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Chinese Chemical Letters (中国化学快报)

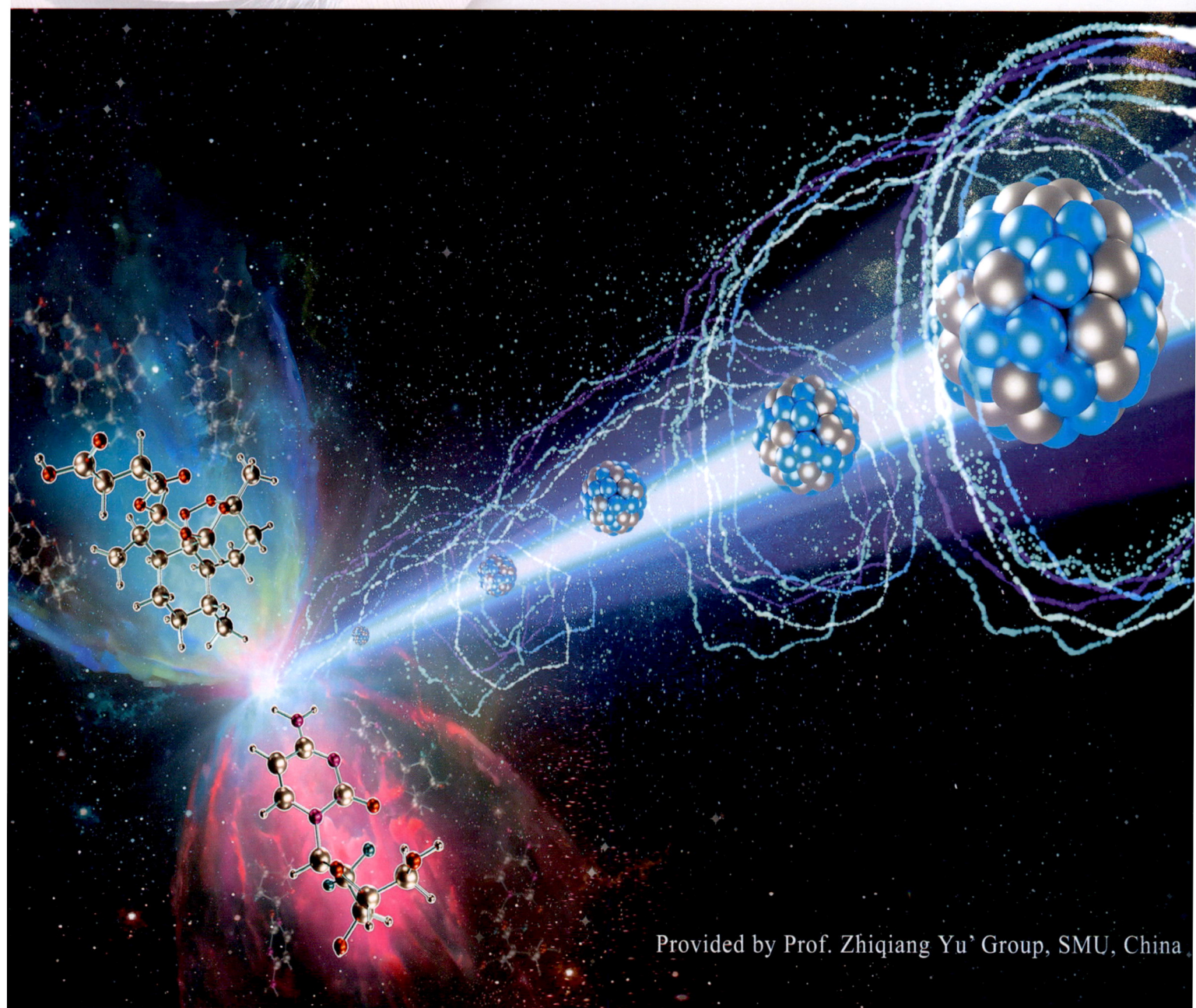
| Volume 34 | Number 7 | JULY 2023



QK2305273

ISSN 1001-8417

CN 11-2710/O6



Provided by Prof. Zhiqiang Yu' Group, SMU, China



REVIEW

Ying Liu, Yi Liu, Xiang Wu
Defect engineering of vanadium-based
electrode materials for zinc ion battery

COMMUNICATION

Yiyan Fan, Shiqing Deng, Er-Jia Guo,
Jun Chen, et al.
Improved multiferroic in EuTiO_3 films by
interphase strain engineering

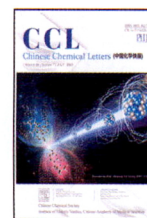
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Chinese Chemical Letters

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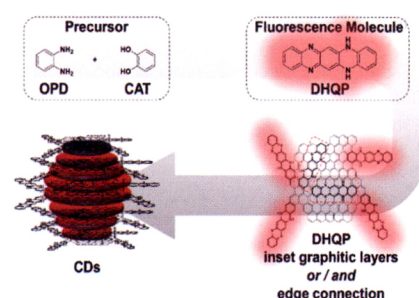
Graphical Abstracts/Chin Chem Lett 34 (2023) 108612

Editorials

Mechanisms of photoluminescence in the molecular state of carbon dots prepared from *o*-phenylenediamineFeishi Shan^{a,b}, Jing Zhang^a, Chengshuang Liao^a, Zhouyu Wang^a, Leyong Wang^{a,b}^a Asymmetric Synthesis and Chiral Technology Key Laboratory of Sichuan Province, Research and Application of Small Organic Chiral Molecules Key Laboratory of Yibin City, Department of Chemistry, Xihua University, Chengdu 610039, China^b State Key Laboratory of Analytical Chemistry for Life Science, Jiangsu Key Laboratory of Advanced Organic Materials, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210023, China

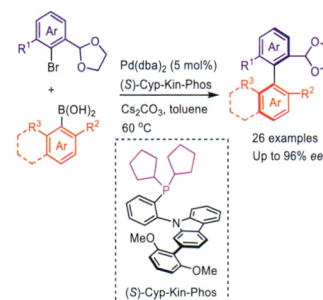
Sun's group from Beijing University of Technology, China, prepared red-emission CDs in high yield by a solvent-free method based on *o*-phenylenediamine and analyzed the origin of the red emission and the formation of CDs. 5,14-Dihydroquinoxalino[2,3-*b*]phenazine (DHQP) was successfully isolated from the system and identified as the fluorophore of the CDs. These findings provide insight into the PL mechanism of this type of CDs and may guide the further development of CDs that can be tuned to obtain tailored properties.

Chinese Chemical Letters 34 (2023) 108107

Phosphine ligands featuring C–N chiral axis applicable to tetra-*ortho*-substituted biaryl synthesisWeiwei Fang^a, Meiying Kuai^a, James H. Clark^e, Tao Tu^{b,c,d}^a Jiangsu Co-Innovation Center of Efficient Processing and Utilization of Forest Resources, International Innovation Center for Forest Chemicals and Materials, College of Chemical Engineering, Nanjing Forestry University, Nanjing 210037, China^b Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, Department of Chemistry, Fudan University, Shanghai 200433, China^c State Key Laboratory of Organometallic Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai 200032, China^d Green Catalysis Center and College of Chemistry, Zhengzhou University, Zhengzhou 450001, China^e Circa Renewable Chemistry Institute, Green Chemistry Centre of Excellence, University of York, York YO105DD, United Kingdom

Very recently, introducing an asymmetric carbazole unit to the phenyl ring at the *ortho*-position of P atom, Kwong and co-workers designed a novel type of atropisomeric phosphines featuring C–N axial chirality, and provided a mild synthetic method for enantioenriched tetra-*ortho*-substituted biaryls via Pd-catalyzed Suzuki-Miyaura cross-coupling. In this editorial, the challenge and novelty of ligand design as well as corresponding reaction mechanism was highlighted, revealing great potential in the frontier transition-metal catalysis by designing new chiral catalytic system bearing the “Pd-arene-walking” characteristic.

Chinese Chemical Letters 34 (2023) 108149



Divided or undivided? Electrolytic cells regulate site selectivity in C–H carboxylation of *N*-heteroarenes

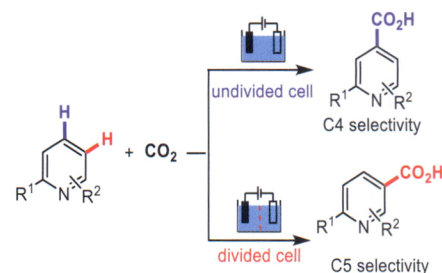
Chuang-Xin Wang^{a,b}, Congyang Wang^{a,b}

^aBeijing National Laboratory for Molecular Sciences, CAS Key Laboratory of Molecular Recognition and Function, CAS Research/Education Center for Excellence in Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^bUniversity of Chinese Academy of Sciences, Beijing 100049, China

Yu, Lin and co-workers reported a highly selective site-regulated C–H carboxylation of *N*-heteroarenes with CO₂ by changing the electrochemical reactors, where a divided cell gave rise to C5-carboxylation of pyridines and an undivided cell resulted in C4-carboxylation remarkably.

Chinese Chemical Letters 34 (2023) 108302



Highlight

ICG/Lecithin: A promising theranostic agent for simultaneous therapy and diagnosis of MRI and PAI

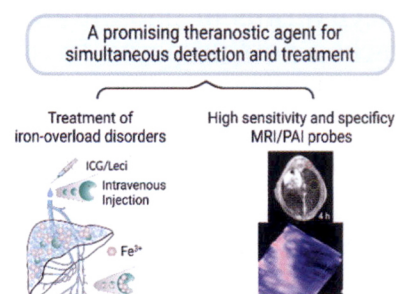
Peiyu Wang^a, Huirong Lin^a, Changhong Li^{a,b}, Gang Liu^{a,b}

^aState Key Laboratory of Molecular Vaccinology and Molecular Diagnostics & Center for Molecular Imaging and Translational Medicine, School of Public Health, Xiamen University, Xiamen 361102, China

^bState Key Laboratory of Cellular Stress Biology, Innovation Center for Cell Biology, School of Life Sciences, Xiamen University, Xiamen 361102, China

ICG can be a contrast agent for MRI to provide a greater degree of accuracy in the identification of iron. Using supramolecular assembly to chelate ICG with Lecithin to improve PAI detection efficiency can be a complement for MRI iron overload diagnosis. The ICG/Lecithin system is a comprehensive treatment with a diagnosis program for iron overloaded livers.

Chinese Chemical Letters 34 (2023) 108068



Reviews

Selenium and human nervous system

Wenqiang Ding^a, Shuang Wang^a, Jiaxiang Gu^{a,b}, Lei Yu^c

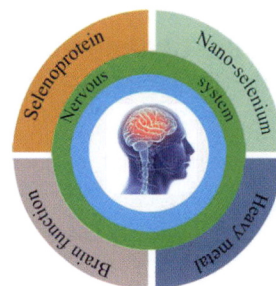
^aInstitute of Translational Medicine, Medical College, Yangzhou University, Yangzhou 225001, China

^bDepartment of Hand and Foot, Clinical Medical College, Yangzhou University, Yangzhou 225001, China

^cSchool of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou 225002, China

Selenium is an important element for human nervous system. Selenium-containing compounds/materials have been wide employed for nervous system disease treatment. This review aims to summarize recent progresses and give a perspective.

Chinese Chemical Letters 34 (2023) 108043



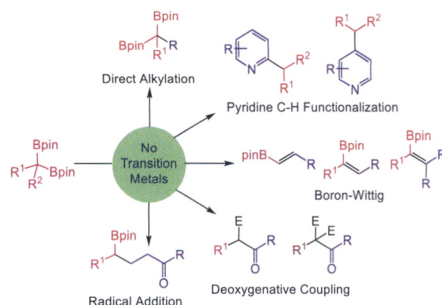
Transition-metal-free coupling reactions involving gem-diborylalkanes

Yongli Li, Dalong Shen, Hao Zhang, Zhenxing Liu

College of Chemistry, Zhengzhou University, Zhengzhou 450002, China

gem-Diborylalkanes have recently emerged as powerful building blocks and enabling reagents for C–C and C–B bond formations even in the absence of transition metal catalysts. This review discusses these compounds' fundamental properties and most recent applications in transition-metal-free coupling reactions, especially those involving the α,α -diboryl carbanions and α -boryl carbanions intermediates.

Chinese Chemical Letters 34 (2023) 108048



MOFs and bone: Application of MOFs in bone tissue engineering and bone diseases

Xiang Li, Xingyue Shu, Yixin Shi, Haolin Li, Xibo Pei

Department of Prosthodontics, State Key Laboratory of Oral Diseases, National Clinical Research Center for Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, China

Recent years, MOFs have been used in more and more fields, especially in the biological researches. MOFs can promote osteogenesis by promoting osteoblasts, inhibiting osteoclasts, and promoting angiogenesis, meanwhile, MOFs can also be used to treat bone diseases, such as osteoporosis, osteoarthritis, and osteomyelitis.

Chinese Chemical Letters 34 (2023) 107986



Recent progress in MXenes incorporated into electrospun nanofibers for biomedical application: Study focusing from 2017 to 2022

Muheeb Rafiq^a, Sami-ullah Rather^b, Taha Umair Wani^a, Anjum Hamid Rather^a, Rumysa Saleem Khan^a, Anees Ellahi Khan^a, Ibtisam Hamid^a, Haseeb A. Khan^c, Abdullah S. Alhomida^c, Faheem A. Sheikh^a

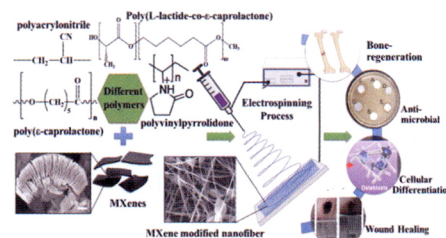
^a Nanostructured and Biomimetic Lab, Department of Nanotechnology, University of Kashmir Hazratbal, Jammu and Kashmir, Srinagar 190006, India

^b Department of Chemical and Materials Engineering, King Abdulaziz University, Jeddah 21589, Saudi Arabia

^c Research Chair for Biomedical Applications of Nanomaterials, Department of Biochemistry, College of Science, King Saud University, Riyadh 11451, Saudi Arabia

MXenes can be used as potential two-dimensional (2D) material for enhancing the biomedical application of nanofibers.

Chinese Chemical Letters 34 (2023) 108463



Recent status and future perspectives of ZnIn₂S₄ for energy conversion and environmental remediation

Mengzhu Li^a, Longlu Wang^a, Xinyu Zhang^c, Weinan Yin^a, Yingbo Zhang^a, Jingwen Li^a, Ziyang Yin^a, Yuntao Cai^a, Shujuan Liu^b, Qiang Zhao^{a,b}

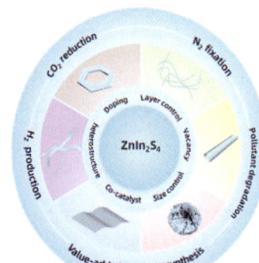
^a College of Electronic and Optical Engineering and College of Flexible Electronics (Future Technology), Nanjing University of Posts and Telecommunications (NUPT), Nanjing 210023, China

^b State Key Laboratory of Organic Electronics and Information Displays and Jiangsu Key Laboratory for Biosensors, Institute of Advanced Materials (IAM), Nanjing University of Posts and Telecommunications, Nanjing 210023, China

^c School of Geographic and Biologic Information, Nanjing University of Posts and Telecommunications, Nanjing 210023, China

This review aims to shed light on the crystal structure and preparation methods, discuss fundamental modulation strategies, summarize important potential applications of ZnIn₂S₄ and finally put forward some future perspectives of this promising photocatalyst.

Chinese Chemical Letters 34 (2023) 107775



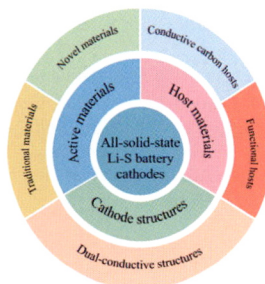
Recent advances in cathodes for all-solid-state lithium-sulfur batteries

Shengbo Yang, Bo Wang, Qiang Lv, Nan Zhang, Zekun Zhang, Yutong Jing, Jinbo Li, Rui Chen, Bochen Wu, Pengfei Xu, Dianlong Wang

MIIT Key Laboratory of Critical Materials Technology for New Energy Conversion and Storage, State Key Laboratory of Urban Water Resource and Environment, School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin 150001, China

The review focuses on the studies in cathode materials and cathode structures for all-solid-state lithium-sulfur batteries.

Chinese Chemical Letters 34 (2023) 107783



Ligand enabled none-oxidative decarbonylation of aliphatic aldehydes

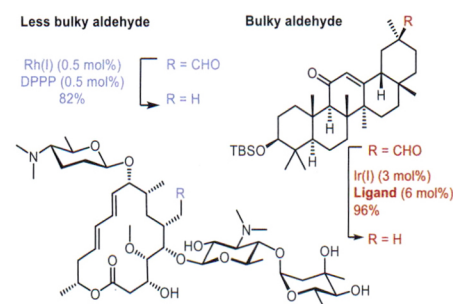
Bo Li^a, Shihao Liu^a, Wu Fan^b, Xiaotong Shen^a, Jing Xu^a, Suhua Li^a

^aSchool of Chemistry, Sun Yat-Sen University, Guangzhou 510275, China

^bKey Laboratory of Tobacco Flavor Basic Research, Zhengzhou Tobacco Research Institute of CNTC, Zhengzhou 450001, China

A rare example of Ir(I)-catalyzed direct decarbonylation of α -quaternary aldehydes was reported with broad substrate scope and good functional group compatibility. In addition, a broad-spectrum decarbonylation of α -secondary and α -tertiary aldehydes containing multifunctional groups was also achieved with an improved Rh(I)/DPPP recipe.

Chinese Chemical Letters 34 (2023) 108027



TBAI/H₂O-cooperative electrocatalytic decarboxylation coupling-annulation of quinoxalin-2(1H)-ones with N-arylglycines

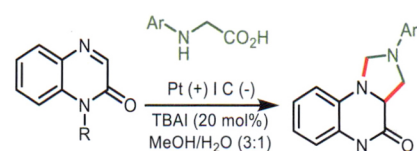
Yu-Han Lu^a, Zhuo-Tao Zhang^b, Hong-Yu Wu^b, Min-Hang Zhou^b, Hai-Yang Song^b, Hong-Tao Ji^b, Jun Jiang^b, Jin-Yang Chen^b, Wei-Min He^b

^aHengyang Medical School, University of South China, Hengyang 421001, China

^bSchool of Chemistry and Chemical Engineering, University of South China, Hengyang 421001, China

The first example of TBAI/H₂O cooperative electrocatalytic coupling-annulation of quinoxalin-2(1H)-ones with N-arylglycines was developed. The reaction proceeds under chemical oxidant-, additive-, exogenous electrolyte-free and mild conditions with high functional-group tolerance, as demonstrated by the acid-, base- and oxidant-sensitive groups can be well tolerated. Mechanistic studies revealed that the generated H-bond between N-arylglycine and water served as a key factor for yielding α -aminomethyl radical at lower oxidative potential.

Chinese Chemical Letters 34 (2023) 108036



30 Examples, 67%–88% yields

Exclusive chemo- and regio-selectivities

Acid-, base- and oxidant-sensitive groups tolerance

Dual role of TBAI: catalyst and electrolyte

Dual role of H₂O: co-solvent and co-catalyst

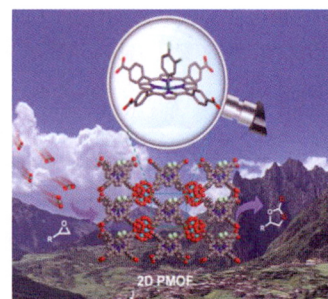
Ultrathin two-dimensional porphyrinic metal-organic framework nanosheets induced by the axial aryl substituent

Jurong Dong, Yufei Wang, Yu-Lin Lu, Li Zhang

MOE Laboratory of Bioinorganic and Synthetic Chemistry, Lehn Institute of Functional Materials, School of Chemistry, Sun Yat-Sen University, Guangzhou 510006, China

Ultrathin porphyrinic metal-organic framework Rh2-PCN-222 nanosheets with the thickness around 5.4–9.6 nm was prepared from the self-assembly of metalloporphyrin with an axial aryl substituent and ZrCl₄, which were efficient for CO₂ transformations under atmospheric pressure.

Chinese Chemical Letters 34 (2023) 108052



Organocatalytic enantioselective construction of bicyclic γ -butrolactones

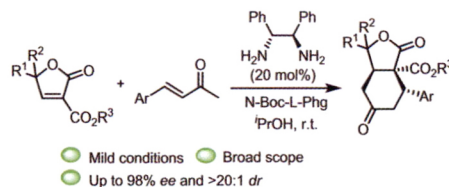
Qiang Zhang^a, Jingxiang Pang^a, Tian-Zhang Wang^b, Feng Chen^a, Minghao Shen^a, Tianyu Li^a, Yongshuai Chai^a, Yu-Feng Liang^b, Jie Sun^a, Zhushuang Bai^a

^aSchool of Pharmacy and Pharmaceutical Science & Institute of Materia Medica, Shandong First Medical University & Shandong Academy of Medical Sciences, NHC Key Laboratory of biotechnology drug (Shandong Academy of Medical Sciences), Key Lab for Rare & Uncommon Diseases of Shandong Province, Ji'nan 250117, China

^bSchool of Chemistry and Chemical Engineering, Shandong University, Ji'nan 250100, China

Organo-catalyzed enantioselective reaction of furanones with α,β -unsaturated ketones has been developed, affording chiral bicyclic γ -butyrolactones in good yields, enantioselectivities and diastereoselectivities.

Chinese Chemical Letters 34 (2023) 108121



- Mild conditions
- Broad scope
- Up to 98% ee and >20:1 dr

Chiral selection of Tröger's base-based macrocycles with different ethylene glycol chains length in crystallization

Haohui Feng^a, Yuan Chen^a, Ranran Wang^a, Pengbo Niu^a, Conghao Shi^a, Zhen Yang^a, Ming Cheng^{a,c}, Juli Jiang^{a,b}, Leyong Wang^a

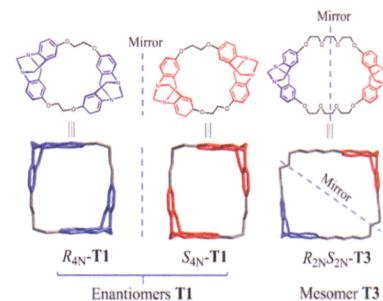
^a Jiangsu Key Laboratory of Advanced Organic Materials, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210023, China

^b Maanshan High-Tech Research Institute of Nanjing University, Maanshan 238200, China

^c The Cancer Hospital of the University of Chinese Academy of Sciences (Zhejiang Cancer Hospital), Institute of Basic Medicine and Cancer (IBMC), Chinese Academy of Sciences, Hangzhou 310022, China

Two Tröger's base-based macrocycles (TBBMs) with different bridging chains were synthesized and studied by the crystal analysis. These two TBBMs possess rare rectangular-like cavities and show chiral selection behaviors during crystallization.

Chinese Chemical Letters 34 (2023) 108038



Supramolecular assemblies of cucurbit[n]urils and 4-aminopyridine controlled by cucurbit[n]uril size ($n = 5, 6, 7$ and 8)

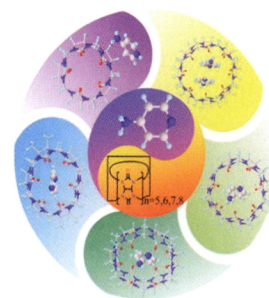
Yun Lu^a, Zhichao Yu^a, Xinan Yang^a, Jingjing Dai^a, Peihui Shan^a, Xianhao Feng^a, Zhu Tao^a, Carl Redshaw^b, Xin Xiao^a

^a Key Laboratory of Macrocyclic and Supramolecular Chemistry of Guizhou Province, Guizhou University, Guiyang 550025, China

^b Department of Chemistry, University of Hull, Hull HU6 7RX, United Kingdom

In this work, we have constructed five supramolecular host-guest systems using a series of cucurbit[n]urils (Q[5], Q[6], TMeQ[6], Q[7], Q[8]) and 4-aminopyridine (4-AP). X-ray crystallography clearly reveals how the Q[n]s bind with 4-AP to form complexes, for example Q[5] forms an outer-surface complex, whilst Q[6], TMeQ[6] and Q[7] formed a 1:1 host and guest type complex, and Q[8] formed a stable 1:2 ternary complex due to its large cavity, which can accommodate two 4-AP molecules.

Chinese Chemical Letters 34 (2023) 108040



Chloride anion-induced dimer capsule based on a polyfluorinated macrocycle *meta*-WreathArene

Shu Niu^a, Hongyan Xiao^b, Xiao-Di Yang^c, Huan Cong^a

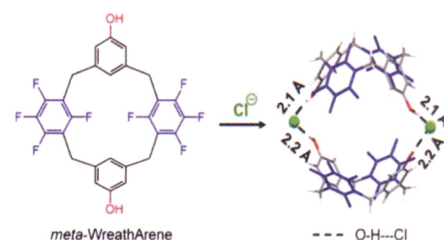
^a Key Laboratory of Photochemical Conversion and Optoelectronic Materials, Technical Institute of Physics and Chemistry; School of Future Technology, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing 100190, China

^b Key Laboratory of Bio-inspired Materials and Interfacial Science, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^c Research Center of Chiral Drugs, Innovation Research Institute of Traditional Chinese Medicine, Shanghai University of Traditional Chinese Medicine, Shanghai 200438, China

A novel polyfluorinated cyclophane, *meta*-WreathArene, has been efficiently synthesized, which can form dimer capsule induced by chloride anions.

Chinese Chemical Letters 34 (2023) 108042



Synthesis and immunological evaluation of Mincle ligands-based antitumor vaccines

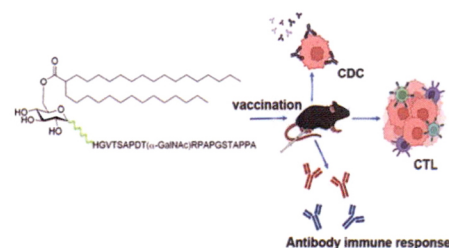
Kun Wang^a, Tong Zhang^a, Mingyang Liu^a, Danyang Wang^a, Haomiao Zhu^a, Zhaoyu Wang^a, Fan Yu^a, Yonghui Liu^b, Wei Zhao^a

^a State Key Laboratory of Medicinal Chemical Biology, College of Pharmacy, College of Life Sciences and KLMDASR of Tianjin, Nankai University, Tianjin 300353, China

^b School of Chemistry, Tiangong University, Tianjin 300387, China

A novel Mincle ligands-based antitumor vaccine conjugated with MUC1 antigen were synthesized and the immune effect was investigated through the detection of the antibody immune response, CDC and CTL.

Chinese Chemical Letters 34 (2023) 108065



Strategic design of lysine-targeted irreversible covalent NDM-1 inhibitors

Youzhen Ma^a, Yongxi Liang^a, Menglu Guo^a, Delin Min^a, Lulu Zheng^c, Yun Tang^c, Xun Sun^{a,b}

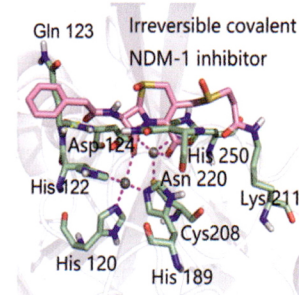
^a Department of Natural Medicine, School of Pharmacy, Fudan University, Shanghai 201203, China

^b The Institutes of Integrative Medicine of Fudan University, Shanghai 200040, China

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

Cephalosporins irreversible covalent NDM-1 inhibitors were designed and several methods, including MS, SDS-PAGE, fluorescent labeling, and coumarin probe were used to demonstrate the formation of covalent bound with Lys211. The cephalosporin-based strategy endowed **11** good synergistic antibacterial effects in vitro and in vivo with meropenem and excellent safety profile.

Chinese Chemical Letters 34 (2023) 108072



(+)/(–)-Yanhusuosines A and B, two dimeric benzyloisoquinoline-protoberberine alkaloid atropo-enantiomers featuring polycyclic skeletons from *Corydalis yanhusuo*

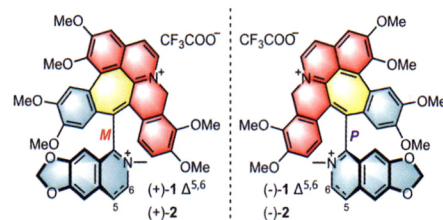
Guiyang Xia^a, Biaobing Xiao^b, Lingyan Wang^a, Huan Xia^a, Yuzhuo Wu^a, Yanan Wang^b, Hongcai Shang^a, Sheng Lin^a

^a Key Laboratory of Chinese Internal Medicine of Ministry of Education and Beijing, Dongzhimen Hospital, Beijing University of Chinese Medicine, Beijing 100700, China

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

Two pairs of atropo-enantiomeric homodimers, which represent the first examples of benzyloisoquinoline-protoberberine dimeric alkaloids featuring an unprecedented 6/7/6/6/6/6 hexacyclic skeleton, were isolated from the tubers of *Corydalis yanhusuo*.

Chinese Chemical Letters 34 (2023) 108073



Degradable nanocatalyst enables antitumor/antibacterial therapy and promotion of wound healing for diabetes via self-enhanced cascading reaction

Xiang Wang^a, Cheng Ding^b, Ziwen Zhang^a, Chunlin Li^c, Dongmiao Cao^a, Linjing Zhao^a, Guoying Deng^c, Yu Luo^a, Chunping Yuan^a, Jie Lu^a, Xijian Liu^a

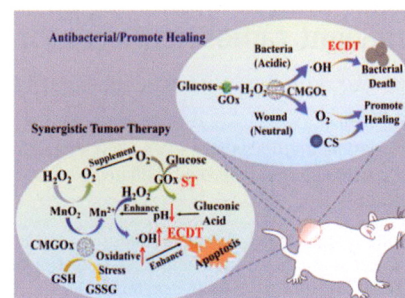
^a School of Chemistry and Chemical Engineering, Shanghai Engineering Technology Research Center for Pharmaceutical Intelligent Equipment, Shanghai Frontiers Science Research Center for Druggability of Cardiovascular Noncoding RNA, Institute for Frontier Medical Technology, Shanghai University of Engineering Science, Shanghai 201620, China

^b Affiliated Sixth People's Hospital, Shanghai JiaoTong University, Shanghai 200233, China

^c Trauma Center, Shanghai General Hospital, Shanghai Jiaotong University School of Medicine, Shanghai 201620, China

A degradable nanocatalyst-CMGOx based on chitosan utilizes endogenous substances for self-enhanced cascade catalytic reactions to achieve antitumor/antibacterial therapy and promotion of wound healing for diabetes via synergistic effect of chemodynamic therapy and starvation therapy.

Chinese Chemical Letters 34 (2023) 107951



Brasenia-inspired hydrogel with sustained and sequential release of BMP and WNT activators for improved bone regeneration

Xinqing Hao^a, Xuwei Zhang^{b,c}, Yue Hu^d, Chunxia Ren^a, Cangwei Liu^d, Lu Wang^a, Yijun Zhou^d, Shuangshuang Wang^d, Huanyu Luo^{a,e}, Guangxing Yan^{a,e}, Xiao Wang^{a,e}, Xiaomeng Wang^{a,e}, Feilong Ren^{a,e}, Ce Shi^{a,e}, Wenlong Song^c, Hongchen Sun^{a,e}

^a Hospital of Stomatology, Jilin University, Changchun 130021, China

^b School of Materials Science and Engineering, Hainan University, Haikou 570228, China

^c State Key Laboratory of Supramolecular Structure and Materials, College of Chemistry, Jilin University, Changchun 130012, China

^d School of Stomatology, China Medical University, Shenyang 110001, China

^e Jilin Provincial Key Laboratory of Tooth Development and Bone Remodeling, Changchun 130021, China

Our design, inspired by the *Brasenia*, combined ALG hydrogel with CS hydrogel to form heterogeneous hydrogel. BMP and WNT signaling activators, FK506 and BIO, were loaded in different layers of the heterogeneous hydrogel. The heterogeneous hydrogel achieved a sustained and sequentially release of FK506 and BIO, leading to effective repair of bone defects.

Chinese Chemical Letters 34 (2023) 107965



A tetrahedral framework nucleic acid based multifunctional nanocapsule for tumor prophylactic mRNA vaccination

Yuhao Liu^{a,c}, Songhang Li^a, Shiyu Lin^b, Sirong Shi^a, Taoran Tian^a, Bowen Zhang^a, Tao Zhang^a, Yunfeng Lin^a

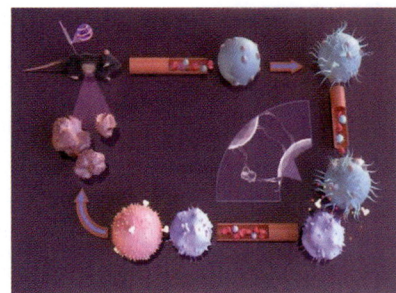
^aState Key Laboratory of Oral Diseases, National Clinical Research Center for Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, China

^bKey Laboratory of Oral Biomedical Research of Zhejiang Province, Zhejiang University, Hangzhou 310000, China

^cGuanghua School of Stomatology, Guangdong Provincial Key Laboratory of Stomatology, Sun Yat-sen University, Guangzhou 510055, China

This is the first study to report a dual-adjuvant multifunctional nanocapsule for mRNA vaccination, which is composed of CpG-loaded tetrahedral framework nucleic acid and a host defense peptide murine β -defensin 2. The dual-adjuvant mRNA nanovaccine elicits desirable *in vitro* activation and antigen presentation of dendritic cells, and demonstrates excellent *in vivo* tumor-prophylactic effects.

Chinese Chemical Letters 34 (2023) 107987



Efficient gene transfection of suspension cells by highly branched poly(β -amino ester)

Delu Che^a, Chenfei Wang^b, Zhili Li^b, Kaixuan Wang^b, Shuaiwei Sun^b, Xinyue Zhang^a, Yi Li^c, Zhengju Chen^d, Lei Guo^d, Yajing Hou^e, Dezhong Zhou^b, Songmei Geng^a

^aDepartment of Dermatology, the Second Hospital Affiliated to Xi'an Jiaotong University, Xi'an 710061, China

^bSchool of Chemical Engineering and Technology, Xi'an Jiaotong University, Xi'an 710049, China

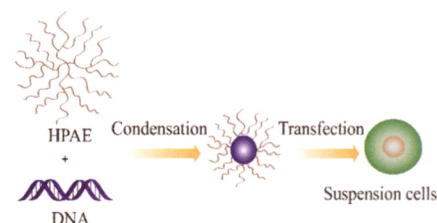
^cInfectious Disease Department, the Second Xiangya Hospital of Central South University, Changsha 410011, China

^dPooling Medical Research Institutes, Hangzhou 310053, China

^eDepartment of Pharmacy, Shaanxi Provincial People's Hospital, Xi'an 710068, China

HPAE mediates high levels of gene transfection in suspension cells.

Chinese Chemical Letters 34 (2023) 108066



High-dimensional zinc porphyrin nanoframeworks as efficient radiosensitizers for cervical cancer

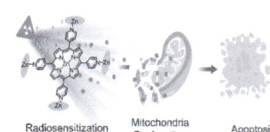
Fei Cai^a, Kun Ye^a, Mingkai Chen^a, Yuan Tian^a, Peicong Chen^b, Hao Lin^b, Tianfeng Chen^a, Li Ma^a

^aDepartment of Chemistry, Jinan University, Guangzhou 510632, China

^bDepartment of Orthopedics, Affiliated Hospital of Guangdong Medical University, Zhanjiang 524001, China

Using zinc porphyrin sub-unit, uniformly sized nanoframeworks with various coordination structures are generated as efficient radiosensitizers. Experimental data show that the high-dimensional nanoframeworks exhibit higher X-ray response performance.

Chinese Chemical Letters 34 (2023) 107945



Targeting self-enhanced ROS-responsive artesunate prodrug nanoassembly potentiates gemcitabine activity by down-regulating CDA expression in cervical cancer

Shengtao Wang^{a,b}, Kunyi Yu^b, Zhiyu Yu^b, Bingchen Zhang^{b,c}, Chaojie Chen^b, Ling Lin^b, Zibo Li^b, Zhongjun Li^c, Yuhua Zheng^a, Zhiqiang Yu^{b,c}

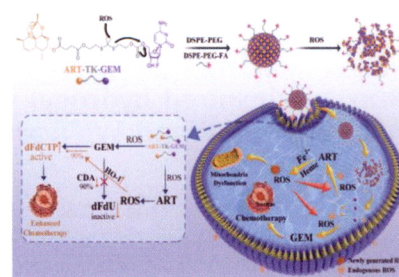
^aAffiliated Foshan Maternity & Child Healthcare Hospital, Southern Medical University (Foshan Maternity & Child Healthcare Hospital), Foshan 528000, China

^bSchool of Pharmaceutical Sciences, Southern Medical University, Guangzhou 510515, China

^cDepartment of Obstetrics and Gynecology, Affiliated Dongguan Hospital, Southern Medical University, Dongguan 523059, China

The preparation of targeting nanomedicine based on reactive oxygen species (ROS) responsive traditional Chinese medicine prodrugs for synergistic and enhanced chemotherapy. The endogenous ROS and newly generated ROS by artemisia (ART) can reduce the expression of cytidine deaminase (CDA), optimizes the metabolism of gemcitabine (GEM) and potentiates GEM activity.

Chinese Chemical Letters 34 (2023) 108184



Generation of color-controllable room-temperature phosphorescence via luminescent center engineering and *in-situ* immobilization

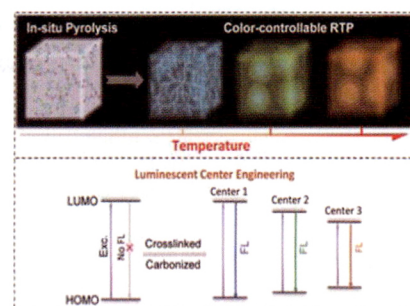
Licheng Zheng^a, Kai Jiang^a, Jiaren Du^a, Yike Li^b, Zhongjun Li^b, Hengwei Lin^a

^aInternational Joint Research Center for Photo-responsive Molecules and Materials, School of Chemical and Material Engineering, Jiangnan University, Wuxi 214122, China

^bCollege of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou 450001, China

A luminescent center engineering and *in-situ* immobilization strategy was proposed to prepare color-controllable room-temperature phosphorescent (RTP) materials in this study. Furthermore, the potential applications of the as-obtained materials for advanced anti-counterfeiting and information encryption were preliminarily demonstrated.

Chinese Chemical Letters 34 (2023) 107950



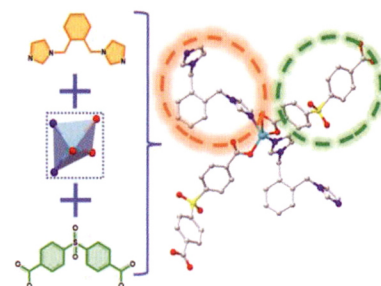
Colorful ultralong room-temperature phosphorescence in dual-ligand metal-organic framework

Shuya Liu, Yuhang Lin, Dongpeng Yan

Beijing Key Laboratory of Energy Conversion and Storage Materials, College of Chemistry, Key Laboratory of Radiopharmaceuticals, Ministry of Education, Beijing Normal University, Beijing 100875, China

Dual-ligand 3D metal-organic framework (MOF) exhibits excitation-dependent ultralong phosphorescence and up-conversion characters.

Chinese Chemical Letters 34 (2023) 107952



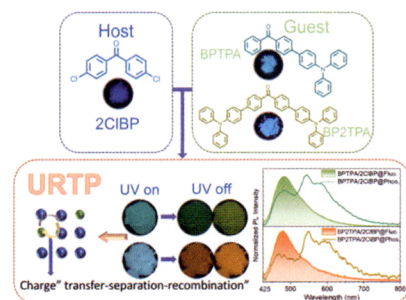
Ultralong room temperature phosphorescence via the charge transfer-separation-recombination mechanism based on organic small molecule doping strategy

Yanan Wang, Chao Wang, Jingran Zhang, Yurong Guo, Peng Zhao, Xiaoxue Fang, Guangjiu Zhao

Molecular Dynamic Chemistry Center, Tianjin Key Laboratory of Molecular Optoelectronic Sciences, Department of Chemistry, School of Science, Tianjin University, Tianjin 300354, China

This work developed a novel organic host-guest doping system with excellent URTP properties. The phosphorescence is visible to the naked eye. Since different phosphor wavelengths correspond to different lifetimes, different photophysical processes are illustrated. The charge transfer-separation-recombination process between host and guest is responsible for the realization of URTP.

Chinese Chemical Letters 34 (2023) 108062



Electrochemical analysis of microRNAs with hybridization chain reaction-based triple signal amplification

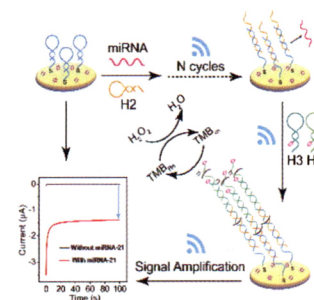
Jianfeng Ma^a, Lingbo Gong^a, Yingying Cen^a, Lin Feng^a, Yan Su^b, Xingfen Liu^a, Jie Chao^a, Ying Wan^b, Shao Su^a, Lianhui Wang^a

^aState Key Laboratory of Organic Electronics and Information Displays & Jiangsu Key Laboratory for Biosensors, Institute of Advanced Materials (IAM), Nanjing University of Posts and Telecommunications, Nanjing 210023, China

^bSchool of Mechanical Engineering, Nanjing University of Science and Technology, Nanjing 210094, China

A triple signal amplification strategy was developed for trace microRNA-21 (miRNA-21) detection by combining with target-triggered cyclic strand displacement reaction (TCSDR), hybridization chain reaction (HCR) and enzyme catalytic amplification.

Chinese Chemical Letters 34 (2023) 108012



Pan-cancer analysis of DNA epigenetic modifications by hydrophilic interaction liquid chromatography-tandem mass spectrometry

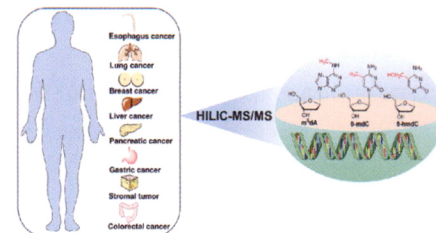
Yiqiu Hu^a, Xiujuan Hong^a, Zhijun Yuan^a, Jiayi Mu^a, Xiaoxiao Zhang^a, Zhihao Fang^a, Ying Yuan^{a,b}, Shu Zheng^{a,b}, Cheng Guo^{a,b}

^aCancer Institute (Key Laboratory of Cancer Prevention and Intervention, China National Ministry of Education), The Second Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou 310009, China

^bCancer Center, Zhejiang University, Hangzhou 310058, China

We performed accurate quantification and evaluation of the alterations of DNA epigenetic modifications in various types of cancer by HILIC-MS/MS, and the content of genomic m⁶dA was revealed, for the first time, in pancreatic cancer, stromal tumor and colorectal cancer. The results suggested that these DNA epigenetic modifications could be potential indicators for cancer diagnosis and prognosis.

Chinese Chemical Letters 34 (2023) 108023



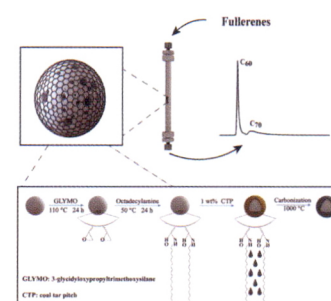
In-situ carbonizing of coal pitch on the surface of silica sphere as quasi-graphitized carbon stationary phase for liquid chromatography

Sen Xu, Zhihua Zhong, Yu Wang, Lingyi Zhang, Weibing Zhang

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

A novel quasi-graphitized carbon/silica composite material was used as stationary phase for liquid chromatography.

Chinese Chemical Letters 34 (2023) 108024



Single-particle detection of cholesterol based on the host-guest recognition induced plasmon resonance energy transfer

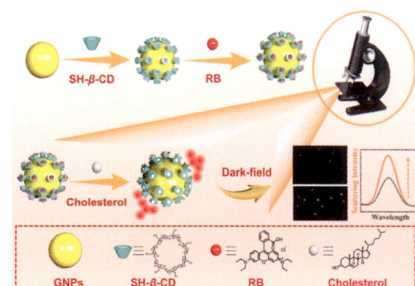
Shu-Min Wang^a, Hui Wang^a, Wei Zhao^{a,b}, Jing-Juan Xu^a, Hong-Yuan Chen^a

^aState Key Laboratory of Analytical Chemistry for Life Science, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210023, China

^bInstitute of Nanochemistry and Nanobiology, School of Environmental and Chemical Engineering, Shanghai University, Shanghai 200444, China

In this work, we constructed a detection platform of cholesterol based on the β -cyclodextrin (β -CD) modified GNPs (GNPs@CD NPs). In virtue of the host-guest interaction between β -CD and cholesterol, a straight, low-sample consumption and sensitive single particle plasmonic imaging approach for the detection of cholesterol was realized.

Chinese Chemical Letters 34 (2023) 108053



Intermetallic CuAu nanoalloy for stable electrochemical CO₂ reduction

Siyu Kuang^a, Minglu Li^a, Xiaoyi Chen^a, Haoyuan Chi^a, Jianlong Lin^a, Zheng Hu^d, Shi Hu^d, Sheng Zhang^{a,b,c}, Xinbin Ma^{a,b,c}

^aKey Laboratory for Green Chemical Technology of Ministry of Education, School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China

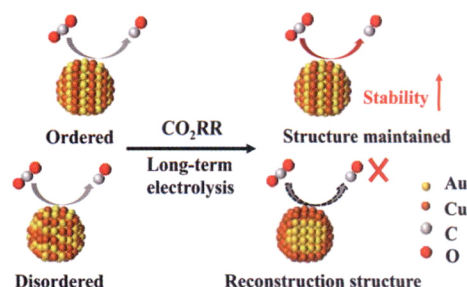
^bHaihe Laboratory of Sustainable Chemical Transformations, Tianjin 300192, China

^cJoint School of National University of Singapore and Tianjin University, International Campus of Tianjin University, Fuzhou 350207, China

^dTianjin Key Laboratory of Molecular Optoelectronic Science, School of Science, Tianjin University, Tianjin 300072, China

In this work, we developed a method for the synthesis of highly ordered CuAu intermetallic nanoalloys (o-CuAu) under mild conditions (< 250 °C), which can convert carbon dioxide to carbon monoxide with high selectivity and can operate stably for 160 h without current decay.

Chinese Chemical Letters 34 (2023) 108013



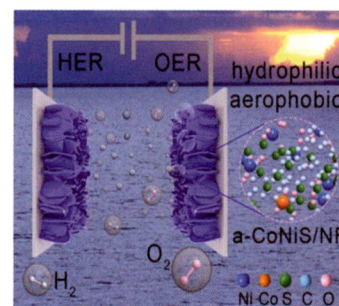
Chinese Chemical Letters 34 (2023) 108016

Amorphous porous sulfides nanosheets with hydrophilic/aerophobic surface for high-current-density water splitting

Xiaoli Wu, Sheng Zhao, Lijie Yin, Luqi Wang, Linlin Li, Feng Hu, Shengjie Peng

Jiangsu Key Laboratory of Electrochemical Energy Storage Technologies, College of Materials Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing 210016, China

The hydrophilic and aerophobic a-CoNiS/NF self-supporting nanosheets electrode synthesized through the sulfurization strategy exhibits remarkable bifunctional catalytic properties toward HER and OER and allows to operate at a high current density for water splitting.



Chinese Chemical Letters 34 (2023) 108029

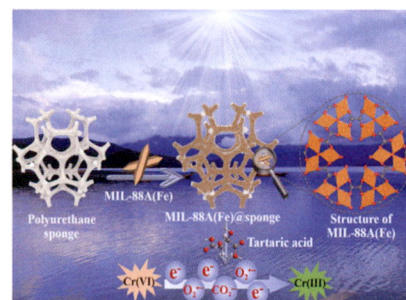
Photocatalytic Cr(VI) reduction over MIL-88A(Fe) on polyurethane sponge: From batch to continuous-flow operation

Xiao-Hong Yi^{a,b}, Ya Gao^{a,b}, Chong-Chen Wang^{a,b}, Yu-Hang Li^{a,b}, Hong-Yu Chu^{a,b}, Peng Wang^{a,b}

^a Beijing Key Laboratory of Functional Materials for Building Structure and Environment Remediation, School of Environment and Energy Engineering, Beijing University of Civil Engineering and Architecture, Beijing 100044, China

^b Beijing Energy Conservation & Sustainable Urban and Rural Development Provincial and Ministry Co-construction Collaboration Innovation Center, Beijing University of Civil Engineering and Architecture, Beijing 100044, China

MIL-88A(Fe)@sponge (MS) was synthesized via a facile dip-coating method to achieve the long-term photocatalytic Cr(VI) reduction with the aid of tartaric acid.



Chinese Chemical Letters 34 (2023) 108030

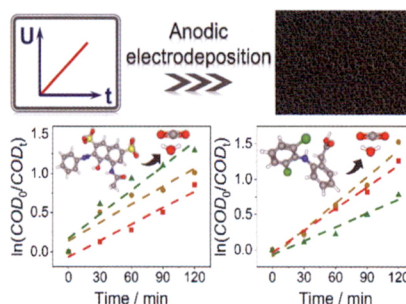
Quick fabrication of evenly porous PbO₂ through potential linear increase electrodeposition

Hua Guo^{a,b}, Wenyu Hu^a, Zekun Zhang^a, Duowen Yang^a, Siyuan Guo^a, Xiaosheng Jing^a, Hao Xu^{a,b}, Wei Yan^{a,b}

^a Department of Environmental Science and Engineering, Xi'an Jiaotong University, Xi'an 710049, China

^b Research Institute of Xi'an Jiaotong University, Hangzhou 311200, China

The porous lead dioxide coatings with uniform pore size distribution were quickly prepared in 100 s on three different substrates by potential linear increase electrodeposition (PLIED). All of these PLIED electrodes show great stability and excellent electrochemical conversion and mineralization capability to specific dye and pharmaceutical with different concentrations.



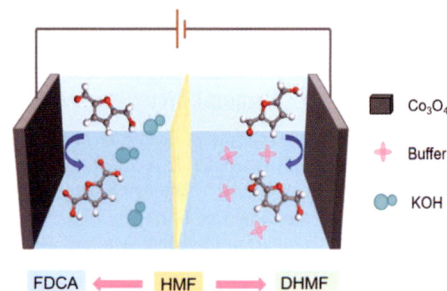
Chinese Chemical Letters 34 (2023) 108034

Self-supported ultrathin Co₃O₄ nanoarray enabling efficient paired electrolysis of 5-hydroxymethylfurfural for simultaneous dihydroxymethylfuran (DHMF) and furandicarboxylic acid (FDCA) production

Xiaoqiang Pan, Shuchuan Mei, Wu-Jun Liu

CAS Key Laboratory of Urban Pollutant Conversion, Department of Environmental Science and Engineering, University of Science and Technology of China, Hefei 230026, China

A novel and robust paired electrolysis system was developed to convert 5-hydroxymethylfurfural into 2,5-dihydroxymethylfuran and 2,5-furandicarboxylic acid with high yields over a bifunctional electrocatalyst Co₃O₄ nanosheet array.



Dopant-vacancy activated tetragonal transition metal selenide for hydrogen evolution electrocatalysis

Qiuyan Huang^a, Xin Liu^a, Ze Zhang^a, Lianli Wang^b, Beibei Xiao^a, Zhimin Ao^c

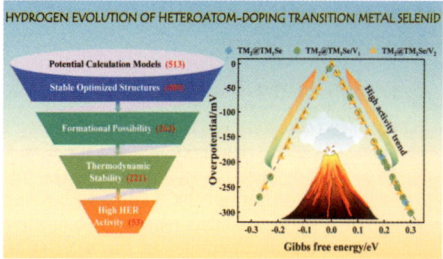
^aSchool of Energy and Power Engineering, Jiangsu University of Science and Technology, Zhenjiang 212003, China

^bSchool of Materials Science and Engineering, Xi'an University of Science and Technology, Xi'an 710054, China

^cAdvanced Interdisciplinary Institute of Environment and Ecology, Beijing Normal University, Zhuhai 519087, China

The dopant-vacancy strategy effectively activates tetragonal transition metal selenide for hydrogen evolution electrocatalysis. Wherein, the CuSe systems accounted for 29 out of 53 candidates are attractively promising for experimental synthesis. The underlying mechanism stems from the upshifted p orbitals of Se active site, which improves the affinity toward hydrogen adsorption.

Chinese Chemical Letters 34 (2023) 108046



Comparative study of raw and HNO₃-modified porous carbon from waste printed circuit boards for sulfadiazine adsorption: Experiment and DFT study

Yujiao Kan^a, Ruxin Zhang^{a,b}, Xing Xu^c, Bo Wei^{a,d}, Yanan Shang^a

^aSchool of Safety and Environmental Engineering, Shandong University of Science and Technology, Qingdao 266590, China

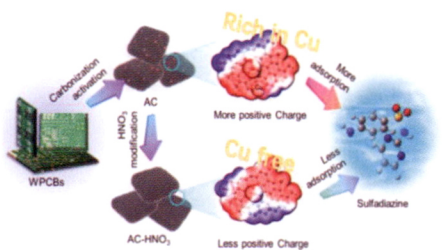
^bFaculty of Light Industry, Qilu University of Technology (Shandong Academy of Sciences), Ji'nan 250353, China

^cShandong Key Laboratory of Water Pollution Control and Resource Reuse, School of Environmental Science and Engineering, Shandong University, Qingdao 266237, China

^dEnvironment Research Institute, Shandong University, Qingdao 266237, China

Active carbon prepared from the WPCBs rich in Cu can be an efficient adsorbent for sulfadiazine removal.

Chinese Chemical Letters 34 (2023) 108272



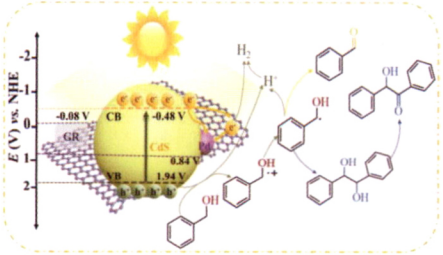
Interfacial engineering of CdS for efficient coupling photoredox

Ming-Hui Sun, Ming-Yu Qi, Chang-Long Tan, Zi-Rong Tang, Yi-Jun Xu

College of Chemistry, State Key Laboratory of Photocatalysis on Energy and Environment, Fuzhou University, Fuzhou 350116, China

A ternary GR-CdS-Pd composite has been designed and constructed by solvothermal and photodeposition method for coupling photoredox-catalyzed selective dehydrogenation of benzyl alcohol and H₂ evolution. The composite presents much improved photocatalytic activity as compared to blank CdS, due to the optimized interfacial synergy interaction of CdS NPs, GR NSs and Pd NPs.

Chinese Chemical Letters 34 (2023) 108022



A unique Janus PdZn-Co catalyst for enhanced photocatalytic syngas production from CO₂ and H₂O

Dongxue Zhou^{a,b}, Xiangdong Xue^a, Qingjie Luan^{a,b}, Liguo Zhang^{a,b}, Baozhen Li^{a,b}, Xing Wang^{a,b}, Wenjun Dong^{a,b}, Ge Wang^a, Changmin Hou^c

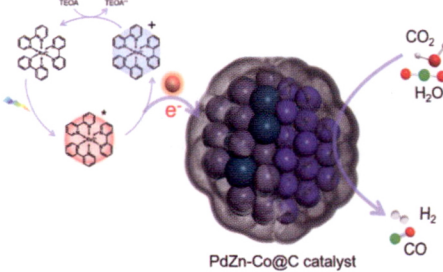
^aBeijing Advanced Innovation Center for Materials Genome Engineering, Beijing Key Laboratory of Function Materials for Molecule & Structure Construction, School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China

^bShunde Graduate School of University of Science and Technology Beijing, Foshan 528399, China

^cState Key Laboratory of Inorganic Synthesis & Preparative Chemistry, College of Chemistry, Jilin University, Changchun 130012, China

A Janus PdZn-Co catalyst exhibits superior photocatalytic CO₂ and H₂O reduction activity, due to the charge redistribution between PdZn and Co terminals enhances the absorption for CO₂ and H₂O. The carbon shell effectively suppresses the metal core agglomeration and facilitates the electron transmission from photosensitizer to metallic active sites.

Chinese Chemical Letters 34 (2023) 107798

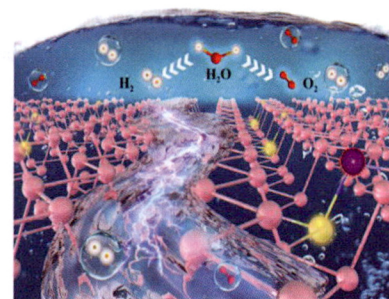


Single-atom rhodium anchored on S-doped black phosphorene as a promising bifunctional electrocatalyst for overall water splitting

Chinese Chemical Letters 34 (2023) 107812

Xinyi Li^a, Zhongxu Wang^a, Yu Tian^b, Xiaofeng Li^a, Qinghai Cai^{a,c}, Jingxiang Zhao^a^a College of Chemistry and Chemical Engineering, and Key Laboratory of Photonic and Electronic Bandgap Materials, Ministry of Education, Harbin Normal University, Harbin 150025, China^b Institute for Interdisciplinary Quantum Information Technology, Jilin Engineering Normal University, Changchun 130052, China^c Heilongjiang Province Collaborative Innovation Center of Cold Region Ecological Safety, Harbin 150025, China

We proposed a novel rhodium anchored on S-doped black phosphorene as the bifunctional electrocatalyst for overall water splitting.



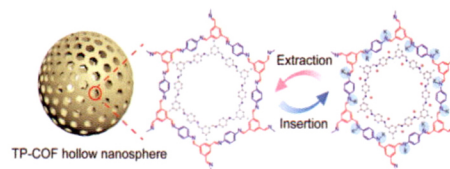
Templated synthesis of imine-based covalent organic framework hollow nanospheres for stable potassium-ion batteries

Chinese Chemical Letters 34 (2023) 108233

Jianlu Sun, Ruiqi Tian, Yuehua Man, Yating Fei, Xiaosi Zhou

School of Chemistry and Materials Science, Nanjing Normal University, Nanjing 210023, China

Imine-based covalent organic framework hollow nanospheres (TP-COF HSs) with ordered porous architecture and good chemical stability were synthesized using amino-modified SiO₂ nanosphere template. The as-obtained TP-COF HSs exhibit a high capacity of 336 mAh/g at 0.1 A/g after 100 cycles and a superior rate capacity of 160 mAh/g at 1 A/g for potassium storage.

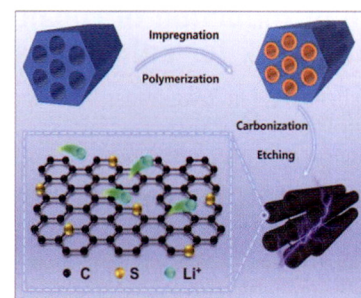


Sulfur-doped CMK-5 with expanded lattice for high-performance lithium ion batteries

Chinese Chemical Letters 34 (2023) 108054

Zhenjin Liang^a, Yuhao Peng^a, Xing Zhang^a, Kewei Cao^a, Wei Xiao^b, Dong Gu^a^a The Institute for Advanced Studies, Wuhan University, Wuhan 430072, China^b College of Chemistry and Molecular Sciences, Hubei Key Laboratory of Electrochemical Power Sources, Wuhan University, Wuhan 430072, China

Sulfur-doped mesoporous carbon material (CMK-5-S) with expanded lattice and high surface area has been prepared by a modified hard-templating method with 2-thiophenemethanol as a carbon precursor. It shows enhanced lithium storage performance.

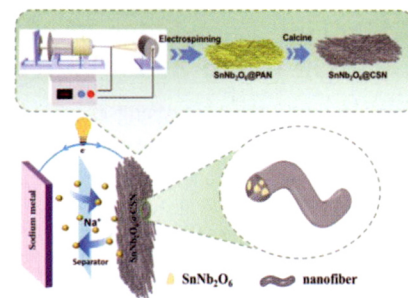


Free-standing SnNb₂O₆@CSN film as flexible anode for high performance sodium-ion batteries

Chinese Chemical Letters 34 (2023) 107840

Xuemin Yin^a, Tao Liu^a, Xiuping Yin^a, Xiaochen Feng^a, Yiming Liu^a, Qinshao Shi^a, Xingli Zou^b, Yufeng Zhao^a^a Institute for Sustainable Energy and College of Sciences, Shanghai University, Shanghai 200444, China^b Department of Materials Science and Engineering, Shanghai University, Shanghai 200072, China

A free-standing 3D carbon skeleton nanofiber-encapsulated SnNb₂O₆ (SnNb₂O₆@CSN) film as flexible anode for SIBs was prepared by facile electrospinning and carbonization processes. The as synthesized flexible SnNb₂O₆@CSN electrode exhibits excellent rate performance.

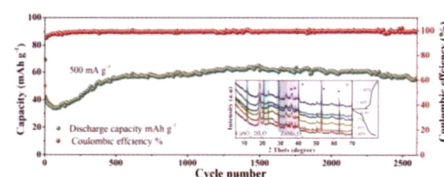


Calcium-organic frameworks cathode for high-stable aqueous Zn/organic batteries

Chinese Chemical Letters 34 (2023) 107760

Wenshan Gou^a, Tian Jiang^b, Wei Wang^c, Qi Fan^b, Yan Zhang^a^a Institute of Advanced Cross-field Science, College of Life Sciences, Qingdao University, Qingdao 200671, China^b School of Materials Science and Engineering, Jiulonghu Campus, Southeast University, Nanjing 211189, China^c China State Key Laboratory of Materials-Oriented Chemical Engineering, College of Chemical Engineering, Nanjing Tech University, Nanjing 210009, China

An ultra-stable aqueous zinc-ion batteries system using an unexplored AZIBs cathode material Ca-PTA-3H₂O was fabricated. As a result, Ca-PTA-3H₂O exhibits a high specific capacity of 431 mAh/g (50 mA/g). In particular, this battery shows excellent cycle performance with capacity retention of ~90% after 2700 cycles (500 mA/g). The ex-situ measurements reveal the Zn²⁺ storage mechanism of cathode material.



Ultrasound-induced elevation of interlayer spacing and conductivity of CoNi hydroxides for high-performance Ni-Zn batteries

Hongxuan Tang^a, Jiujiu Ge^a, Lanze Li^a, Xinqiang Zhu^a, Sai Wu^a, Fan Wang^a, Yajun Pang^a, Zhehong Shen^a, Cao Guan^b, Hao Chen^{a,c}

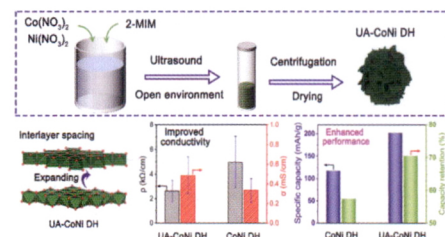
^a College of Chemistry and Materials Engineering, Zhejiang A&F University, Hangzhou 311300, China

^b Institute of Flexible Electronics, Northwestern Polytechnical University, Xi'an 710072, China

^c School of Materials Science and Engineering, Zhejiang University, Hangzhou 310027, China

A facile ultrasound-assisted one-step approach is proposed to synthesize CoNi hydroxide microspheres with expanded interlayer spacing and enhanced conductivity, resulting in a greatly increased electrochemical performance as a cathode for Ni-Zn batteries.

Chinese Chemical Letters 34 (2023) 107768



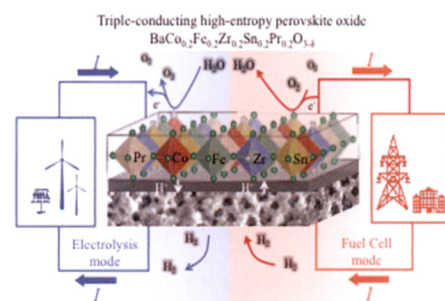
High-entropy perovskite oxide $\text{BaCo}_{0.2}\text{Fe}_{0.2}\text{Zr}_{0.2}\text{Sn}_{0.2}\text{Pr}_{0.2}\text{O}_{3-\delta}$ with triple conduction for the air electrode of reversible protonic ceramic cells

Jiaxiang Sun, Rongzheng Ren, Hualiang Yue, Wencan Cui, Gaige Wang, Chunming Xu, Jinshuo Qiao, Wang Sun, Kening Sun, Zhenhua Wang

Beijing Key Laboratory for Chemical Power Source and Green Catalysis, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, China

The high-entropy perovskite oxide $\text{BaCo}_{0.2}\text{Fe}_{0.2}\text{Zr}_{0.2}\text{Sn}_{0.2}\text{Pr}_{0.2}\text{O}_{3-\delta}$ (BCFZSP) is firstly demonstrated as the air electrode of reversible protonic ceramic cells (RPCCs). The BCFZSP shows special $\text{H}^+/\text{e}^-/\text{O}^{2-}$ triple conduction, which can accelerate the kinetics of air electrode and promote the electrochemical performance of RPCCs.

Chinese Chemical Letters 34 (2023) 107776



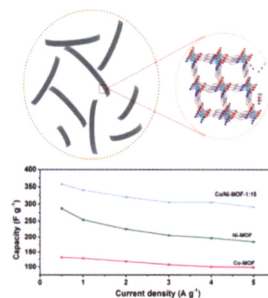
The introduction of cobalt element into nickel-organic framework for enhanced supercapacitive performance

Xinxin Hang, Rui Yang, Yadan Xue, Shasha Zheng, Yuying Shan, Meng Du, Jiawei Zhao, Huan Pang

School of Chemistry and Chemical Engineering and Institute for Innovative Materials and Energy, Yangzhou University, Yangzhou 225009, China

Bimetallic cobalt/nickel-organic frameworks (Co/Ni-MOFs) with spindle-like morphology were prepared by partial substitution of Ni ions in Ni-MOFs with Co ions and used as electrode material for supercapacitors. Compared with monometallic Ni-MOF and Co-MOF, bimetallic Co/Ni-MOF-1:15 with the optimal Co/Ni ratio exhibited higher specific capacitance, better rate performance and cycling stability.

Chinese Chemical Letters 34 (2023) 107787



Advancing knowledge of plasma spraying coatings for Li||Sb-Sn liquid metal batteries by X-ray micro-CT

Kaixuan Cui^{a,b}, Ping Li^a, Wang Zhao^c, Chunrong Liu^a, Qi Wan^{d,e}, Shengwei Li^a, Xuanhui Qu^a

^a Beijing Advanced Innovation Center for Materials Genome Engineering, Institute for Advanced Materials and Technology, University of Science and Technology Beijing, Beijing 100083, China

^b Beijing Key Laboratory of Membrane Materials and Engineering, Department of Chemical Engineering, Tsinghua University, Beijing 100084, China

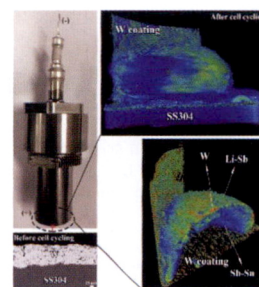
^c Institute of Science and Technology, China Three Gorges Corporation, Beijing 100038, China

^d School of Materials Science and Engineering, Southwest University of Science and Technology, Mianyang 621010, China

^e Shanxi Beike Qiantong Energy Storage Science and Technology Research Institute Co., Ltd., Gaoping 048400, China

The corrosion micromorphology and composition evolution of the SS304 matrix and Sb-Sn cathode with or without the plasma-sprayed W coating can be observed without disassembling the battery, which indicates that the W coating has excellent service characteristics as a cathode current collector for Li||Sb-Sn LMBs.

Chinese Chemical Letters 34 (2023) 107797



Bidirectionally polarizing surface chemistry of heteroatom-doped carbon matrix towards fast and longevous lithium-sulfur batteries

Hongyang Li^a, Bo Cai^b, Yingze Song^c, Wenlong Cai^d, Gaoran Li^a

^aMIT Key Laboratory of Advanced Display Materials and Devices, College of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing 210094, China

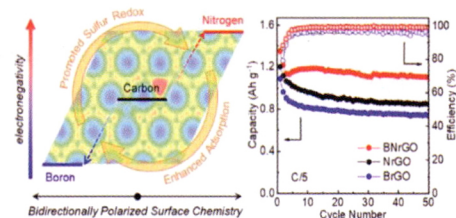
^bState Key Laboratory of Organic Electronics and Information Displays & Institute of Advanced Materials (IAM), Nanjing University of Posts & Telecommunications, Nanjing 210023, China

^cState Key Laboratory of Environmental-Friendly Energy Materials, School of Materials Science and Engineering, Southwest University of Science and Technology, Mianyang 621010, China

^dDepartment of Advanced Energy Materials, College of Materials Science and Engineering, Sichuan University, Chengdu 610064, China

A bidirectional polarization strategy was proposed and concept-proved by the facilely-prepared B, N co-doped reduced graphene, which as the cathode host matrix realized efficient and reversible sulfur reactions towards high-performance Li-S batteries.

Chinese Chemical Letters 34 (2023) 107811



Nitrogen-doped mesoporous carbon nanospheres loaded with cobalt nanoparticles for oxygen reduction and Zn-air batteries

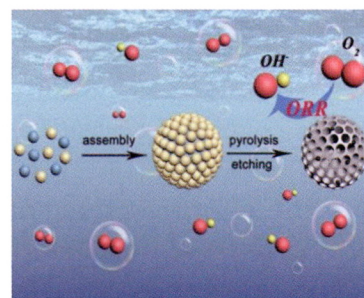
Lulu Chen^a, Yelong Zhang^b, Jianbo Jia^a

^aSchool of Biotechnology and Health Sciences, Wuyi University, Jiangmen 529020, China

^bSchool of Applied Physics and Materials, Wuyi University, Jiangmen 529020, China

Mesoporous carbon nanospheres anchored with metallic cobalt nanoparticles were fabricated as robust electrocatalysts for ORR in alkaline/acidic solution and Zn-air batteries, which provides new thoughts for developing non-noble metal catalysts for clean energy conversion devices.

Chinese Chemical Letters 34 (2023) 107815



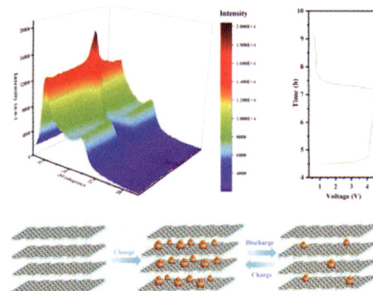
Pre-constructed SEI on graphite-based interface enables long cycle stability for dual ion sodium batteries

Bao Li, Bobo Cao, Xinxin Zhou, Zhuangzhuang Zhang, Dongmei Dai, Mengmin Jia, Dai-Huo Liu

Collaborative Innovation Center of Henan Province for Green Manufacturing of Fine Chemicals, Key Laboratory of Green Chemical Media and Reactions, Ministry of Education, School of Chemistry and Chemical Engineering, Henan Normal University, Xinxiang 453007, China

The artificial SEI formed in Na||graphite half batteries can suppress the co-insertions of solvents during the anions uptake/release processes, thus the phase transition of graphite in dual ionic sodium batteries can be significantly inhibited.

Chinese Chemical Letters 34 (2023) 107832



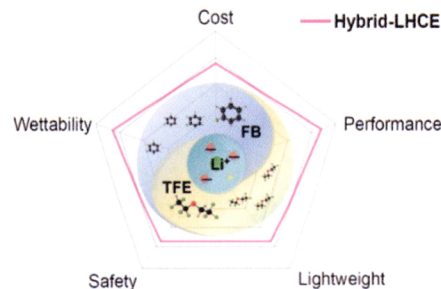
Hybrid diluents enable localized high-concentration electrolyte with balanced performance for high-voltage lithium-metal batteries

Chengzong Li, Yan Li, Ziyu Chen, Yongchao Zhou, Fengwei Bai, Tao Li

School of Resource Environment and Safety Engineering, University of South China, Hengyang 421001, China

A hybrid localized high concentration electrolyte (LHCE) employing fluorobenzene (FB) and 1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether (TFE) (FB-TFE mixture 1:1 by volume) as diluent demonstrates balanced properties (fire-retardant, low-cost, lightweight, etc.).

Chinese Chemical Letters 34 (2023) 107852

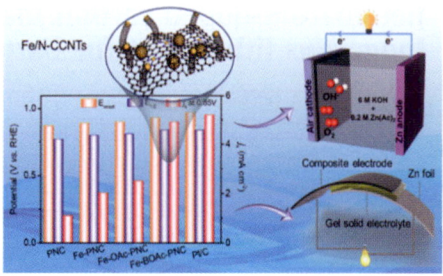


Organic carboxylate-assisted engineering for fabricating Fe, N co-doped porous carbon interlinked carbon nanotubes towards boosting the oxygen reduction reaction for Zn-air batteries

Jing Zhang, Ye Chen, Miao Tian, Tianfang Yang, Fengxian Zhang, Guangrui Jia, Xupo Liu
School of Materials Science and Engineering, Henan Normal University, Xinxiang 453007, China

An organic carboxylate-assisted engineering is developed to construct Fe, N co-doped porous carbon interlinked carbon nanotubes with high-density and sufficiently exposed Fe-N_x sites based on the self-catalyzed effect. The optimal catalyst exhibits superior ORR performances, which is profitable for the liquid and flexible Zn-air battery application.

Chinese Chemical Letters 34 (2023) 107886



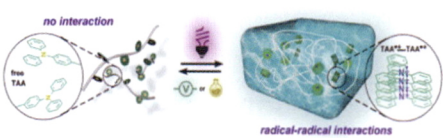
Photoregulated supramolecular hydrogels driven by polyradical interactions

Zehao Gong, Qiang Yan

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

A new category of supramolecular hydrogel system formed by multiple radical-radical interactions is reported for the first time. In this system, simple water-soluble polymer with small content of triarylamine units (TAA) can realize noncovalent hyrdogelation by photocontrolled TAA^{•+}-TAA^{•+} radical association and its mechanical performance can be *in-situ* regulated by light irradiation.

Chinese Chemical Letters 34 (2023) 108028



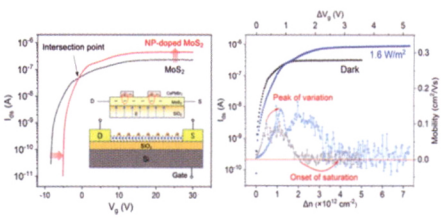
Tune the photoresponse of monolayer MoS₂ by decorating CsPbBr₃ perovskite nanoparticles

Chao Tan^a, Rui Tao^a, Zhihao Yang^a, Lei Yang^a, Xiaolei Huang^b, Yong Yang^b, Fei Qi^c, Zegao Wang^a

^aCollege of Materials Science and Engineering, Sichuan University, Chengdu 610065, China
^bState Key Laboratory of Solidification Processing, Center of Advanced Lubrication and Seal Materials, Northwestern Polytechnical University, Xi'an 710072, China
^cCollege of Optoelectronic Engineering, Chongqing University of Posts and Telecommunications, Chongqing 400065, China

The decoration of CsPbBr₃ nanoparticles was found to enhance the carrier mobility of the MoS₂ by 124% and the on/off ratio by 437%.

Chinese Chemical Letters 34 (2023) 107979



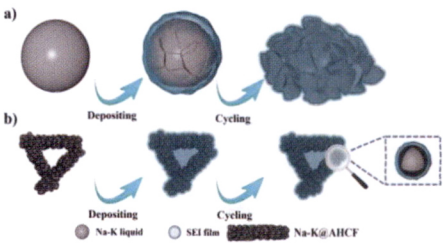
Amorphous hollow carbon film as a flexible host for liquid Na-K alloy anode

Meng Shao, Ningxiang Wu, Tianming Chen, Xu Han, Yu Shen, Weina Zhang, Bing Zheng, Sheng Li, Fengwei Huo

Key Laboratory of Flexible Electronics (KLOFE) and Institute of Advanced Materials (IAM), Nanjing Tech University (NanjingTech), Nanjing 211800, China

An amorphous hollow carbon film (AHCF) consisting of hollow carbon spheres has been designed to infiltrate Na-K liquid alloy into the film cavities at room temperature. The formed composite can be applied as a promising liquid metal anode for rechargeable batteries.

Chinese Chemical Letters 34 (2023) 107767



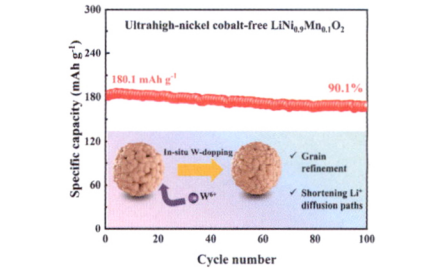
Enhanced rate capability and mitigated capacity decay of ultrahigh-nickel cobalt-free LiNi_{0.9}Mn_{0.1}O₂ cathode at high-voltage by selective tungsten substitution

Xingyuan Wang, Bao Zhang, Zhiming Xiao, Lei Ming, Minghuang Li, Lei Cheng, Xing Ou

Engineering Research Center of the Ministry of Education for Advanced Battery Materials, School of Metallurgy and Environment, Central South University, Changsha 410083, China

The ultrahigh-nickel cobalt-free cathode material LiNi_{0.9}Mn_{0.1}O₂ with trace tungsten doping is successfully fabricated by *in-situ* wet strategy. The property enhancement after W⁶⁺-doping is unraveled, which can realize the refinement of primary particles and inhibit the phase transformation. It can improve the rate performance and cycle stability, thus providing an effective modification strategy for high-nickel cobalt-free cathode materials.

Chinese Chemical Letters 34 (2023) 107772



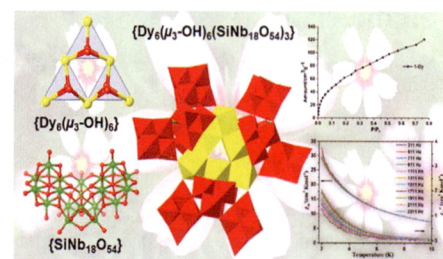
A series of high-nuclear planar equilateral triangle-shaped $\{\text{Ln}_6(\mu_3\text{-OH})_6\}$ cluster encapsulated polyoxoniobates with frequency dependent magnetic property

Zeng-Kui Zhu, Ya-Yun Lin, Rong-Da Lai, Xin-Xiong Li, Yan-Qiong Sun, Shou-Tian Zheng

State Key Laboratory of Photocatalysis on Energy and Environment, College of Chemistry, Fuzhou University, Fuzhou 350108, China

The first high-nuclear Ln-oxo cluster encapsulated heterometallic polyoxoniobate cluster $\{\text{Ln}_6(\mu_3\text{-OH})_6(\text{SiNb}_{18}\text{O}_{54})_3\}$ is comprised of three $\{\text{SiNb}_{18}\text{O}_{54}\}$ clusters and one unique planar equilateral triangle-shaped $\{\text{Ln}_6(\mu_3\text{-OH})_6\}$ cluster.

Chinese Chemical Letters 34 (2023) 107773



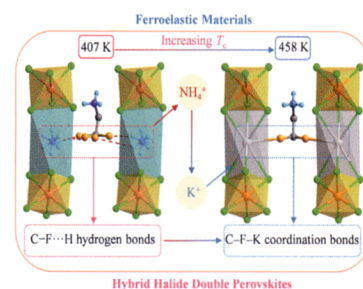
NH_4^+/K^+ -substitution-induced C-F-K coordination bonds for designing the highest-temperature hybrid halide double perovskite ferroelastic

Chang-Feng Wang, Na Wang, Chao Shi, Heng-Yun Ye, Yi Zhang, Le-Ping Miao

Chaotic Matter Science Research Center, Department of Materials, Metallurgy and Chemistry, Jiangxi University of Science and Technology, Ganzhou 341000, China

A high-temperature hybrid halide double perovskite ferroelastic was synthesized. Further, by NH_4^+/K^+ -substitution, the C-F...H hydrogen bonds between organic cations and inorganic frameworks are replaced with C-F-K coordination bonds. Due to the existence of coordination bonds, the phase transition temperature of the new hybrid halide double perovskite ferroelastic can be raised from 407 K to 458 K.

Chinese Chemical Letters 34 (2023) 107774



Dual-template synthesis of defect-rich mesoporous Co_3O_4 for low temperature CO oxidation

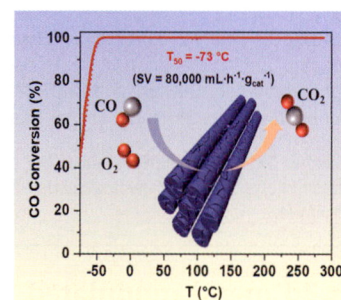
Shuhua Song^a, Jian Liang^a, Wei Xiao^b, Dong Gu^a

^aThe Institute for Advanced Studies, Wuhan University, Wuhan 430072, China

^bCollege of Chemistry and Molecular Sciences, Wuhan University, Wuhan 430072, China

Mesoporous Co_3O_4 with rich of defects and very high surface area has been prepared by a dual-template method. It shows enhanced CO oxidation activity than that prepared by traditional method.

Chinese Chemical Letters 34 (2023) 107777



Heterointerface engineering of Ru/RuS₂ on N/S-doped hollow mesoporous carbon for promoting alkaline hydrogen evolution

Ning Wang^a, Dong-Dong Ma^a, Sheng-Hua Zhou^a, Meng-Ke Hu^a, Xiaofang Li^a, Xin-Tao Wu^{a,d}, Qi-Long Zhu^{a,b,c,d}

^aState Key Laboratory of Structural Chemistry, Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences (CAS), Fuzhou 350002, China

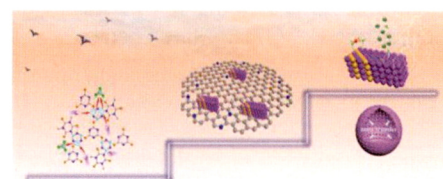
^bFujian Science & Technology Innovation Laboratory for Optoelectronic Information of China, Fuzhou 350108, China

^cCollege of Chemistry and Chemical Engineering, Jiangxi Normal University, Nanchang 330022, China

^dUniversity of Chinese Academy of Sciences, Beijing 100049, China

The heterointerface engineering of Ru/RuS₂ on N/S-doped hollow mesoporous carbon microspheres leads to a preminent electrocatalytic performance for alkaline hydrogen evolution.

Chinese Chemical Letters 34 (2023) 107788



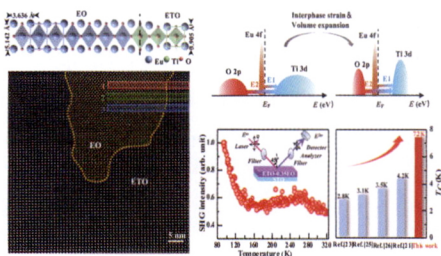
Improved multiferroic in EuTiO₃ films by interphase strain engineering

Yiyan Fan^a, Shiqing Q. Deng^{a,b}, Tianyu Li^a, Qinghua Zhang^c, Shuai Xu^c, Hao Li^a, Chuanrui Huo^a, Jiaou Wang^d, Lin Gu^{c,g}, Kuijuan Jin^{c,e,f}, Oswaldo Diéguez^h, Er-jia Guo^{c,e,f}, Jun Chen^a

^a Beijing Advanced Innovation Center for Materials Genome Engineering, Department of Physical Chemistry, University of Science and Technology Beijing, Beijing 100083, China
^b School of Mathematics and Physics, University of Science and Technology Beijing, Beijing 100083, China
^c Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China
^d Institute of High Energy Physics, Chinese Academy of Sciences, Beijing 100049, China
^e Department of Physics, University of Chinese Academy of Sciences, Beijing 100049, China
^f Songshan Lake Materials Laboratory, Dongguan 523808, China
^g National Center for Electron Microscopy in Beijing, School of Materials science and Engineering, Tsinghua University, Beijing 100084, China
^h Department of Materials Science and Engineering, Faculty of Engineering, Tel Aviv University, Tel Aviv 6997801, Israel

We achieve a ferromagnetic state with enhanced Curie temperature and a room-temperature polar state in EuO secondary phase-tunned EuTiO₃ thin films by using the interphase strain.

Chinese Chemical Letters 34 (2023) 107796



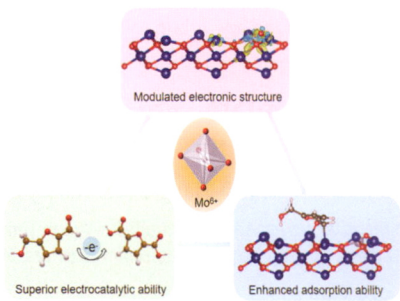
High-valance molybdenum doped Co₃O₄ nanowires: Origin of the superior activity for 5-hydroxymethyl-furfural oxidation

Bingying Xia^a, Guangjin Wang^b, Shasha Cui^a, Jinyu Guo^a, Hong Xu^a, Zhijuan Liu^a, Shuang-Quan Zang^a

^a Henan Key Laboratory of Crystalline Molecular Functional Materials, Henan International Joint Laboratory of Tumor Theranostical Cluster Materials, Green Catalysis Center, and College of Chemistry, Zhengzhou University, Zhengzhou 450001, China
^b School of Materials Science and Energy Engineering, Foshan University, Foshan 528000, China

High-valance Mo⁶⁺ was applied to modulate the electronic structure of Co₃O₄, which leads to enhanced adsorption energy towards 5-hydroxymethyl-furfural (HMF) to display superior electrochemical ability for HMF oxidation.

Chinese Chemical Letters 34 (2023) 107810



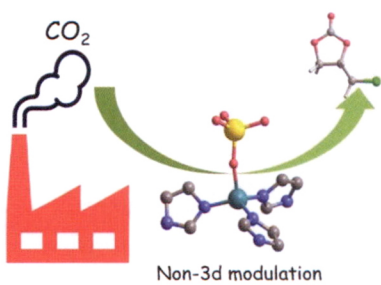
Non-3d metal modulated zinc imidazolate frameworks for CO₂ cycloaddition in simulated flue gas under ambient condition

Yan-Tong Xu^{a,b}, Zi-Ming Ye^a, De-Xuan Liu^a, Xiao-Yun Tian^a, Dong-Dong Zhou^a, Chun-Ting He^{a,c}, Xiao-Ming Chen^a

^a MOE Key Laboratory of Bioinorganic and Synthetic Chemistry, School of Chemistry, Sun Yat-Sen University, Guangzhou 510275, China
^b Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, Guangzhou 510640, China
^c MOE Key Laboratory of Fluorine and Silicon for Energy Materials and Chemistry, College of Chemistry and Chemical Engineering, Jiangxi Normal University, Nanchang 330022, China

Two new zinc imidazolate frameworks integrated with non-3d metal MoO₄²⁻ and WO₄²⁻ units were prepared, which displayed significantly enhanced catalytic activities toward CO₂ cycloaddition reaction under ambient condition, even with simulated flue gas.

Chinese Chemical Letters 34 (2023) 107814



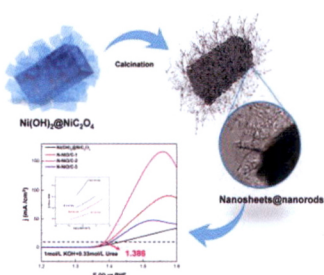
Construction of hierarchical nanostructures and NiO nanosheets@nanorods for efficient urea electrooxidation

Qing Li^a, Xiaotian Guo^b, Jiajia Wang^a, Huan Pang^b

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

The hierarchical NiO nanosheets@nanorods electrocatalysts were controllably synthesized by hexamethylenetetramine-hydrolytic coprecipitation-oxidation strategy, which were applied to urea electrooxidation in an alkaline solution.

Chinese Chemical Letters 34 (2023) 107831



Simple yet extraordinary: Super-polyhedra-built 3D chalcogenide framework of $\text{Cs}_5\text{Ga}_9\text{S}_{16}$ with excellent infrared nonlinear optical performance

Hong Chen^{a,b}, Mao-Yin Ran^{a,c}, Sheng-Hua Zhou^{a,c}, Xin-Tao Wu^{a,b,c}, Hua Lin^{a,b,c}, Qi-Long Zhu^{a,b,c}

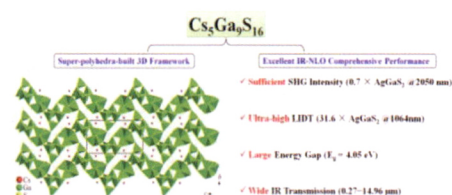
^aState Key Laboratory of Structural Chemistry, Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences (CAS), Fuzhou 350002, China

^bFujian Science & Technology Innovation Laboratory for Optoelectronic Information of China, Fuzhou 350108, China

^cUniversity of Chinese Academy of Sciences, Beijing 100049, China

A novel ternary chalcogenide $\text{Cs}_5\text{Ga}_9\text{S}_{16}$ that features unprecedented super-polyhedra-built 3D chalcogenide framework and exhibits excellent infrared nonlinear optical performance is presented.

Chinese Chemical Letters 34 (2023) 107838



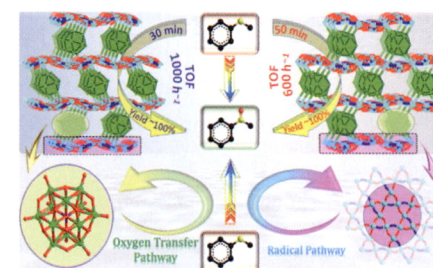
Two pseudo-polymorphic porous POM-pillared MOFs for sulfide-sulfoxide transformation: Efficient synergistic effects of POM precursors, metal sites and microstructures

Yanhong Chen, Haiyan An, Shenzhen Chang, Yanqin Li, Tieqi Xu, Qingshan Zhu, Huiyun Luo, Yaohui Huang, Yuting Wei

School of Chemical Engineering, Dalian University of Technology, Dalian 116023, China

Two pseudo-polymorphic porous POM-pillared MOFs were developed as efficient heterogeneous catalysts for TBHP-based oxidation of sulfides to sulfoxides.

Chinese Chemical Letters 34 (2023) 107856



Designing polyoxometalate-based metal-organic framework for oxidation of styrene and cycloaddition of CO_2 with epoxides

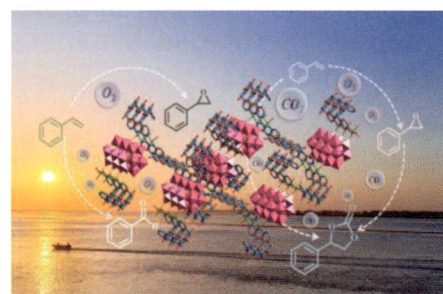
Xiaomei Yan^a, Jiangbo Xu^a, Ting Zhang^a, Chen Si^a, Jiachen Jiao^a, Jie Li^b, Qixia Han^a

^aHenan Key Laboratory of Polyoxometalate Chemistry, School of Chemistry and Chemical Engineering, Henan University, Kaifeng 475004, China

^bSchool of Chemistry & Chemical Engineering, Zhoukou Normal University, Zhoukou 466001, China

A new polyoxometalate-based metal-organic framework was synthesized by combination of $\text{Ni}(\text{II})$ ions, $[\text{ZnW}_{12}\text{O}_{40}]^{6-}$ anions and a photoactive organic bridging link DPNDI into one single framework. It exhibited high activity and diverse chemselectivity in the oxidation of styrene under thermocatalysis and photocatalysis system, respectively.

Chinese Chemical Letters 34 (2023) 107851



One-pot synthesis of bimetallic Fe/Co incorporated silica hollow spheres with superior peroxidase-like activity

Wenli Zhao^a, Wenhao Wang^a, Fancang Meng^a, Yang Du^b, Qingmin Ji^a, Heng-Dao Quan^c

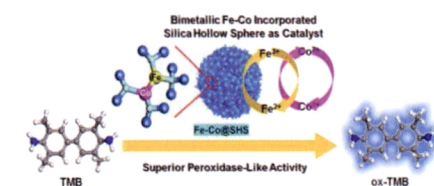
^aHerbert Gleiter Institute for Nanoscience, School of Materials Science and Engineering, Nanjing University of Science & Technology, Nanjing 210094, China

^bSchool of Chemical Engineering, Nanjing University of Science and Technology, Nanjing 210094, China

^cSchool of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, China

Bimetallic Fe/Co incorporated silica hollow spheres by one-pot facile process are synthesized and show remarkably enhanced peroxidase-like for detection of H_2O_2 with high sensitivity.

Chinese Chemical Letters 34 (2023) 107858



Revealing performance of 78Li₂S-22P₂S₅ glass ceramic based solid-state batteries at different operating temperatures

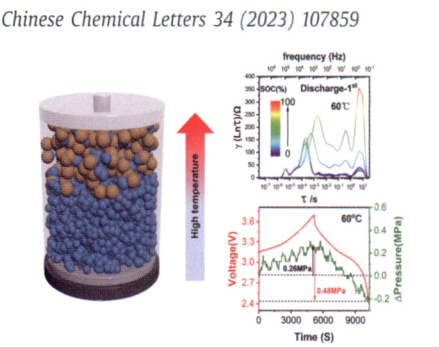
Chaochao Wei^{a,b}, Xinrong Liu^a, Chuang Yu^a, Shaoqing Chen^c, Shuai Chen^a, Shijie Cheng^a, Jia Xie^a

^aState Key Laboratory of Advanced Electromagnetic Engineering and Technology, School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan 430074, China

^bSchool of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan 430074, China

^cDepartment of Materials Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China

Revealing the pressure and interfacial resistance variations of 78Li₂S-22P₂S₅-based all-solid-state batteries under different operating temperatures is essential to achieving superior electrochemical performances.



Chinese Chemical Letters 34 (2023) 107859

Improving performance of ZnO Schottky photodetector by inserting MXenes modified-layer

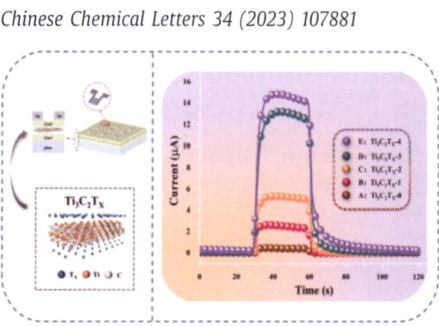
Cheng Wu^a, Xinzhi Luo^b, Xiaoming Yu^{a,b}, Xuan Yu^{a,b}, Kun Lin^a, Minghao Li^a, Zhenhua Li^a, Yu Cao^c, Yingtang Zhou^b

^aSchool of Marine Engineering Equipment, Zhejiang Ocean University, Zhoushan 316022, China

^bNational Engineering Research Center for Marine Aquaculture, Zhejiang Ocean University, Zhoushan 316022, China

^cSchool of Electrical Engineering, Northeast Electric Power University, Jilin 132012, China

In order to improve the performance of ZnO Schottky PDs, a new strategy of using Ti₃C₂T_x as the modification layer of ZnO thin films was proposed. The intercalation of Ti₃C₂T_x not only improves the electrical and optical properties of the ZnO film, but also enhances its crystallinity, reduces defects, and greatly enhances the electron-hole separation and collection, and the device shows a significant photocurrent boost.



Chinese Chemical Letters 34 (2023) 107881

Significant impact of deprotonated status on the photoisomerization dynamics of bacteriophytochrome chromophore

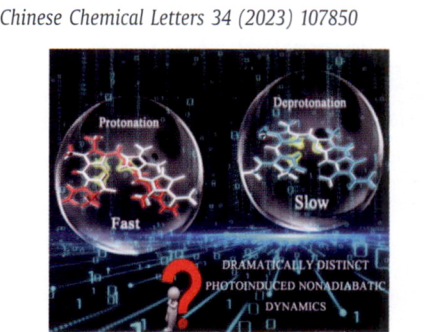
Haiyi Huang^{a,b}, Chao Xu^{b,c}, Kunni Lin^{a,b}, Jiawei Peng^{a,b}, Feng Long Gu^{b,c}, Zhenggang Lan^{b,c}

^aSchool of Chemistry, South China Normal University, Guangzhou 510006, China

^bMOE Key Laboratory of Environmental Theoretical Chemistry, South China Normal University, Guangzhou 510006, China

^cSCNU Environmental Research Institute, Guangdong Provincial Key Laboratory of Chemical Pollution and Environmental Safety, School of Environment, South China Normal University, Guangzhou 510006, China

Deprotonations at the pyrrole rings significantly modify the photoinduced nonadiabatic dynamics, leading to distinctive population decay dynamics and different reaction channels.



Chinese Chemical Letters 34 (2023) 107850

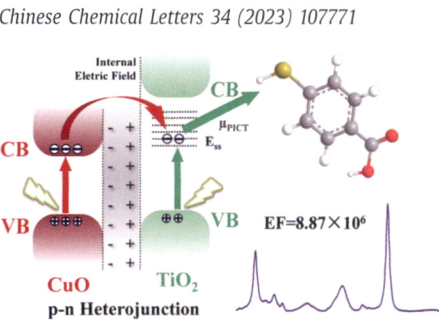
A new semiconductor-based SERS substrate with enhanced charge collection and improved carrier separation: CuO/TiO₂ p-n heterojunction

Dongxue Yu^a, Lin Xu^a, Huizhu Zhang^a, Jia Li^a, Weie Wang^a, Libin Yang^a, Xin Jiang^a, Bing Zhao^b

^aCollege of Materials Science and Engineering, College of Pharmacy, Jiamusi University, Jiamusi 154007, China

^bState Key Laboratory of Supramolecular Structure and Materials, Jilin University, Changchun 130012, China

A new p-n type semiconductor heterojunction (CuO/TiO₂) as SERS substrate was developed via sol-hydrothermal method. CuO/TiO₂ p-n heterojunction can effectively boost the Raman signal of 4-MBA, owing to the enhanced charge collection capacity and the improved carrier separation efficiency derived from internal electric field and strong interface coupling in the interface of heterojunction.



Chinese Chemical Letters 34 (2023) 107771

Thermally responsive ionic transport system reinforced by aligned functional carbon nanotubes backbone

Lejian Yu^a, Miao Wang^b, Xipeng Li^a, Xu Hou^{a,c,d}

^aState Key Laboratory of Physical Chemistry of Solid Surfaces, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen 361005, China

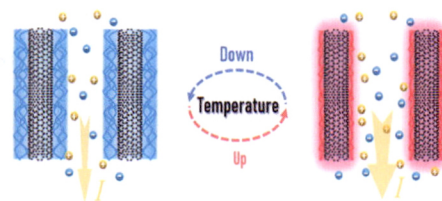
^bThe Higher Educational Key Laboratory for Biomedical Engineering of Fujian Province, Research Center of Biomedical Engineering of Xiamen, Department of Biomaterials, College of Materials, Xiamen University, Xiamen 361005, China

^cResearch Institute for Biomimetics and Soft Matter, Fujian Provincial Key Laboratory for Soft Functional Materials Research, Jiujiang Research Institute, College of Physical Science and Technology, Xiamen University, Xiamen 361005, China

^dInnovation Laboratory for Sciences and Technologies of Energy Materials of Fujian Province (IKKEM), Xiamen 361005, China

The scheme shows the as-prepared thermo-controlled CPCM membrane system with the changeable effective channels size, which is constructed by vertically aligned carbon nanotubes arrays and hydrogel through a simple process. The CPCM membrane system is responsive to the thermal stimulus with the temperature-controlled ion transport behaviors and the enhanced interfacial ion transport efficiency, which is reinforced by aligned carbon nanotubes backbone. This thermally responsive ionic transport system can be well applied in osmotic power harvesting with a controllable and enhanced energy output.

Chinese Chemical Letters 34 (2023) 107785



Triphenylamine-based highly active two-photon absorbing chromophores with push-pull systems

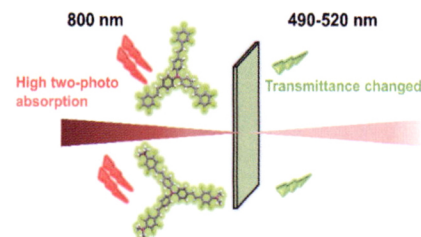
Yanqi Ban^a, Linhong Hao^b, Zhenbo Peng^a, Lishui Sun^a, Lihua Teng^b, Yingjie Zhao^a

^aCollege of Polymer Science and Engineering, Qingdao University of Science and Technology, Qingdao 266042, China

^bCollege of Mathematics and Physics, Qingdao University of Science and Technology, Qingdao 266061, China

Two triphenylamine-based star-type push-pull chromophores exhibited superior two-photon absorption cross-sections up to 4.24×10^7 GM at very low input intensity.

Chinese Chemical Letters 34 (2023) 107880



Intrinsic persistent room temperature phosphorescence derived from 1H-benzo[f]indole itself as a guest

Danman Guo^a, Yuyuan Wang^a, Jinzheng Chen^a, Yifeng Cao^b, Yiling Miao^a, Huahua Huang^b, Zhenguo Chi^a, Zhiyong Yang^{a,c}

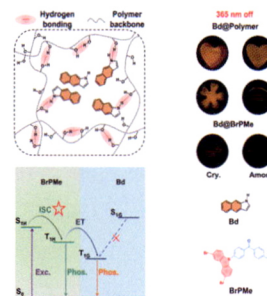
^aKey Laboratory for Polymeric Composite and Functional Materials of Ministry of Education, Guangdong Engineering Technology Research Center for High-performance Organic and Polymer Photoelectric Functional Films, School of Chemistry, Sun Yat-sen University, Guangzhou 510275, China

^bSchool of Materials Science and Engineering, Sun Yat-sen University, Guangzhou 510275, China

^cGuangdong Provincial Key Laboratory of Optical Chemicals, XinhuaYue Group, Maoming 525000, China

The work firstly demonstrates that 1H-benzo[f]indole (Bd) itself, which was known as carbazole (Cz) trace isomer, can be used as a universally phosphorescent guest and its persistent RTP emission at ambient condition can be achieved with yellow afterglow lasting for over 2.5 s, when doped either in a small molecule (Cz derivative) including crystalline and amorphous states or different polymer matrixes.

Chinese Chemical Letters 34 (2023) 107882



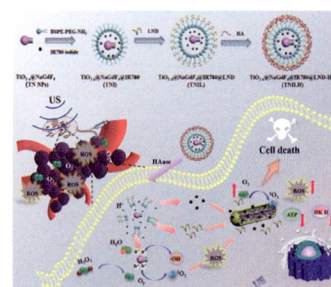
Dual-targeted nanoformulation with Janus structure for synergistic enhancement of sonodynamic therapy and chemotherapy

Zhifang Wang, Man Wang, Yanrong Qian, Yulin Xie, Qianqian Sun, Minghong Gao, Chunxia Li

Institute of Molecular Sciences and Engineering, Institute of Frontier and Interdisciplinary Science, Shandong University, Qingdao 266237, China

TNHL nanoformulations are targeted by hyaluronic acid into tumor cells. Subsequently, DSPE-PEG-NH₂ releases encapsulated IR780 under acidic conditions, which could target mitochondria. Under ultrasound irradiation, TN NPs and IR780 act synergistically to increase the efficiency of ROS generation. Meanwhile, LND inhibits the energy metabolism of tumor cells. The presence of Gd element makes TN NPs have the properties of MR imaging. The work constructs MR imaging-guided sonodynamic therapy and chemotherapy.

Chinese Chemical Letters 34 (2023) 107853



CO hydrogenation on stepped Cu and CuZn alloy surfaces: Competition between methanol synthesis and methanation pathways

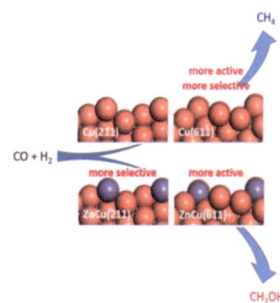
Xuanye Chen^{a,b}, Wenhua Zhang^a, Weixin Huang^a

^aSchool of Chemistry and Materials Science, University of Science and Technology of China, Hefei 230026, China

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

Surface elementary reaction networks of CO hydrogenation on Cu(211), Cu(611), ZnCu(211) and ZnCu(611) surfaces are studied using DFT calculations. The favorable reaction pathway is the methanation reaction on Cu surfaces but the methanol synthesis reaction on ZnCu alloy surfaces.

Chinese Chemical Letters 34 (2023) 107809



An *ab initio* study on boundaries for characterizing cooperative effect of hydrogen bonds by intermolecular compression

Rui Liu^a, Rui Wang^a, Danhui Li^a, Yu Zhu^a, Xinrui Yang^a, Zhigang Wang^{a,b,c}

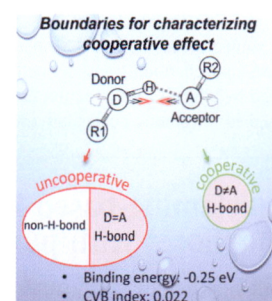
^aInstitute of Atomic and Molecular Physics, Jilin University, Changchun 130012, China

^bCollege of Physics, Jilin University, Changchun 130012, China

^cInstitute of Theoretical Chemistry, College of Chemistry, Jilin University, Changchun 130023, China

High-precision *ab initio* calculations reveal that there is a boundary in the applicability of intermolecular compression to characterize cooperative effect of hydrogen bonds, which can be quantitatively distinguished by the binding energy and core-valence bifurcation index.

Chinese Chemical Letters 34 (2023) 107857



Bubble transfer on wettability-heterogeneous surfaces

Chunhui Zhang^{a,b,c}, Xiao Xiao^d, Ziwei Guo^c, Lei Jiang^a, Cunming Yu^c

^aCAS Key Laboratory of Bio-inspired Materials and Interfacial Science, Technical Institute of Physics and Chemistry, Beijing 100190, China

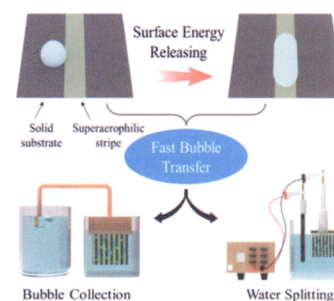
^bSchool of Chemical Sciences, University of Chinese Academy of Sciences, Beijing 100049, China

^cKey Laboratory of Bio-inspired Smart Interfacial Science and Technology of Ministry of Education, School of Chemistry, Beihang University, Beijing 100191, China

^dDepartment of Electrical and Computer Engineering, National University of Singapore, Singapore 117583, Singapore

Bubble transfer on wettability-heterogeneous surface was carefully investigated and elucidated from the view-point of surface energy, which was further applied in micro-bubble collection and water splitting.

Chinese Chemical Letters 34 (2023) 107941



Chinese Chemical Letters (中国化学快报)

Responsible Institution: China Association for Science and Technology

Sponsor: Chinese Chemical Society

Institute of Materia Medica, Chinese Academy of Medical Sciences

Editor-in-Chief: Xuhong Qian

Address: Institute of Materia Medica, Chinese Academy of Medical Sciences

1 Xian Nong Tan Street, Beijing 100050, China

Tel: 86-10-63165638

E-mail: cclbj@imm.ac.cn

Website: www.sciencedirect.com/journal/chinese-chemical-letters

www.chinchemlett.com.cn

Online Submission: www.editorialmanager.com/cclet

Publisher: Editorial Office of Chinese Chemical Letters

ELSEVIER B.V.

Printer: Beijing Kexin Printing Co., Ltd.

Date: 15 July 2023

国内发行: 全国各地邮局

邮发代号: 2-915

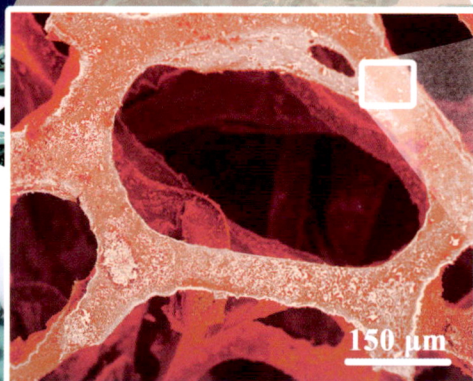
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