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Graphical Abstracts/Chin Chem Lett 33 (2022) iii–xxvi

Review

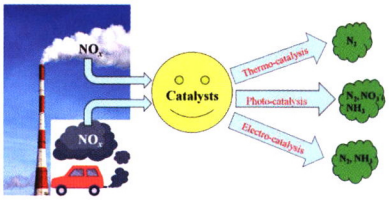
Direct catalytic nitrogen oxide removal using thermal, electrical or solar energy

Xiaohu Zhang, Lixiao Han, Hao Chen, Shengyao Wang

College of Science, Huazhong Agricultural University, Wuhan 430070, China

Removal of nitrogen oxide through catalytic technology utilizing thermal, electrical or solar energy is a hot topic in terms of increasingly concerned ecological and environmental issues.

Chinese Chemical Letters 33 (2022) 1117



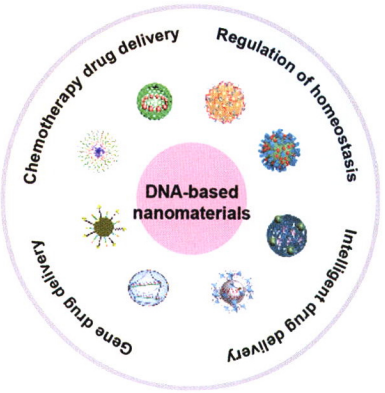
Construction and applications of DNA-based nanomaterials in cancer therapy

Hedong Qi, Yuwei Xu, Pin Hu, Chi Yao, Dayong Yang

Frontiers Science Center for Synthetic Biology, Key Laboratory of Systems Bioengineering (MOE), School of Chemical Engineering and Technology, Tianjin University, Tianjin 300350, China

This review summarized recent advances in cancer therapy with precise designed DNA-based nanomaterials to enhanced nucleic acid stability and safety finally improving the therapeutic effect.

Chinese Chemical Letters 33 (2022) 1131



Recent research progress of bimetallic phosphides-based nanomaterials as cocatalyst for photocatalytic hydrogen evolution

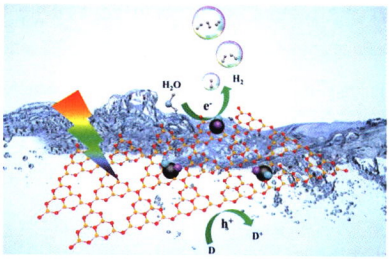
Chunmei Li [a], Daqiang Zhu [a], Shasha Cheng [a], Yan Zuo [a], Yun Wang [a], Changchang Ma [b], Hongjun Dong [a]

[a] *Advanced Chemical Engineering Laboratory of Green Materials and Energy of Jiangsu Province, Institute of Green Chemistry and Chemical Technology, School of Chemistry and Chemical Engineering, Jiangsu University, Zhenjiang 212013, China*

[b] *Department of Chemistry, Dongguk University, Seoul 04620, Republic of Korea*

Bimetallic phosphides have been also caused widespread concern in H_2 evolution reaction owing to its unique Advantages. In this minireview, we concluded the latest developments of bimetallic phosphides as cocatalyst for a series of photocatalytic H_2 evolution reactions.

Chinese Chemical Letters 33 (2022) 1141



doi:10.1016/j.cclet.2021.07.057

Old commercialized magnetic particles new trick: Intrinsic internal standard

Chaoqun Wang [a], Ziqiang Deng [b], Hu Zhang [c], Rui Liu [b], Yi Lv [a]

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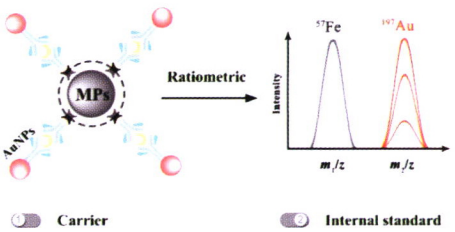
[c] Department of Gastroenterology, West China Hospital, Sichuan University, Chengdu 610041, China

Inspired by commercialized magnetic particles' intrinsic Fe isotope composition, we exploited a novel function of MPs-internal standard and constructed a simple ratiometric immunoassay based on high resolution inductively coupled plasma mass spectrometry.

Chinese Chemical Letters 33 (2022) 1267



Nanoplasmonic zirconium nitride photocatalyst for direct overall water splitting

Yu Liu [a,b], Xiaowei Zhang [a,b], Lisha Lu [a,b], Jun Ye [a,b], Jianlin Wang [a,b], Xiaomin Li [a], Xuedong Bai [a,b,c], Wenlong Wang [a,b,c]

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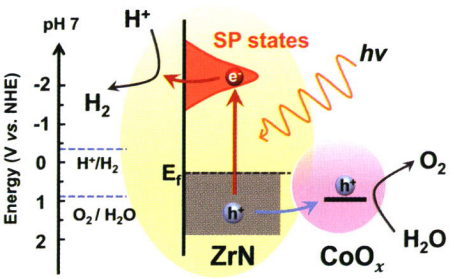
The first use of plasmonic zirconium nitride (ZrN) nanostructures as a promising photocatalyst for water splitting was demonstrated. Without the optimal modification of a cobalt oxide (CoO_x) cocatalyst to facilitate separation of photogenerated charge carriers, the plasmonic ZrN nanoparticles can activate the overall water splitting for simultaneous H_2 and O_2 evolution.

Chinese Chemical Letters 33 (2022) 1271



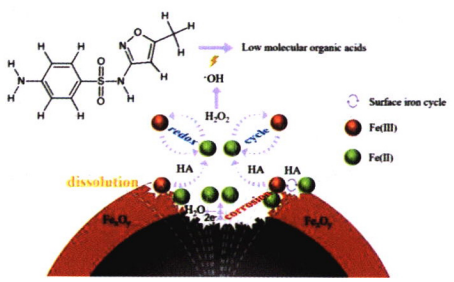
Amplification effects of magnetic field on hydroxylamine-promoted ZVI/H_2O_2 near-neutral Fenton like system

Wei Xiang [a,b], Mingjie Huang [a], Xiaohui Wu [a,b], Fugang Zhang [c], Dan Li [c], Tao Zhou [a]

[a] School of Environmental Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China
[b] Key Laboratory of Water and Wastewater Treatment (HUST), MOHURD, Wuhan 430074 China
[c] Three Gorges Base Development Co., Ltd, Yichang 443002, China

Mechanism for the magnetic field amplification effect was proposed involving the heterogeneous-homogenous iron cycle. The gradient magnetic field could lead to enhanced iron corrosion and formation of specific porous surface. Bounded and aqueous Fe(II) would be generated simultaneously, contributing to the generation of ·OH and degradation of sulfamethoxazole. Hydroxylamine not only promoted the dissolution of iron oxides but also maintained the homogeneous and heterogeneous cycle of Fe(II)/Fe(III).

Chinese Chemical Letters 33 (2022) 1275



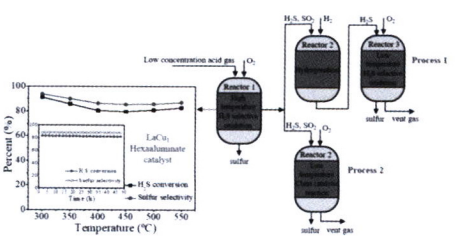
High temperature H_2S selective oxidation on a copper-substituted hexaaluminate catalyst: A facile process for treating low concentration acid gas

Xin Xu [a,b], Ganggang Li [a,b], Fenglian Zhang [b], Guoxia Jiang [b], Zhengping Hao [a,b]

[a] Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing 100085, China
[b] National Engineering Laboratory for VOCs Pollution Control Material & Technology, Research Center for Environmental Material and Pollution Control Technology, University of Chinese Academy of Sciences, Beijing 101408, China

The copper-substituted hexaaluminate catalyst ($LaCu_1$) exhibited excellent catalytic performance and reaction stability for the high temperature H_2S selective oxidation. And two facile deep processing paths are proposed for the complete treatment of low concentration acid gas.

Chinese Chemical Letters 33 (2022) 1279



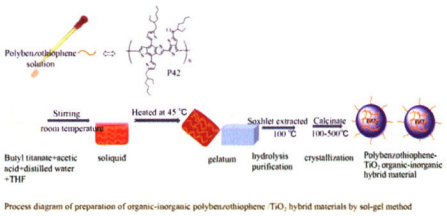
Enhanced photocatalytic hydrogen production under visible light of an organic-inorganic hybrid material based on enzo[1,2-b:4,5-b']dithiophene polymer and TiO_2

Chinese Chemical Letters 33 (2022) 1303

Fang Jing [a], Yanmeng Guo [a], Bo Li [a], Yi-Fan Chen [a], Chunman Jia [a], Jianwei Li [a,b]

[a] Hainan Provincial Key Laboratory of Fine Chemicals, Advanced Materials of Tropical Island Resources of Ministry of Education, School of Chemical Engineering and Technology, Hainan University, Haikou 570228, China
[b] MediCity Research Laboratory, University of Turku, Tykistökatu 6, Turku 20520, Finland

A polythiophene, benzo[1,2-b:4,5-b']dithiophene polythiophene (P42), could be used to enhance the photocatalytic hydrogen production of TiO_2 under visible light due to the broadened absorption range and narrowed band gap.



Process diagram of preparation of organic-inorganic polybenzothiophene TiO_2 hybrid materials by sol-gel method

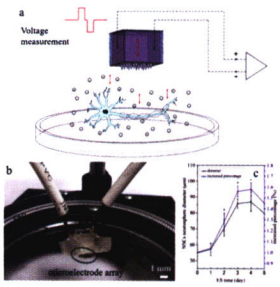
Microfluidics embedded with microelectrodes for electrostimulation of neural stem cells proliferation

Chinese Chemical Letters 33 (2022) 1308

Qian Li [a,b], Bodong Kang [a,b], Libin Wang [a,b], Tao Chen [a,b], Yu Zhao [a,b], Shilun Feng [c], Rongjing Li [a,b], Hongtian Zhang [d]

[a] Institute of Advanced Photonics Technology, Faculty of Materials and Manufacturing, Beijing University of Technology, Beijing 100124, China
[b] Key Laboratory of Trans-scale Laser Manufacturing Technology (Beijing University of Technology), Ministry of Education, Beijing 100124, China
[c] State Key Laboratory of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China
[d] Department of Neurosurgery, The 7th Medical Center, General Hospital of the Chinese People's Liberation Army, Beijing 100700, China

Here a novel microfluidic/microelectrode composite microdevice was developed by embedding the microelectrodes to the microfluidic platform, in which microfluidics provided a controlled cell culture platform, and electrical stimulation (ES) promoted the neural stem cells (NSCs) proliferation.



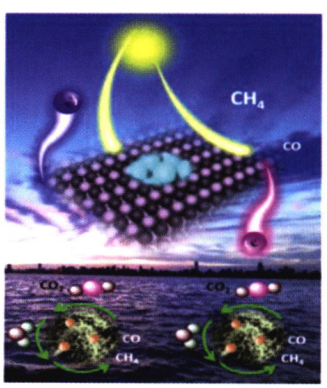
Achieving simultaneous Cu particles anchoring in meso-porous TiO_2 nanofabrication for enhancing photo-catalytic CO_2 reduction through rapid charge separation

Chinese Chemical Letters 33 (2022) 1313

Jinyan Xiong [a], Mengmeng Zhang [b], Mengjie Lu [a], Kai Zhao [c], Chao Han [d], Gang Cheng [b], Zhipan Wen [b]

[a] College of Chemistry and Chemical Engineering, Hubei Key Laboratory of Biomass Fibers and Ecodyeing & Finishing, Wuhan Textile University, Wuhan 430200, China
[b] School of Chemistry and Environmental Engineering, Wuhan Institute of Technology, Wuhan 430205, China
[c] School of Materials Science and Energy Engineering, Foshan University, Foshan 528000, China
[d] Australia School of Civil and Environmental Engineering, Faculty of Engineering and Information Technology, University of Technology Sydney, Sydney, NSW 2007, Australia

The hybrid of titanium oxide nano-aggregates coupled with copper particles displaying superior conversion of CO_2 photo-reduction was successfully prepared by a facile solvo-thermal approach. The impact of copper loading contribution to an efficient separation of photo-generated charges for solar-driven CO_2 photo-reduction was also studied.



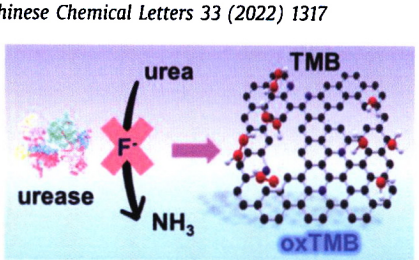
Defect-rich and ultrathin nitrogen-doped carbon nanosheets with enhanced peroxidase-like activity for the detection of urease activity and fluoride ion

Chinese Chemical Letters 33 (2022) 1317

Yu Zhang, Lei Jiao, Weiqing Xu, Yifeng Chen, Yu Wu, Hongye Yan, Wenling Gu, Chengzhou Zhu

Key Laboratory of Pesticide and Chemical Biology of Ministry of Education, International Joint Research Center for Intelligent Biosensing Technology and Health, College of Chemistry, Central China Normal University, Wuhan 430079, China

The colorimetric sensing platform based on defect-rich and ultrathin nanozymes was constructed for the detection of urease activity and fluoride ion.



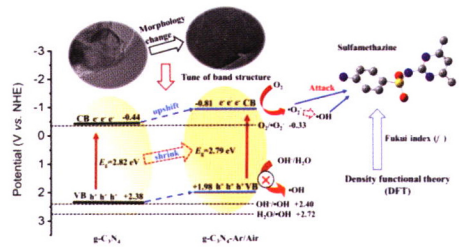
Tuning band structure of graphitic carbon nitride for efficient degradation of sulfamethazine: Atmospheric condition and theoretical calculation

Chinese Chemical Letters 33 (2022) 1385

Yue Liu [a], Long Chen [b], Xiaona Liu [a], Tianwei Qian [a], Meng Yao [a], Wen Liu [b,c], Haodong Ji [b,c]

[a] College of Environmental Science and Engineering, Taiyuan University of Technology, Jinzhong 030600, China
[b] The Key Laboratory of Water and Sediment Science, Ministry of Education; College of Environment Science and Engineering, Peking University, Beijing 100871, China
[c] State Environmental Protection Key Laboratory of All Material Fluxes in River Ecosystems, Peking University, Beijing 100871, China

Modified graphitic carbon nitride (g-C3N4-Ar/Air) was synthesized *via* a facial post-calcination method and exhibited efficiently photocatalytic activity for SMT removal due to the tune of band structure.



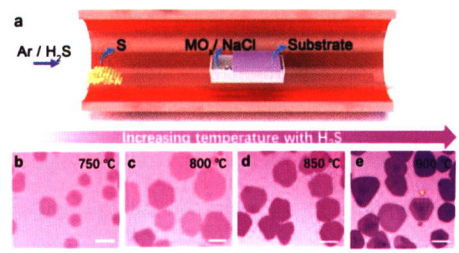
H_2S-assisted growth of 2D MS_2 (M = Ti, Zr, Nb)

Chinese Chemical Letters 33 (2022) 1390

Yiwei Zhang [a], Peng Zhang [a], Tengfei Xu [b], Xingguo Wang [a], Huaning Jiang [a], Yongji Gong [a]

[a] School of Materials Science and Engineering, Beihang University, Beijing 100191, China
[b] State Key Laboratory of Infrared Physics, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai 200083, China

High quality MS_2 (M = Ti, Nb, Zr) nanosheets grown by H_2S-assisted CVD growth method and their corresponding characterization.



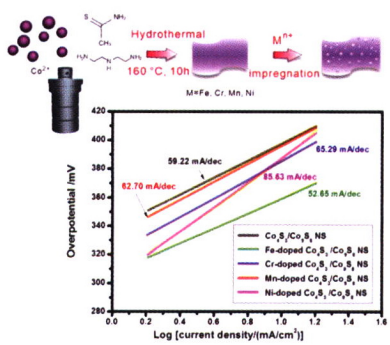
Synthesis of Co_4S_3/Co_9S_8 nanosheets and comparison study toward the OER properties induced by different metal ion doping

Chinese Chemical Letters 33 (2022) 1395

Fenghua Chen [a], Zhaoqian Zhang [a], Weiwei Liang [a], Xiaoyun Qin [a], Zhen Zhang [b], Liying Jiang [c]

[a] College of Materials and Chemical Engineering, Zhengzhou University of Light Industry, Zhengzhou 450002, China
[b] Tianjin Key Laboratory of Molecular Optoelectronic Department of Chemistry, School of Science, Tianjin University, Tianjin 300072, China
[c] School of Electrical and Information Engineering, Zhengzhou University of Light Industry, Zhengzhou 450002, China

Co_4S_3/Co_9S_8 nanosheets, with an ultrathin layer structure, were successfully synthesized *via* an efficient solvothermal process combined with ultrasonic exfoliation. Co_4S_3/Co_9S_8 NS exhibited different electrocatalytic properties caused by the doping of four different kinds of metal ions.



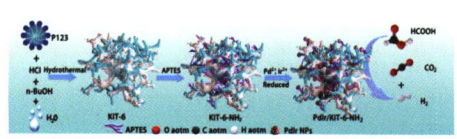
Robust hydrogen production from HCOOH over amino-modified KIT-6-confined PdIr alloy nanoparticles

Chinese Chemical Letters 33 (2022) 1403

Wenfang Peng [a,b], Shiwen Liu [b], Xiugang Li [a], Gang Feng [c], Jianhui Xia [a], Zhang-Hui Lu [a]

[a] Key Laboratory of Functional Small Molecules for Ministry of Education, College of Chemistry and Chemical Engineering, Jiangxi Normal University, Nanchang 330022, China
[b] Jiangxi Provincial Center for Disease Control and Prevention, Nanchang 330029, China
[c] College of Chemistry, Nanchang University, Nanchang 330031, China

Small and well-dispersed PdIr alloy NPs confined by amino-functional 3D mesoporous silica (KIT-6) were prepared by a simple wet chemical method and used as a highly efficient catalyst for robust hydrogen production from HCOOH.

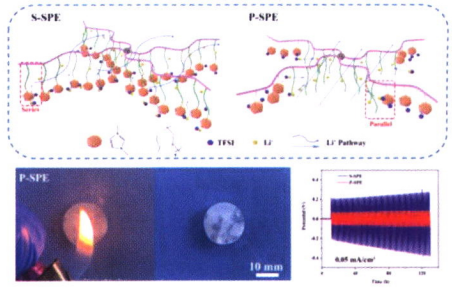


"Series and parallel" design of ether linkage and imidazolium cation synergistically regulated four-armed polymerized ionic liquid for all-solid-state polymer electrolyte

Chinese Chemical Letters 33 (2022) 1407

Zehui Xie [a], Yang Zhou [a,b], Canhui Ling [a], Xinlin Zhu [a], Zhao Fang [a], Xiaolong Fu [c], Wuwei Yan [d], Yong Yang [a]

[a] *Key Laboratory of Soft Chemistry and Functional Materials, Ministry of Education, School of Chemistry and Chemical Engineering, Nanjing University of Science and Technology, Nanjing 210094, China*
[b] *The Green Aerotechnics Research Institute of Chongqing Jiaotong University, Chongqing 401120, China*
[c] *Xi'an Modern Chemistry Research Institute, Xi'an 710065, China*
[d] *Shenzhen BTR Nanotechnology Company, Ltd., Shenzhen 518106, China*



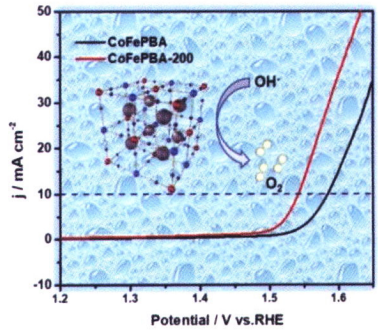
Series and parallel connective mode of ether linkage $(-CH_2-CH_2-O-)_n$ and ionic group are regulated in a four-armed polymeric ionic liquid scaffold to make a concerted effort to the electrochemical performances and safety of solid-state polymer electrolytes.

Heat treatment-induced Co^{3+} enrichment in CoFePBA to enhance OER electrocatalytic performance

Chinese Chemical Letters 33 (2022) 1412

Wenhui Hu [a], Mingbo Zheng [a,b], Huiyu Duan [a], Wei Zhu [a], Ying Wei [a], Yi Zhang [a], Kunming Pan [c], Huan Pang [a]

[a] *School of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou 225002, China*
[b] *College of Materials Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing 210016, China*
[c] *National Joint Engineering Research Center for Abrasion Control and Molding of Metal Materials, and Henan Key Laboratory of High-temperature Structural and Functional Materials, Henan University of Science and Technology, Luoyang 471003, China*



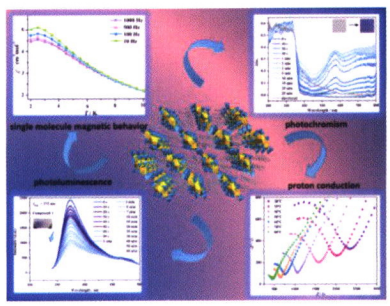
Appropriate low-temperature heat treatment of CoFePBA induces Co^{3+} enrichment and provides a large number of active sites for the electrocatalytic OER process. Furthermore, the sample inherits the porous framework of CoFePBA, which ensures the mass transfer inside the structure during the electrocatalytic OER process.

Single molecule magnetic behavior and photo-enhanced proton conductivity in a series of photochromic complexes

Chinese Chemical Letters 33 (2022) 1417

Qian Zhang, Jixiang Hu, Qi Li, Dongxue Feng, Zhenni Gao, Guoming Wang

College of Chemistry and Chemical Engineering, Qingdao University, Qingdao 266071, China



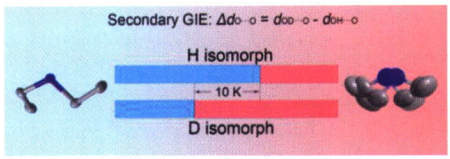
A series of rare earth phosphates with multiple functions were synthesized, showing reversible photochromism, fluorescence regulation, single molecule magnetic behavior and light enhanced proton conductivity.

Deuteration triggered downward shift of dielectric phase transition temperature in a hydrogen-bonded molecular crystal

Chinese Chemical Letters 33 (2022) 1422

Bei-Dou Liang, Tong Jin, Le-Ping Miao, Chao-Yang Chai, Chang-Chun Fan, Xiang-Bin Han, Wen Zhang

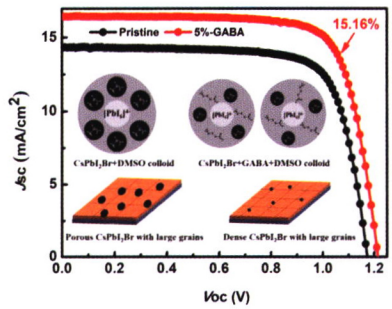
Jiangsu Key Laboratory for Science and Applications of Molecular Ferroelectrics and School of Chemistry and Chemical Engineering, Southeast University, Nanjing 211189, China



A hydrogen-bonded molecular crystal is showing a downward shift of dielectric phase transition temperature after H/D exchange, owing to positive GIE of the O–H···O hydrogen bond, which reduces the internal pressure on the cations.

Low temperature fabrication for high-performance semitransparent $CsPbI_2Br$ perovskite solar cells

Chinese Chemical Letters 33 (2022) 1425



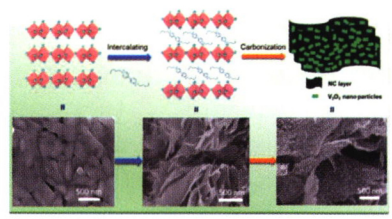
Xiaogang Yang[a], Jiejia Han[a,b], Wei Ruan[c], Yanqiang Hu[b,c,d], Zhengyan He[b], Xiangrui Jia[b], Shufang Zhang[b], Dehua Wang[b]

[a] *College of Environment and Safety Engineering, Qingdao University of Science & Technology, Qingdao 266042, China*
[b] *School of Physics and Photoelectronic Engineering, Ludong University, Yantai 264025, China*
[c] *College of Materials Science and Engineering, Nanjing University of Science & Technology, Nanjing 210094, China*
[d] *College of Chemistry and Chemical Engineer, Nantong University, Nantong 226001, China*

By incorporating a small amount of γ-aminobutyric acid in the precursor solutions, the high-performance $CsPbI_2Br$ solar cells with conversion efficiency of 15.16% could be prepared at low temperature.

Cascading V_2O_3/N-doped carbon hybrid nanosheets as high-performance cathode materials for aqueous zinc-ion batteries

Chinese Chemical Letters 33 (2022) 1430



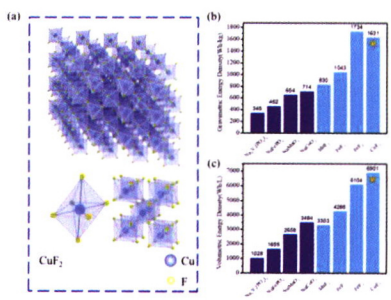
Yue Niu[a,b], Denghui Wang[a,b], Yingjie Ma[a], Linjie Zhi[a]

[a] *CAS Key Laboratory of Nanosystem and Hierarchical Fabrication, CAS Center for Excellence in Nanoscience, National Center for Nanoscience and Technology, Beijing 100190, China*
[b] *University of Chinese Academy of Sciences, Beijing 100039, China*

The cascading V_2O_3/nitrogen doped carbon hybrid nanosheets are prepared for high-performance aqueous zinc ion batteries (ZIBs) by pyrolyzing pentyl viologen dibromide (PV) intercalated V_2O_5 nanosheets. The unique structure features of V_2O_3/NC nanosheets, including thin sheet-like morphology, small crystalline V_2O_3 nanoparticles and conductive NC layers, endow V_2O_3/NC with superior performance compared to most of the reported vanadium oxide cathode materials for aqueous ZIBs.

Copper fluoride as a low-cost sodium-ion battery cathode with high capacity

Chinese Chemical Letters 33 (2022) 1435



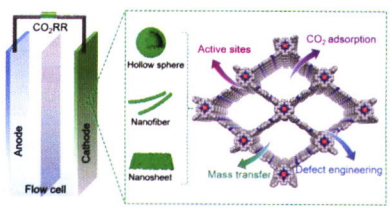
Yiming Dai[a], Qiujie Chen[b,c], Chenchen Hu[a], Yangyang Huang[a], Wangyan Wu[a], Mingliang Yu[a], Dan Sun[b,c], Wei Luo[a]

[a] *Institute of New Energy for Vehicles, School of Materials Science and Engineering, Tongji University, Shanghai 201804, China*
[b] *CAS Key Laboratory of Design and Assembly of Functional Nanostructures, and Fujian Provincial Key Laboratory of Nanomaterials, Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences, Fuzhou 350002, China*
[c] *Haixi Institute, Xiamen Institute of Rare Earth Materials, Chinese Academy of Sciences, Xiamen 361021, China*

We report a rechargeable CuF_2-based cathode for sodium-ion batteries with high capacity. Furthermore, we propose that a one-step conversion reaction occurs during discharge process, and a reconversion reaction competes with the oxidization of Cu to dissolved Cu ion during charge process.

Self-assembly of single metal sites embedded covalent organic frameworks into multi-dimensional nanostructures for efficient CO_2 electroreduction

Chinese Chemical Letters 33 (2022) 1439



Yi-Lu Yang[a], Yi-Rong Wang[a], Guang-Kuo Gao[a], Ming Liu[a], Chang Miao[a], Le-Yan Li[a], Wei Cheng[a], Zi-Yue Zhao[a], Yifa Chen[a,b], Zhifeng Xin[c], Shun-Li Li[a], Dong-Sheng Li[d], Ya-Qian Lan[a,b]

[a] *Jiangsu Collaborative Innovation Centre of Biomedical Functional Materials, Jiangsu Key Laboratory of New Power Batteries, School of Chemistry and Materials Science, Nanjing Normal University, Nanjing 210023, China*
[b] *School of Chemistry, South China Normal University, Guangzhou 510006, China*
[c] *Institute of Molecular Engineering and Applied Chemistry, Anhui University of Technology, Ma'anshan 243002, China*
[d] *College of Materials and Chemical Engineering, Hubei Provincial Collaborative Innovation Center for New Energy Microgrid, Key Laboratory of Inorganic Nonmetallic Crystalline and Energy Conversion Materials, China Three Gorges University, Yichang 443002, China*

Three kinds of multi-dimensional superstructures (*e.g.*, hollow sphere, nanosheets and nanofibers) based on Cu-porphyrin COFs have been synthesized and successfully applied in efficient CO_2 electroreduction to CH_4.

Light-mediated CO_2-responsiveness of metallopolymer microgels

Chinese Chemical Letters 33 (2022) 1445

Xiaofei Wang [a], Xuezhen Lin [a], Huijuan Qiu [a], Jianda Xie [b], Zhengyu Lu [a], Yusong Wang [c], Weitai Wu [a,d]

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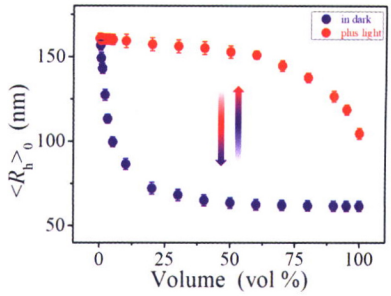
[c] Hefei National Laboratory for Physical Sciences at the Microscale, University of Science and Technology of China, Hefei 230026, China
[d] School of Chemistry and Chemical Engineering, Ningxia University, Yinchuan 750021, China



We report a finding on light-mediated CO_2-responsiveness, which is found on the microgels that are made of side-chain type metallopolymers containing metalla-aromatics, to satisfy the urge of achieving both high uptake capacity and low energy penalty for regeneration. For the mixed-gas containing 1-70 vol% CO_2, the microgels could effectively respond in dark, and nearly recover by simply exposing to light.

Strain tuned efficient heterostructure photoelectrodes

Chinese Chemical Letters 33 (2022) 1450

Haihong Zheng [a], Mingyang Li [b], Jinsong Chen [a], Anchang Quan [a], Kaihang Ye [c], Hang Ren [b], Sheng Hu [a,d], Yang Cao [a,d]

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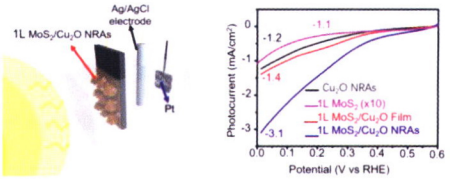
[b] Department of Chemistry, University of Texas at Austin, Austin, TX 78712, United States
[c] Guangzhou Key Laboratory of Clean Transportation Energy Chemistry, School of Chemical Engineering and Light Industry, Guangdong University of Technology, Guangzhou 510006, China
[d] Pen-Tung Sah Institute of Micro-Nano Science and Technology, Xiamen University, Xiamen 361005, China



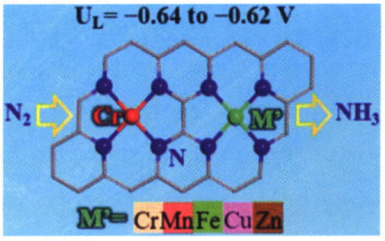
1L MoS_2/Cu_2O vdWs heterostructure photocathodes were prepared by nanoindentation technology. The effects of strain on promoting charge separation attheheterointerfacewere verified by the enhanced performances in PEC hydrogen evolution reaction of vdWs heterostructure through scanning electrochemical cell microscopy technique and various local spectrum probe measurements.

Modulation effect in adjacent dual metal single atom catalysts for electrochemical nitrogen reduction reaction

Chinese Chemical Letters 33 (2022) 1455

Xiaonan Zheng, Yang Liu, Yu Yan, Xiaoxiao Li, Yuan Yao

MIIT Key Laboratory of Critical Materials Technology for New Energy Conversion and Storage & State Key Laboratory of Advanced Welding and Joining, School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin 150080, China



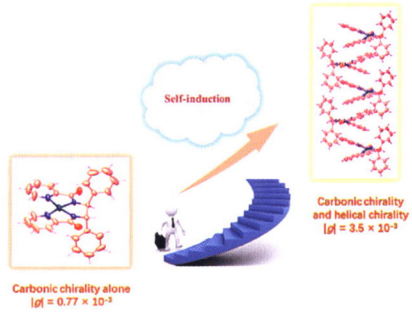
A series of adjacent dual metal single atom catalysts CrN4/M'N4-C (M' = Cr, Mn, Fe, Cu and Zn) was selected via systematic density functional theory (DFT) calculations, which exhibit high activity for nitrogen reduction reaction (NRR) due to the modulation effect.

Molecular self-induced configuration for improving dissymmetry factors in tetradentate platinum(II) enantiomers cycloaddition

Chinese Chemical Letters 33 (2022) 1459

Li Yuan [a], Qian-Jun Ding [a], Zhen-Long Tu [a], Xiang-Ji Liao [a], Xu-Feng Luo [a], Zhi-Ping Yan [a], Zheng-Guang Wu [b], You-Xuan Zheng [a]

[a] State Key Laboratory of Coordination Chemistry, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210023, China
[b] Nantong Key Lab of Intelligent and New Energy Materials, College of Chemistry and Chemical Engineering, Nantong University, Nantong 226019, China



Due to the chiral carbon centers as well as a helicence-like structure during the platinum coordination process, the Pt(II) enantiomers containing quinoline groups show improved g factor significantly without chiral separation process.

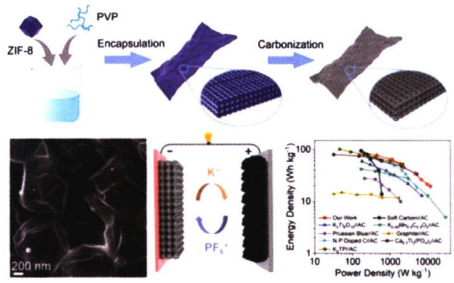
Scalable synthesis of macroscopic porous carbon sheet anode for potassium-ion capacitor

Yuying Qin[a], Yuhao Xie[a], Han Zhao[a], Chunyan Zhu[a], Tong Li[a], Shuxian Zhang[a], Rutao Wang[a,b,c], Yuanchang Shi[a], Longwei Yin[a]

[a] *Key Laboratory for Liquid-Solid Structural Evolution and Processing of Materials, Ministry of Education, School of Materials Science and Engineering, Shandong University, Ji'nan 250061, China*
[b] *Suzhou Institute of Shandong University, Suzhou 215123, China*
[c] *CAS Key Laboratory of Carbon Materials, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China*

A facile and scalable method is developed to synthesize macroscopic porous carbon sheet by directly carbonization of the composite of ZIF-8 encapsulated into PVP. A novel potassium-ion capacitor fabricated by this carbon sheet anode yields high values of energy density and power density.

Chinese Chemical Letters 33 (2022) 1463



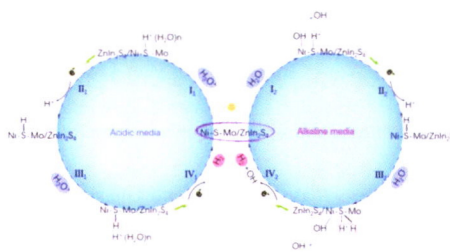
Ingeniously designed Ni-Mo-S/$ZnIn_2S_4$ composite for multi-photocatalytic reaction systems

Jing Chen[a], Yumei Tang[a], Shihao Wang[a], Lingbin Xie[b], Cheng Chang[a], Xiaolei Cheng[a], Mingming Liu[a], Longlu Wang[a], Lianhui Wang[b]

[a] *College of Electronic and Optical Engineering & College of Microelectronics, Jiangsu Province Engineering Research Center for Fabrication and Application of Special Optical Fiber Materials and Devices, Nanjing University of Posts and Telecommunications, Nanjing 210023, China*
[b] *State Key Laboratory of Organic Electronics and Information Displays & Jiangsu Key Laboratory for Biosensors, Institute of Advanced Materials (IAM) & Institute of Flexible Electronics (Future Technology), Nanjing University of Posts and Telecommunications, Nanjing 210023, China*

In this paper, doping Ni in MoS_2 as catalyst can make it have excellent catalytic activity in different reaction systems. It has been proved that Ni-Mo-S nanosheet has strong hydrogen evolution activity as catalyst by combining theory and experiment.

Chinese Chemical Letters 33 (2022) 1468



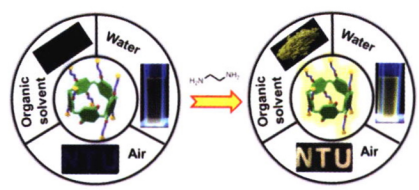
Water-soluble pillar[4]arene[1]quinone: Synthesis, host-guest property and application in the fluorescence turn-on sensing of ethylenediamine in aqueous solution, organic solvent and air

Jin Wang, Moupan Cen, Jian Wang, Di Wang, Yue Ding, Guohua Zhu, Bing Lu, Xiaolei Yuan, Yang Wang, Yong Yao

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

A new water-soluble pillar[5]arene, pillar[4]arene[1]quinone, was designed and synthesized successfully. It could be applied to sense EDA from other aliphatic amines in aqueous solution, organic solvent and air.

Chinese Chemical Letters 33 (2022) 1475



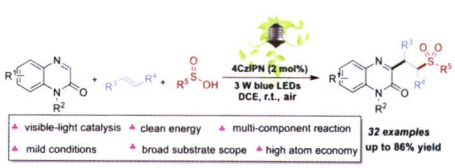
Visible-light-initiated 4CzIPN catalyzed multi-component tandem reactions to assemble sulfonated quinoxalin-2(1*H*)-ones

Zhiwei Wang[a], Qishun Liu[a], Ruisheng Liu[a], Zhongyin Ji[a], Yan Li[a], Xiaohui Zhao[b], Wei Wei[a]

[a] *School of Chemistry and Chemical Engineering, Qufu Normal University, Qufu 273165, China*
[b] *Qinghai Provincial Key Laboratory of Tibetan Medicine Research and Key Laboratory of Tibetan Medicine Research, Northwest Institute of Plateau Biology, Chinese Academy of Sciences, Qinghai 810008, China*

A mild and efficient photochemical multi-component reaction of quinoxalin-2(1*H*)-ones, alkenes and sulfinic acids was established for the synthesis of sulfonated quinoxalin-2(1*H*)-ones. This multi-component could be carried out at room temperature by employing 4CzIPN as the photocatalyst and dioxygen (air) as the environmentally benign oxidant. A number of sulfonated quinoxalin-2(1*H*)-ones were conveniently obtained in satisfactory yields.

Chinese Chemical Letters 33 (2022) 1479



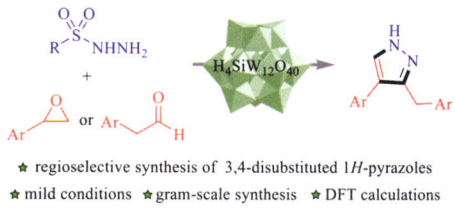
$H_4SiW_{12}O_{40}$-catalyzed cyclization of epoxides/aldehydes and sulfonyl hydrazides: An efficient synthesis of 3,4-disubstituted 1*H*-pyrazoles

Guoping Yang [a], Xuanjie Xie [a], Mengyuan Cheng [b], Xiaofei Gao [a], Xiaoling Lin [a], Ke Li [a], Yuanyuan Cheng [a], Yufeng Liu [a]

[a] *Jiangxi Key Laboratory for Mass Spectrometry and Instrumentation, Jiangxi Province Key Laboratory of Synthetic Chemistry, East China University of Technology, Nanchang 330013, China*
[b] *Henan Key Laboratory of Polyoxometalate Chemistry, College of Chemistry and Chemical Engineering, Henan University, Kaifeng 475004, China*

A simple and efficient method for the regioselective synthesis of 3,4-disubstituted 1H-pyrazoles through a silicotungstic acid ($H_4SiW_{12}O_{40}$)-catalyzed cyclization of epoxides/aldehydes and sulfonyl hydrazides has been developed.

Chinese Chemical Letters 33 (2022) 1483



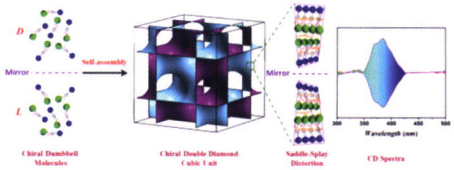
Chirality and chiral functional composites of bicontinuous cubic nanostructured cubosomes

Deyin Wang, Hongkai Liu, Wei Wang

Center for Synthetic Soft Materials, Key Laboratory of Functional Polymer Materials of Ministry of Education and Institute of Polymer Chemistry, College of Chemistry, Nankai University, Tianjin 300071, China

Molecular self-assembly is the most important strategy for the development of chiral aggregates and chiral functional materials. In this study, we rationally designed and synthesized chiral fluorescent heteroclusters that were self-assembled into microscale cubosomes with a three-dimensional (3D) bicontinuous cubic phase nanostructure. The cubosomes exhibited chirality, indicating that chirality is transferred from the molecules to the 3D nanostructure. Therefore, we confirmed the formation of a chiral bicontinuous cubic phase nanostructure for the first time. It also showed that this chirality originates from the continuous change in the saddle-splay distortion of the molecules within the curved bilayer. At the same time, transparent films of chiral composites were prepared by mixing the chiral cubosomes with an epoxy resin and then curing the mixture. Therefore, we demonstrated an effective method for preparing chiral composites.

Chinese Chemical Letters 33 (2022) 1488



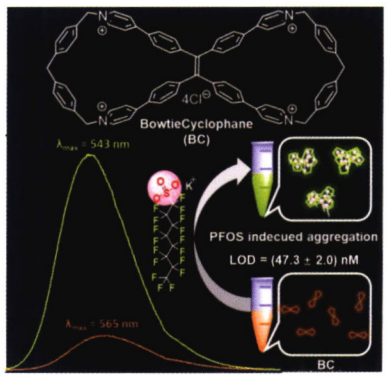
Fluorescence detection of perfluorooctane sulfonate in water employing a tetraphenylethylene-derived dual macrocycle BowtieCyclophane

Sheng-Nan Lei, Huan Cong

Key Laboratory of Photochemical Conversion and Optoelectronic Materials, Technical Institute of Physics and Chemistry & School of Future Technology, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing 100190, China

Sensitive fluorescent detection of perfluorooctane sulfonate in water has been achieved employing a novel tetraphenylethylene-derived macrocycle BowtieCyclophane through aggregation-induced emission enhancement and fluorochromism..

Chinese Chemical Letters 33 (2022) 1493



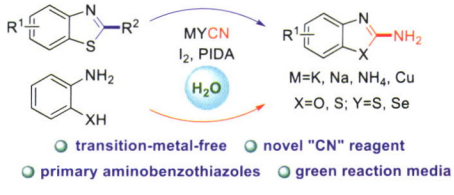
Iodine-catalyzed amination of benzothiazoles with KSeCN in water to access primary 2-aminobenzothiazoles

Yu-Shen Zhu, Linlin Shi, Lianrong Fu, Xiran Chen, Xinju Zhu, Xin-Qi Hao, Mao-Ping Song

College of Chemistry, Zhengzhou University, Zhengzhou 450001, China

A facile and sustainable approach for the amination of benzothiazoles with KSeCN using iodine as the catalyst in water has been disclosed under transition-metal free conditions. The reaction proceeded smoothly to afford various primary 2-amino benzothiazoles in up to 96% yield. A series of control experiments were performed, suggesting a ring-opening mechanism was involved via a radical process. This protocol provides efficient synthesis of primary 2-benzothiazolamines..

Chinese Chemical Letters 33 (2022) 1497



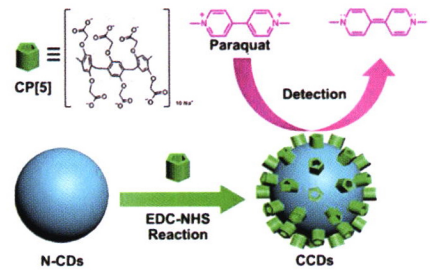
Electrochemical determination of paraquat using a glassy carbon electrode decorated with pillararene-coated nitrogen-doped carbon dots

Hao Zhang [a,b], Kun-Tao Huang [a,b], Ling Ding [a], Jie Yang [b], Ying-Wei Yang [a,b], Feng Liang [a]

[a] *The State Key Laboratory of Refractories and Metallurgy, School of Chemistry and Chemical Engineering, Wuhan University of Science and Technology, Wuhan 430081, China*
[b] *International Joint Research Laboratory of Nano-Micro Architecture Chemistry, College of Chemistry, Jilin University, Changchun 130012, China*

An electrochemical sensor based on carboxylatopillar[5]arene functionalized nitrogen-doped carbon dots (namely CCDs) has been developed. CCDs modified glassy carbon electrode shows excellent anti-interference capability, selectivity, stability, and reproducibility in the sensitive detection of paraquat.

Chinese Chemical Letters 33 (2022) 1537



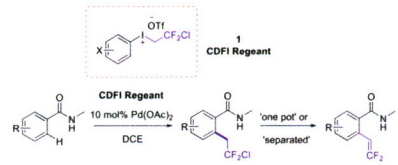
The Pd-catalyzed synthesis of difluoroethyl and difluorovinyl compounds with a chlorodifluoroethyl iodonium salt (CDFI)

Yaru Niu [a,b], Chengyao Kimmy Cao [b], Chenxin Ge [b], Hongmei Qu [a], Chao Chen [b,c]

[a] *Key Laboratory of Systems Bioengineering, Ministry of Education, Department of Pharmaceutical Engineering, School of Chemical Engineering and Technology, Tianjin University, Tianjin 300350, China*
[b] *Key Laboratory of Bioorganic Phosphorus Chemistry and Chemical Biology (Ministry of Education, MOE), Department of Chemistry, Tsinghua University, Beijing 100084, China*
[c] *State Key Laboratory of Elemento-Organic Chemistry, Nankai University, Tianjin 300071, China*

Herein, we report a simple and efficient method for the direct installation of chlorodifluoroethyl group onto aromatic molecules of various aromatic amides with a new 2-chloro,2,2-difluoroethyl(mesityl) iodonium salt (CDFI). Moreover, the chlorodifluoroethyl compounds could be smoothly converted into difluorovinyl compounds in a one-pot or discrete procedure and regarded as a steady source of difluorovinyl compounds with "HCl-mask".

Chinese Chemical Letters 33 (2022) 1541



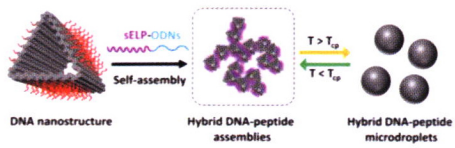
Programmed co-assembly of DNA-peptide hybrid microdroplets by phase separation

Shengtao Yao [a], Yue Liao [a], Rizhao Pan [a], Weiping Zhu [a], Yufang Xu [a], Yangyang Yang [a], Xuhong Qian [a,b]

[a] *School of Pharmacy, Shanghai Key Laboratory of Chemical Biology, East China University of Science and Technology, Shanghai 200237, China*
[b] *State Key Laboratory of Bioreactor Engineering, East China University of Science and Technology Shanghai 200237, China*

A hybrid microsystem is developed by programmed co-assembly of DNA origami structure with short elastin-like polypeptides conjugated oligonucleotides and transforms into microdroplets *via* temperature-dependent phase separation. Furthermore, the hybrid microdroplets show ability to capture guest molecules and perform biocatalytic reactions as open microreactors.

Chinese Chemical Letters 33 (2022) 1545



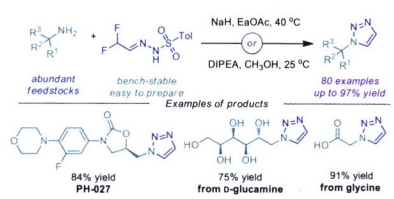
[4 + 1] Annulation of *in situ* generated azoalkenes with amines: A powerful approach to access 1-substituted 1,2,3-triazoles

Hongwei Wang [a], Yongquan Ning [a], Paramasivam Sivaguru [a], Giuseppe Zanoni [b], Xihe Bi [a,c]

[a] *Department of Chemistry, Northeast Normal University, Changchun 130024, China*
[b] *Department of Chemistry, University of Pavia, Viale Taramelli 12, Pavia 27100, Italy*
[c] *State Key Laboratory of Elemento-Organic Chemistry, Nankai University, Tianjin 300071, China*

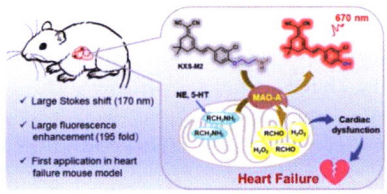
Here we report a base-mediated [4 + 1] annulation of azoalkenes generated *in situ* from readily available difluoroacetaldehyde *N*-tosylhydrazones (DFHZ-Ts) with amines, accessing to diverse 1-substituted 1,2,3-triazole derivatives in high yield. This transformation has great functional group tolerance and can suit a broad substrate scope. Furthermore, the application of this novel methodology in the gram-scale synthesis of an antibiotic drug PH-027 and in the late-stage derivatization of several bioactive small molecules and clinical drugs demonstrated its generality, practicability and applicability.

Chinese Chemical Letters 33 (2022) 1550



Specific tracking of monoamine oxidase A in heart failure models by a far-red fluorescent probe with an ultra large Stokes shift

Chinese Chemical Letters 33 (2022) 1572



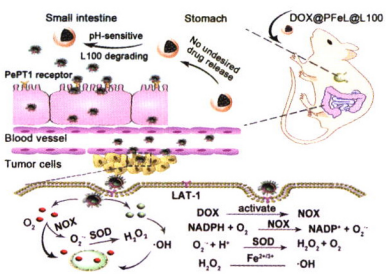
Xinming Li[a], Donglei Shi[a], Yihe Song[a], Yixiang Xu[a], Ying Gao[b], Wenjing Qiu[a], Xin Chen[a], Xiaokang Li[a], Yunyuan Huang[a], Yanjun Feng[a], Baoli Li[a], Yuan Guo[b], Jian Li[a,c,d,e]

[a] *State Key Laboratory of Bioreactor Engineering, Shanghai Key Laboratory of New Drug Design, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China*
[b] *Key Laboratory of Synthetic and Natural Functional Molecule of the Ministry of Education, College of Chemistry and Materials Science, Northwest University, Xi'an 710127, China*
[c] *Frontiers Science Center for Materiobiology and Dynamic Chemistry, East China University of Science and Technology, Shanghai 200237, China*
[d] *College of Pharmacy and Chemistry, Dali University, Dali 671000, China*
[e] *Clinical Medicine Scientific and Technical Innovation Center, Shanghai Tenth People's Hospital, Tongji University School of Medicine, Shanghai 200092, China*

MAO-A is an outer mitochondrial membrane-located enzyme, which not only catalyzes the oxidative deamination of serotonin (5-HT) and norepinephrine (NE) in the heart, but also produces H_2O_2 and relative aldehydes as by-products during the degradation process. Enhanced MAO-A activity contributes to cardiac dysfunction and heart failure. For specific monitoring of MAO-A activity in heart failure, we developed a novel dicyanoisophorone-based far-red fluorescent probe KXS-M2 with an ultra large Stokes shift. Utilizing KXS-M2, fluorescence imaging of MAO-A in heart failure mouse model was achieved.

A "cluster bomb" oral drug delivery system to sequentially overcome the multiple absorption barriers

Chinese Chemical Letters 33 (2022) 1577



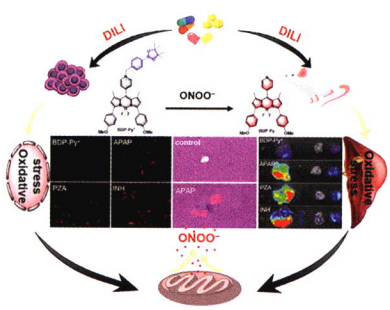
Qingling Song[b,d], Huirui Wang[a,c], Junfei Yang[b,d], Hui Gao[b,d], Ke Wang[b,d], Hao Wang[b], Yun Zhang[b,d,e], Lei Wang[a,b,c,d,e]

[a] *Luoyang Central Hospital Affiliated to Zhengzhou University, Luoyang 471009, China*
[b] *School of Pharmaceutical Sciences, Zhengzhou University, Zhengzhou 450001, China*
[c] *Tumor Immunity and Biomaterials Advanced Medical Center, Zhengzhou University, Luoyang 471009, China*
[d] *Henan Key Laboratory of Targeting Therapy and Diagnosis for Critical Diseases, Zhengzhou 450001, China*
[e] *Key Laboratory of Advanced Drug Preparation Technologies, Ministry of Education, Zhengzhou 450001, China*

This study provides a promising cluster bomb-like drug delivery system (DOX@PFeL@L100) with the pH-responsive switch and explosive "bomb" that could response the complex GIT environment as well as improve the antitumor efficiency by the Fenton-like reaction. This work can arouse broad interests among researchers in the fields of nanotechnology, nanomedicine and construction of oral drug delivery system.

Endogenous peroxynitrite activated fluorescent probe for revealing anti-tuberculosis drug induced hepatotoxicity

Chinese Chemical Letters 33 (2022) 1584



Nannan Wang[a], Han Wang[a], Jian Zhang[a], Xin Ji[b], Huihui Su[a], Jinying Liu[a], Jiamin Wang[c], Weili Zhao[a,b]

[a] *Key Laboratory for Special Functional Materials of Ministry of Education, School of Materials Science and Engineering, Henan University, Kaifeng 475004, China*
[b] *School of Pharmacy, Institutes of Integrative Medicine, Fudan University, Shanghai 201203, China*
[c] *Key Laboratory of Natural Medicine and Immuno-Engineering of Henan Province, Henan University, Kaifeng 475004, China*

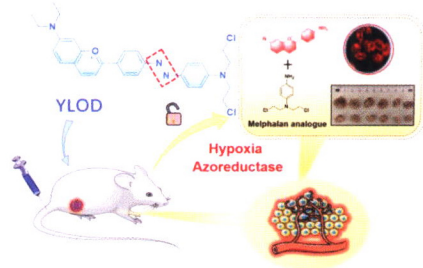
A BODIPY-based fluorescent probe was constructed to selectively and sensitively detect and image $ONOO^-$ *in vivo*. The probe could achieve early diagnosis of DILI before solid lesions in liver *via* monitoring the up-regulation of $ONOO^-$ levels.

A near-infrared multifunctional fluorescent probe for hypoxia monitoring and tumor-targeted therapy

Chinese Chemical Letters 33 (2022) 1589

Yuxun Lu [a], Jiajia Xu [b], Zongyun Jia [a], Siyu Kong [a], Yimu Qiao [a], Lin Li [b], Qiong Wu [b], Ying Zhou [a]

[a] College of Chemical Science and Technology, Yunnan University, Kunming 650091, China
[b] Key Laboratory of Flexible Electronics (KLOFE) & Institute of Advanced Materials (IAM), Jiangsu National Synergetic Innovation Center for Advanced Materials (SICAM), Nanjing Tech University (NanjingTech), Nanjing 211816, China



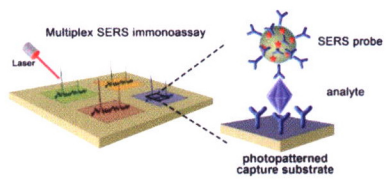
A near-infrared multifunctional fluorescent probe YLOD was developed for hypoxia monitoring and tumor-targeted therapy. In the presence of azoreductase, YLOD was able to give a red emission at 620 nm and release the anti-tumor drugs, thus achieving the integrated effects of hypoxic level imaging and inhibition of the growth of solid tumors.

A photopatterned SERS substrate with a sandwich structure for multiplex detection

Chinese Chemical Letters 33 (2022) 1595

Yuan Xue, Duo Liu, Xuebin Wang, Yanxin Xiang, Shengjie Du, Kai Ye, Chunyan Bao, Linyong Zhu

Shanghai Key Laboratory of Functional Materials Chemistry, School of Chemistry & Molecular Engineering, East China University of Science & Technology, Shanghai 200237, China



A photopatterned gold substrate is used as the capture substrate for a sandwich SERS immunoassay. The spatiotemporal controllability of light endows the substrate with sensitive, multiple and quantitative determination of biomarkers.

The marriage of sealant agent between structure transformable silk fibroin and traditional Chinese medicine for faster skin repair

Chinese Chemical Letters 33 (2022) 1599

Rongjun Zhang [a,b], Youbin Zheng [c], Tianqing Liu [d], Ning Tang [d], Lianzhi Mao [e], Lihan Lin [a], Jiahui Ye [a], Luoyijun Xie [a], Wenwen Hu [d], Weiwei Wu [d], Wenzhen Liao [e], Miaomiao Yuan [a]

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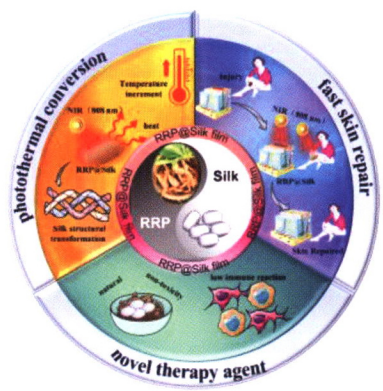

The marriage between silk protein and *Rehmanniae radix preparata* (a kind of traditional Chinese herb) has been demonstrated as a novel and effective way to achieve an excellent healing effect for skin repair with advantages of non-toxicity and high photothermal conversion efficiency.

Chemical chaperone delivered nanoscale metal–organic frameworks as inhibitor of endoplasmic reticulum for enhanced sensitization of thermo-chemo therapy

Chinese Chemical Letters 33 (2022) 1604

Xiaoyan Ma [a,b], Qiong Wu [a,c], Longfei Tan [a,c], Changhui Fu [a,c], Xiangling Ren [a,c], Qijun Du [a,c], Lufeng Chen [d], Xianwei Meng [a,c]

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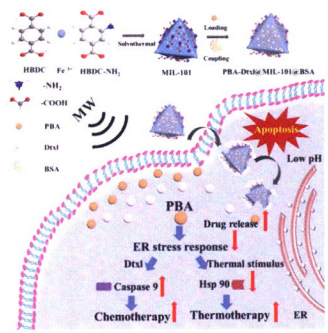

PBA-Dtxl@MIL-101 nanoparticles as ER stress inhibitors facilitate HSP 90 downregulating and caspase 9 upregulating for combination therapy of thermotherapy and chermotherapy.

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