Fluorescence Probe for the determination of proteins, *Anal. & Bioanal. Chem.*, 2004, 378: 811-815
  7. Chang-Qing Zhu\*, Yu-Qin Wu, Hong Zheng, Jin-Long Chen, Shu-Juan Zhuo, Yong-Xin Li, Spectrophotometric method for the direct determination of anionic surfactant sodium dodecyl benzenesulphonate (SDBS) using a hydrophobic Near-infrared (NIR) cationic cyanine dye without solvent extraction, *Anal. Lett.*, 2004, 37: 725-737
  8. Chang-Qing Zhu\*, Yu-Qin Wu, Hong Zheng, Jin-Long Chen, Shu-Juan Zhuo, Yong-Xin Li, Fluorescence enhancement method for measuring anionic surfactant sodium dodecyl benzenesulphonate (SDBS) with a hydrophobic cyanine dye, *Anal. & Bioanal. Chem.*, 2004, 379: 730-734
  9. Chang-Qing Zhu, Shu-Juan Zhuo, Jin-Long Chen, Yu-Qin Wu, Yong-Xin Li, Dong-Hui Li, Hong Zheng, Jin Xu\*, A kinetic fluorometric method for the determination of nucleic acids using a ternary equilibrium system of nucleic acids - iron (III) tetracarboxy phthalocyanine-poly-lysine coupled with the oxidation reaction between hydrogen peroxide and DL-tyrosine, *Anal. Chim. Acta*, 2004, 514 (2): 247-256
  10. Changqing Zhu, Shujuan Zhuo, Hong Zheng, Jinlong Chen, Donghui Li, Shunhua Li, Jingou Xu\*, Determination of nucleic acids based on shifting the association equilibrium between tetracarboxy aluminum phthalocyanine and poly-lysine, *Spectrochim. Acta Part A*, 2005, 61 (4): 743-748
  11. Chang-Qing Zhu, Shu-Juan Zhuo, Hong Zheng, Jin-Long Chen, Dong-Hui Li, Shun-Hua Li, Jin-Gou Xu\*, Fluorescence enhancement method for the determination of nucleic acids using cationic cyanine as a fluorescence probe, *Analyst*, 2004, 129: 254-258
  12. Changqing Zhu, Hong Zheng, Donghui Li, Shunhua Li and Jingou Xu\*, Near-infrared hydrophobic probes molecular light switch for CMC determination of Triton X-100 solution, *J. Chinese Chemistry*, 2004, 22:1319-1324
  13. Changqing Zhu, Hong Zheng, Donghui Li, Shunhua Li and Jingou Xu\*, Fluorescence quenching method for the determination of sodium dodecyl sulphate with near-infrared hydrophobic dye in the presence of Triton X-100, *Spectrochim. Acta Part A*, 2004, 60 (13): 3173-3179
  14. Chang-Qing Zhu, Shu-Juan Zhuo, Hong Zheng, Jin-Long Chen, Dong-Hui Li, Shun-Hua Li, Jin-Gou Xu\*, Determination of nucleic acids based on shifting the association equilibrium between heptamethylene cyanine and poly-lysine, *Microchim. Acta*, 2004, 148 (3-4), 251-257
  15. Chang-Qing Zhu, Yu-Qin Wu, Hong Zheng, Jin-Long Chen, Dong-Hui Li, Shun-Hua Li, Jin-Gou Xu\*, Determination of nucleic acids by near-infrared Fluorescence quenching of hydrophobic thiacyanine dye in the presence of Triton X-100, *Anal. Sci.*, 2004, 20: 945-949
  16. Chang-Qing Zhu, Yu-Qin Wu, Hong Zheng, Jin-Long Chen, Dong-Hui Li, Shun-Hua Li, Jin-Gou Xu\*, Near-infrared fluorimetric determination of protein by shifting the ion-association equilibrium between cationic heptamethylene cyanine and poly-Glutamate, *Anal. Lett.*, 2004, 37 (6): 1115-1127
  17. Shujuan Zhuo, Jinlong Chen, Hong Zheng, Yuqin Wu, Changqing Zhu\*, Determination of nucleic acids based on shifting the association equilibrium between tetracarboxy aluminum phthalocyanine and tetra-(N-hexadecyl-pyridiniumyl) porphyrin, *Talanta*, 2004, 64: 528-533
  18. Chang-Qing Zhu, Jin-Long Chen, Hong Zheng, Yu-Qin Wu and Jin-Gou Xu\*, A colorimetric method for fluoride determination in aqueous samples based on the hydroxyl deprotection reaction of a cyanine dye, *Anal. Chim. Acta*, 2005, 539 (1-2) : 311-316
  19. Changqing Zhu\*, Ling Li, Fang Fang, Jinlong Chen, and Yuqin Wu, Functional InP nanocrystals as novel near-infrared fluorescent sensors for mercury ions, *Chemistry Letters*, 2005, 34 (7): 898-899
  20. Jin-Long Chen and Chang-Qing Zhu\*, Functionalized cadmium sulfide quantum dots as fluorescence probe for silver ion determination, *Anal. Chim. Acta*, 2005, 546 (2): 147-153
  21. Jin-Long Chen, Shu-Juan Zhuo, Yu-Qing Wu, Fang Fang, Ling Li and Chang-Qing Zhu\*, High selective determination iron (II) by its enhancement effect on the fluorescence of pyrene-tetramethylpiperidine (TEMPO) as a spin fluorescence probe, *Spectrochim. Acta Part A*, 2006, 63: 438-443
  22. Fang Fang, Hong Zheng, Ling Li, Yu-Qing Wu, Jin-Long Chen, Shu-Juan Zhuo, and Chang-Qing Zhu\*, Determination of nucleic acids with a near infrared cyanine dye using resonance light scattering technique, *Spectrochim. Acta Part A*, 2006, 64: 698-702
  23. Yunsheng Xia, Tianlong Zhang, Xuelian Diao, and Changqing Zhu\*, Measurable emission color change: size-dependent reversible fluorescence quenching of CdTe quantum dots by molecular oxygen, *Chemistry Letters*, 2007, 36(2), 242-243
  24. Xue-Lian Diao, Yun-Sheng Xia, Tian-Long Zhang, Yan Li, and Chang-Qing Zhu\*, Fluorescence-detecting

- cationic surfactants using luminescent CdTe quantum dots as probes, *Anal. & Bioanal. Chem.*, 2007, 388:1191-1197
25. Yun-Sheng Xia, Chun Cao, and Chang-Qing Zhu\*, Selectively detect mercury (II) and copper (II) base the opposite size-dependent fluorescence quenching of CdTe quantum dots, *J. Chinese Chemistry*, 2007, 25:1836-1841
  26. Jin-Long Chen, and Chang-Qing Zhu\*, Fluorescence enhancement assay for trace iron(II) using Pyr-tem as a spin label fluorescent probe, *Microchim Acta*, 2007, 156:307-313
  27. Yun-Sheng Xia, Chun Cao, and Chang-Qing Zhu\*, Two distinct photoluminescence responses of CdTe quantum dots to Ag (I), *Journal of Luminescence*, 2008, 128: 166-172
  28. Tian-Long Zhang, Yun-Sheng Xia, Xue-Lian Diao and Chang-Qing Zhu\*, Preparation and formation mechanism of strong violet luminescent CdS quantum dots taking ligand exchange strategy, *Journal of Nanoparticle Research*, 2008, 10:59-67
  29. Yunsheng Xia and Changqing Zhu\*, Aqueous synthesis of type-II core/shell CdTe/CdSe quantum dots for near-infrared fluorescent sensing of copper(II), *The Analyst*, 2008, 133:928-932
  30. Changqing Zhu\*, Xin Wang, Yunsheng Xia, Peng Wang, and Yan Li, A pH-triggered reversible aggregation of gold nanorods modified with denatured bovine serum albumin, *Chemistry Letters*, 2008, 37 (10): 1061-1061
  31. Yunsheng Xia\* and Changqing Zhu\*, Use of surface-modified CdTe quantum dots as fluorescent probes for sensing mercury (II), *Talanta*, 2008, 75:215-221
  32. Chang-Qing Zhu\*, Peng Wang, Xin Wang, and Yan Li, Facile phosphine-free synthesis of CdSe/ZnS core/shell nanocrystals without precursor injection, *Nanoscale Res Lett*, 2008, 3:213-220
  33. Ming Cao, Chun Cao, Meigui Liu, Peng Wang and Changqing Zhu\*, Selective fluorometry of cytochrome using glutathione-capped CdTe quantum dots in weakly basic medium, *Microchimica Acta*, 2009, 165, 341-346.
  34. Changqing Zhu\*, Meigui Liu, Peng Wang, Ming Cao, Chun Cao, Determination of Albumin Using CdS/SiO<sub>2</sub> Core/shell Nanoparticles as Fluorescence Probes, *Chinese Journal of Chemistry*, 2009, 27: 1820-1826.
  35. Ming Cao, Meigui Liu, Chun Cao, Yunsheng Xia, Linjun Bao, Yingqiong Jin, Song Yang, Changqing Zhu\*, A simple fluorescence quenching method for berberine determination using water-soluble CdTe quantum dots as probes. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 2010, 75: 1043-1046
  36. Mingchuan Yu, Yingqiong Jin, Xin Qi, Linjun Bao, Zhangsheng Qian, Changqing Zhu\*, Near-Infrared Fluorimetric Determination of Copper(II) Ions Using CdHgTe Nanorods as Probe, *Chinese Journal of Chemistry*, 2010, 28: 1165-1170.
  37. Yingqiong Jin, Lilin Sun, Dan Hao, Rui She, Zhangsheng Qian, Changqing Zhu\*, Qin Xiao, Peroxyoxalate Chemiluminescence Based on Fluorescent Conjugated Polymer for the Determination of Triton X-100, *Chinese Journal of Chemistry*, 2011, 29: 575-580.
  38. Yunsheng Xia \*, Lei Song and Changqing Zhu\*, Turn-On and Near-Infrared Fluorescent Sensing for 2,4-Trinitrotoluene Based on Hybrid (Gold Nanorod)(Quantum Dots) Assembly, *Anal. Chem.*, 2011, 83 (4):1401-1407.
  39. Meifang Gui, Linjun Bao, Yunsheng Xia\*, Chao Wei, Shengzhou Zhang, Changqing Zhu\*, Indication of intracellular physiological pH changes by L-cysteine-coated CdTe quantum dots with an acute alteration in emission color, *Biosensors and Bioelectronics*, 2011, 30: 324-327.
  40. Dahui Tian, Zhangsheng Qian, Yunsheng Xia, and Changqing Zhu\*, Gold Nanocluster-Based Fluorescent Probes for Near-Infrared and Turn-On Sensing of Glutathione in Living Cells, *Langmuir*, 2012, 28 (8): 3945-3951.
  41. Lilin Sun, Dan Hao, Weili Shen, Zhangsheng Qian and Changqing Zhu\*, Highly sensitive fluorescent sensor for copper (II) based on amplified fluorescence quenching of a water-soluble NIR emitting conjugated polymer, *Microchimica Acta*, 2012, 177: 357-364.
  42. 朱昌青, 李永新, 王伦, 鲁米诺-8-羟基喹啉-5-磺酸-镉(II)-过氧化氢化学发光体系的研究, *分析化学*, 1999, 27(6), 640-643.
  43. 朱昌青, 李东辉, 郑洪, 核酸对氯化银胶体溶液共振光散射的猝灭作用及其应用, *分析化学*, 2000, 28(12), 1485-1488
  44. 朱昌青, 李东辉, 郑洪, 利用四磺基锰酞菁催化酪氨酸与过氧荧光反应测定环境水样中的过氧化氢, *厦门大学学报(自然科学版)*, 2001, 40(1), 68-73.
  45. 朱昌青, 李永新, 王伦, 籍高锰酸钾氧化双乙酰的化学反应测定微量锰, *分析化学*, 1997, 25(4), 387-390.
  46. 朱昌青, 李永新, 王伦, 一种测定微量碘离子的简便偶合化学发光法, *分析化学*, 1997, 25(5), 570-572.