# 物理化学学报(Wuli Huaxue Xuebao) 第 27 卷第 12 期(2011 年 12 月)

	目			次						
热力学, 动力学和结构化学										
和频与差频振动光谱实验构型的分析							邓罡		郭	源(2733)
L-和DL-福多司坦的太赫兹光谱分析			何金龙	李 璟	郭昌	盛	杜	勇:	洪	治(2743)
氯甲烷分子在13至17 eV激发能量范			~	1 11	1-	_	11. 12.			
구			唐小锋		周晓		戴静			林(2749)
正十二烷高温燃烧机理的构建及模拟			华晓筱	王静波	王全	德	谈宁	8	学家	近(2755)
离子液体[C <sub>n</sub> py][NTf <sub>2</sub> ] (n=2, 4, 5)的动力	J稻渂和里 颜佩芳		语士法	木上:	2 <b>13</b> 71	T 7	DIEI		TAT I	Tug(2762)
十四烷基芳基磺酸盐在大庆油砂上的	-	初,秋	谭志诚	4 子入7	- VV I	CLZ-	BIEI	XIVIAI	NIN (	JIS(2762)
		<b>蓄</b> 志龙	丁伟	刘坤	张志	伟	曲广	淼	于	涛(2767)
氯盐溶液中甲烷水合物高压分解条件。					刘昌		业渝			倩(2773)
理论与计算化学										
水、甲醇和乙醇液体微结构性质的Car							朱晓	敏	杨正	华(2779)
电子定域化函数的含义与函数形式 •							卢	天	陈飞	武(2786)
Mg-Ti-H体系晶体结构与相稳定性的复							黄			冬(2793)
Cu²+对腺嘌呤-胸腺嘧啶碱基对阴离子					张	凤	王红	艳	林月	霞(2799)
黄铜矿型半导体材料CuAlX2(X=S, Se										
周	和根 陈	虹图	东 懂	李奕	丁开	宁 -	黄	昕	章永	凡(2805)
电化学和新能源	- 16			mla 11	_	-		. 212		12
CdS量子点与金电极之间的光生电子。				张维			刘国			成(2814)
超声搅拌化学浴沉积法制备大颗粒和					•		史高			杰(2821)
以乙醇作溶剂电沉积制备CIGS薄膜·		王信春	胡彬彬	王厂若	杨光	红	万绍	明 ;	杜祖	上亮(2826)
石墨烯氧化物薄膜电极的光电化学特·		21 20 1-	21 6	+ \+	<b>-</b>	nn A	<b>7</b> 1	,7	uu ak	# (2021)
	张晓艳 .		孙钰珺	李 靖	宋	朋马	孙	班	住坑	:莉(2831)
花生壳制备微孔炭及其在电化学超级			郭培志	禾佳佳	北丽	拉	赵善	т	もり 公夕	10 (2020)
氯化硝基四氮唑蓝对钢在盐酸溶液中			1 2 3	•			赵吾 邓书			松(2836)
Ni/NiCo <sub>2</sub> O <sub>4</sub> 复合电极的制备及其在碱性							かり			惠(2841) 林(2849)
甲醇氧化PtSnCo/C阳极催化剂 ······									工林 马	宗(2857)
二氧化钛与碳化钨纳米复合材料制备					1191	叮	1	冲.	勺	寸(2037)
一手[化以一帙] 化闪幻水交互构作响曲					阵	丹	施紐	甜	<b></b> を国	华(2863)
				91112	147	/1	7071	(A)D(	7-17	(2003)
催化和表面科学										
α-MnO <sub>2</sub> 负载纳米 Au 催化剂低温催化氧	氰化CO和	苯的性能	E K							
				闫立娜	王	娟	程水	源 ,	康天	放(2872)
掺杂Fe作为第二种金属组分的V-HMS	S催化剂的	方苯羟基位	化反应							, ,
•••••	• • • • • • • • • • • • • • • • • • • •	•••••	冯素姣	岳 斌	汪	玉	叶	林	贺鹤	勇(2881)
L-脯氨酸稳定的铱催化苯乙酮及其衍生	生物不对和	<b>弥加氢反</b>	应							
		杨朝芬	杨俊	朱艳琴	孙晓	东	李贤	均	陈	华(2887)
SSZ-33分子筛的合成、表征及其对汽车	乍尾气中碳	<b>影氢化合</b>	物的捕集的	性能						
	••••••	潘瑞丽	樊卫斌	李玉平	李晓	峰	李	莎	窦	涛(2893)
									(	(下转封三)

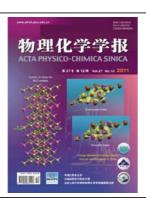
# (上接封二)

光化学和辐射化学	
氧空位对多孔氧化锆光学性质的影响	
······························· 欧阳静 宋幸冷 林明跃 邹 琚 李晶晶 朱江三	下 杨华明(2900)
生物物理化学	
不同类型表面活性剂与高铁肌红蛋白相互作用 张莹莹 曹洪玉 唐 卓	乞 郑学仿(2907)
行的人主权画情任用 5间 0/0 / 1/2	3 71 (2507)
材料物理化学	
感应熔炼高锰硅的结构和形貌特性 周爱军 崔恒冠 李晶泽	<b>赵新兵(2915)</b>
溶剂热法制备球状 Cu₂ZnSnS₄纳米晶及表征	
蔡 倩 梁晓娟 钟家松 邵明国 王 芸 赵肖为	
钛酸钡纳米颗粒聚集球的形成机理 展红全 江向平 李小红 罗志云 陈 寿	<b>4</b> / / / / (= / = / /
Ag负载TiO2纳米管微波辅助水热法制备及其光催化性能 ······· 陈淑海 徐 耀 吕宝哥	- /- / ( /
HAP自组装球的简易合成及其光催化增效作用 ·················· 杨小红 刘 畅 刘金原	<b></b> 朱子春(2939)
V <sub>2</sub> O <sub>5</sub> •xH <sub>2</sub> O-BiVO <sub>4</sub> 纳米复合材料的可控合成和可见光响应的光催化性质 李本侠 王艳芬	<b>芬</b> 刘同宣(2946)
具有 SiC 缓冲层的 Si 衬底上直接沉积碳原子生长石墨烯 ······· 唐 军 康朝阳 李利臣	, , , , , , , , , , , , , , , , , , , ,
只有 SIC 级 [ / 发 ] 151年 ] 成工且	( 14 2/14 (2)33)
新闻与评述	
2010年《催化学报》刊登纳米催化方面文章的聚焦	… 李 勇(2960)
致谢	(2963)
《物理化学学报》2011年第27卷1-12期索引	(2973)
《物理化学学报》征稿简则	(2973)
《物理化学学报》征订启事	
中国化学会第28届学术年会通知	
第十届东方胶化杯全国胶体化学研究生优秀成果奖评选通知	(2945)

### ACTA PHYSICO-CHIMICA SINICA

Vol. 27 No.12 (December, 2011)

#### **COVER**



The cover image presents the structure, the charge density maps associated with the mechanism of second harmonic generation (SHG), and the frequency-dependent of SHG coefficient of the chalcopyrite-type CuAlX<sub>2</sub> (X=S, Se, Te) semiconductors. On page 2805, ZHOU et al. demonstrate that the SHG response of CuAlX2 is mainly related to the transitions from the occupied bands near the top of the valence band to the unoccupied bands that are dominated by valence p states of Al and X atoms.

#### **CONTENTS**

#### THERMODYNAMICS, KINETICS, AND STRUCTURE CHEMISTRY

**Analysis and Simulation of Experimental Configurations for Sum Frequency Generation and Difference Frequency Generation Vibrational Spectroscopy** 

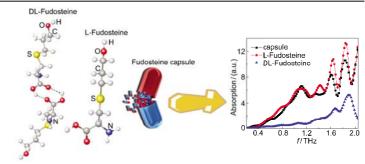
WANG Yuan **DENG Gang-Hua** GUO Yuan

Acta Phys. -Chim. Sin. 2011, 27 (12), 2733-2742

**Terahertz Time-Domain Spectroscopy of** L- and DL-Fudosteine

ZHAO Rong-Jiao HE Jin-Long LI Jing **GUO Chang-Sheng** DU Yong HONG Zhi

Co-propagating and counter-propagating experimental configurations for SFG-VS (DFG-VS) give different signal dispersion angles and detection efficiencies.



THz-TDS can be used to discriminate L- and DL-Fudosteine and to determine the main components of the Fudosteine capsule.

**Ionization and Dissociation of Methyl Chloride in an Excitation Energy** Range of 13-17 eV

Acta Phys. -Chim. Sin. 2011, 27 (12), 2743-2748

WU Man-Man TANG Xiao-Feng NIU Ming-Li ZHOU Xiao-Guo DAI Jing-Hua LIU Shi-Lin

CH2MCIT :CH2MCIT 16.370 eV 15.950 eV 15.280 eV 14.880 eV 14.690 eV 14.030 aV 6.0

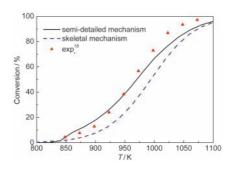
CH<sup>+</sup><sub>3</sub> formation pathways from the  $CH_3Cl^+$  ( $A^2A_1$  and  $B^2E$ ) ions are of the rapid direct and statistical dissociation types, respectively.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2749-2754

### Mechanism Construction and Simulation for the High-Temperature Combustion of *n*-Dodecane

HUA Xiao-Xiao WANG Jing-Bo WANG Quan-De TAN Ning-Xin

LI Xiang-Yuan



A semi-detailed mechanism and a skeletal mechanism for the high-temperature combustion of *n*-do-decane were developed and validated.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2755-2761

# Dynamic Viscosity and Conductivity of Ionic Liquids $[C_npy][NTf_2]$ (n=2, 4, 5)

LIU Qing-Shan YAN Pei-Fang YANG Miao TAN Zhi-Cheng

LI Chang-Ping WELZ-BIERMANN Urs

 $\begin{array}{c} 2.0 \\ \text{The solid straight line is the ideal line} \\ \text{for } 0.01 \, \text{mol-L}^1 \, \text{aqueous KCl solution.} \\ \text{I.o.} \\ \text$ 

The dynamic viscosity and conductivity of the ILs  $[C_npy]$   $[NTf_2]$  (n=2, 4, 5) were determined from 283.15 to 338.15 K; the relationship between the molar conductivity,  $\Lambda$ , and dynamic viscosity,  $\eta$ , was described in terms of Walden's rule.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2762-2766

### Adsorption Performance of Tetradecyl Aryl Sulfonates on Oil Sand from the Daqing Oilfield

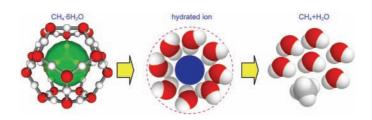
DONG Zhi-Long DING Wei LIU Kun ZHANG Zhi-Wei QU Guang-Miao YU Tao 1400 1200 155 °C: y=0.3993x+295.09; r³=0.9865 15 °C: y=0.3212x+273.22; r³=0.9802 45 °C: y=0.3212x+273.22; r³=0.9802 45 °C 35 °C 35 °C 35 °C 35 °C 200 35 °C: y=0.3170x+228.53; r²=0.9949 0 500 1000 1500 2000 2500 C<sub>d</sub>/(mg·L<sup>-1</sup>)

The relationship between the structural isomers of sulfonates determines their properties.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2767-2772

# Dissociation Conditions and Influencing Factors of Methane Hydrate in Chloride Salt Solution under High Pressure

SUN Shi-Cai LIU Chang-Ling YE Yu-Guang JIANG Qian



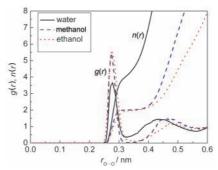
Acta Phys. -Chim. Sin. 2011, 27 (12), 2773-2778

Methane hydrate decomposes more easily under the hydrated ion effect.

#### THEORETICAL AND COMPUTATIONAL CHEMISTRY

Car-Parrinello Molecular Dynamics Simulations of Microstructure Properties of Liquid Water, Methanol and Ethanol

ZENG Yong-Ping ZHU Xiao-Min YANG Zheng-Hua

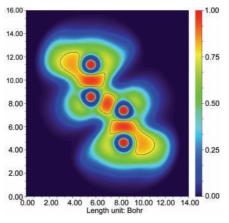


Car-Parrinello molecular dynamics was performed on the solvent structure properties of water, methanol, and ethanol. Different hydrogenbonded network structures are formed *via* hydrogen bonds. The hydrophobic groups have an important effect on the structural properties.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2779-2785

Meaning and Functional Form of the Electron Localization Function

LU Tian CHEN Fei-Wu

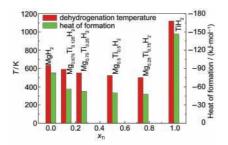


The physical background of the electron localization function is discussed in detail. Some incorrect uses of this function in the literature are pointed out.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2786-2792

First-Principles Calculation of the Crystal Structure and Stabilization of Mg-Ti-H System

DU Xiao-Ming LI Wu-Hui HUANG Yong WU Er-Dong

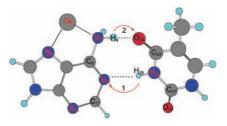


Titanium can reduce the stabilization and dehydrogenation temperatures of Mg,Ti<sub>(1-x)</sub>H<sub>2</sub> hydrides and play a significant catalytic role in improving the dehydrogenation dynamic properties of these hydrides.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2793-2798

Effects of Cu<sup>2+</sup> on Proton Transfer Processes in an Adenine-Thymine Anion Base Pair

ZHANG Feng WANG Hong-Yan LIN Yue-Xia



Cu<sup>2+</sup> cation coordination effects on proton transfer processes in the adenine-thymine anion base pair were studied.

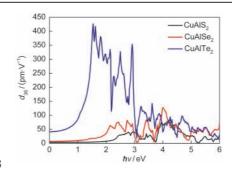
Acta Phys. -Chim. Sin. 2011, 27 (12), 2799-2804

# Electronic Sturctures and Optical Properties of CuAlX<sub>2</sub> (X=S, Se, Te) Semiconductors with a Chalcopyrite Structure

ZHOU He-Gen CHEN Hong
CHEN Dong LI Yi
DING Kai-Ning HUANG Xin

ZHANG Yong-Fan

Acta Phys. -Chim. Sin. 2011, 27 (12), 2805-2813

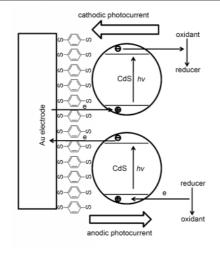


The static second harmonic generation coefficients ( $d_{36}$ ) of CuAlX<sub>2</sub> (X=S, Se, Te) semiconductors increase from X=S to X=Te and values of 3.23, 7.13, and 41.19 pm·V<sup>-1</sup> were obtained, respectively.

#### ELECTROCHEMISTRY AND NEW ENERGY

# Photoinduced Electron Transfer between CdS Quantum Dots and Gold Electrodes

YUE Zhao ZHANG Wei WANG Cheng LIU Guo-Hua NIU Wen-Cheng



A study on the photocurrent from photoinduced electron tunneling transfer between CdS-QDs and gold electrodes for photoelectrochemical detection was carried out.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2814-2820

# Preparation of Large Grain and Dense CdS Thin Films Using Ultrasonic Agitation Chemical Bath Deposition

SHI Cheng-Wu CHEN Zhu SHI Gao-Yang SUN Ren-Jie CdCl<sub>2</sub>-treatment

annealing
as-grown
FTO thin film

20/(°)

The small grains in the CdS aggregates were melted together and the CdS aggregate size did not change in UCBD-CdS thin films after the CdCl<sub>2</sub>-treatment.

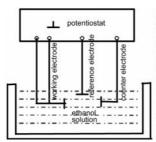
Acta Phys. -Chim. Sin. 2011, 27 (12), 2821-2825

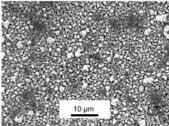
# Preparation of CIGS Thin Films by Electrodeposition Method Using Ethanol as a Solvent

WANG Xin-Chun HU Bin-Bin

WANG Guang-Jun YANG Guang-Hong WAN Shao-Ming DU Zu-Liang

Acta Phys. -Chim. Sin. 2011, 27 (12), 2826–2830





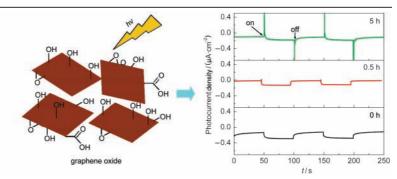
Copper indium gallium diselenide (CIGS) thin films were electrodeposited in an ethanol solution.

#### Photoelectrochemical Properties of Graphene Oxide Thin Film Electrodes

ZHANG Xiao-Yan SUN Ming-Xuan

SUN Yu-Jun LI Jing SONG Peng SUN Tong

CUI Xiao-Li



A series of graphene oxide thin film electrodes were prepared and their photoelectrochemical response was influenced by film thickness and UV irradiation.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2831–2835

Preparation and Characterization of Peanut Shell-Based Microporous Carbons as Electrode Materials for Supercapacitors

GUO Pei-Zhi JI Qian-Qian ZHANG Li-Li ZHAO Shan-Yu ZHAO Xiu-Song PSC-1
PSC-2
PSC-1
PSC-2

Microporous carbons were fabricated from the carbonization of peanut shell and they can be used as electrode materials for supercapacitors.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2836-2840

Inhibition Effect of Nitrotetrazolium Blue Chloride on the Corrosion of Steel in Hydrochloric Acid Solution

LI Xiang-Hong DENG Shu-Duan FU Hui

OCH<sub>3</sub>
OC

Nitrotetrazolium blue chloride is a tetrazole compound that contains two tetrazole rings and acts as a good inhibitor for steel in 1.0 mol·  $L^{-1}$  HCl. It shows better inhibition performance than the tetrazole compound that contains one tetrazole ring.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2841-2848

Preparation of the Ni/NiCo<sub>2</sub>O<sub>4</sub> Composite Electrode and Its Properties toward the Oxygen Evolution Reaction in Alkaline Media

BAO Jin-Zhen WANG Sen-Lin

A Ni/NiCo<sub>2</sub>O<sub>4</sub> composite electrode was successfully prepared by composite electrodeposition. Its electrocatalytic properties toward the oxygen evolution reaction are better than that of a nickel electrode.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2849-2856

# PtSnCo/C Anode Catalyst for Methanol Oxidation

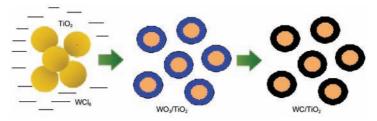
LI Qing-Wu WEI Zi-Dong
CHEN Si-Guo QI Xue-Qiang
LIU Xiao DING Wei
MA Yu

The more negative onset potential of methanol oxidation for the PtSnCo/C catalyst relative to the preadsorbed CO oxidation implies that the intermediates of methanol oxidation on the PtSnCo/C catalyst may be ones, which can be more easily oxidized than CO, instead of CO.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2857-2862

# Preparation of Tungsten Carbide and Titania Nanocomposite and Its Electrocatalytic Activity for Methanol

HU Xian-Chao CHEN Dan SHI Bin-Bin LI Guo-Hua



Tungsten carbide and titania nanocomposite with a core-shell structure shows good synergistic effects for the electrocatalytic oxidation of methanol.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2863-2871

#### CATALYSIS AND SURFACE SCIENCE

### Highly Active Au/α-MnO<sub>2</sub> Catalysts for the Low-Temperature Oxidation of Carbon Monoxide and Benzene

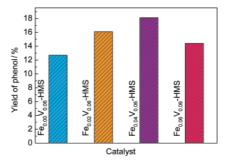
YE Qing HUO Fei-Fei YAN Li-Na WANG Juan CHENG Shui-Yuan KANG Tian-Fang d=0.20 nmAu(200)
Au(200) d=0.20 nmAu(200) d=0.20 nmAu(200) d=0.20 nmAu(200) d=0.49 nmAu(200) d=0.49 nmAu(200)

The excellent catalytic oxidation performance of  $xAu/\alpha$ -MnO<sub>2</sub> was associated with highly dispersed Au, good reducibility, and synergism at the interface between the Au and MnO<sub>2</sub> nanodomains.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2872-2880

# Hydroxylation of Benzene over V-HMS Catalysts with the Addition of Fe as the Second Metal Component

FENG Su-Jiao YUE Bin WANG Yu YE Lin HE He-Yong

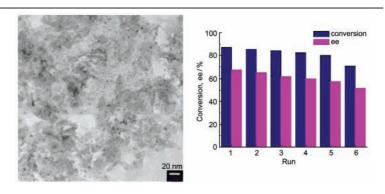


The addition of Fe as the second component can improve the catalytic activity in the hydroxylation of benzene over the V-HMS catalyst.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2881-2886

### Asymmetric Hydrogenation of Acetophenone and Its Derivatives Catalyzed by L-Proline Stabilized Iridium

YANG Chao-Fen YANG Jun
ZHU Yan-Qin SUN Xiao-Dong
LI Xian-Jun CHEN Hua

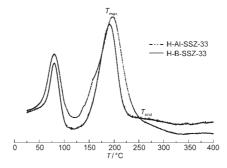


A supported iridium catalyst stabilized by L-proline exhibited good catalytic performance in the asymmetric hydrogenation of acetophenone and its derivatives.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2887-2892

Synthesis, Characterization of SSZ-33 Molecular Sieves and Their Performance for the Automobile Tailpipe Hydrocarbon Trap

PAN Rui-Li FAN Wei-Bin LI Yu-Ping LI Xiao-Feng LI Sha DOU Tao



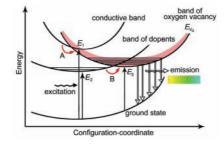
The synthesis of Al-SSZ-33 was achieved by a post-modification procedure of B-SSZ-33 molecular sieves in an Al(NO<sub>3</sub>)<sub>3</sub> solution. The synthesized material is a novel catalyst for use as a hydrocarbon trap in automobile tailpipes.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2893-2899

#### PHOTOCHEMISTRY AND RADIATION CHEMISTRY

# Effect of Oxygen Vacancy on the Optical Properties of Porous Zirconia

OUYANG Jing SONG Xing-Lin LIN Ming-Yue ZOU Ju LI Jing-Jing ZHU Jiang-Ping YANG Hua-Ming



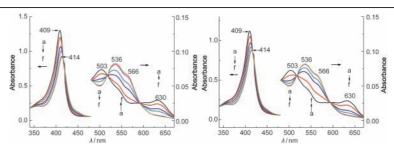
Oxygen vacancies in porous ZrO<sub>2</sub> lead to a combination of excitation and dopant states and dominate the luminescent emissions.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2900-2906

#### **BIOPHYSICAL CHEMISTRY**

# Interactions between Different Classes of Surfactants and Metmyoglobin

ZHANG Ying-Ying CAO Hong-Yu TANG Qian ZHENG Xue-Fang



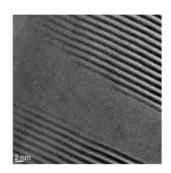
The effects of different classes of surfactants on the UV-Vis absorbance spectra of metMb were investigated.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2907-2914

#### PHYSICAL CHEMISTRY OF MATERIALS

Structure and Morphology of Induction-Melted Higher Manganese Silicide

ZHOU Ai-Jun CUI Heng-Guan LI Jing-Ze ZHAO Xin-Bing

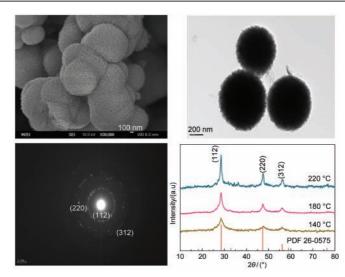


Amorphous MnSi striations were observed in induction-melted higher manganese silicide (HMS), which was determined as single phase Mn<sub>4</sub>Si<sub>7</sub> by SAED. Hot-pressing of HMS powders led to a substantial change in microstructure.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2915-2919

Synthesis and Characterization of Sphere-Like Cu<sub>2</sub>ZnSnS<sub>4</sub> Nanocrystals by Solvothermal Method

CAI Qian LIANG Xiao-Juan ZHONG Jia-Song SHAO Ming-Guo WANG Yun ZHAO Xiao-Wei XIANG Wei-Dong

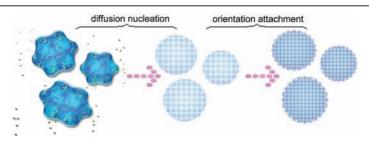


Sphere-like Cu<sub>2</sub>ZnSnS<sub>4</sub> nanocrystals were synthesized by a L-cysteine-assisted solvothermal route. The phase, structure, morphology, and optical properties were also characterized.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2920-2926

### Formation Mechanism of Barium Titanate Nanoparticle Aggregations

ZHAN Hong-Quan JIANG Xiang-Ping
LI Xiao-Hong LUO Zhi-Yun
CHEN Chao LI Yue-Ming



 $BaTiO_3$  nanoparticle aggregates have been grown from barium hydroxide and titanium butoxide by the hydrothermal method. The aggregates have been crystallized in the cubic phase. The growth of the barium titanate nanoparticles aggregation follows the "diffusion nucleation – orientation attachment" formation mechanism.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2927-2932

Microwave-Assisted Hydrothermal Synthesis of Ag-Loaded Titania Nanotubes and Their Photocatalytic Performance

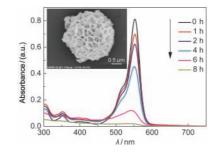
CHEN Shu-Hai XU Yao LÜ Bao-Liang WU Dong 50 nm

Titania nanotubes were synthesized by the microwave-assisted hydrothermal method and loaded with Ag to enhance their visible light photocatalytic activity.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2933-2938

Facile Synthesis of Assembly HAP Nanoribbon Spheres and the Synergized Action of Its Photocatalytic Properties

YANG Xiao-Hong LIU Chang LIU Jin-Ku ZHU Zi-Chun

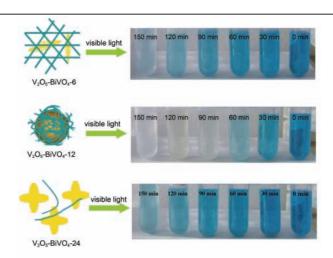


HAP nanoribbon assembly spheres with a high surface area were prepared by a facile and efficient cooperation template method. The degradation rate of rhodamine B increased by 125% when using the composite as a catalyst compared with using ZnO nanoparticles.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2939-2945

Adjustable Synthesis and Visible-Light Responsive Photocatalytic Performance of V<sub>2</sub>O<sub>5</sub>·xH<sub>2</sub>O-BiVO<sub>4</sub> Nanocomposites

WANG Yan-Fen LI Ben-Xia LIU Tong-Xuan



The synthesis-time-dependent microstructures and photocatalytic performance of V<sub>2</sub>O<sub>5</sub>•xH<sub>2</sub>O-BiVO<sub>4</sub> composites were investigated.

Acta Phys. -Chim. Sin. 2011, 27 (12), 2946-2952

**Direct Graphene Growth by Depositing** Carbon Atoms on Si Substrate Covered by SiC Buffer Layers

TANG Jun KANG Chao-Yang LI Li-Min XU Peng-Shou

SiC epitaxy graphene

Acta Phys. -Chim. Sin. 2011, 27 (12), 2953-2959

Graphene thin films were grown on Si substrates covered by SiC buffer layers with the method of directly depositing carbon atoms.

#### NEWS AND COMMENTS

Focus on the Morphology-Dependent Nanocatalysis Papers in Chinese Journal of Catalysis of the Year 2010 ..... LI Yong(2960) ACKNOWLEDGMENTS (2963)