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中文简介

1988年9月至1991年7月, 成都科技大学攻读无机化工专业硕士学位;
1996年9月至2001年6月, 华中理工大学电子科学与技术系攻读微电子学与固体电子学专业博士学位;
1997年9月至2000年5月, 华中理工大学电子科学与技术系微电子学与固体电子学专业讲师;
2000年6月至2003年6月, 华中科技大学电子科学与技术系微电子学与固体电子学专业副教授;
2003年7月起, 华中科技大学电子科学与技术系微电子学与固体电子学专业教授;
2004年6月起, 华中科技大学电子科学与技术系微电子学与固体电子学专业和材料物理与化学专业博士生导师;
2002年至2003年, 英国Sheffield 大学电子与电气工程系EPSRC National Centre for III-V Technologies访问研究
先后为华中科技大学电子科学与技术系本科生讲授《专业英语》、《半导体陶瓷及其应用》和《光子学及光电集成系统》等课程, 为微电子学与固体电子学专业研究生讲授《分子电子学》课程。获华中科技大学2000—2001、2004—2005 (本科) 和2005-2006 (研究生) 学年度教学质量优秀二等奖。

英文简介

Career History
Huazhong University of Science and Technology
From July, 2003 on
Professor of Microelectronics and Solid State Electronics, The Department of Electronic Science and Technology, and the MOE Engineering Research Centre for Functional Ceramics, Huazhong University of Science and Technology
June, 2000-July, 2003
Associate Professor of Microelectronics and Solid State Electronics, The Department of Electronic Science and Technology, and the MOE Engineering Research Centre for Functional Ceramics, Huazhong University of Science and Technology
1997-2000
Lecture of Microelectronics and Solid State Electronics, The Department of Electronic Science and Technology, Huazhong University of Science and Technology.
? He held a position as visiting scholar at the EPSRC National Centre for III-V Technologies in the University of Sheffield (Sheffield, UK 2002-03).
RESEARCH INTERESTS:

highly interdisciplinary nature of the research is based on a developing novel soft chemical routes to II-VI, III-V and IV-VI semiconductor nanomaterials and their core/shell heterostructures. These materials are prepared both as thin films and isolated quantum dots. The latter are exciting and novel materials in which the properties of the material are controlled by the size of the particle, these materials will form the basis of new technologies for light emitting diodes and transistors. Mr. Zhang has gained experience in conventional synthetic chemistry and materials characterization from the Universities of Manchester and Sheffield, and has free access to the facilities of the EPSRC National Centre for III-V Technologies and the Manchester Materials Science Centre in UK.

Our current research focuses on the electronic and optical properties of semiconductor, quantum-confined nanoparticles and nanoscale assemblies built from them. Using colloidal chemical syntheses, such nanoparticles, or nanocrystal quantum dots (NQDs), can be prepared with sub-nanometer precision having sizes from 10 to 100 Å. NQDs can be viewed as "quantum boxes" with precisely controlled dimensions and boundary conditions. They can be chemically manipulated like large molecules and can be coupled to each other or can be incorporated into different types of inorganic or organic matrices. The ease of manipulating both the dimensions of the individual particles as well as their arrangement in a complex interacting structure makes colloidal NQDs well-suited for studies of size/structure-dependent quantum-mechanical interactions and as ideal building blocks for nanoscale engineering.

Over 40 papers and review articles have been published or accepted for publication.

研究方向

在英国Sheffield 大学和Manchester大学获得足够的低维材料的合成化学经验和材料与器件的性能表征技术，目前致力于II-VI族与III-V族半导体薄膜与纳米晶(Nanocrystals)、红外量子点(Infrared Quantum Dots)合成及透明导电氧化物薄膜材料制备的新方法、新路线和新工艺及其应用技术的研究与开发。量子点是一类性能由粒子尺寸大小决定的新型材料。化合物半导体量子点将构成未来光电子技术、光伏器件、生物成像技术、纳电子器件和分子电子器件的基础。在材料合成的基础上，集中研究纳电子器件和量子结构的物理与数字模拟、量子原胞自动机(Quantum Cellular Automata)的设计与实现。可以无偿使用英国Sheffield 大学电子与电气工程系EPSRC National Centre for III-V Technologies和Manchester大学Materials Science Centre的仪器设备，与美国Massachusetts Institute of Technology和University of California, Beckley的同行建立了广泛的联系。

学术成就和学术兼职

学术成就：

高性能PTC热敏陶瓷系列材料研究及其产业化，2001年度教育部“全国高校科技进步一等奖”；

高性能PTC热敏陶瓷系列材料研究及其产业化，2002年度国家科技进步二等奖；

半导体陶瓷结构、物性及机理研究，2003年度湖北省自然科学一等奖。

半导体陶瓷中的载流子迁移及与材料电学特性的关系研究，2004年度教育部提名国家自然科学一等奖。

学术兼职：

中国电子学会高级会员

中国材料研究学会高级会员

美国IEEE学会会员

英国IEE学会会员

美国AAAS协会会员

中国腐蚀与防护学会会员

中国青年材料产业化租金协会会员

代表性论文(著作)

1. J Zhang, Daoli Zhang, L Yuan and Y Hu. Growth Kinetics of Colloidal InP Quantum Dots, the Third IEEE International Conference of Nano/Micro Engineered and Molecular System (NEMS), Sanyan China, 6-9 Jan, 2008.

2. L Yuan, Daoli Zhang, J Zhang and Y Hu. Mechanism of Shape Evolution of Colloidal PbSe Quantum Dots, the Third IEEE International Conference of Nano/Micro Engineered and Molecular System (NEMS), Sanyan China, 6-9 Jan, 2008. (Granted "The Best Paper Finalists")

3. 张道礼, 张建兵, 吴启明, 陈胜. InP胶体量子点的微观结构及光谱性质, 半导体学报, 27(7): 1213-1216(2006).

4. Daoli Zhang, L Chen and J Zhang, Properties of ZnS quantum dots in thin film forms by modified Chemical-Bath-Deposition(CBD) processing, the First IEEE International Conference of Nano/Micro Engineered and Molecular System (NEMS), Zhuhai China, 18-21 Jan, 2006.

5. Daoli Zhang, Z Deng, J Zhang and L Chen. Microstructure and Electrical Properties of Antimony-Doped Tin Oxide Thin Film Deposited by Sol-Gel Process, Materials Chemistry and Physics, 98(2-3): 353-357(2006).

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2. Epifani M, Francioso L, Siciliano P, et al. SnO₂ thin films from metalorganic precursors: Synthesis, characterization, microelectronic processing and gas-sensing properties, *Sensors and Actuators B-Chemical*, 124 (1): 217-226(2007).
6. Daoli Zhang, L Tao, Z Deng, J Zhang and L Chen. Surface Morphologies and Optical Properties of Antimony-Doped Tin Oxide Thin Film Deposited by Dip-coating Sol-Gel Techniques, *Materials Chemistry and Physics*, 100(2-3): 275-280(2006).
7. Daoli Zhang, Z Deng, J Zhang, and L Chen. Morphologies and Microstructures of Antimony-doped Tin Oxide Films Derived by Sol-Gel Dip-coating Processing, *Key Engineering Materials*, 336-338: 750-753(2007).
8. Daoli Zhang, Z Deng, J Zhang, and L Chen. The Optical and Electrical Properties of Antimony-Doped Tin Oxide Transparent Conducting Thin Films Prepared by Sol-Gel Dip-coating Technique, *Key Engineering Materials*, 336-338: 754-757 (2007).
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11. Daoli Zhang, D Zhou, S Gong, et al. Influences of porosities on the electrical properties of BaTiO₃ PTCR thermistors coated with electroless Ni electrodes, *Sensors and Actuators A: Physical*, 112 (1):94-100(2004).

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Moetakef P, Nemati Z A. Electrothermal simulation of barium titanate based PTCR thermistor, *Materials Science and Engineering B: Solid-State Materials for Advanced Technology*, 133 (1-3): 157-166(2006)

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1. Wang X H, Liu X L, Chen J F. Sintering behavior and mechanism of pure BaTiO₃ ceramic prepared by high-gravity reactive precipitation, *Advanced Materials Research* (11-12): 27-30(2006)

2. Qiu F, Egerton T A, Cooper I L. An extended two-state model for grain growth during gas phase production of powders, *Journal of the European Ceramic Society* 26 (1-2), pp. 37-47(2006)

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15. H Y Liu, Daoli Zhang, J P R David, and M Hopkinson. Engineering carrier confinement potentials in 1.3μm InAs/GaAs Quantum dots, *The 8th Conference of Microscopy of Semiconductor Materials*, Cambridge UK, March 28-31, 2003.
16. D Zhou, Daoli Zhang, and S Jiang. Ceramic Thermistors, in Vol 2 of *Encyclopedia of Sensors* edited by C A Grimes, E C Dickey, and M V Pishko, California: American Scientific Publishers, pp 91-111 (2006).
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