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COMMUNICATION

Chunlin Zhuang, Fener Chen et al.
Fragment-based discovery of sulfur-containing diarylbenzopyrimidines as novel nonnucleoside reverse transcriptase inhibitors

REVIEW

Lu Wang, Bo Wang et al.
Metal-organic frameworks and their derivatives for Li-air batteries

ISSN 1001-8417



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Graphical Abstracts/Chin Chem Lett 31 (2020) iii–xviii

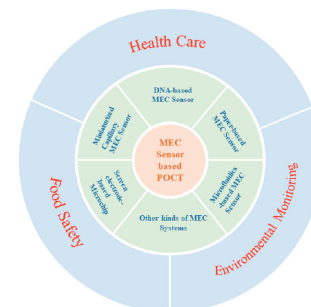
Reviews

Miniaturized electrochemical sensors and their point-of-care applications

Wei Zhang^a, Ruiguo Wang^a, Fang Luo^b, Peilong Wang^a, Zhenyu Lin^b^a Institute of Quality Standards and Testing Technology for Agro-products, Chinese Academy of Agricultural Sciences, Beijing 100081, China^b MOE Key Laboratory for Analytical Science of Food Safety and Biology, Fujian Provincial Key Laboratory of Analysis and Detection for Food Safety, College of Chemistry, Fuzhou University, Fuzhou 350116, China

Miniaturized electrochemical (MEC) sensors have been broadly applied to point-of-care testing (POCT) in various fields, including health care, food safety, and environmental monitoring, due to their easy operation, portability, high sensitivity, as well as their short analysis time. This review summarizes the state-of-the-art advancements on various types of MEC sensors, applications in POCT, and the future perspectives, opportunities, and challenges in this field.

Chinese Chemical Letters 31 (2020) 589



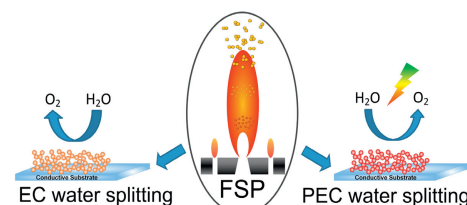
Flame spray pyrolysis for the one-step fabrication of transition metal oxide films: Recent progress in electrochemical and photoelectrochemical water splitting

Hongjun Chen, Hemant Kumar Mulmudi, Antonio Tricoli

Nanotechnology Research Laboratory, Research School of Electrical, Energy and Materials Engineering, College of Engineering and Computer Science, Australian National University, Canberra 2601, Australia

Flame spray pyrolysis (FSP) is presented as a scalable and rapid fabrication method to synthesize transition metal oxide films. Their recent applications in both electrochemical (EC) and photoelectrochemical (PEC) water splitting for the generation of hydrogen is reviewed and future outlook on improvements in the methodology is discussed.

Chinese Chemical Letters 31 (2020) 601

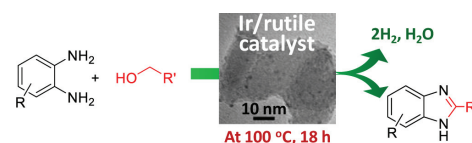


Titania-supported iridium catalysts for dehydrogenative synthesis of benzimidazoles

Kenji Wada^a, Han Yu^b, Qi Feng^b^a Department of Chemistry for Medicine, Kagawa University, Miki-Cho, Kita-Gun, Kagawa 761-0793, Japan^b Department of Advanced Materials Science, Kagawa University, Takamatsu, Kagawa 761-0396, Japan

In this review, development of supported catalysts for the dehydrogenative synthesis of benzimidazoles is briefly summarized. Among them, rutile-supported iridium catalyst showed excellent activity under mild conditions.

Chinese Chemical Letters 31 (2020) 605



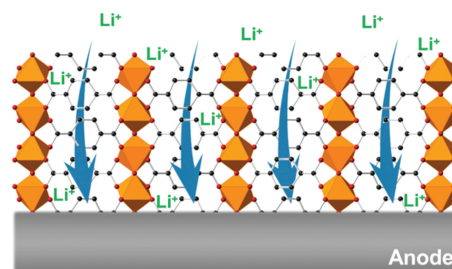
Recent advances in metal-organic frameworks for lithium metal anode protection

Ying Du, Xing Gao, Siwu Li, Lu Wang, Bo Wang

Beijing Key Laboratory of Photoelectric/Electrophotonic Conversion Materials, Key Laboratory of Cluster Science, Ministry of Education, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, China

Metal-organic frameworks have drawn great interest in advanced lithium anodes due to the high porosity and structural designability. Recent achievements and outlooks in the field of lithium metal anode protection via introducing MOFs are summarized and concluded in this review, respectively.

Chinese Chemical Letters 31 (2020) 609



Resorbable polymer electrospun nanofibers: History, shapes and application for tissue engineering

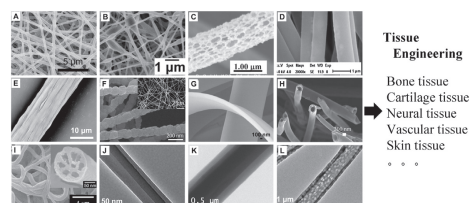
Tingting Wu^a, Mengzhen Ding^a, Cuiping Shi^a, Yiqun Qiao^a, Panpan Wang^a, Ruirui Qiao^b, Xichang Wang^a, Jian Zhong^a

^a National R & D Branch Center for Freshwater Aquatic Products Processing Technology (Shanghai), Integrated Scientific Research Base on Comprehensive Utilization Technology for By-Products of Aquatic Product Processing, Ministry of Agriculture and Rural Affairs of the People's Republic of China, Shanghai Engineering Research Center of Aquatic-Product Processing and Preservation, College of Food Science & Technology, Shanghai Ocean University, Shanghai 201306, China

^b ARC Centre of Excellence in Convergent Bio-Nano Science and Technology, Monash Institute of Pharmaceutical Sciences, Monash University, Parkville, VIC, 3052, Australia

This review summarizes the electrospinning techniques and electrospun nanofiber architectures. And furthermore it highlights the application of resorbable polymer electrospun nanofibers in the field of tissue engineering.

Chinese Chemical Letters 31 (2020) 617



Recent advances in carbon-based electrocatalysts for oxygen reduction reaction

Lulu Chen^{a,b}, Xiaolong Xu^d, Wenxiu Yang^c, Jianbo Jia^{a,b,d}

^a State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, China

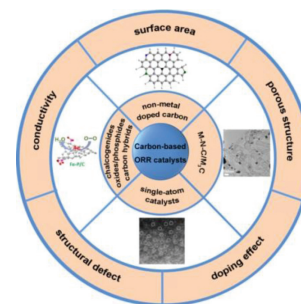
^b University of Science and Technology of China, Hefei 230026, China

^c Department of Materials Science & Engineering & Department of Energy and Resources Engineering, College of Engineering, Peking University, Beijing 100871, China

^d School of Chemical and Environmental Engineering, Wuyi University, Jiangmen 529020, China

This review focuses on the recent progress about carbon-based ORR catalysts including non-metal doped carbon materials, transition metalnitrogen- carbon species, transition metal carbides/carbon, single atom catalysts, and other carbon hybrids. And we further infer that the excellent ORR performances can be achieved by the balance of geometric and electronic structures of catalysts such as conductivity, surface area, hierarchical porous structure, defect and doping effect.

Chinese Chemical Letters 31 (2020) 626



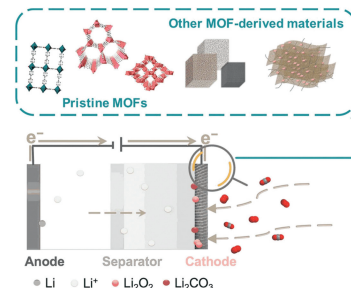
Metal-organic frameworks and their derivatives for Li-air batteries

Yu Dong, Siwu Li, Shanshan Hong, Lu Wang, Bo Wang

Beijing Key Laboratory of Photoelectric/Electrophotonic Conversion Materials, Key Laboratory of Cluster Science, Ministry of Education, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, China

With ultra-high adsorption capacity, designable nano-sized channels and diverse catalytic sites, MOFs present great potential in Li-air batteries. This review mainly introduces the application of pristine MOFs and MOF-derived materials in Li-air batteries, and further discusses the future prospect.

Chinese Chemical Letters 31 (2020) 635



Recent progress of thin-film photovoltaics for indoor application

Nanfu Yan^a, Chaowei Zhao^a, Shengyong You^a, Yuefeng Zhang^a, Weiwei Li^{a,b,c}

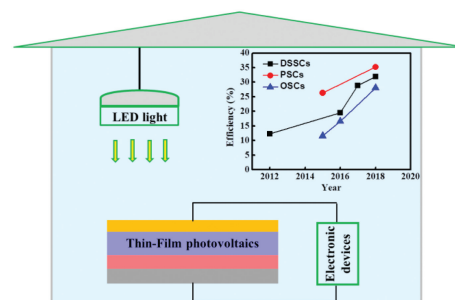
^a Institute of Applied Chemistry, Jiangxi Academy of Sciences, Nanchang 330096, China

^b State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology, Beijing 100029, China

^c Beijing National Laboratory for Molecular Sciences, CAS Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing 10090, China

The third generation thin film photovoltaics including dye-sensitized solar cells, perovskites solar cells and organic solar cells for indoor application were reviewed.

Chinese Chemical Letters 31 (2020) 643



SiO_x-based (0 < x ≤ 2) composites for lithium-ion batteries

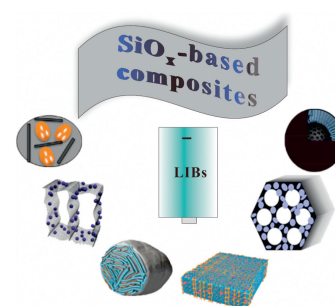
Tong Wang^{a,1}, Xiaotian Guo^{b,1}, Huiyu Duan^a, Changyun Chen^a, Huan Pang^b

^a College of Environmental Science, Nanjing Xiaozhuang University, Nanjing 211171, China

^b School of Chemistry and Chemical Engineering, Guangling College, Yangzhou University, Yangzhou 225009, China.

Design of SiO_x-based (0 < x ≤ 2) composites for lithium-ion batteries is given in this review.

Chinese Chemical Letters 31 (2020) 654



Communications

Protic ionic liquid-promoted synthesis of dimethyl carbonate from ethylene carbonate and methanol

Yu Song^a, Xing He^a, Bing Yu^b, Hong-Ru Li^{a,c}, Liang-Nian He^a

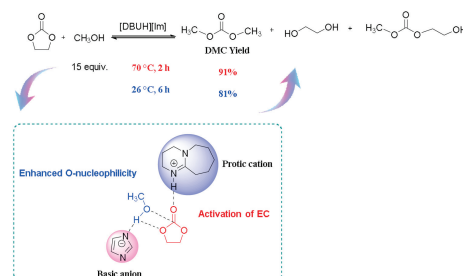
^a State Key Laboratory and Institute of Elemento-Organic Chemistry, Nankai University, Tianjin 300071, China

^b College of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou 450001, China

^c College of Pharmacy, Nankai University, Tianjin 300353, China

[DBUH][Im] shows high catalytic efficiency in the synthesis of dimethyl carbonate. The high efficiency can be rationalized by the synergistic activation of ethylene carbonate and methanol in the catalysis.

Chinese Chemical Letters 31 (2020) 667



Absolute control of helicity at the C-termini in quinoline oligoamide foldamers by chiral oxazolylaniline moieties

Dan Zheng, Chengyuan Yu, Lu Zheng, Yulin Zhan, Hua Jiang

Department of Chemistry, Beijing Normal University, Beijing 100875, China

Absolute one-handedness of quinoline oligoamide foldamers has been efficiently achieved by the different oxazolylanilines at the C-terminus. The sizes of the substituents in the chiral centers are different but exert no effect on the dissymmetric factors g_{abs} and g_{lum} of quinoline oligoamide foldamers.

Chinese Chemical Letters 31 (2020) 673

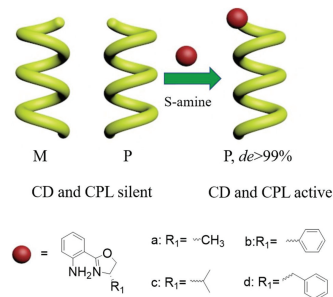


Photo-induced phosphorus radical involved semipinacol rearrangement reaction: Highly synthesis of γ -oxo-phosphonates

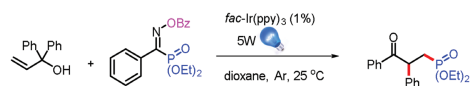
Chunhai Wang^a, Xiaoling Huang^a, Xueting Liu^a, Suqian Gao^a, Bin Zhao^a, Shangdong Yang^{a,b}

^a State Key Laboratory of Applied Organic Chemistry, Lanzhou University, Lanzhou 730000, China

^b State Key Laboratory for Oxo Synthesis and Selective Oxidation, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, China

Herein, a new approach for the synthesis of γ -oxo-phosphonates (the precursor of hydroxyphosphoric acid) has been established through the semipinacol rearrangement tactic involved the photo-induced phosphorus radical process.

Chinese Chemical Letters 31 (2020) 677



A highly efficient $\text{In}(\text{OTf})_3$ -catalyzed [3 + 3] annulation of spirocyclopropyl oxindoles with 1,4-di-thiane-2,5-diol

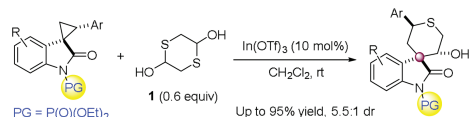
Yongjia Hao^a, Yi Gong^b, Zhongyan Cao^b, Ying Zhou^a, Jian Zhou^b

^a School of Pharmacy, Guizhou University of Traditional Chinese Medicine, Guiyang 550025, China

^b Shanghai Engineering Research Center of Molecular Therapeutics and New Drug Development, East China Normal University, Shanghai 200062, China

Spirooxindoles play an important role in drug discovery and development. The development of efficient methods for the synthesis of spirooxindoles from easily available starting materials is of current interest. Herein, we report in detail the $\text{In}(\text{OTf})_3$ -catalyzed [3 + 3] annulation of spirocyclopropyl oxindoles and 1,4-di-thiane-2,5-diol, which allows the facile preparation of spiro[indoline-3,4'-thiopyran]-2-ones bearing (tetrahydro)thiopyran skeleton.

Chinese Chemical Letters 31 (2020) 681



Asymmetric synthesis of ABC tricyclic systems in *Daphniphyllum* alkaloid

Huijing Wang^{a,c}, Qiuyan Dong^b, Qinxia Xie^b, Pei Tang^a

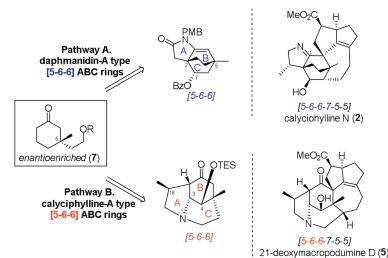
^a Key Laboratory of Drug-Targeting and Drug Delivery System of the Education Ministry, Sichuan Engineering Laboratory for Plant-Sourced Drug and Sichuan Research Center for Drug Precision Industrial Technology, West China School of Pharmacy, Sichuan University, Chengdu 610041, China

^b Chongqing Key Laboratory of Natural Product Synthesis and Drug Research, School of Pharmaceutical Sciences, Chongqing University, Chongqing 401331, China

^c Skaggs School of Pharmacy and Pharmaceutical Sciences, University of California San Diego, La Jolla 92093-0934, United States

Efficient synthetic routes for the direct and rapid construction of [5-6-6] ABC tricyclic systems of daphmanidin A-type and calyciphylline A-type alkaloids have been successfully developed.

Chinese Chemical Letters 31 (2020) 685



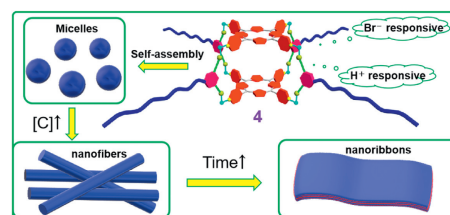
Hierarchical self-assembly of 3D amphiphilic discrete organoplatinum(II) metallacage in water

Yan Cai, Yang Wang, Chenwei Wang, Renhua Long, Leyu Cao, Yanmei Chen, Yong Yao

College of Chemistry and Chemical Engineering, Nantong University, Nantong 226019, China

An amphiphilic metallacage with tetragonal prismatic framework as hydrophobic core and pendent tethylene glycol chains as hydrophilic tails was prepared successfully and showed controllable self-assembly behaviour in water.

Chinese Chemical Letters 31 (2020) 689



Chemical synthesis and racemic crystallization of rat C5a-desArg

Chao Zuo^{a,b}, Baochang Zhang^b, Meng Wu^a, Donald Bierer^d, Jing Shi^c, Ge-Min Fang^a

^a School of Life Science, Institutes of Physical Science and Information Technology, Anhui University, Hefei 230601, China

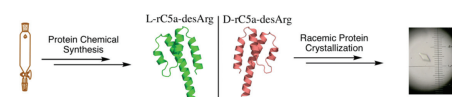
^b Department of Chemistry, Tsinghua University, Beijing 100084, China

^c Department of Chemistry, University of Science and Technology of China, Hefei 230601, China

^d Bayer AG, Department of Medicinal Chemistry, Aprather Weg 18A, 42096, Wuppertal, Germany

Rat C5a-desArg and its D-enantiomer were prepared by a combined Fmoc-SPPS and hydrazide-based native chemical ligation strategy. Through the technology of racemic crystallography, the crystal structure of rat C5a-desArg was obtained for the first time.

Chinese Chemical Letters 31 (2020) 693



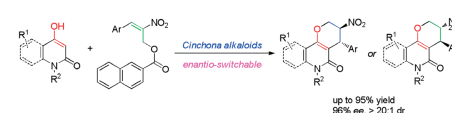
Asymmetric synthesis of tetrahydropyran[3,2-c]quinolinones via an organocatalyzed formal [3 + 3] annulation of quinolinones and MBH 2-naphthoates of nitroolefin

Jian Li, Qi-Long Hu, Xue-Ping Chen, Ke-Qiang Hou, Albert S.C. Chan, Xiao-Feng Xiong

Guangdong Key Laboratory of Chiral Molecule and Drug Discovery, School of Pharmaceutical Sciences, Sun Yat-sen University, Guangzhou 510006, China

An efficient asymmetric and enantio-switchable organo-catalytic construction of tetrahydropyrano[3,2-c]quinolinones scaffolds were developed.

Chinese Chemical Letters 31 (2020) 697



The synthesis and structure of pyridine-oxadiazole iridium complexes and catalytic applications: Non-coordinating-anion-tuned selective C—N bond formation

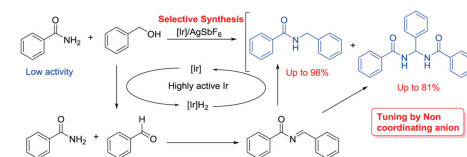
Wei Yao^a, Yilin Zhang^b, Haiyan Zhu^a, Chenyang Ge^a, Dawei Wang^a

^a Key Laboratory of Synthetic and Biological Colloids, Ministry of Education, School of Chemical and Material Engineering, Jiangnan University, Wuxi 214122, China

^b C. Eugene Bennett Department of Chemistry, West Virginia University, Morgantown, WV 26506, United States

In an attempt to achieve borrowing hydrogen reactions of amides with benzyl alcohols, *N,N'*-(phenylmethylene) dibenzamide products were unexpectedly isolated under non-coordinating anion conditions, whereas *N*-benzylbenzamide products were achieved in the absence of non-coordinating anions.

Chinese Chemical Letters 31 (2020) 701



Zinc-mediated reactions on salicylaldehyde for *Botrytis cinerea* control

Antoine Franche^a, Claire Imbs^b, Antoine Fayeulle^a, Franck Merlier^c, Muriel Billamboz^d, Estelle Léonard^b

^a Sorbonne University, Université de technologie de Compiègne, ESCOM, EA TIMR 4297, Centre de recherche de Royallieu, CS 60319, 60203 Compiègne cedex, France

^b ESCOM, UTC, EA TIMR 4297, 1 allée du Réseau Jean-Marie Buckmaster, 60200 Compiègne, France

^c Sorbonne Universités, Université de Technologie de Compiègne, Génie Enzymatique et Cellulaire (GEC), UMR-CNRS 7025, CS 60319, 60203 Compiègne Cedex, France

^d Laboratoire de chimie durable et santé, Yncrea Hauts-de-France, HEI, 13 rue de Toul, 59046 Lille Cedex, France

A series of products was obtained from salicylaldehyde using zinc as a powerful reagent. They were successfully tested as antifungal molecules on *Botrytis cinerea*.

Chinese Chemical Letters 31 (2020) 706



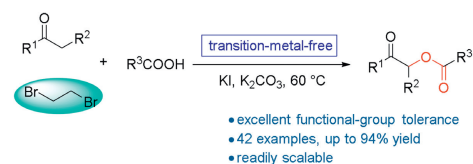
1,2-Dibromoethane and KI mediated α -acyloxylation of ketones with carboxylic acids

Xujie Wang, Gangsheng Li, Yanan Yang, Jianshuang Jiang, Ziming Feng, Peicheng Zhang

State Key Laboratory of Bioactive Substance and Function of Natural Medicines, Institute of Materia Medica, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing 100050, China

An 1,2-dibromoethane- and KI-mediated α -acyloxylation of ketones with carboxylic acids without the use of transition metals and strong oxidants has been developed.

Chinese Chemical Letters 31 (2020) 711



Aerosol-assisted submicron γ -Fe₂O₃/C spheres as a promising heterogeneous Fenton-like catalyst for soil and groundwater remediation: Transport, adsorption and catalytic ability

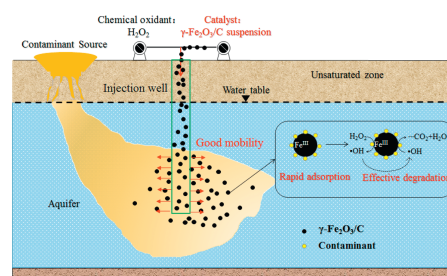
Jingjing Zhan^a, Mingfei Li^a, Xiujuan Zhang^b, Yu An^a, Weiqi Sun^a, Aixia Peng^a, Hao Zhou^a

^a School of Food and Environment, Dalian University of Technology, Panjin 124221, China

^b School of Petroleum and Chemical Engineering, Dalian University of Technology, Panjin 124221, China

The developed heterogeneous Fenton-like system could freely move through the model sediments and easily seize the pollutants in addition to efficiently catalyze H₂O₂, well suitable for soil and groundwater remediation.

Chinese Chemical Letters 31 (2020) 715



Asymmetric synthesis of pyrrolo[1,2-*a*]indoles via organocatalytic [3 + 2] annulation of substituted 2-vinylindoles with azlactones

Wulin Yang^a, Hao Wang^b, Zirong Pan^b, Zhong Li^{a,c}, Weiping Deng^b

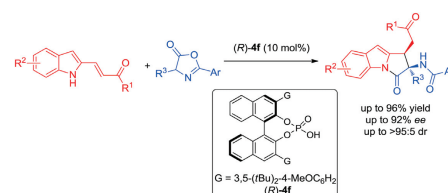
^a Shanghai Key Laboratory of Chemical Biology, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China

^b Shanghai Key Laboratory of New Drug Design, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China

^c Shanghai Collaborative Innovation Center for Biomufacturing Technology, Shanghai 200237, China

The chiral phosphoric acid catalyzed asymmetric [3 + 2] annulation of substituted 2-vinylindoles with azlactones was disclosed, affording structurally diverse pyrrolo[1,2-*a*]indoles bearing two vicinal stereocenters in good yields and good stereoselectivities under mild conditions.

Chinese Chemical Letters 31 (2020) 721



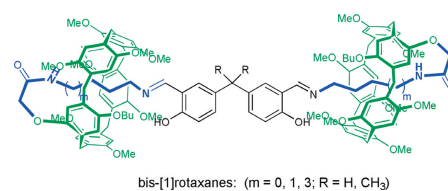
Synthesis and characterization of bis-[1]rotaxanes via salen-bridged bis-pillar[5]arenes

Ying Han, Cui-Yun Nie, Shuo Jiang, Jing Sun, Chao-Guo Yan

College of Chemistry & Chemical Engineering, Yangzhou University, Yangzhou 225002, China

The series of salen-bridged bis-pillar[1]arenes were conveniently prepared by condensation reaction of 5,5'-methylenebis(2-hydroxybenzaldehyde) or 5,5'-(propane-2,2-diyl)bis(2-hydroxybenzaldehyde) with mono-amidofunctionalized pillar[5]arenes. The ¹H NMR and 2D-NOESY spectra as well as single crystal structure clearly indicated that the salen-bridged bis-pillar[5] arenes with longer alkylene linker (*m* = 0, 1, 3) formed the fascinating bis-[1] rotaxanes, while those with short hydrazine and ethylenediamino linker predominately existed in free form.

Chinese Chemical Letters 31 (2020) 725



Synthesis of tetrahydroisoquinolines through TiCl_4 -mediated cyclization and Et_3SiH reduction

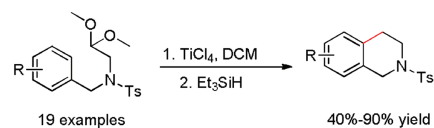
Zeyu Shi^a, Qiong Xiao^{a,b}, Dali Yin^{a,b}

^a State Key Laboratory of Bioactive Substances and Functions of Natural Medicines, Institute of Materia Medica, Peking Union Medical College and Chinese Academy of Medical Sciences, Beijing 100050, China

^b Department of Medicinal Chemistry, Beijing Key Laboratory of Active Substances Discovery and Drugability Evaluation, Institute of Materia Medica, Peking Union Medical College and Chinese Academy of Medical Sciences, Beijing 100050, China

A versatile and efficient telescoped reaction sequence for the synthesis of tetrahydroisoquinolines (THIQs) is reported that uses TiCl_4 to promote cyclization of a benzylaminoacetal derivative and Et_3SiH for reduction of the intermediate 4-hydroxy-THIQ.

Chinese Chemical Letters 31 (2020) 729



mild condition, room temperature and regioselectivity, gram scale

Construction of diaminobenzoquinone imines *via* ferrocene-initiated radical reaction of benzoquinone with amines

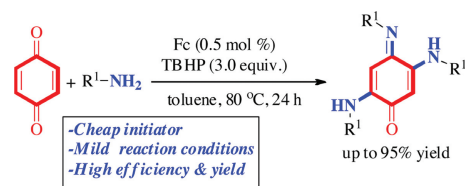
Yadong Feng^{a,b}, Ying Liu^a, Qi Fu^a, Zhongai Zou^a, Jinhai Shen^a, Xiuling Cui^b

^a College of Environment and Public Health, Xiamen Huaxia University, Xiamen 361024, China

^b Engineering Research Center of Molecular Medicine of Ministry of Education, Key Laboratory of Fujian Molecular Medicine, Key Laboratory of Xiamen Marine and Gene Drugs, School of Biomedical Sciences, Huaqiao University, Xiamen 361021, China

A ferrocene-initiated radical reaction of benzoquinone with amines has been successfully developed for the direct access to diaminobenzoquinone imines in high yields, in which the commercially available and cheap ferrocene was employed as a radical initiator and TBHP was used as an oxidant. Moreover, this reaction could be achieved with low loading of ferrocene (0.5 mol%). This protocol is highly efficient with good substrate tolerance and provides a new approach for the construction of benzoquinone imines with potential pharmaceutical interest.

Chinese Chemical Letters 31 (2020) 733



Mechanism and origin of diastereoselectivity of *N*-heterocyclic carbene-catalyzed cross-benzoin reaction: A DFT study

Yang Wang^a, Yu Lan^{b,c}

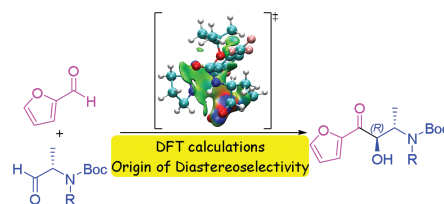
^a Department of Material and Chemical Engineering, Zhengzhou University of Light Industry, Zhengzhou 450002, China

^b College of Chemistry, Zhengzhou University, Zhengzhou 450001, China

^c School of Chemistry and Chemical Engineering, Chongqing Key Laboratory of Theoretical and Computational Chemistry, Chongqing University, Chongqing 4000030, China

The detailed mechanism and origin of the diastereoselectivity of NHC-catalyzed reaction between α -amino aldehyde and furfural have been theoretically investigated.

Chinese Chemical Letters 31 (2020) 736



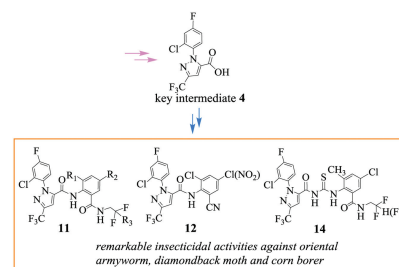
Synthesis and structure-insecticidal activity relationship of novel phenylpyrazole carboxylic acid derivatives containing fluorine moiety

Baolei Wang, Hongxue Wang, Hang Liu, Lixia Xiong, Na Yang, Yan Zhang, Zhengming Li

State Key Laboratory of Elemento-Organic Chemistry, College of Chemistry, Nankai University, Tianjin 300071, China

Innovation for agrochemicals with novel structures and excellent bioactivities is a main aspect of pesticide research. This article reports synthesis and structure-insecticidal activity relationship of novel fluorine-containing phenylpyrazole carboxylic acid derivatives.

Chinese Chemical Letters 31 (2020) 739



A novel double polymer modified hydrophobic/hydrophilic stationary phase for liquid chromatography

Fangbin Fan^{a,b}, Jingjun Pan^c, Yijing Li^a, Licheng Wang^a, Shuai Wang^a, Xiaojing Liang^a, Yong Guo^a

^a Key Laboratory of Chemistry of Northwestern Plant Resources and Key Laboratory for Natural Medicine of Gansu Province, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, China

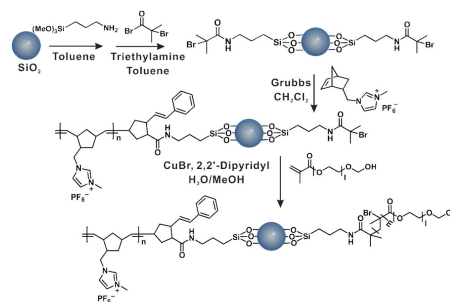
^b University of Chinese Academy of Sciences, Beijing 100049, China

^c Engineering Technology Institute of Xinjiang Oilfield Company, Kelamayi 834000, China

P(NM-MIm-PF₆) and POEGMA (P1-Si-P2) were modified on the surface of the silicon sphere by ring-opening metathesis polymerization (ROMP) and atom transfer radical polymerization (ATRP), respectively.

The separation performance of P(NM-MIm-PF₆)-Si-POEGMA column was evaluated by separating the aromatics in reverse phase mode and separating the amino acids and sugars in the hydrophilic interaction mode.

Chinese Chemical Letters 31 (2020) 746



Inhibition of the toxic byproduct during photocatalytic NO oxidation via La doping in ZnO

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^a Chongqing Key Laboratory of Catalysis and New Environmental Materials, College of Environment and Resources, Chongqing Technology and Business University, Chongqing 400067, China

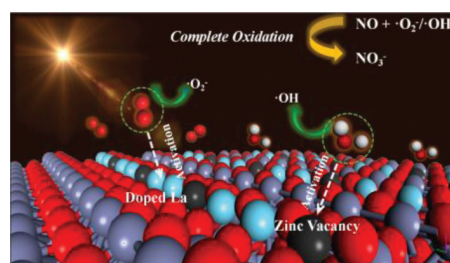
^b Research Center for Environmental Science & Technology, Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China, Chengdu 611731, China

^c The Center of New Energy Materials and Technology, School of Materials Science and Engineering, Southwest Petroleum University, Chengdu 610500, China

^d College of Materials Science and Engineering, Chongqing University, Chongqing 400044, China

The introduction of La³⁺ induce the redistribution of charge carriers in La-ZnO, which promote the production of O₂^{•-} and lead to the formation of V_{Zn} for the formation of OH, contributing to the complete oxidation of NO to nitrate.

Chinese Chemical Letters 31 (2020) 751



Conjugated polymer nanoparticles as fluorescence switch for selective cell imaging

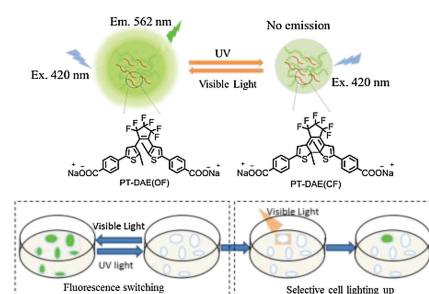
Ke Peng^{a,b}, Fengting Lv^a, Huan Lu^a, Jianwu Wang^{a,b}, Hao Zhao^{a,b}, Libing Liu^a, Shu Wang^{a,b}

^a Beijing National Laboratory for Molecular Sciences, Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^b College of Chemistry, University of Chinese Academy of Sciences, Beijing 100049, China

A new kind of facile electrostatic complex nanoparticles (ECNs) was fabricated by mixing positively charged poly(6-(2-(thiophen-3-yl)ethoxy)hexyl trimethylammonium bromide) and negatively charged diarylethene sodium salt for fluorescence switching in cells and marking of individual cell.

Chinese Chemical Letters 31 (2020) 755



Red carbon dots as label-free two-photon fluorescent nanoprobes for imaging of formaldehyde in living cells and zebrafishes

Hong Wang^{a,1}, Jing Wei^{b,1}, Chonghua Zhang^a, Yuan Zhang^a, Yubin Zhang^a, Lin Li^b, Changmin Yu^b, Peisheng Zhang^a, Jian Chen^{a,c}

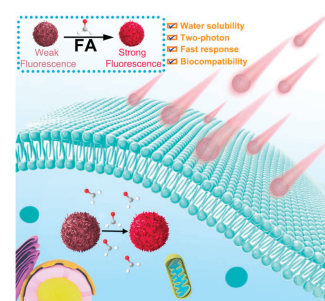
^a Key Laboratory of Theoretical Organic Chemistry and Functional Molecule of Ministry of Education, Hunan Provincial Key Laboratory of Controllable Preparation and Functional Application of Fine Polymers, Hunan Provincial Key Lab of Advanced Materials for New Energy Storage and Conversion, Hunan Province College Key Laboratory of QSAR/QSPR, School of Chemistry and Chemical Engineering, Hunan University of Science and Technology, Xiangtan 411201, China

^b Key Laboratory of Flexible Electronics (KLOFE) & Institute of Advanced Materials (IAM), Nanjing Tech University, Nanjing 211800, China

^c State Key Laboratory of Luminescent Materials and Devices, South China University of Technology, Guangzhou 510640, China

Red carbon dots (RCD) are reported as label-free two-photon fluorescent nanoprobes for detecting and imaging of FA. This nanoprobe features excellent selectivity, good cell-membrane permeability and biocompatibility, as well as the large two-photon absorption cross-section. In addition, RCD have been applied for monitoring FA in live cells and zebrafishes with OPM and TPM.

Chinese Chemical Letters 31 (2020) 759



Fragment-based discovery of sulfur-containing diarylbenzopyrimidines as novel nonnucleoside reverse transcriptase inhibitors

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^a Engineering Center of Catalysis and Synthesis for Chiral Molecules, Department of Chemistry, Fudan University, Shanghai 200433, China

^b Shanghai Engineering Center of Industrial Asymmetric Catalysis for Chiral Drugs, Shanghai 200433, China

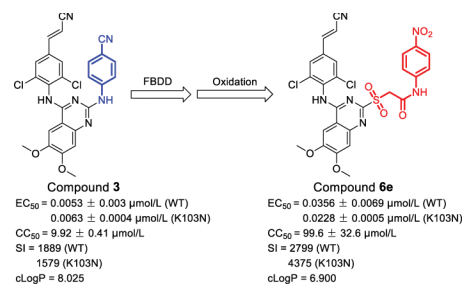
^c Sichuan Research Center for Drug Precision Industrial Technology, West China School of Pharmacy, Sichuan University, Chengdu 610041, China

^d Institute of Pharmaceutical Science and Technology, Zhejiang University of Technology, Hangzhou 310014, China

^e Rega Institute for Medical Research, KU Leuven, Herestraat 49, B-3000 Leuven, Belgium

The novel sulfur-containing diarylbenzopyrimidines were designed by fragment-based strategy. The best compound **6e** maintained the antiviral activity, low cytotoxicity and cLogP as a novel lead compound for further optimization.

Chinese Chemical Letters 31 (2020) 764



Blood compatible heteratom-doped carbon dots for bio-imaging of human umbilical vein endothelial cells

Jian Zhong^{a,c}, Xinmian Chen^a, Miaoran Zhang^b, Chaoxin Xiao^c, Lulu Cai^a, Waleed Ali Khan^b, Kaixuan Yu^b, Jiayi Cui^b, Lin He^a

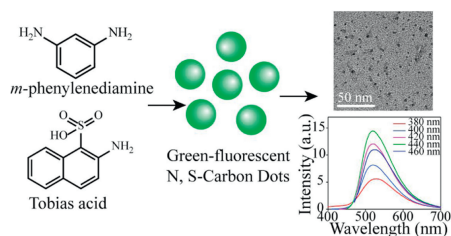
^a Personalized Drug Therapy Key Laboratory of Sichuan Province, Department of Pharmacy, Sichuan Provincial People's Hospital, School of Medicine, University of Electronic Science and Technology of China, Chengdu 610072, China

^b State Key Laboratory of Heavy Oil Processing, Beijing Key Laboratory of Biogas Upgrading Utilization, College of New Energy and Materials, China University of Petroleum (Beijing), Beijing 102249, China

^c State Key Laboratory of Biotherapy and Cancer, West China Hospital, Sichuan University and Collaborative Innovation Center, Chengdu 610041, China

The green fluorescent N, S-doped carbon dots (N, S-CDs) were synthesized by the hydrothermal method using tobas acid and *m*-phenylenediamine as the precursor. Meanwhile, the S and N provided by tobas acid and *m*-phenylenediamine respectively endowed N, S-CDs a high quantum yield (37.2%), strong and stable photoluminescence property. The N, S-CDs not only exhibited bioimaging capacity for HUVEC cells but also showed excellent blood compatibility and biocompatibility.

Chinese Chemical Letters 31 (2020) 769



MOF derived Co₃O₄/N-doped carbon nanotubes hybrids as efficient catalysts for sensitive detection of H₂O₂ and glucose

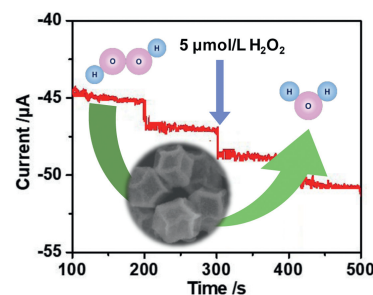
Yingnan Qin^{a,b}, Yingjun Sun^{a,b}, Yingjie Li^b, Chunji Li^b, Lei Wang^a, Shaojun Guo^b

^a College of Chemistry and Molecular Engineering, Qingdao University of Science and Technology, Qingdao 266042, China

^b Department of Materials Science and Engineering, Department of Biomedical Engineering, College of Engineering, Peking University, Beijing 100871, China

MOF derived Co₃O₄/N-doped carbon nanotubes hybrids was found to be an efficient catalyst for enzyme-free electrochemical detection of H₂O₂ and glucose. The special combination of Co₃O₄ and N-CNTs can improve the conductivity and hinder the aggregation of Co₃O₄, thus leading to a higher detection activity.

Chinese Chemical Letters 31 (2020) 774



Thermal benzene activation by 3d transition metal (Sc-Cu) oxide cations

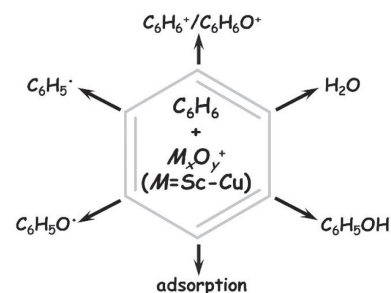
Jiatong Cui^a, Yue Zhao^a, Ming Wang^a, Shanshan Wang^b, Jiabi Ma^a

^a Key Laboratory of Cluster Science of Ministry of Education, Beijing Key Laboratory of Photoelectronic/Electrophotonic Conversion Materials, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, China

^b Analysis & Testing Center, Beijing Institute of Technology, Beijing 100081, China

The insight into the benzene oxidation reactions derived from the gas-phase model systems is helpful to build a detailed picture of oxidative mechanisms of C₆H₆ and its derivatives over corresponding mineral oxide aerosols. Six types of primary channels in the reactions of 3d-transition metal oxide cations with benzene.

Chinese Chemical Letters 31 (2020) 779



Bioinspired fluorescent dihydroxyindoles oligomers

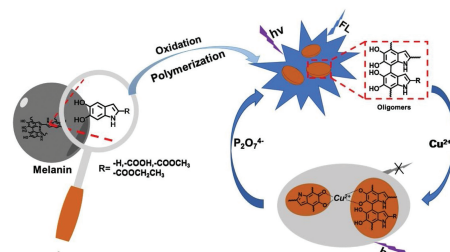
Zhan Li^a, Tianyou Wang^a, Fang Zhu^a, Zhao Wang^b, Yiwen Li^a

^a College of Polymer Science and Engineering, State Key Laboratory of Polymer Materials Engineering, Sichuan University, Chengdu 610065, China

^b Institute for Molecular Engineering, University of Chicago, Chicago, IL 60637, United States

We report the design and synthesis of a new class of melanin-inspired dihydroxyindoles oligomers based reversible fluorescence sensor.

Chinese Chemical Letters 31 (2020) 783



Near-infrared photothermal release of hydrogen sulfide from nanocomposite hydrogels for anti-inflammation applications

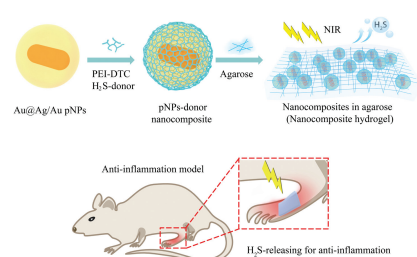
Yan Huang^a, Haifeng Li^a, Xiaoxiao He^a, Xiaohai Yang^a, Li Li^a, Songyang Liu^a, Zhen Zou^b, Kemin Wang^a, Jianbo Liu^a

^a State Key Laboratory of Chemo/Biosensing and Chemometrics, College of Chemistry and Chemical Engineering, Key Laboratory for Bio-Nanotechnology and Molecular Engineering of Hunan Province, Hunan University, Changsha 410082, China

^b School of Chemistry and Food Engineering, Changsha University of Science and Technology, Changsha 410114, China

The combination of a thermo-labile H₂S donor and photothermal nanoparticles enabled the generation of H₂S in agarose hydrogel upon irradiation with NIR. This photothermal spatiotemporally controlled H₂S-releasing strategy was successfully applied to anti-inflammation treatment in a rat model, demonstrating its utility as a novel H₂S-based therapeutic approach.

Chinese Chemical Letters 31 (2020) 787



Nitrogen photofixation on holey g-C₃N₄ nanosheets with carbon vacancies under visible-light irradiation

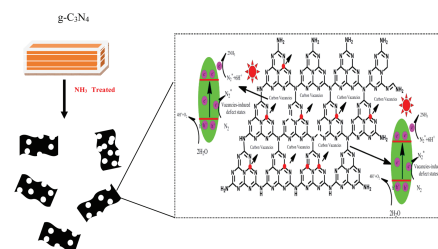
Jianhua Ge^{a,b}, Long Zhang^a, Jing Xu^a, Yujie Liu^a, Daochuan Jiang^b, Pingwu Du^b

^a School of Earth and Environment, Anhui University of Science & Technology, Huainan 232001, China

^b CAS Key Laboratory of Materials for Energy Conversion, Department of Materials Science and Engineering, Collaborative Innovation Center of Chemistry for Energy Materials (iChEM), University of Science and Technology of China (USTC), Hefei 230026, China

Holey g-C₃N₄ (HGCN) with a good deal of carbon vacancies were prepared by thermal ammonnlysis, contribute to enhance the nitrogen photofixation activity, which is approximately ~5.87 times higher than that of bulk g-C₃N₄.

Chinese Chemical Letters 31 (2020) 792



Electronic polarization in dipolar organic molecular semiconductors: The case study of 1,2,3,4-tetrafluoro-6,7-dimethylnaphthalene crystal

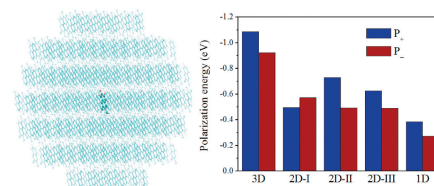
Xiaoyi Ma^{a,b}, Yuanping Yi^{a,b}

^a Beijing National Laboratory for Molecular Sciences, CAS Key Laboratory of Organic Solids, CAS Research/Education Center for Excellence in Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^b University of Chinese Academy Sciences, Beijing 100049, China

The electronic polarization in dipolar organic semiconductors has been first investigated by taking the 1,2,3,4-tetrafluoro-6,7-dimethylnaphthalene crystal as representative. Unexpectedly, the polarization energies are found to be similar with those of nonpolar systems, and the polarization effects along the three dimensions are comparable despite of the anisotropic onedimensional π - π stacking structure.

Chinese Chemical Letters 31 (2020) 797



Temperature-dependent structural changes of [Bmim]FeCl₄ magnetic ionic liquid characterized by an *in-situ* X-ray absorption fine structure

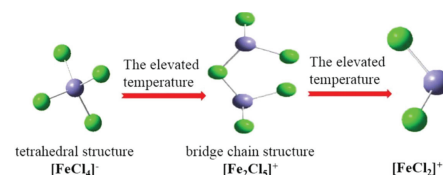
Fangling Jiang^a, Hao Peng^b, Cheng Li^b, Haiying Fu^b, Guozhong Wu^b

^a Shanghai Jiao Tong University, Institute of Fuel Cells, Shanghai 200240, China

^b Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai 201800, China

The coordination number and bond length of Fe-Cl in the anion of [Bmim] FeCl₄ MIL decreased with increments in temperature. XAFS results directly reflected the dissociation of tetrahedral structure [FeCl₄]⁻, and the formation of bridge-chain [Fe₂Cl₅]⁺ and [FeCl₂]⁺ species.

Chinese Chemical Letters 31 (2020) 801



A biomass carbon material with microtubule bundling and natural O-doping derived from goldenberry calyx and its electrochemical performance in supercapacitor

Yang Liu^{a,1}, Mengyi Zhang^{b,1}, Liqiu Wang^{a,c}, Yajuan Hou^a, Chenxiao Guo^a, Haiying Xin^a, Shuang Xu^a

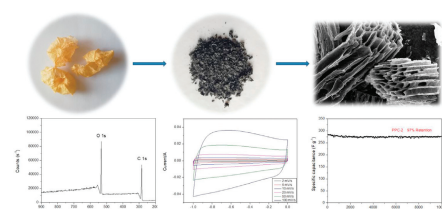
^a College of Environmental and Chemical Engineering, Yanshan University, Qinhuangdao 066004, China

^b College of Pharmacy, State Key Laboratory of Medicinal Chemical Biology, Nankai University, Tianjin 300350, China

^c Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), College of Chemistry, Nankai University, Tianjin 300071, China

A *Physalis peruviana* L. calyx was treated to obtain a carbon material with long microtubule bundling pore structure, above 30% natural O-doping, high specific capacitance (339 F/g) and excellent cycling stability (97% retention), which could be applied in supercapacitor, Li (Na, K, Mg or Ca)-ion battery, hydrogen storage device, photo catalysis and waste treatment, etc.

Chinese Chemical Letters 31 (2020) 805



Synthesis, structure and magnetism of a novel Cu^{II}₄Ti^{IV}₅ heterometallic cluster

Kai Sheng^{a,b}, Xuefei Tian^a, Marko Jagodić^c, Zvonko Jagličić^c, Na Zhang^a, Qing-Yun Liu^d, Chen-Ho Tung^a, Di Sun^{a,e}

^a Key Laboratory of Colloid and Interface Chemistry, Ministry of Education, School of Chemistry and Chemical Engineering, State Key Laboratory of Crystal Materials, Shandong University, Ji'nan 250100, China

^b School of Aeronautics, Shandong Jiaotong University, Ji'nan 250037, China

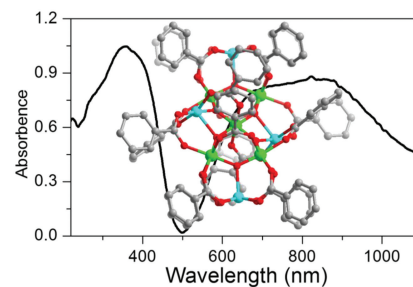
^c Faculty of Civil and Geodetic Engineering & Institute of Mathematics, Physics and Mechanics, University of Ljubljana, Ljubljana 1000, Slovenia

^d College of Chemical and Environmental Engineering, Shandong University of Science and Technology, Qingdao 266590, China

^e Shandong Provincial Key Laboratory of Chemical Energy Storage and Novel Cell Technology, School of Chemistry and Chemical Engineering, Liaocheng University, Liaocheng 252000, China

A nonanuclear Cu^{II}₄Ti^{IV}₅ heterometallic cluster, [Ti₅Cu₄O₆(ba)₁₆] (1, Hba = benzoic acid) with high Cu^{II} ion doping concentration shows very rare bimetal atom arrangement and strong absorption towards visible light extending to infrared region.

Chinese Chemical Letters 31 (2020) 809



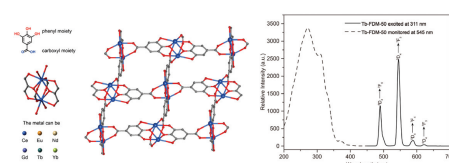
Construction of mixed carboxylate and pyrogallate building units for luminescent metal-organic frameworks

Xiao Lin, Erlong Ning, Xiaomin Li, Qiaowei Li

Department of Chemistry, iChEM (Collaborative Innovation Center of Chemistry for Energy Materials), Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, Fudan University, Shanghai 200433, China

By utilizing both carboxylates and pyrogallates coordination moieties from gallic acid, fascinating paddle wheel secondary building units for MOF construction could be formed. The resulting MOFs with six different kinds of lanthanide ions show luminescence properties originated from the metals.

Chinese Chemical Letters 31 (2020) 813



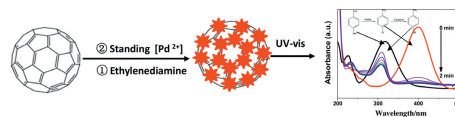
Palladium nanoflowers supported on amino-fullerene as novel catalyst for reduction of 4-nitrophenol

Zhongping Li, Chunxiao Han

Institute of Environmental Science, Shanxi University, Taiyuan 030006, China

This platform is readily constructed based on excellent catalytic activity of novel nanocomposite (Pd NFs/ C_{60} -NH₂), and demonstrated remarkable advantages such as rapidity and universality. Highly degradation of 4-nitrophenol (4-NP) on remarkable UV-vis spectra technology.

Chinese Chemical Letters 31 (2020) 818



Adhesives to empower a manipulator inspired by the chameleon tongue

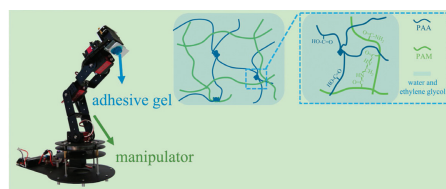
Chen Wang^{a,b}, Liju Xu^{a,b}, Yan Qiao^{a,b}, Dong Qiu^{a,b}

^a Beijing National Laboratory for Molecular Sciences (BNLMS), State Key Laboratory of Polymer Physics and Chemistry, CAS Research/Education Center for Excellence in Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^b University of Chinese Academy of Sciences, Beijing 100190, China

Adhesive gels with switchable adhesion force and high cohesion strength were developed and their application to empower a manipulator capable of fetching objects by sticky interactions was demonstrated, paving the way towards new applications of soft materials in the emerging fields of soft robotic devices and smart manufacturing.

Chinese Chemical Letters 31 (2020) 821



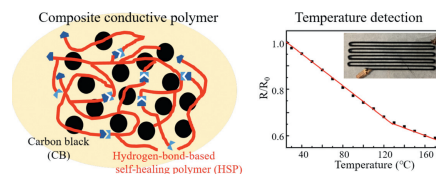
A 3D printable self-healing composite conductive polymer for sensitive temperature detection

Mengnan He, Yan Zhao, Yunqi Liu, Dacheng Wei

State Key Laboratory of Molecular Engineering of Polymers, Department of Macromolecular Science, Fudan University, Shanghai 200433, China

The CB/HSP composite can be 3D printed for temperature detection with room-temperature self-healing property.

Chinese Chemical Letters 31 (2020) 826



Enhancing the ionic conductivity in a composite polymer electrolyte with ceramic nanoparticles anchored to charged polymer brushes

Bintao Zhao^{a,b}, Xi Lu^b, Qian Wang^a, Jingfa Yang^{c,d}, Jiang Zhao^{c,d}, Henghui Zhou^a

^a College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, China

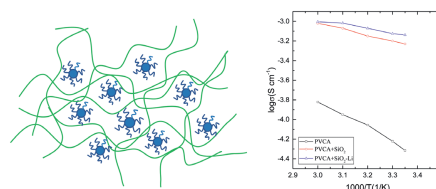
^b Pulead Technology Industry Co. Ltd, Beijing 102200, China

^c Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^d University of Chinese Academy of Sciences, Beijing 100049, China

Nanoparticles anchored charged polymer chains increase the ionic conductivity of solid lithium batteries.

Chinese Chemical Letters 31 (2020) 831



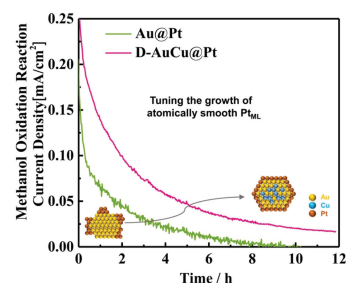
Platinum monolayers stabilized on dealloyed AuCu core-shell nanoparticles for improved activity and stability on methanol oxidation reaction

Weihua Guo, Xiaozhang Yao, Lingyi Peng, Bingqing Lin, Yongqiang Kang, Lin Gan

Division of Energy and Environment, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China

Platinum monolayers deposited on dealloyed AuCu core-shell nanoparticles through surface-limited redox replacement were found to be more uniform and more stable compared to those deposited on pure Au nanoparticles, leading to higher electrocatalytic activity and higher stability on methanol oxidation reaction.

Chinese Chemical Letters 31 (2020) 836



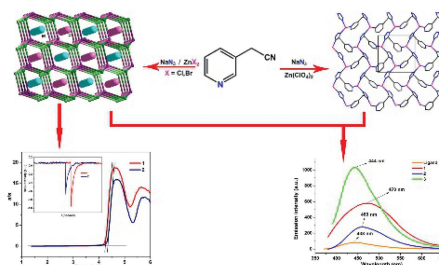
In situ [2 + 3] cycloaddition synthesis, crystal structures, strong SHG responses and fluorescence properties of three novel Zn coordination polymers

Haitao Zhou, Kang Yang, Yao Liu, Yunzhi Tang, Wenjuan Wei, Qing Shu, Jinjun Zhao, Yuhui Tan

School of Metallurgy and Chemical Engineering, Jiangxi University of Science and Technology, Ganzhou 341000, China

Three novel Zn-tetrazole complexes obtained *in situ*. Two acentric complexes exhibit strong SHG response of 4 and 3 times that of KH_2PO_4 (KDP) respectively and a wide transparency range with a short UV cutoff edge below 300 nm. Furthermore, their fluorescent properties are influenced by the ligand-field strength of the negative ions.

Chinese Chemical Letters 31 (2020) 841



TiC/C core/shell nanowires arrays as advanced anode of sodium ion batteries

Yanbin Shen^a, Yahao Li^a, Shengjue Deng^a, Guoxiang Pan^b, Qinqin Xiong^c, Xiaokun Ding^d, Yangfan Lu^a, Qi Liu^e, Xinhui Xia^{a,f}, Xiuli Wang^a, Jiangping Tu^a

^a State Key Laboratory of Silicon Materials, Key Laboratory of Advanced Materials and Applications for Batteries of Zhejiang Province, and School of Materials Science and Engineering, Zhejiang University, Hangzhou 310027, China

^b Department of Materials Chemistry, Huzhou University, Huzhou 313000, China

^c College of Materials and Environmental Engineering, Hangzhou Dianzi University, Hangzhou 310018, China

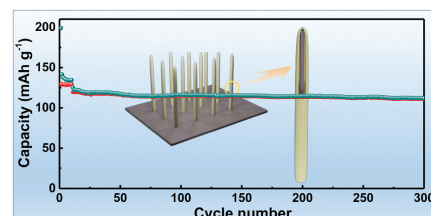
^d Department of Chemistry, Zhejiang University, Hangzhou 310027, China

^e Department of Physics, City University of Hong Kong, Hong Kong 999077, China

^f Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), College of Chemistry, Nankai University, Tianjin 300071, China

TiC/C core/shell nanowires arrays are prepared via a simple chemical vapor deposition method and show superior cycling performance and good high-rate performance as anode of sodium ion batteries.

Chinese Chemical Letters 31 (2020) 846



Antibiotic enhanced dopamine polymerization for engineering antifouling and antimicrobial membranes

Shuaifei Zhao^{a,b,c}, Maryam Golestani^b, Anahit Penesyan^d, Baolin Deng^{a,e}, Chunmiao Zheng^a, Vladimir Strezov^b

^a State Environmental Protection Key Laboratory of Integrated Surface Water-Groundwater Pollution Control, School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China

^b Department of Environmental Sciences, Macquarie University, Sydney, NSW 2109, Australia

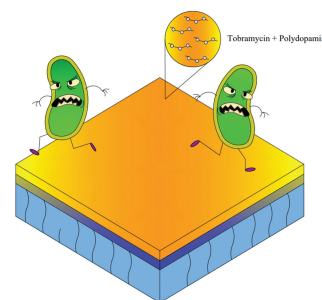
^c College of Environmental Science and Engineering, Dalian Maritime University, Dalian 116026, China

^d Department of Molecular Sciences, Macquarie University, Sydney, NSW 2109, Australia

^e Department of Chemical Engineering, University of Missouri, Columbia, MO 65211, United States

Membranes with excellent antifouling and antimicrobial properties were developed using a novel antibioticdopamine coating system.

Chinese Chemical Letters 31 (2020) 851



NiCoP 1D nanothorns grown on 3D hierarchically porous Ni films for high performance hydrogen evolution reaction

Yaqiang Ji^{a,b}, Jinqi Xie^a, Ying Yang^b, Xianzhu Fu^{a,c}, Rong Sun^a, Chingping Wong^d

^a Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen 518055, China

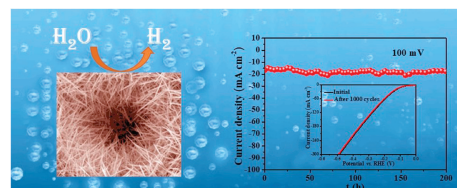
^b Key Laboratory of Low-grade Energy Utilization Technologies and Systems, Chongqing University, Chongqing 400044, China

^c College of Materials Science and Engineering, Shenzhen University, Shenzhen 518055, China

^d Department of Electronics Engineering, The Chinese University of Hong Kong, Hong Kong, China

NiCoP nanothorns were in-situ grown on 3D porous Ni film, and the porous architecture could enhance the electrochemical surface area and active sites. The electrodes exhibited remarkable stability for long-term HER.

Chinese Chemical Letters 31 (2020) 855



Self-assembled thermosensitive luminescent nanoparticles with peptide-Au conjugates for cellular imaging and drug delivery

Xiaoyuan Zhang^{a,b}, Wei Liu^a, Haixia Wang^{c,d}, Xinne Zhao^a, Zhenfang Zhang^a, Gerd Ulrich Nienhaus^{c,d,e,f}, Li Shang^g, Zhiqiang Su^a

^a State Key Laboratory of Chemical Resource Engineering, Beijing Key Laboratory of Advanced Functional Polymer Composites, Beijing University of Chemical Technology, Beijing 100029, China

^b Faculty of Physics and Astronomy, Friedrich Schiller University Jena, Jena 07743, Germany

^c Institute of Applied Physics, Karlsruhe Institute of Technology (KIT), Karlsruhe 76128, Germany

^d Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen 76344, Germany

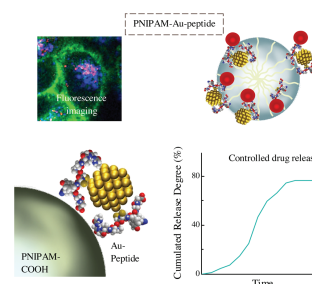
^e Institute of Toxicology and Genetics, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen 76344, Germany

^f Department of Physics, University of Illinois at Urbana-Champaign, Urbana, IL 61801, United States

^g State Key Laboratory of Solidification Processing, Center for Nano Energy Materials, School of Materials Science and Engineering, Northwestern Polytechnical University, Shaanxi Joint Laboratory of Graphene (NPU), Xi'an 710072, China

A new theranostic system has been successfully fabricated by incorporating thermo-sensitive poly(*N*-isopropyl acrylamide) nanospheres with luminescent peptide-Au clusters (PNIPAM-peptide-Au nanospheres). With excellent stability, thermo-responsiveness, red fluorescence and targeting ability, these PNIPAM-peptide-Au nanospheres hold great potential as multifunctional platforms for controlled release, fluorescence imaging and targeted therapy.

Chinese Chemical Letters 31 (2020) 859



Ternary organic solar cells based on polymer donor, polymer acceptor and PCBM components

Feng Liu^{a,c}, Cheng Li^c, Junyu Li^d, Chao Wang^{a,c}, Chengyi Xiao^b, Yonggang Wu^a, Weiwei Li^{b,c}

^a College of Chemistry and Environmental Science, Hebei University, Baoding 071002, China

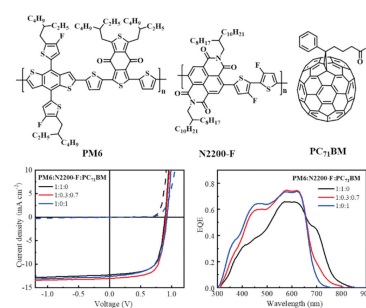
^b State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology, Beijing 100029, China

^c Beijing National Laboratory for Molecular Sciences, Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^d DSM DMSC R&D Solutions, Geleen 6160 MD, the Netherlands

Ternary organic solar cells based on polymer donor, polymer acceptor and PCBM were studied, in which an improved efficiency of 8.11% could be obtained.

Chinese Chemical Letters 31 (2020) 865



All-small-molecule dynamic covalent gels with antibacterial activity by boronate-tannic acid gelation

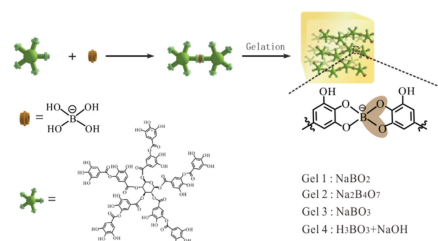
Xuejing Cheng^a, Mengyu Li^a, Hui Wang^b, Yiyun Cheng^{a,b}

^a Shanghai Key Laboratory of Regulatory Biology, School of Life Sciences, East China Normal University, Shanghai 200241, China

^b South China Advanced Institute for Soft Matter Science and Technology, South China University of Technology, Guangzhou 510640, China

A series of all-small-molecule dynamic covalent gels with antibacterial properties by direct gelation between TA and inorganic borates or organic boronates.

Chinese Chemical Letters 31 (2020) 869



Discriminating against injectable fat emulsions with similar formulation based on water quenching fluorescent probereaction towards X-ray opaque polylactide copolymers

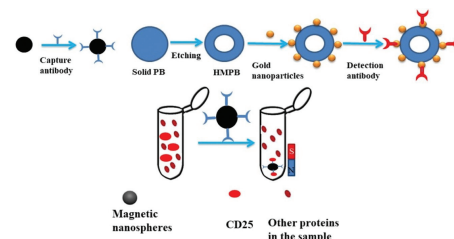
Jinlong Yang^{a,b}, Zirong Dong^b, Wenjuan Liu^b, Haisheng He^b, Wufa Fan^b, Yi Lu^b, Wei Wu^b, Li Gan^a, Jianping Qi^b

^a Department of Pharmaceutical Engineering, School of Chemical and Environmental Engineering, Shanghai Institute of Technology, Shanghai 201418, China

^b Key Laboratory of Smart Drug Delivery of MOE, School of Pharmacy, Fudan University, Shanghai 201203, China

The fat nanoemulsions from different manufacturers are able to be discriminated *in vivo* by water quenching fluorescent probe. Although the blood pharmacokinetics are similar among three fat nanoemulsions, there are significant differences in biodistribution among them.

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Enhanced TE properties of Cu@Ag/Bi₂Te₃ nanocomposites by decoupling electrical and thermal properties

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^a State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai 201620, China

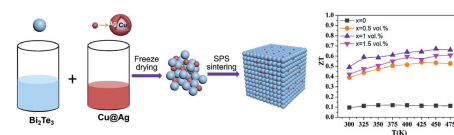
^b Institute of Functional Materials, Donghua University, Shanghai 201620, China

^c School of Material Science and Engineering, Jingdezhen Ceramic Institute, Jingdezhen 333000, China

^d Engineering Research Center of Advanced Glasses Manufacturing Technology, Ministry of Education, Shanghai 201620, China

The key process of fabricating Cu@Ag/Bi₂Te₃ heterostructure constructed by new composite method of ultrasonic dispersion-rapid freeze-freeze drying, and Cu@Ag/Bi₂Te₃ composite exhibited a higher thermoelectric figure of merit than pure Bi₂Te₃ due to the decoupling of three parameters.

Chinese Chemical Letters 31 (2020) 880



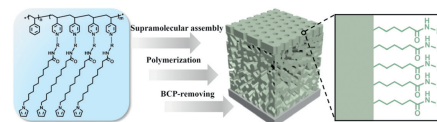
Block copolymer assisted topochemical polymerization: A facile and efficient route to robust polymeric nanoporous membranes decorated with versatile amino acids

Yun Liang, Wanyue Ouyang, Peng Wang, Wanlin Zhang, Shiqiang Wang, Li Tian, Yong Ju, Guangtao Li

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Based on block copolymer assisted topochemical polymerization, a new strategy for facilely producing robust nanoporous membranes with controlled incorporation of amino acids onto nanopores is developed.

Chinese Chemical Letters 31 (2020) 885



Identifying the composition and atomic distribution of Pt-Au bimetallic nanoparticle with machine learning and genetic algorithm

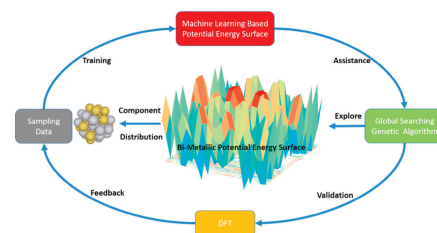
Jiawei Zhang^a, Jianfu Chen^a, Peijun Hu^{a,b}, Haifeng Wang^a

^a Key Laboratory for Advanced Materials, Research Institute of Industrial Catalysis and Centre for Computational Chemistry, School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China

^b School of Chemistry and Chemical Engineering, The Queen's University of Belfast, Belfast BT9 5AG, United Kingdom

We have developed an approach by combining machine-learning model and genetic algorithm to tackle the challenge for locating stable bimetallic clusters and the atomic distribution. It achieved quick DFT-level prediction of PES of Pt_mAu_{38-m} clusters, and the most stable composition and preferential atomic distribution rule were identified and understood.

Chinese Chemical Letters 31 (2020) 890



Boosting sodium storage of mesoporous TiO₂ nanostructure regulated by carbon quantum dots

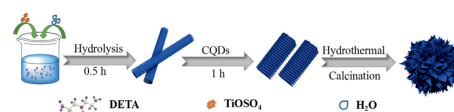
Minghong Wu^b, Yanping Gao^a, Yu Hu^a, Bing Zhao^b, Haijiao Zhang^a

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N-doped TiO₂ mesoporous nanostructure has been synthesized via a facile CQDs-regulated hydrothermal route. The resulting TiO₂ product shows the large surface area, high conductivity, abundant mesopores, and excellent sodium storage capability.

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Constructing an unbalanced structure toward high working voltage for improving energy density of non-aqueous carbon-based electrochemical capacitors

Junsheng Zheng^{a,b}, Nan Qin^{a,b}, Liming Jin^{a,b,c}, Xin Guo^{a,b}, Chao Shen^c, Qiang Wu^c, Jim P. Zheng^{b,c}

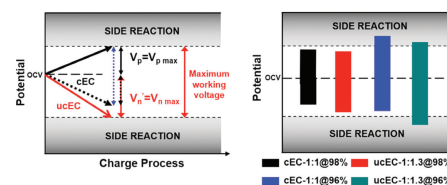
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^c Department of Electrical and Computer Engineering, Florida A&M University-Florida State University College of Engineering, FL 32304, United States

The energy density of carbon-based electrochemical capacitors (cEC) is mainly determined by the specific capacitance and operational voltage range. In this study, we propose to architect an unbalanced structure to make full use of stable voltage range for improving energy density. After optimizing the ratio of cathode and anode, the ucEC is capable to deliver an improved energy density up to 64.9 Wh/kg (1.4 times as high as a general cEC) without sacrificing the power density and cycle life. The proposed structure demonstrates a great potential for improving the energy density at little cost of electrode design and cell configuration.

Chinese Chemical Letters 31 (2020) 903



Electrospun Sb₂Se₃@C nanofibers with excellent lithium storage properties

Yan Dong^a, Yuezhao Feng^b, Jiwei Deng^c, Pengbin He^a, Jianmin Ma^a

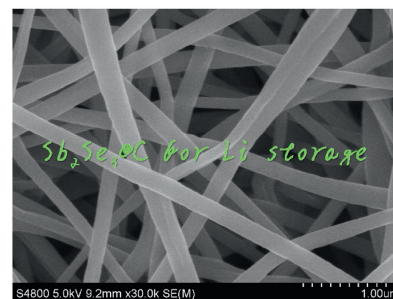
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Sb₂Se₃@C nanofibers are obtained by electrospinning method. When tested as the anode for lithium-ion batteries, the Sb₂Se₃@C nanofibers annealed at 600 °C delivers a remarkably good cycling performance of 625 mAh/g at 100 mA/g after 100 cycles.

Chinese Chemical Letters 31 (2020) 909



β -Elemene-loaded polymeric micelles intensify anti-carcinoma efficacy and alleviate side effects

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^c Department of Chemistry, University of Louisville, Louisville, KY 40292, United States

β -Elemene micelles were prepared with uniform particle size and a superior encapsulation efficiency. The micelles displayed the enhanced anti-tumor effect and alleviated toxicity compared with free β -elemene *in vitro* and *in vivo*.

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