

天美（中国）科学仪器有限公司
TECHCOMP (CHINA) LTD.

中国北京朝阳区天畅园 7 号楼 1、3 层
TEL:010-64010651
FAX:010-64060202
E-MAIL:techcomp@techcomp.cn

英国爱丁堡仪器应用论文集发布

本年度爱丁堡仪器应用论文征集活动受到了爱丁堡仪器用户的热烈回应。共收到来自 28 个单位的 43 位老师的 213 篇论文。天美中国及英国爱丁堡仪器的技术专家经过一个月认真的研读及激烈的讨论，考虑与爱丁堡仪器的相关程度、论文单篇影响因子、投稿论文数量以及多篇论文总影响因子等多方面因素，最终从众多优秀论文中评选出 12 名优秀奖，3 名杰出奖，1 名卓越奖。并摘选其中 53 篇优秀论文汇编入册，推出爱丁堡仪器应用论文集。



感谢爱丁堡仪器用户对爱丁堡仪器的厚爱，为了促进爱丁堡仪器的成长及荧光光谱技术的交流，天美公司长期欢迎大家向我们投稿，平时投稿的老师都可以获得精美小礼品，同时论文将会自动参加下一届用户会有奖论文评选活动。

附录（爱丁堡仪器应用论文集目录）

爱丁堡仪器用户如有需要可与天美公司市场部联系获得论文集电子版。

目 录

Contents

Frequency-upconverted stimulated emission by simultaneous five-photon absorption

Qingdong Zheng*, Haomiao Zhu, Shan-Ci Chen, Changquan Tang, En Ma and Xueyuan Chen*-----1

Tuning upconversion through energy migration in core-shell nanoparticles

FengWang¹, Renren Deng¹, JuanWang¹, QingxiaoWang², Yu Han², Haomiao Zhu³, Xueyuan Chen³ and Xiaogang Liu^{1,4,5*}-----7

An Exceptional Artificial Photocatalyst, Ni²⁺-CdSe/CdS Core/Shell Hybrid, Made In Situ from CdSe Quantum Dots and Nickel Salts for Efficient Hydrogen Evolution

Zhi-Jun Li, Jiu-Ju Wang, Xu-Bing Li, Xiang-Bing Fan, Qing-Yuan Meng, Ke Feng, Bin Chen, Chen-Ho Tung, and Li-Zhu Wu*-----13

A triad [FeFe] hydrogenase system for light-driven hydrogen evolution

Hong-Yan Wang, Gang Si, Wei-Ning Cao, Wen-Guang Wang, Zhi-Jun Li, Feng Wang, Chen-Ho Tung and Li-Zhu Wu*-----19

Multifunctional Fluorene-Based Oligomers with Novel Spiro-Annulated Triarylamine: Efficient, Stable Deep-Blue Electroluminescence, Good Hole Injection, and Transporting Materials with Very High T_g

Zuoquan Jiang, Zhongyin Liu, Chuluo Yang,* Cheng Zhong, Jingui Qin, Gui Yu, and Yunqi Liu*-----22

Phosphoryl/Sulfonyl-Substituted Iridium Complexes as Blue Phosphorescent Emitters for Single-Layer Blue and White Organic Light-Emitting Diodes by Solution Process

Cong Fan, Yanhu Li, Chuluo Yang,* Hongbin Wu,* Jingui Qin, and Yong Cao-----31

Iridium phosphors with peripheral triphenylamine encapsulation: highly efficient solution-processed red electrophosphorescence

Minrong Zhu,^a Yanhu Li,^b Sujun Hu,^b Chen'ge Li,^a Chuluo Yang,*^a Hongbin Wu,*^b Jingui Qin^a and Yong Cao^b-----38

Nondoped Deep-Blue Organic Light-Emitting Diodes with Color Stability and Very Low Efficiency Roll-Off: Solution-Processable Small-Molecule Fluorophores by Phosphine Oxide Linkage

Cui Liu,^[a] Yu Gu,^[a] Qiang Fu,^[b] Ning Sun,^[b] Cheng Zhong,^[a] Dongge Ma,*^[b] Jingui Qin,^[a] and Chuluo Yang*^[a]-----41

Efficient Solution-Processed Deep-Blue Organic Light-Emitting Diodes Based on Multibranched Oligofluorenes with a Phosphine Oxide Center	
Cui Liu, Yanhu Li, Yifan Li, Chuluo Yang,*Hongbin Wu,*Jingui Qin, and Yong Cao-----	49
A single fluorescent self-assembled monolayer film sensor with discriminatory power	
Liping Ding, ^a Yuan Liu, ^a Yuan Cao, ^a Lingling Wang, ^b Yunhong Xin ^b and Yu Fang ^a -----	57
Single-layer assembly of pyrene end-capped terthiophene and its sensing performances to nitroaromatic explosives	
Taihong Liu, Liping Ding, Keru Zhao, Wenliang Wang and Yu Fang*-----	66
Modularity Analysis of Tunable Solid-State Emission Based on a Twisted Conjugated Molecule Containing 9,9'-Bianthracene Group	
Peng Zhang , Wei Dou , Zhenghua Ju , Xiaoliang Tang , Wei Liu , Chunyang Chen ,Bei Wang , and Weisheng Liu *-----	75
A Noble-Metal-Free Porous Coordination Framework with Exceptional Sensing Efficiency for Oxygen**	
Rui-Biao Lin, Fang Li, Si-Yang Liu, Xiao-Lin Qi, Jie-Peng Zhang*, Xiao-Ming Chen-----	80
Hybrid Assemblies of Eu-Containing Polyoxometalates and Hydrophilic Block Copolymers with Enhanced Emission in Aqueous Solution**	
Jie Zhang,* Yang Liu, Yang Li, Hongxiang Zhao, and Xinhua Wan*-----	97
Characterization of room temperature phosphorescence of propranolol and the chiral discrimination between R- and S-isomers	
Yanli Wei, Yanfang Ren, Jun Li, Shaomin Shuang and Chuan Dong*-----	102
An Evidence for the Chiral Discrimination of Naproxen Enantiomers: A Combined Experimental and Theoretical Study	
Yanli Wei,† Sufang Wang,† Jianbin Chao,† Songbai Wang,† Chuan Dong,* ,† Shaomin Shuang,* ,‡ Man Chin Paaui,§ and Martin M. F. Choi*,§-----	107
Effects of Core Size and Shell Thickness on Luminescence Dynamics of Wurtzite CdSe/CdS Core/Shell Nanocrystals	
Huichao Zhang,† Yonghong Ye,‡ Jiayu Zhang,* ,† Yiping Cui,† Boping Yang,† and Li Shen†---	115
Luminescent and Magnetic Properties in Semiconductor Nanocrystals with Radial-Position-Controlled Mn²⁺ Doping	
Boping Yang, Xingchao Shen, Huichao Zhang, Yiping Cui, and Jiayu Zhang*-----	122
A highly selective copper fluorescent indicator based on aminoquinoline substituted BODIPY	
Xu Jia, Xiaoting Yu, Xiaolong Yang, Jie Cui, Xiaoliang Tang, Weisheng Liu, Wenwu Qin-----	128

Synthesis and Photophysical Properties of a Polioxo Ethylene Chain Alkaline Earth Metal Fluorescent Sensor with 2-Aminoanthracene As Terminal Group	
Chan Xu, Weisheng Liu, and Wenwu Qin*	134
Photophysical study of a polyoxo ethylene linked naphthalene-based fluorescent chemosensor for Mg^{2+} and Ca^{2+} detection†	
Xiaoyan Xiang, Dan Wang, Yali Guo, Weisheng Liu and Wenwu Qin*	145
Lanthanide Oxide Clusters: From Tetrahedral $[Dy_4(ACHUNGUNG(m_4-O))]^{10+}$ to Supertetrahedral $[Ln_{20}(ACHUNGUNG(m_4-O))_{11}]^{38+}$ (Ln=Tb, Dy, Ho, Er)	
Wei-Quan Lin, ^[a, b] Xiao-Fen Liao, ^[a] Jian-Hua Jia, ^[a] Ji-Dong Leng, ^[a] Jun-Liang Liu, ^[a] Fu-Sheng Guo, ^[a] and Ming-Liang Tong ^{*, [a, b]}	155
Multifunctional Dy^{III}_4 Cluster Exhibiting White-Emitting, Ferroelectric and Single-Molecule Magnet Behavior	
Peng-Hu Guo, ^[a] Jun-Liang Liu, ^[a] Jian-Hua Jia, ^{*, [a]} Jing Wang, ^{*, [a]} Fu-Sheng Guo, ^[a] Yan-Cong Chen, ^[a] Wei-Quan Lin, ^[a] Ji-Dong Leng, ^[a] Ding-Hua Bao, ^[b] Xu-Dong Zhang, ^[c] Jun-Hua Luo, ^[c] and Ming-Liang Tong ^{*, [a]}	160
Luminescence Properties of Eu^{2+} Doped Glass Ceramics Containing SrF_2 Nanocrystals	
Qun Luo, Xvsheng Qiao, and Xianping Fan	165
Near-infrared emission of Yb^{3+} through energy transfer from ZnO to Yb^{3+} in glass ceramic containing ZnO nanocrystals	
Qun Luo, ¹ Xvsheng Qiao, ¹ Xianping Fan, ^{1, *} and Xianghua Zhang ²	170
Preparation and luminescence properties of Ce^{3+} and Tb^{3+} co-doped glasses and glass ceramics containing SrF_2 nanocrystals	
Qun Luo ^a , Xvsheng Qiao ^a , Xianping Fan ^{a, *} , Xianghua Zhang ^b	173
Morpholine-Phthalocyanine (Donor_Acceptor) Construct: Photoinduced Intramolecular Electron Transfer and Triplet Formation from its Charge Separation State	
Xian-Fu Zhang*, †, ‡ and Jing Wang†	178
Silicon tetrabenzotriaza corrole and silicon phthalocyanine: Synthesis, photophysics and singlet oxygen generation	
Xian-Fu Zhang ^{a, b, *} , Yunlong Rong	185
Luminescent properties of some imidazole and oxazole based heterocycles: Synthesis, structure and substituent effects	
Abiodun O. Eseola ^{a, d} , Wen Li ^b , Wen-Hua Sun ^{a, *} , Min Zhang ^a , Liwei Xiao ^c , Joseph A.O. Woods ^d	190

Syntheses, Structures, and Fluorescent Properties of 2-(1H-Imidazol-2-yl)phenols and Their Neutral Zn(II) Complexes

Abiodun Omokehinde Eseola,^{†,§} Wen Li,[†] Rong Gao,[‡] Min Zhang,[‡] Xiang Hao,[‡] Tongling Liang,[‡] Nelson Okpako Obi-Egbedi,[§] and Wen-Hua Sun^{*,‡}-----202

Synthesis, structure and photophysical properties of 2-benzhydryl-4-methyl-6-(aryliminomethyl) phenol ligands and the zinc complexes thereof

Zihong Zhou^{a,b}, Wen Li^c, Xiaohua Hou^b, Langqiu Chen^{a, *}, Xiang Hao^b, Carl Redshaw^{d, *}, Wen-Hua Sun^{b, *}-----216

Spectral characteristics of surface-plasmon-enhanced photoluminescence in nanocrystalline SiC films

Wei Yu^(a), Xinzhan Wang, Wanbing Lu, Shufang Wang and Guangsheng Fu-----224

Defect-related energy structures of AlN nanotips probed by photoluminescence

Haitao Chen^{1,2}, Guoshuai Chen¹, Xuming Zhou¹, Wenming Zhu¹, Xiaobing Chen¹ and Xianghua Zeng¹-----228

Eu³⁺-Activated Borogermanate Scintillating Glass with a High Gd₂O₃ Content

Xin-Yuan Sun,^{‡,†} Da-Guo Jiang,[‡] Shi-Wei Chen,[§] Guo-Tai Zheng,[‡] Shi-Ming Huang,[§] Mu Gu,[§] Zhi-Jun Zhang,[¶] and Jing-Tai Zhao[¶]-----234

A series of coordination polymers based on reduced Schiff base multidentate anions and bis(imidazole) ligands: syntheses, structures and photoluminescence†

Ying-Ying Liu, Zhi-Hui Wang, Jin Yang,^{*} Bo Liu, Yun-Yu Liu and Jian-Fang Ma^{*}-----241

A Series of Metal_Organic Frameworks Based on Different Salicylic Derivatives and 1,10-(1,4-Butanediyl)bis(imidazole) Ligand: Syntheses, Structures, and Luminescent Properties

Yan Yang, Peng Du, Jian-Fang Ma,^{*} Wei-Qiu Kan, Bo Liu, and Jin Yang^{*}-----252

Syntheses, structures, photoluminescence, photocatalysis, and photoelectronic effects of 3D mixed high-connected metal–organic frameworks based on octanuclear and dodecanuclear secondary building units†

Peng Du,^a Yan Yang,^a Jin Yang,^{*a} Bing-Kun Liub and Jian-Fang Ma^{*a}-----266

A Series of 1D, 2D, and 3D Coordination Polymers Based on Flexible 3-Carboxy-1-Carboxymethyl-2- Oxidopyridinium and Different N-Donor Ligands – Syntheses, Structures, and Luminescent Properties

Ying-Qi Yang,^[a] Jin Yang,^{*[a]} Wei-Qiu Kan,^[a] Yan Yang,^[a] Jiao Guo,^[a] and Jian-Fang Ma^{*[a]}-----280

Syntheses, crystal structures, and characterization of seven coordination compounds based on flexible 1,19-(1,4-butanediyl)bis(3-carboxyl-2-oxidopyridinium)

YU-LAN CHEN, JIN YANG and JIAN-FANG MA^{*}-----293

Click-Functionalized Compact Quantum Dots Protected by Multidentate-Imidazole Ligands: Conjugation-Ready Nanotags for Living-Virus Labeling and Imaging

Pengfei Zhang, Shuhui Liu, Duyang Gao, Dehong Hu, Ping Gong, Zonghai Sheng, Jizhe Deng, Yifan Ma, and Lintao Cai*-----306

Large Improvement in the Catalytic Activity Due to Small Changes in the Diimine Ligands: New Mechanistic Insight into the Dirhodium(II,II) Complex-Based Photocatalytic H₂ Production

Jingfan Xie,†,‡ Chao Li,† Qianxiong Zhou,† Weibo Wang,† Yuanjun Hou,* ,† Baowen Zhang,† and Xuesong Wang*,†-----310

Strong Two-Photon Excited Fluorescence and Stimulated Emission from an Organic Single Crystal of an Oligo(Phenylene Vinylene)**

Fei Gao, Qing Liao, Zhen-Zhen Xu, Yong-Hao Yue, Qiang Wang, Hao-Li Zhang,* and Hong-Bing Fu*-----319

Molecule-based electrorheological material with luminescence property

Ming-Xing Chen¹, Fu-Hui Liao¹, Yan-Li Shang², Yun-Ling Jia¹ and Jun-Ran Li¹,*-----323

Intramolecular RET Enhanced Visible Light-Absorbing Bodipy Organic Triplet Photosensitizers and Application in Photooxidation and Triplet-Triplet Annihilation Upconversion

Caishun Zhang,† Jianzhang Zhao,* ,† Shuo Wu,‡ Zilong Wang,† Wanhua Wu,† Jie Ma,† Song Guo,† and Ling Huang†-----333

A flexible metal azolate framework with drastic luminescence response toward solvent vapors and carbon dioxide†

Xiao-Lin Qi, Rui-Biao Lin, Qing Chen, Jian-Bin Lin, Jie-Peng Zhang* and Xiao-Ming Chen-----346

Syntheses, Structures, and Porous/Luminescent Properties of Silver 3-Alkyl-1,2,4-Triazolate Frameworks with Rare 3-Connected Topologies

Jie-Peng Zhang,* Xiao-Lin Qi, Zhi-Juan Liu, Ai-Xin Zhu, Yan Chen, Jing Wang, and Xiao-Ming Chen-----351

Standard White-Emitting Ca₈MgY(PO₄)₇:Eu²⁺,Mn²⁺ Phosphor for White-Light-Emitting LEDs

Dawei Wen, Zhiyue Dong, Jianxin Shi, Menglian Gong, and Mingmei Wu-----358

Mononuclear Gold(I) Acetylide Complexes with Urea Group: Synthesis, Characterization, Photophysics, and Anion Sensing Properties

Yu-Peng Zhou, Mei Zhang, Yu-Hao Li, Qi-Rui Guan, Fang Wang, Zhuo-Jia Lin, Chi-Keung Lam, Xiao-Long Feng, and Hsiu-Yi Chao*-----366

Highly sensitive fluorescent sensor for mercury ion based on photoinduced charge transfer between fluorophore and π -stacked T–Hg(II)–T base pairs

Liangqia Guo, Hong Hu, Ruiqing Sun, Guonan Chen----- 377

New Rhenium(I) Complexes: Synthesis, Photophysics, Cytotoxicity, and Functionalization of Gold Nanoparticles for Sensing of Esterase

Mei-Jin Li,^{*},[†] Xing Liu,[†] Mei-Juan Nie,[†] Zhao-Zhen Wu,[†] Chang-Qing Yi,[‡] Guo-Nan Chen,[†] and Vivian Wing-Wah Yam[§]-----382

Microwave-assisted synthesis and up–down conversion luminescent properties of multicolor hydrophilic LaF₃:Ln³⁺ nanocrystals[†]

Feifei Li,^a Chunguang Li,^a Xiaomin Liu,^b Tianyu Bai,^a Wenjun Dong,^c Xiao Zhang,^a Zhan Shi^{*a} and Shouhua Feng^a-----390

Synthesis, X-ray Structures, and Luminescent Properties of Three Organically Templated Copper(I) Halides via in situ Solvothermal Reduction Reactions

Bingjing Xin,^[a] Yun Li,^[a] Guang Zeng,^[a] Yu Peng,^[a] Guanghua Li,^{*[a]} Zhan Shi,^{*[a]} and Shouhua Feng^[a]-----398

Crystal Structure Control of Zinc-Blende CdSe/CdS Core/Shell Nanocrystals: Synthesis and Structure-Dependent Optical Properties

Wennuan Nan, Yuan Niu, Haiyan Qin,^{*} Fan Cui, Yu Yang, Runchen Lai, Wanzhen Lin, and Xiaogang Peng^{*}-----405