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### 成果

发表研究论文:

- Synthesis of cubic boron nitride at low temperature & low pressure conditions, *Chem. Mater.*, 2001 \* Hard cheese to hot squeeze, *Nature*, (作者Philip Ball, \* 对 *Chem. Mater.* 文章的专门报道), 2001 \* Soft chemistry method developed for the synthesis of cubic boron nitride, *MRS Bull.*, (作者Cora Linda, \* 对 *Chem. Mater.* 文章的专门报道)
- Synthesis of AlN nanocrystals and their catalytic effect on the polymerization of benzene, *Nanotechnology*, 2003 (Nova Science Press主编Frank Columbus教授因此特别邀请我们参加Focus on Nanotechnology Research一书的编著工作)
- Preparation of GaP/RhB nanocomposite by ultrasonic irradiation, *Inorg. Chem. Commun.*, 2003 (英国Science Writer Association的David Bradley专门撰写了文章, 对我们的这项研究结果进行重点报道)
- Phase-selective synthesis of cubic boron nitride in hydrothermal solutions, *J. Cryst. Growth*, 2004 (美国同行专家Steven J. Syracuse博士对这个工作给予了高度评价, 并希望能够就这项技术进行合作研究)
- The stability and surface reactivity of GaP nanocrystals, *Prog. Cryst. Growth & Charact. Mater.*, 2000
- A Novel Method for Improving the Performance of ZnO Gas Sensors, *Sensors & Actuators B*, 2005 (已有多位国内外同行索要这篇文章)
- Low temperature benzene thermal synthesis and characterization of boron nitride nanocrystals, *Mater. Lett.*, 2002
- Synthesis of AlN nanocrystals in organic solvent at atmospheric pressure, *J. Cryst. Growth*, 2002
- The activation of benzene molecules by BN nanocrystals, *Mater. Lett.*, 2002
- A novel synthetic route to prepare cubic BN nanorods, *Mater. Res. Bull.*, 2002
- Preparation and Photocatalytic Properties of g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> Hybrid Composite, *JOURNAL OF MATERIALS SCIENCE & TECHNOLOGY.*, 2010
- A new stepwise-pressing reaction method for synthesizing pure turbostratic boron nitride, *MATERIALS RESEARCH BULLETIN.*, 2010
- Investigation on the synthesis of turbostratic boron nitride by solvothermal hot-press method, *SOLID STATE SCIENCES.*, 2010
- Oriented growth of cBN crystals along [100] direction in hydrothermal conditions, *MULTI-FUNCTIONAL MATERIALS AND STRUCTURES II, PTS 1 AND 2.*, 2009

- Synthesis, characterization and gas sensing properties of flowerlike In<sub>2</sub>O<sub>3</sub> composed of microrods, *CRYSTAL RESEARCH AND TECHNOLOGY.*, 2010
- A facile solid state reaction route towards nearly monodisperse hexagonal boron nitride nanoparticles, *JOURNAL OF MATERIALS CHEMISTRY.*, 2010
- New strategies for selectively synthesizing cubic boron nitride in hydrothermal solutions, *CRYSTENGCOMM.*, 2010
- In-situ Investigation of BBr<sub>3</sub>/benzene Solution by Fourier Transformation Infrared Spectroscopy, *CHEMICAL RESEARCH IN CHINESE UNIVERSITIES.*, 2009
- Hydrothermal hot-pressing induced phase transition in hexagonal boron nitride, *SOLID STATE SCIENCES.*, 2009
- Phase transformation of boron nitride under hypothermal conditions, *JOURNAL OF SOLID STATE CHEMISTRY.*, 2009
- Phase-transformations of Boron Nitride Nanoparticles in Pyridine-thermal Solution, *ACTA CHIMICA SINICA.*, 2009
- Inducing effect of halide species in the hydrothermal synthesis of cubic boron nitride, *JOURNAL OF CRYSTAL GROWTH.*, 2009
- Room temperature blue-green photoluminescence of MCM-41, MCM-48 and SBA-15 mesoporous silicas in different conditions, *MICROPOROUS AND MESOPOROUS MATERIALS.*, 2009
- Synthesis, characterization and electrocatalytic properties of carbon nitride nanotubes for methanol electrooxidation, *SOLID STATE SCIENCES.*, 2009
- Bis( $\mu$ -3-carboxy-2-oxido-benzoato)- $\kappa$ -O-3(1),O-2:O-3; $\kappa$ -O-3(3):O-1,O-2-bis[aqua(2,2'-bipyridine- $\kappa$ -N-2,N')]copper(II)], *ACTA CRYSTALLOGRAPHICA SECTION E-STRUCTURE REPORTS ONLINE.*, 2009
- 6-Bromo-2-naphthol-piperazine (2/1), *ACTA CRYSTALLOGRAPHICA SECTION E-STRUCTURE REPORTS ONLINE.*, 2008
- SYNTHESIS, STRUCTURE AND PHOTOLUMINESCENT PROPERTIES OF TWO COMPLEXES BASED ON ISO-CYANURIC ACID, *HETEROCYCLES.*, 2008
- Reaction of hexagonal boron nitride nano-crystals under mild hydrothermal conditions, *ZEITSCHRIFT FUR NATURFORSCHUNG SECTION B-A JOURNAL OF CHEMICAL SCIENCES.*, 2008
- Effects of trimethylamine and ammonia on cBN content in the samples prepared by hydrothermal method, *DIAMOND AND RELATED MATERIALS.*, 2008
- Preparation of orthorhombic boron nitride by hydrothermal synthesis method, *CHEMICAL JOURNAL OF CHINESE UNIVERSITIES-CHINESE.*, 2008
- Melaminium sulfate, *ACTA CRYSTALLOGRAPHICA SECTION E-STRUCTURE REPORTS ONLINE.*, 2008
- Preparation and characterization of ZrO<sub>2</sub> porous nanosolid and its composite fluorescent materials, *JOURNAL OF MATERIALS SCIENCE.*, 2008
- Hydrochloric acid-promoted synthesis of cBN via hydrothermal route, *JOURNAL OF MATERIALS SCIENCE & TECHNOLOGY.*, 2007
- Preparation of ZrO<sub>2</sub> porous nanosolid and its composite fluorescent materials, *MATERIALS CHEMISTRY AND PHYSICS.*, 2007
- Sodium isocyanurate monohydrate, *ACTA CRYSTALLOGRAPHICA SECTION E-STRUCTURE REPORTS ONLINE.*, 2007
- Investigation on the key factors in the hydrothermal synthesis of BN: The way of introducing sodium azide, *CHINESE SCIENCE BULLETIN.*, 2007
- Structural transformation of boron nitride nanoparticles in benzene under moderate conditions, *ZEITSCHRIFT FUR NATURFORSCHUNG SECTION B-A JOURNAL OF CHEMICAL SCIENCES.*, 2007
- Low-temperature synthesis of beta-Ga<sub>2</sub>O<sub>3</sub> nanorods on SBA-15 microparticles by solvothermal method, *NANOTECHNOLOGY.*, 2006
- Hydroxyl-oriented adsorption on concaved spherical MCM-48 particles for the

- formation of GaN nanorings, *MATERIALS LETTERS.*, 2006
- Mixed nitrogen source effect in the hydrothermal synthesis of cubic BN, *MATERIALS LETTERS.*, 2007
- Preparation of porous boehmite nanosolid and its composite fluorescent materials by a novel hydrothermal hot-press method, *MATERIALS LETTERS.*, 2006
- Preparation of ZnO bulk porous nanosolids of different pore diameters by a novel solvothermal hot press (STHP) method, *MATERIALS RESEARCH BULLETIN.*, 2006
- Hydroxyl-promoted synthesis of GaN nanorods on SBA-15 surface, *JOURNAL OF CRYSTAL GROWTH.*, 2006
- Effect of pH on the hydrothermal synthesis of BN nanocrystals, *CHINESE CHEMICAL LETTERS.*, 2006
- Effects co-solvent on the uniformity of pore size of ZnO bulk porous nanosolids, *CHEMICAL JOURNAL OF CHINESE UNIVERSITIES-CHINESE.*, 2006
- A novel method for improving the performance of ZnO gas sensors, *SENSORS AND ACTUATORS B-CHEMICAL.*, 2006

#### 申请和授权的发明专利

- 一种高效半导体纳米材料的制备方法, 证书号ZL01107723.9
- 制备氮化硼纳米微粉的方法, 证书号ZL01115125.0
- 水热条件下制备氮化物超微粉和氮化物晶体的方法, 证书号ZL02110066.7
- 一种在水热条件下利用多步原位反应制备氮化物晶体的方法, 证书号ZL03111724.4
- 一种用可控汽化溶剂热压技术制备多孔纳米固体的方法, 证书号ZL03111872.0
- 用于控制水热和溶剂热反应过程的高压反应釜, 证书号ZL03218373.9
- 一种高效半导体纳米材料的应用, 证书号ZL03145199.3
- 一种用于控制氮化硼物相的选相原位合成方法, 证书号ZL200410035714.2
- 一种用于液相反应、物相转变和制备多孔固化体的组合模具, 证书号ZL200510044323.1
- 一种调控硼碳氮材料物相的溶剂热恒压合成方法, 申请号200610042101.0
- 一种可控制备硼碳氮材料的水热恒压合成方法, 申请号200610042088.9
- 一种用于合成超硬微纳米材料的溶剂热液态相变方法, 申请号200610069660.0
- 一种调控氮化碳材料物相的溶剂热恒压合成方法, 申请号200810001675.2
- 一种聚酰亚胺/氧化物复合多孔纳米固体的制备方法, 申请号200810015999.1
- 一种用于研究高温高压下液相反应过程的拉曼液体池, 申请号200810158744.0
- 一种自引发固态反应制备氮化硼纳米空心球的方法, 申请号200910020097.1

#### 应邀参编学术专著和论文

- Deliang Cui, Minhua Jiang, *Focus on Nanotechnology Research*, Nova Press (美), 2004, Chaper 6.
- Zefeng Lai, Lingling Zhu, Lili Yu et al, Structural transformation of BN nanoparticles in benzene under moderate conditions, *Zeitschrift fur Naturforschung B*, 2006, 61(12), 1555

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