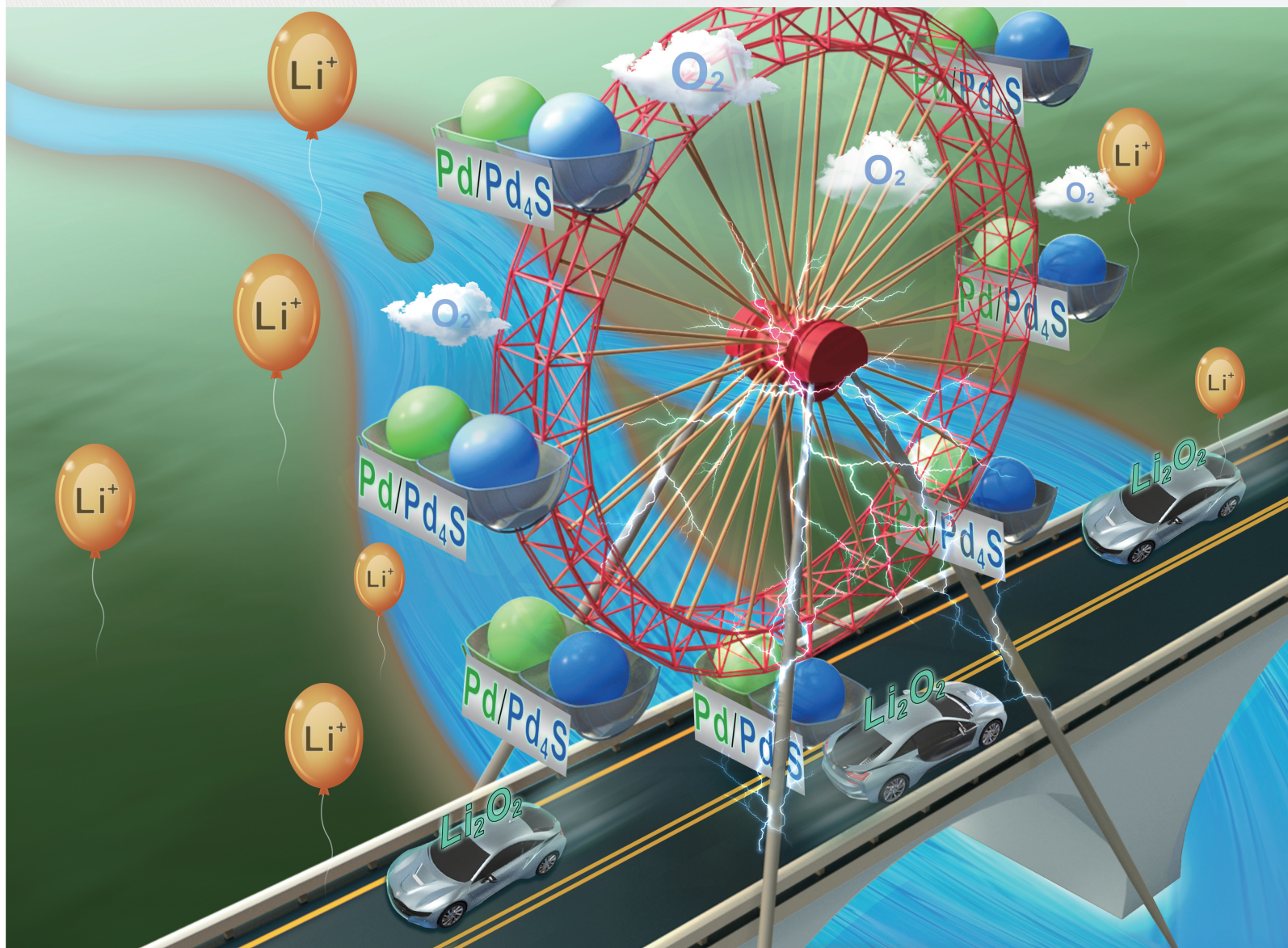


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## Chinese Chemical Letters (中国化学快报)





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## Graphical Abstracts/Chin Chem Lett 32 (2021) iii–xiv

## Highlight

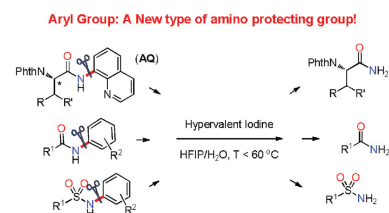
## Aryl groups, supplement of amino protecting group chemistry!

Jinhuan Dong, Mengying Jia, Xianxiu Xu

College of Chemistry, Chemical Engineering and Materials Science, Collaborative Innovation Center of Functionalized Probes for Chemical Imaging in Universities of Shandong, Key Laboratory of Molecular and Nano Probes, Ministry of Education, Institute of Molecular and Nano Science, Shandong Normal University, Ji'nan 250014, China

The regiospecific cleavage of aryl C—N bond rather than amido C—N bond, allows removal of sort of aryl groups of *N*-aryl amides by hypervalent iodine reagents under mild conditions to give primary amides in high efficiency without affecting other reactive function groups. In this sense, it bestows these aryl groups with the characteristics of amino protecting groups.

Chinese Chemical Letters 32 (2021) 1831



## Reviews

## Recent research progress for upconversion assisted dye-sensitized solar cells

Xugeng Guo<sup>a,b</sup>, Wenpeng Wu<sup>a,b</sup>, Yuanyuan Li<sup>a,b</sup>, Jinglai Zhang<sup>a,b</sup>, Li Wang<sup>a,b</sup>, Hans Ågren<sup>a,b,c</sup>

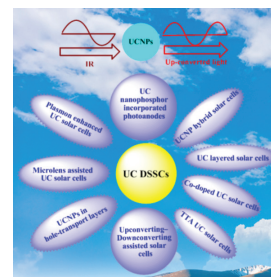
<sup>a</sup> Institute of Upconversion Nanoscale Materials, College of Chemistry and Chemical Engineering, Henan University, Kaifeng 475004, China

<sup>b</sup> Henan Center for Outstanding Overseas Scientists, Henan University, Kaifeng 475004, China

<sup>c</sup> Department of Physics and Astronomy, Uppsala University, Box 516, SE-751 20 Uppsala, Sweden

Upconversion technology makes it possible to harvest infrared light and improve the efficiency of solar cells. Fundamental principles and processes of upconversion and technologies of device fabrication are reviewed for upconversion assisted dye-sensitized solar cells.

Chinese Chemical Letters 32 (2021) 1834



## Quinuclidine and its derivatives as hydrogen-atom-transfer catalysts in photoinduced reactions

Wei Xiao<sup>a</sup>, Xinhua Wang<sup>b</sup>, Ruixiu Liu<sup>a</sup>, Jie Wu<sup>a,c,d</sup>

<sup>a</sup> School of Pharmaceutical and Materials Engineering & Institute for Advanced Studies, Taizhou University, Taizhou 318000, China

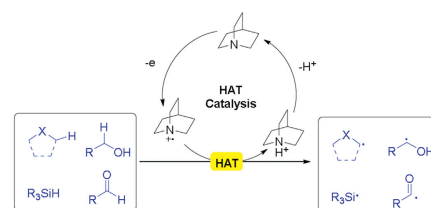
<sup>b</sup> Key Laboratory of Functional Small Organic Molecules, Ministry of Education, and College of Chemistry & Chemical Engineering, Jiangxi Normal University, Nanchang 330022, China

<sup>c</sup> State Key Laboratory of Organometallic Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai 200032, China

<sup>d</sup> School of Chemistry and Chemical Engineering, Henan Normal University, Xinxiang 453007, China

Hydrogen-atom-transfer (HAT) is an efficient way for direct C—H functionalization of inert C—H bonds, therefore it has attracted great interests in recent years. So far, various HAT catalysts have been developed. Among them, quinuclidine and its derivatives show different characters toward other HAT catalysts as they tend to abstract electron-rich and hydridic hydrogens in the presence of weak and neutral C—H bonds. These features enable direct C—H functionalization of compounds with various groups which are unable or difficult by other methods. This review summarizes recent advance of photoinduced reactions with quinuclidine and its derivatives as HAT catalysts and exhibits powerful synthetic potential by using quinuclidine and its derivatives as HAT catalysts.

Chinese Chemical Letters 32 (2021) 1847





## Nanomaterials toward the treatment of Alzheimer's disease: Recent advances and future trends

Huihui Zeng<sup>a</sup>, Yujie Qi<sup>a</sup>, Zheyu Zhang<sup>b</sup>, Chuntai Liu<sup>c</sup>, Weijun Peng<sup>b</sup>, Yi Zhang<sup>a</sup>

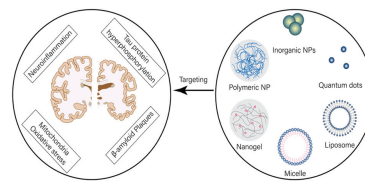
<sup>a</sup> Hunan Provincial Key Laboratory of Micro & Nano Materials Interface Science, College of Chemistry and Chemical Engineering, Central South University, Changsha 410083, China

<sup>b</sup> Department of Integrated Traditional Chinese & Western Medicine, The Second Xiangya Hospital, Central South University, Changsha 410011, China

<sup>c</sup> National Engineering Research Center for Advanced Polymer Processing Technology, Zhengzhou University, Zhengzhou 450002, China

We reviewed the four main pathological mechanisms of Alzheimer's disease, discussed the therapeutic strategies based on nanomaterials from the perspective of pathological mechanisms and put forward a summary and prospect.

Chinese Chemical Letters 32 (2021) 1857



## Recent advances in bismuth vanadate-based photocatalysts for photoelectrochemical water splitting

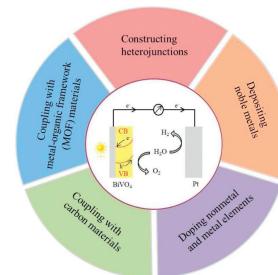
Lina Wang<sup>a</sup>, Xiaoqiang Shi<sup>a</sup>, Yuefa Jia<sup>a</sup>, Hongfei Cheng<sup>a</sup>, Lei Wang<sup>b</sup>, Qizhao Wang<sup>a,b</sup>

<sup>a</sup> School of Water and Environment, Key Laboratory of Subsurface Hydrology and Ecological Effects in Arid Region of Ministry of Education, Chang'an University, Xi'an 710054, China

<sup>b</sup> College of Chemistry and Chemical Engineering, Northwest Normal University, Lanzhou 730070, China

Based on the analysis of limited factors in improving PEC performance of BiVO<sub>4</sub> for water splitting, this review attempts to summarize various efforts to improve the PEC performance of BiVO<sub>4</sub>-based materials in the last three years, such as doping nonmetal/metal elements, depositing noble metals, constructing heterojunctions, coupling with carbon and metal-organic framework (MOF) materials.

Chinese Chemical Letters 32 (2021) 1869



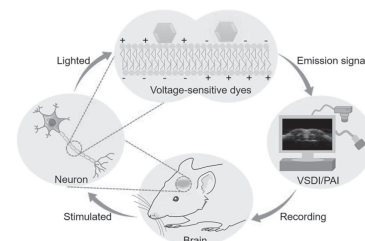
## Optical recording of brain functions based on voltage-sensitive dyes

Qian Yu, Xing Wang, Liming Nie

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

The response of voltage-sensitive dyes to changes in membrane potential can be used to record central nervous system brain activity by optical recording technologies.

Chinese Chemical Letters 32 (2021) 1879



## Communications

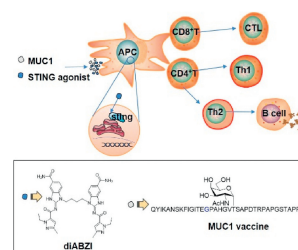
### Enhancing the immune response and tumor suppression effect of antitumor vaccines adjuvanted with non-nucleotide small molecule STING agonist

Zhaoyu Wang, Qiang Chen, Haomiao Zhu, Xiaona Yin, Kun Wang, Yonghui Liu, Wei Zhao

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

We constructed an antitumor vaccine by physical mixing novel non-nucleotide small molecule STING agonist diABZI with a glycopeptide antigen. Immunological evaluation indicated diABZI not only enhanced the production of antibodies and T cell immune responses, but also inhibited tumor growth in tumor-bearing mice in glycopeptide-based subunit vaccines.

Chinese Chemical Letters 32 (2021) 1888



## Amphichoterpenoids A–C, unprecedented picoline-derived meroterpenoids from the ascidian-derived fungus *Amphichorda felina* SYSU-MS7908

Minghua Jiang<sup>a,c</sup>, Zhenger Wu<sup>a</sup>, Qilin Wu<sup>a</sup>, Huimin Yin<sup>a</sup>, Heng Guo<sup>a</sup>, Siwen Yuan<sup>a</sup>, Zhaoming Liu<sup>d</sup>, Senhua Chen<sup>a,b,c</sup>, Lan Liu<sup>a,b,c</sup>

<sup>a</sup> School of Marine Sciences, Sun Yat-sen University, Guangzhou 510006, China

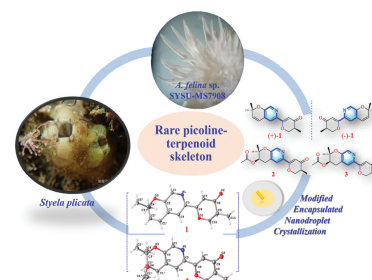
<sup>b</sup> Southern Laboratory of Ocean Science and Engineering (Guangdong, Zhuhai), Zhuhai 519000, China

<sup>c</sup> South China Sea Bio-Resource Exploitation and Utilization Collaborative Innovation Center, Guangzhou 510006, China

<sup>d</sup> State Key Laboratory of Applied Microbiology Southern China, Guangdong Provincial Key Laboratory of Microbial Culture Collection and Application, Guangdong Open Laboratory of Applied Microbiology, Guangdong Institute of Microbiology, Guangdong Academy of Sciences, Guangzhou 510070, China

Unprecedented picoline-derived meroterpenoids, amphichoterpenoids A–C, possessing a pyrano[3,2-c]pyridinyl- $\gamma$ -pyranone skeleton, were characterized from the ascidian-derived fungus *Amphichorda felina* (*A. felina*) using a modified encapsulated nanodroplet crystallization method to afford the crystals.

Chinese Chemical Letters 32 (2021) 1893



## Discovery of spirooxindole–ferrocene hybrids as novel MDM2 inhibitors

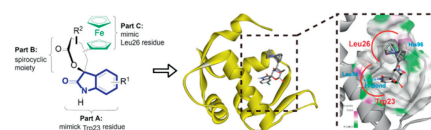
Jun Mu<sup>a</sup>, Xin Xie<sup>b</sup>, Shanshan Xiong<sup>a</sup>, Yuehua Zhang<sup>a</sup>, Yuting Wang<sup>b</sup>, Qian Zhao<sup>b</sup>, Hongping Zhu<sup>b</sup>, Wei Huang<sup>b</sup>, Gu He<sup>a</sup>

<sup>a</sup> State Key Laboratory of Biotherapy and Cancer Center, West China Hospital, Sichuan University, Chengdu 610041, China

<sup>b</sup> State Key Laboratory of Southwestern Chinese Medicine Resources, Hospital of Chengdu University of Traditional Chinese Medicine, School of Pharmacy, Chengdu University of Traditional Chinese Medicine, Chengdu 611137, China

A series of spirooxindole–ferrocene hybrids are designed and enantioselective synthesized that combined a privileged scaffold for inhibiting mouse double minute 2 homolog (MDM2) and a reactive oxygen species (ROS)-inducing lipophilic ferrocene group for the development of small molecule cancer therapeutics.

Chinese Chemical Letters 32 (2021) 1897



## Enzyme-responsive polysaccharide supramolecular nanoassembly for enhanced DNA encapsulation and controlled release

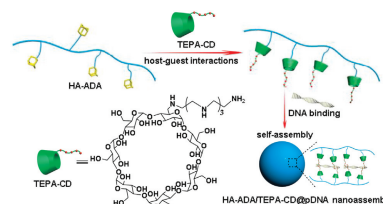
Yuhui Zhang<sup>a</sup>, Lijuan Wang<sup>b</sup>, Jie Wang<sup>a</sup>, Siqintana Xin<sup>a</sup>, Xianliang Sheng<sup>a</sup>

<sup>a</sup> College of Science, Inner Mongolia Agricultural University, Hohhot 010018, China

<sup>b</sup> College of Material Science and Art Design, Inner Mongolia Agricultural University, Hohhot 010018, China

An enzyme-responsive polysaccharide supramolecular targeted nanoassembly composed of positively charged mono-(6-(tetraethylenepentamine)-6-deoxy)- $\beta$ -cyclodextrin (TEPA-CD) and adamantane-grafted hyaluronic acid (HA-ADA) was constructed, possessing controlled DNA condensation and exhibited lower cytotoxicity than the commercial transfection reagent 25 kDa bPEI (PEI<sub>25k</sub>), accompanied by similar gene delivery effect.

Chinese Chemical Letters 32 (2021) 1902



## Visible-light-initiated tandem synthesis of difluoromethylated oxindoles in 2-MeTHF under additive-, metal catalyst-, external photosensitizer-free and mild conditions

Qing-Wen Gui<sup>a</sup>, Fan Teng<sup>a</sup>, Zhou-Chao Li<sup>a</sup>, Zhi-Yuan Xiong<sup>a</sup>, Xue-Feng Jin<sup>a</sup>, Ying-Wu Lin<sup>b</sup>, Zhong Cao<sup>c</sup>, Wei-Min He<sup>b</sup>

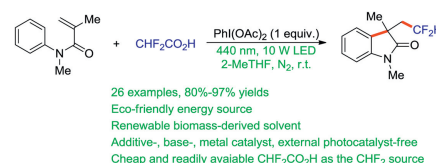
<sup>a</sup> College of Chemistry and Materials Science, Hunan Agricultural University, Changsha 410128, China

<sup>b</sup> School of Chemistry and Chemical Engineering, University of South China, Hengyang 421001, China

<sup>c</sup> Hunan Provincial Key Laboratory of Materials Protection for Electric Power and Transportation, Changsha University of Science and Technology, Changsha 410114, China

An efficient and eco-friendly protocol for synthesizing difluoromethylated oxindoles through a visible-light-induced one-pot tandem reaction of *N*-arylacrylamides, difluoroacetic acid and PhI(OAc)<sub>2</sub> was developed. This reaction proceeded in the absence of any additive, base, metal catalyst and external photosensitizer, using cheap CHF<sub>2</sub>CO<sub>2</sub>H as a difluoromethylation reagent and bulk biomass-derived 2-MeTHF as a solvent.

Chinese Chemical Letters 32 (2021) 1907





## Molecular hexagram and octagram: Position determined 3D metallo-supramolecules and concentration-induced transformation

Tun Wu<sup>a</sup>, Zhiyuan Jiang<sup>b</sup>, Xiaobo Xue<sup>b</sup>, Shi-Cheng Wang<sup>c</sup>, Mingzhao Chen<sup>a</sup>, Jun Wang<sup>b</sup>, Haisheng Liu<sup>b</sup>, Jun Yan<sup>b</sup>, Yi-Tsu Chan<sup>c</sup>, Pingshan Wang<sup>a,b</sup>

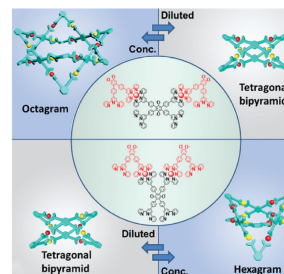
<sup>a</sup> Institute of Environmental Research at Greater Bay Area, Key Laboratory for Water Quality and Conservation of the Pearl River Delta, Ministry of Education, Guangzhou University, Guangzhou 510006, China

<sup>b</sup> Department of Organic and Polymer Chemistry, College of Chemistry and Chemical Engineering, Central South University, Changsha 410083, China

<sup>c</sup> Department of Chemistry, National Taiwan University, Taipei 10617

Terpyridine-based 3D supramolecular octagram and hexagram were derived through a strategic predesigned attachment of bisterpyridines to meta-or ortho-position of "X"-shaped tetraterpyridine via < tpy-Ru<sup>2+</sup>-tpy > connectivities.

Chinese Chemical Letters 32 (2021) 1911



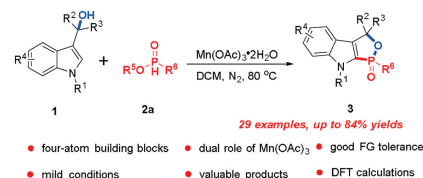
## A radical addition and cyclization relay promoted by Mn(OAc)<sub>3</sub>·2H<sub>2</sub>O: Synthesis of 1,2-oxaphospholindoles and mechanistic study

Meng-Meng Xu, Lu-Yao Kou, Xiao-Guang Bao, Xiao-Ping Xu, Shun-Jun Ji

Key Laboratory of Organic Synthesis of Jiangsu Province, College of Chemistry, Chemical Engineering and Materials Science & Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Suzhou 215123, China

Novel and efficient Mn(OAc)<sub>3</sub>·2H<sub>2</sub>O promoted radical addition-[4 + 1] cyclization relay of 3-indolymethanols and phosphites was disclosed, which afforded 1,2-oxaphospholindole derivatives in moderate to good yields. Based on the experimental and computational studies, a mechanism involving radical addition and intramolecular cyclization cascade was proposed.

Chinese Chemical Letters 32 (2021) 1915



## The structure of 4-hydroxyphenylpyruvate dioxygenase complexed with 4-hydroxyphenylpyruvic acid reveals an unexpected inhibition mechanism

Xiaoning Wang<sup>a</sup>, Hongyan Lin<sup>b</sup>, Junjun Liu<sup>c</sup>, Xinyun Zhao<sup>a</sup>, Xi Chen<sup>a</sup>, Wenchao Yang<sup>b</sup>, Guangfu Yang<sup>b</sup>, Chang-guo Zhan<sup>d</sup>

<sup>a</sup> College of Chemistry and Material Science, South-Central University for Nationalities, Wuhan 430074, China

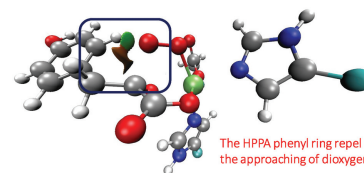
<sup>b</sup> Key Laboratory of Pesticide & Chemical Biology of Ministry of Education, College of Chemistry, Central China Normal University, Wuhan 430079, China

<sup>c</sup> School of Pharmacy, Tongji Medical College of Huazhong University of Science & Technology, Wuhan 430030, China

<sup>d</sup> Department of Pharmaceutical Sciences, College of Pharmacy, University of Kentucky, Lexington, KY 40536, United States

The substrate resists the electrophilic attack of the bound dioxygen by the trim of its phenyl ring.

Chinese Chemical Letters 32 (2021) 1920



## A fundamental study on the fluorescence-quenching effect of nitro groups in tetraphenylethene AIE dyes with electron-withdrawing groups

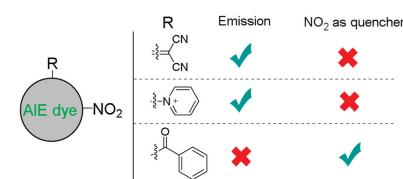
Cheng-Xiao Zhao<sup>a,b</sup>, Tian Liu<sup>a</sup>, Manyi Xu<sup>a</sup>, Hao Lin<sup>a</sup>, Chong-Jing Zhang<sup>a</sup>

<sup>a</sup> State Key Laboratory of Bioactive Substance and Functions of Natural Medicines and Beijing Key Laboratory of Active Substances Discovery and Drugability Evaluation, Institute of Materia Medica, Peking Union Medical College and Chinese Academy of Medical Sciences, Beijing 100050, China

<sup>b</sup> School of Pharmaceutical Science, Shanxi Medical University, Taiyuan 030001, China

It is highly dependent on the electron-withdrawing ability of attached substituents for the nitro group to serve as a fluorescence quencher.

Chinese Chemical Letters 32 (2021) 1925



## Acid-activatable micelleplex delivering siRNA-PD-L1 for improved cancer immunotherapy of CDK4/6 inhibition

Jing Gao<sup>a,b,c</sup>, Hanwu Zhang<sup>a</sup>, Fengqi Zhou<sup>a</sup>, Bo Hou<sup>a</sup>, Meiwan Chen<sup>d</sup>, Zhigang Xie<sup>e</sup>, Haijun Yu<sup>a</sup>

<sup>a</sup> State Key Laboratory of Drug Research & Center of Pharmaceutics, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai 201203, China

<sup>b</sup> Department of Medical Ultrasound, Shanghai Tenth People's Hospital, Ultrasound Research and Education Institute, Tongji University School of Medicine, Tongji University Cancer Center, Shanghai 200072, China

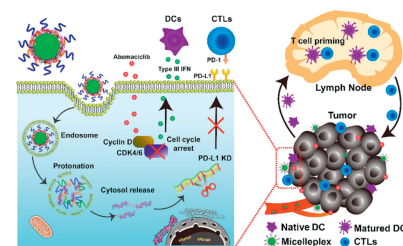
<sup>c</sup> Peking University Shenzhen Institute, Shenzhen 518055, China

<sup>d</sup> State Key Laboratory of Quality Research in Chinese Medicine, Institute of Chinese Medical Sciences, University of Macau, Macau 999078, China

<sup>e</sup> State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, China

Acid-activatable micelleplexes were reported for knockdown of PD-L1 in the tumor cells. In combination with Cyclin-dependent kinases 4 and 6 inhibition, micelleplex-mediated PD-L1 knockdown facilitated the intratumoral infiltration of CTLs, elicited protective immune response and efficiently regressed tumor growth. This study might provide novel insight for RNAi-based combinatory immunotherapy of cancer.

Chinese Chemical Letters 32 (2021) 1929



## Energy transfer followed by electron transfer (ETET) endows a TPE-NBD dyad with enhanced environmental sensitivity

Xia Wu<sup>a</sup>, Dongyang Li<sup>b</sup>, Jin Li<sup>c</sup>, Weijie Chi<sup>a</sup>, Xie Han<sup>b</sup>, Chao Wang<sup>a,c</sup>, Zhaochao Xu<sup>c</sup>, Jun Yin<sup>b</sup>, Xiaogang Liu<sup>a</sup>

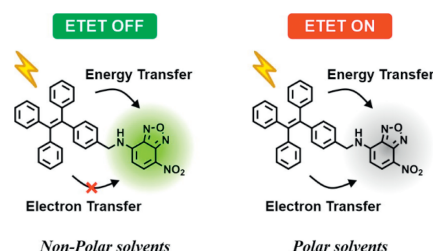
<sup>a</sup> Fluorescence Research Group, Singapore University of Technology and Design, Singapore 487372, Singapore

<sup>b</sup> Key Laboratory of Pesticide and Chemical Biology, Ministry of Education, Hubei International Scientific and Technological Cooperation Base of Pesticide and Green Synthesis, International Joint Research Center for Intelligent Biosensing Technology and Health, College of Chemistry, Central China Normal University, Wuhan 430079, China

<sup>c</sup> CAS Key Laboratory of Separation Science for Analytical Chemistry, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China

We demonstrated the energy transfer followed by electron transfer (ETET) process in a molecular dyad TPE-NBD. Energy transfer enhances the fluorescence of TPE-NBD in non-polar solvents; in contrast, the activation of electron transfer in polar solvents markedly quenches TPE-NBD emissions. Collectively, ETET endows TPE-NBD with significant environmental sensitivities. We expect that ETET could enable many functional materials with unprecedented properties.

Chinese Chemical Letters 32 (2021) 1937



## Stellate porous silica based surface-enhanced Raman scattering system for traceable gene delivery

Lei Liu<sup>a,b,c</sup>, Xin Du<sup>d,e</sup>

<sup>a</sup> Chemical Pharmaceutical Research Center, Tasly Academy, Tasly Holding Group Co., Ltd., Tianjin 300410, China

<sup>b</sup> Jiangsu Tasly Diyi Pharmaceutical Co., Ltd., Huaian 223003, China

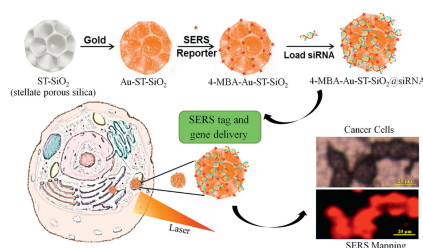
<sup>c</sup> School of Chemical Engineering, The University of Adelaide, Adelaide, SA 5005, Australia

<sup>d</sup> Beijing Key Laboratory for Bioengineering and Sensing Technology, Department of Chemistry & Biological Engineering, University of Science & Technology Beijing, Beijing 100083, China

<sup>e</sup> Suzhou Nachuangjia Environmental Technology Engineering Co., Ltd., Suzhou 215133, China

A novel stellate porous silica based gene delivery system has been designed and developed for SERS traceable gene delivery with high sensitivity and non-invasive features.

Chinese Chemical Letters 32 (2021) 1942



## Bioactivated in vivo assembly (BIVA) peptide-tetraphenylethylene (TPE) probe with controllable assembled nanostructure for cell imaging

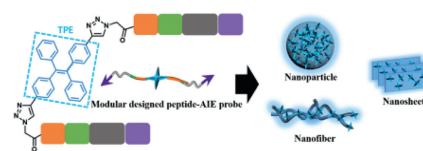
Shizhao Lu<sup>a,b</sup>, Xiaoyan Guo<sup>a</sup>, Fangling Zhang<sup>b</sup>, Xiaodong Li<sup>a</sup>, Meishuai Zou<sup>a</sup>, Li-Li Li<sup>b</sup>

<sup>a</sup> School of Material Science and Engineering, Beijing Institute of Technology, Beijing 100081, China

<sup>b</sup> CAS Center for Excellence in Nanoscience, CAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety, National Center for Nanoscience and Technology (NCNST), University of Chinese Academy of Sciences, Beijing 100190, China

We modular designed a peptide-tetraphenylethylene (TPE) conjugate probe with bioactivated in vivo assembly behavior and controllable assembled nanostructures for enhanced cell imaging. We envision that this study may inspire new insights into the design of nanostructure controlled AIE light-up bio-probe.

Chinese Chemical Letters 32 (2021) 1947





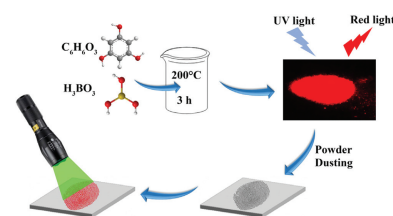
## Large scale synthesis of red emissive carbon dots powder by solid state reaction for fingerprint identification

Xiaoqing Niu, Tianbing Song, Huanming Xiong

Department of Chemistry and Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, Fudan University, Shanghai 200438, China

A rapid and simple approach was reported to synthesize carbon dots on large scale via solid state reaction and the obtained carbon dots powder works well for latent fingerprint identification.

Chinese Chemical Letters 32 (2021) 1953



## Selection of a DNA aptamer for the development of fluorescent aptasensor for carbaryl detection

Yuan Liu<sup>a</sup>, Gaojian Yang<sup>a</sup>, Taotao Li<sup>b</sup>, Yan Deng<sup>c</sup>, Zhu Chen<sup>c</sup>, Nongyue He<sup>a,c</sup>

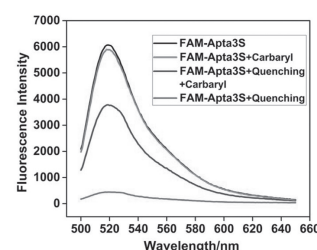
<sup>a</sup> State Key Laboratory of Bioelectronics, School of Biological Science and Medical Engineering, Southeast University, Nanjing 210096, China

<sup>b</sup> Hunan Provincial Key Lab of Dark Tea and Jin-Hua, School of Materials and Chemical Engineering, Hunan City University, Yiyang 413000, China

<sup>c</sup> Hunan Key Laboratory of Biomedical Nanomaterials and Devices, Hunan University of Technology, Zhuzhou 412007, China

A highly enriched carbaryl ssDNA pool was obtained based on an improved ssDNA library immobilized SELEX, and a new aptasensor using FAM labelled aptamer as fluorescent probe was developed for quantitative detection of carbaryl. The developed aptasensor exhibited the advantages of simplicity and low cost, since just two DNA probes were used in this strategy.

Chinese Chemical Letters 32 (2021) 1957



## Alum colloid encapsulated inside $\beta$ -glucan particles enhance humoral and CTL immune responses of MUC1 vaccine

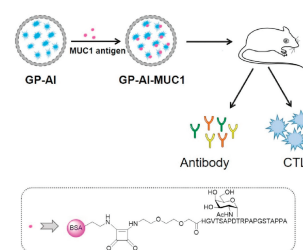
Yonghui Liu<sup>a</sup>, Mingjing Li<sup>a</sup>, Haomiao Zhu<sup>a</sup>, Zhe Jing<sup>b</sup>, Xiaona Yin<sup>a</sup>, Kun Wang<sup>a</sup>, Zhangyong Hong<sup>b</sup>, Wei Zhao<sup>a</sup>

<sup>a</sup> State Key Laboratory of Medicinal Chemical Biology, College of Pharmacy and KLMDASR of Tianjin, Nankai University, Tianjin 300353, China

<sup>b</sup> State Key Laboratory of Medicinal Chemical Biology & Tianjin Key Laboratory of Protein Sciences, College of Life Sciences, Nankai University, Tianjin 300071, China

Alum colloid encapsulated inside  $\beta$ -glucan particles (GP-Al) was prepared to construct MUC1 antigen-based antitumor vaccine. Immunological evaluation showed that the constructed vaccine induced strong MUC1 antigen specific IgG antibody titers and enhanced CD8<sup>+</sup> T cells cytotoxic effect to kill tumor cells.

Chinese Chemical Letters 32 (2021) 1963



## Signal-on bimodal sensing glucose based on enzyme product-etching $\text{MnO}_2$ nanosheets for detachment of $\text{MoS}_2$ quantum dots

Lingzhi Chen<sup>a</sup>, Xueqin Huang<sup>b</sup>, Xueyi Zeng<sup>a</sup>, Guiting Fang<sup>c</sup>, Weijian Chen<sup>c</sup>, Haibo Zhou<sup>d</sup>, Xing Zhong<sup>c</sup>, Huaihong Cai<sup>a</sup>

<sup>a</sup> Department of Chemistry, College of Chemistry and Materials Science, Jinan University, Guangzhou 510632, China

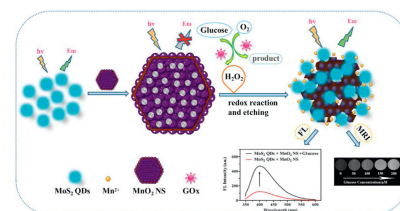
<sup>b</sup> State Key Laboratory of Quality Research in Chinese Medicines, Macau University of Science and Technology, Macau 000583, China

<sup>c</sup> Department of Ultrasonography, The First Affiliated Hospital of Jinan University, Guangzhou 510632, China

<sup>d</sup> Institute of Pharmaceutical Analysis and Guangdong Province Key Laboratory of Pharmacodynamic Constituents of Traditional Chinese Medicine & New Drug Research, College of Pharmacy, Jinan University, Guangzhou 510632, China

A bimodal sensing strategy based on  $\text{MoS}_2$  QDs- $\text{MnO}_2$  NS nanocomposites is proposed for glucose detection using  $\text{H}_2\text{O}_2$ -mediated switchable "off-on" fluorescent/magnetic signals.

Chinese Chemical Letters 32 (2021) 1967



## Screening performance of methane activation over atomically dispersed metal catalysts on defective boron nitride monolayers: A density functional theory study

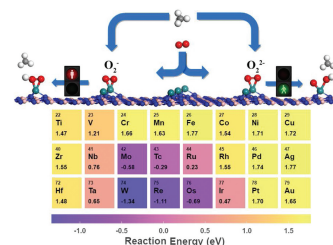
Xiao-Ming Cao<sup>a</sup>, Haijin Zhou<sup>a</sup>, Liyang Zhao<sup>a</sup>, Xuning Chen<sup>a</sup>, Peijun Hu<sup>a,b</sup>

<sup>a</sup> Joint International Research Laboratory for Precision Chemistry and Molecular Engineering, Centre for Computational Chemistry and Research Institute of Industrial Catalysis, School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China

<sup>b</sup> School of Chemistry and Chemical Engineering, The Queen's University of Belfast, Belfast BT9 5AG, United Kingdom

The single transition metal atom anchored on defective boron nitride monolayers would exhibit the periodic trend for the electronic structure of the formed oxygen species and the resultant performance of methane activation. The modulation of the valence electron number and work function of the material could improve the activity of methane oxidative dehydrogenation.

Chinese Chemical Letters 32 (2021) 1972



## Two-dimensional blue-phase CX (X = S, Se) monolayers with high carrier mobility and tunable photocatalytic water splitting capability

Shengcai Li<sup>a</sup>, Mengyao Shi<sup>a</sup>, Jiahui Yu<sup>a</sup>, Shujuan Li<sup>b</sup>, Shulai Lei<sup>b</sup>, Liangxu Lin<sup>c</sup>, Jiajun Wang<sup>a</sup>

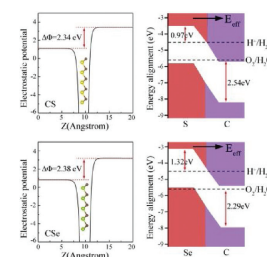
<sup>a</sup> Tianjin Key Laboratory of Structure and Performance for Functional Molecules, Key Laboratory of Inorganic-Organic Hybrid Functional Materials Chemistry, Ministry of Education, College of Chemistry, Tianjin Normal University, Tianjin 300387, China

<sup>b</sup> Hubei Key Laboratory of Low Dimensional Optoelectronic Materials and Devices, Hubei University of Arts and Science, Xiangyang 441053, China

<sup>c</sup> ARC Centre of Excellence for Electromaterials Science, Intelligent Polymer Research Institute, Australia Institute for Innovative Materials (AIIM), Innovation Campus, University of Wollongong, Wollongong 2519, Australia

Two-dimensional blue-phase CX (X=S, Se) monolayers with large intrinsic dipoles, high carrier mobility, appropriate band edge alignments, and pronounced optical absorption simultaneously are theoretically predicted to be high efficient photocatalysts for water splitting.

Chinese Chemical Letters 32 (2021) 1977



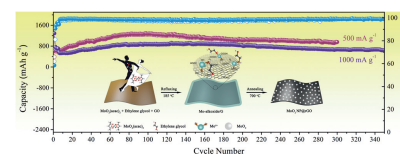
## One-step construction of MoO<sub>3</sub> uniform nanoparticles on graphene with enhanced lithium storage

Yanting Chu, Baojuan Xi, Shenglin Xiong

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

The first synthesis of novel hybrid nanosheets composed of uniform MoO<sub>3</sub> nanoparticles (NPs) immobilized on graphene (MoO<sub>3</sub> NP@rGO) has been realized via a self-template strategy. MoO<sub>3</sub> NP@rGO hybrids exhibit high capacity, good rate capability, and excellent cycling life as an anode for lithiumion batteries due to their unique structural and compositional advantages.

Chinese Chemical Letters 32 (2021) 1983



## Tuning the release rate of volatile molecules by pore surface engineering in metal-organic frameworks

Hongwen Chen<sup>a</sup>, Huaqiang Chen<sup>c</sup>, Bo Zhang<sup>a</sup>, Liming Jiang<sup>b</sup>, Youqing Shen<sup>a</sup>, Engang Fu<sup>c</sup>, Dan Zhao<sup>d</sup>, Zhuxian Zhou<sup>a</sup>

<sup>a</sup> Key Laboratory of Biomass Chemical Engineering of Ministry of Education and Center for Bionanoengineering, College of Chemical and Biological Engineering, Zhejiang University, Hangzhou 310027, China

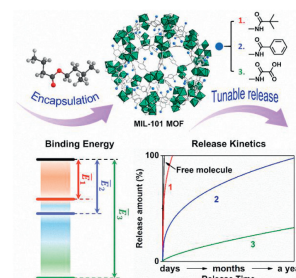
<sup>b</sup> Key Laboratory of Macromolecular Synthesis and Functionalization of Ministry of Education, Department of Polymer Science and Engineering, Zhejiang University, Hangzhou 310027, China

<sup>c</sup> State Key Laboratory of Nuclear Physics and Technology, School of Physics, Peking University, Beijing 100871, China

<sup>d</sup> Department of Chemical & Biomolecular Engineering, National University of Singapore, Singapore 117585, Singapore

We report the tuning release of volatile molecules by postsynthetic modification of metal-organic frameworks (MOFs). We demonstrate that the release period of volatiles can be tuned to last for several days to months and even over a year through the control of binding energies between volatiles and MOFs.

Chinese Chemical Letters 32 (2021) 1988





## Enhancement of mass transfer efficiency and photoelectrochemical activity for $\text{TiO}_2$ nanorod arrays by decorating $\text{Ni}^{3+}$ -states functional $\text{NiO}$ water oxidation cocatalyst

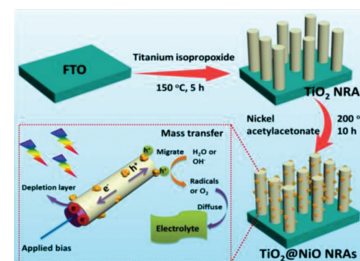
Ningchao Zheng<sup>a</sup>, Xi He<sup>a</sup>, Weiqing Guo<sup>b</sup>, Zhuofeng Hu<sup>a</sup>

<sup>a</sup> School of Environmental Science and Engineering, Guangdong Provincial Key Laboratory of Environmental Pollution Control and Remediation Technology, Sun Yat-sen University, Guangzhou 510006, China

<sup>b</sup> School of Environmental and Chemical Engineering, Foshan University, Foshan 528000, China

The key scientific problem of slow mass transfer efficiency in NRAs was solved by decorating the surface of NRAs by  $\text{NiO}$  with rich  $\text{Ni}^{3+}$  states.

Chinese Chemical Letters 32 (2021) 1993



## A facile construction of heterostructured $\text{ZnO}/\text{Co}_3\text{O}_4$ mesoporous spheres and superior acetone sensing performance

Mengli Lei<sup>a</sup>, Xinran Zhou<sup>a</sup>, Yidong Zou<sup>b</sup>, Junhao Ma<sup>a</sup>, Fahad A. Alharthi<sup>c</sup>, Abdulaziz Alghamdi<sup>c</sup>, Xuanyu Yang<sup>a</sup>, Yonghui Deng<sup>a,d</sup>

<sup>a</sup> Department of Chemistry, State Key Laboratory of Molecular Engineering of Polymers, Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, iChEM, Fudan University, Shanghai 200433, China

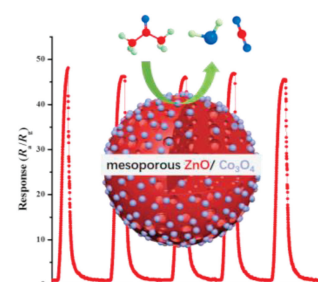
<sup>b</sup> Institute of Translational Medicine, Shanghai University, Shanghai 200444, China

<sup>c</sup> Department of Chemistry, College of Science, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia

<sup>d</sup> State Key Lab of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China

Uniform mesoporous  $\text{ZnO}/\text{Co}_3\text{O}_4$  spheres have been fabricated through combined impregnation and formaldehyde-assisted metal-ligand crosslinking strategy. Mesoporous  $\text{ZnO}/\text{Co}_3\text{O}_4$  spheres showed prominent acetone response (ca. 46 for 50 ppm), which was about 11.5 times higher than that in pure mesoporous  $\text{ZnO}$  sensing device. Excellent sensing performance is dependent on synergistic effect, heterojunction effect and confinement size effect between ultrasmall  $\text{Co}_3\text{O}_4$  nanocrystals and smart mesoporous  $\text{ZnO}$ .

Chinese Chemical Letters 32 (2021) 1998



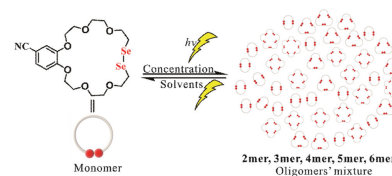
## The dynamic covalent reaction based on diselenide-containing crown ether irradiated by visible light

Jie Shang, Hanlin Gong, Qian Zhang, Zhiliyu Cui, Shuangran Li, Ping Lv, Tiezheng Pan, Yan Ge, Zhenhui Qi

Sino-German Joint Research Lab for Space Biomaterials and Translational Technology, Synergetic Innovation Center of Biological Optoelectronics and Healthcare Engineering (BOHE), Shaanxi Provincial Synergetic Innovation Center for Flexible Electronics & Health Sciences (FEHS), School of Life Sciences, Northwestern Polytechnical University, Xi'an 710072, China

The diselenide-containing crown ether (**BC7Se2**) can polymerize to form cyclic oligomers through intermolecular dynamic covalent reaction by irradiation of visible light, the size and distribution of which are related to the monomer concentration. The decomposition reaction of oligomers is controlled by topology, solvents and guest.

Chinese Chemical Letters 32 (2021) 2005



## Preparation of safe water-lipid mixed electrolytes for application in ion capacitor

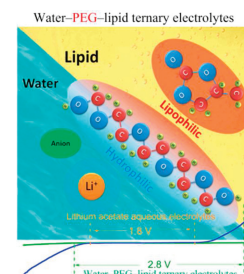
Miaofeng Huang<sup>a</sup>, Aihua Tang<sup>a</sup>, Zhenyin Wang<sup>a</sup>, Jingkun Shi<sup>a</sup>, Xiaoping Jiang<sup>b</sup>, Chubin Wan<sup>a</sup>, Xin Ju<sup>a</sup>

<sup>a</sup> University of Science and Technology Beijing, Beijing 100083, China

<sup>b</sup> Qilu University of Technology (Shandong Academy of Sciences), Ji'nan 250014, China

Water and lipid were mixed using amphiphilic polymers to prepare ternary electrolytes, which have the combined advantages of water and organic solvents.

Chinese Chemical Letters 32 (2021) 2009



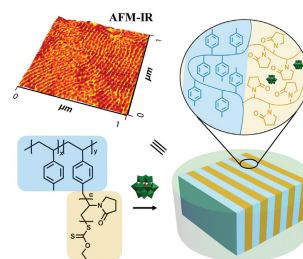
## Self-assembled lamellar nanochannels in polyoxometalate-polymer nanocomposites for proton conduction

Haibo He, Gang Wang, Shengchao Chai, Xiang Li, Liang Zhai, Lixin Wu, Haolong Li

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

Nanocomposite electrolytes with lamellar proton-conducting channels were prepared through the electrostatic self-assembly of a polyoxometalate ( $\text{H}_3\text{PW}_{12}\text{O}_{40}$ ) and a comb copolymer poly(4-methylstyrene)-graft-poly(*N*-vinyl pyrrolidone).

Chinese Chemical Letters 32 (2021) 2013



## Porous Ni/NiO nano hybrids for electrochemical catalytic glucose oxidation

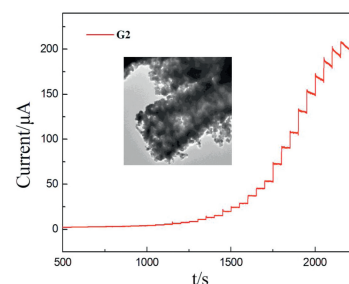
Jiawei Gu<sup>a</sup>, Yuxia Xu<sup>b</sup>, Qing Li<sup>a,b</sup>, Huan Pang<sup>a</sup>

<sup>a</sup> School of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou 225009, China

<sup>b</sup> Guangling College, Yangzhou University, Yangzhou 225009, China

The strategy demonstrated herein is the design and development of a highly efficient, stable and inexpensive porous Ni/NiO nanostructures electrocatalyst via a controllable and facile a low temperature heat treatment of the precursor  $\text{NiC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$  in  $\text{N}_2$ . The as-synthesized Ni/NiO nanostructure exhibited outstanding electrocatalytic performance for the glucose, including good stability, excellent sensitivity and remarkable selectivity

Chinese Chemical Letters 32 (2021) 2017



## MXene-composited highly stretchable, sensitive and durable hydrogel for flexible strain sensors

Wei Yuan<sup>a</sup>, Xinyu Qu<sup>a</sup>, Yao Lu<sup>a</sup>, Wen Zhao<sup>a</sup>, Yanfang Ren<sup>b</sup>, Qian Wang<sup>a</sup>, Wenjun Wang<sup>b</sup>, Xiaochen Dong<sup>a,c</sup>

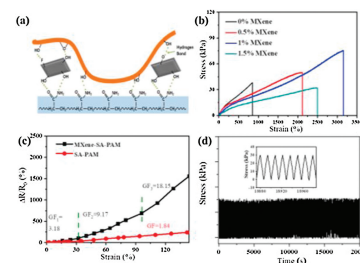
<sup>a</sup> Key Laboratory of Flexible Electronics (KLOFE) & Institute of Advanced Materials (IAM), School of Physical and Mathematical Sciences, Nanjing Tech University (NanjingTech), Nanjing 211800, China

<sup>b</sup> School of Physical Science and Information Technology, Liaocheng University, Liaocheng 252059, China

<sup>c</sup> School of Chemistry and Materials Science, Nanjing University of Information Science & Technology, Nanjing 210044 China

The hydrogel sensor composited with MXene presents high stretchability, high sensitivity and high durability.

Chinese Chemical Letters 32 (2021) 2021



## One-pot synthesis of CoO-ZnO/rGO supported on Ni foam for high-performance hybrid supercapacitor with greatly enhanced cycling stability

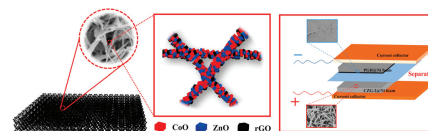
Mingsheng Xu<sup>a</sup>, Mingze Sun<sup>a</sup>, Sajid ur Rehman<sup>a</sup>, Kangkang Ge<sup>a</sup>, Xiaolong Hu<sup>a</sup>, Haizhen Ding<sup>a</sup>, Jichang Liu<sup>b</sup>, Hong Bi<sup>a</sup>

<sup>a</sup> School of Chemistry and Chemical Engineering, Anhui University, Hefei 230601, China

<sup>b</sup> State Key Laboratory of Chemical Engineering, East China University of Science and Technology, Shanghai 200237, China

A series of interconnected CoO-ZnO/rGO supported on Ni foam samples were prepared by *in situ* growth via hydrothermal synthesis and subsequent annealing treatment. The optimized sample exhibits excellent electrochemical performances with a higher specific capacitance of 1951.8 F/g (216.9 mAh/g) at a current density of 1 A/g with a good rate capability. The CoO-ZnO/ rGO based hybrid supercapacitor delivers a high energy density up to 45.9 Wh/kg at a power density of 800 W/kg with a decent cycling stability (90.1% capacitance retention after 5000 cycles).

Chinese Chemical Letters 32 (2021) 2027





## Au nanowires with high aspect ratio and atomic shell of Pt-Ru alloy for enhanced methanol oxidation reaction

Xiran Zhu<sup>a</sup>, Zheng Hu<sup>a</sup>, Ming Huang<sup>c</sup>, Yuxin Zhao<sup>d</sup>, Jianqiang Qu<sup>a</sup>, Shi Hu<sup>a,b</sup>

<sup>a</sup> Tianjin Key Laboratory of Molecular Optoelectronic Science, Department of Chemistry, School of Science, Tianjin University, Tianjin 300072, China

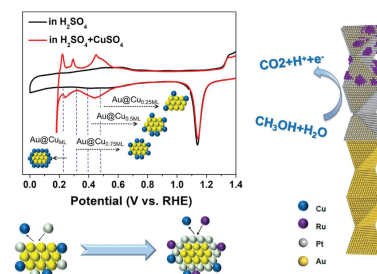
<sup>b</sup> Institute of Energy, Hefei Comprehensive National Science Center, Hefei 230026, China

<sup>c</sup> School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing 210094, China

<sup>d</sup> School of Chemical Engineering and Technology, Xi'an Jiaotong University, Xi'an 710049, China

Au nanowires with high aspect ratio and predominantly (111) facets are synthesized via a quick growth protocol and coated with (sub)monolayer of Pt/Ru via underpotential deposition of Cu and galvanic replacement. It provides a rational catalyst design for achieving high MOR performance with low Pt loading.

Chinese Chemical Letters 32 (2021) 2033



## In situ construction of oxygen-vacancy-rich Bi<sup>0</sup>@Bi<sub>2</sub>WO<sub>6-x</sub> microspheres with enhanced visible light photocatalytic for NO removal

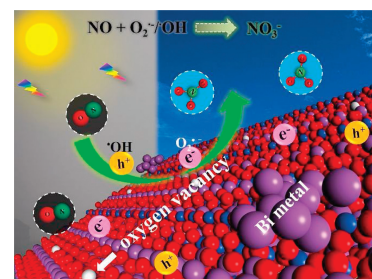
Xiaoqian Xie<sup>a</sup>, Qadeer-Ul Hassan<sup>a</sup>, Huan Lu<sup>b</sup>, Fei Rao<sup>a</sup>, Jianzhi Gao<sup>a</sup>, Gangqiang Zhu<sup>a</sup>

<sup>a</sup> School of Physics and Information Technology, Shaanxi Normal University, Xi'an 710062, China

<sup>b</sup> School of Geography and Tourism, Shaanxi Normal University, Xi'an 710062, China

Bi<sup>0</sup> nanoparticles were reduced by *in situ* thermal-treatment on Bi<sub>2</sub>WO<sub>6</sub> microspheres to obtain Bi<sup>0</sup>@Bi<sub>2</sub>WO<sub>6-x</sub> as well as maintaining the oxygen vacancies (OVs) under N<sub>2</sub> atmosphere. Bi<sup>0</sup>@Bi<sub>2</sub>WO<sub>6-x</sub> microspheres photocatalyst show high efficiency for NO oxidation removal under visible light irradiation.

Chinese Chemical Letters 32 (2021) 2038



## Triptycene-derived heterocalixarene: A new type of macrocycle-based stationary phases for gas chromatography

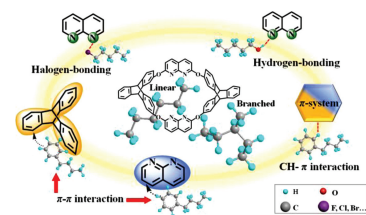
Yongrui He<sup>a</sup>, Xiaohong Yang<sup>a</sup>, Meiling Qi<sup>a</sup>, Chuanfeng Chen<sup>b</sup>

<sup>a</sup> Key Laboratory of Cluster Science, Ministry of Education of China, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, China

<sup>b</sup> CAS Key Laboratory of Molecular Recognition and Function, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

A new type of triptycene-derived heterocalixarenes was designed and synthesized as the stationary phase for GC separations with high selectivities towards analytes of high resemblance though its distinctive molecular interactions.

Chinese Chemical Letters 32 (2021) 2043



## Fabrication of HRP/Bi<sub>2</sub>WO<sub>6</sub> photoenzyme-coupled artificial catalytic system for efficiently degrading bisphenol A

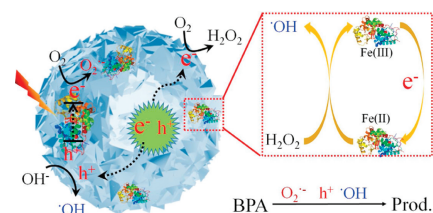
Hongjun Dong<sup>a</sup>, Ning Song<sup>a</sup>, Ming Yan<sup>a</sup>, Huihui Wu<sup>a</sup>, Haibo Zhang<sup>a</sup>, Changchang Ma<sup>b</sup>, Yun Wang<sup>a</sup>

<sup>a</sup> 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

<sup>b</sup> Department of Chemistry, Dongguk University, Seoul 04620, Republic of Korea

A novel photoenzyme-coupled artificial catalytic system is fabricated by immobilizing horseradish peroxidase (HRP) on the Bi<sub>2</sub>WO<sub>6</sub> hollow nanospheres, which exhibits the more superior degradation performance for removing bisphenol A relative to single Bi<sub>2</sub>WO<sub>6</sub> and HRP under the visible light irradiation.

Chinese Chemical Letters 32 (2021) 2047



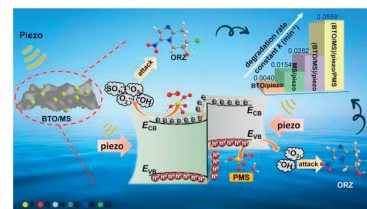
## Construction of piezoelectric BaTiO<sub>3</sub>/MoS<sub>2</sub> heterojunction for boosting piezo-activation of peroxymonosulfate

Yanxi Chen, Shenyu Lan, Mingshan Zhu

Guangdong Key Laboratory of Environmental Pollution and Health, School of Environment, Jinan University, Guangzhou 511443, China

A piezoelectric BaTiO<sub>3</sub>/MoS<sub>2</sub> (BTO/MS) heterojunction was constructed for improving piezoelectric charge separation, which results in high performance of peroxymonosulfate activation for the removal of antibiotic pollutants.

Chinese Chemical Letters 32 (2021) 2052



## Immobilizing ultrafine bimetallic PtAg alloy onto uniform MnO<sub>2</sub> microsphere as a highly active catalyst for CO oxidation

Shengpeng Mo<sup>a,b,c</sup>, Peng Peng<sup>a</sup>, Yinchang Pei<sup>a</sup>, Taiming Shen<sup>a</sup>, Qinglin Xie<sup>a</sup>, Mingli Fu<sup>b</sup>, Yunfa Chen<sup>d</sup>, Daiqi Ye<sup>b</sup>

<sup>a</sup> College of Environment Science and Engineering, Guilin University of Technology, Guilin 541004, China

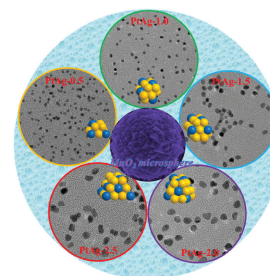
<sup>b</sup> School of Environment and Energy, South China University of Technology, Guangzhou 510006, China

<sup>c</sup> Guangxi Key Laboratory of Theory and Technology for Environmental Pollution Control, Guilin University of Technology, Guilin 541004, China

<sup>d</sup> State Key Laboratory of Multi-Phase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China

A series of ultrafine bimetallic PtAg alloys were immobilized onto MnO<sub>2</sub> microspheres, which remarkably enhanced the catalytic activity for CO oxidation.

Chinese Chemical Letters 32 (2021) 2057



## Conducting polymer engineered covalent organic framework as a novel electrochemical amplifier for ultrasensitive detection of acetaminophen

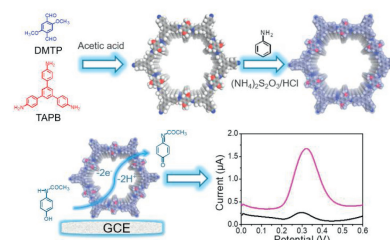
Yao Xie<sup>a</sup>, Yuling Chen<sup>a</sup>, Xin Sun<sup>a</sup>, Yang Wang<sup>a</sup>, Yi Wang<sup>b</sup>

<sup>a</sup> School of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou 225002, China

<sup>b</sup> Engineering Research Center of Clinical Functional Materials and Diagnosis & Treatment Devices of Zhejiang Province, Wenzhou Institute, University of Chinese Academy of Sciences, Wenzhou 325001, China

A novel core-shell structured covalent organic framework hybrid composite was successfully designed and used for electrochemical detection of acetaminophen.

Chinese Chemical Letters 32 (2021) 2061



## The capacity and mechanisms of various oxidants on regulating the redox function of ZVI

Siqi Zou<sup>a,b</sup>, Qun Chen<sup>c</sup>, Yang Liu<sup>a,b,f</sup>, Yuting Pan<sup>a,b</sup>, Gang Yao<sup>b,d</sup>, Zhicheng Pan<sup>f</sup>, Bo Lai<sup>a,b,e</sup>

<sup>a</sup> State Key Laboratory of Hydraulics and Mountain River Engineering, College of Architecture and Environment, Sichuan University, Chengdu 610065, China

<sup>b</sup> Sino-German Centre for Water and Health Research, Sichuan University, Chengdu 610065, China

<sup>c</sup> Department of Central Transportation Center, West China Hospital, Sichuan University/West China School of Nursing, Sichuan University, Chengdu 610065, China

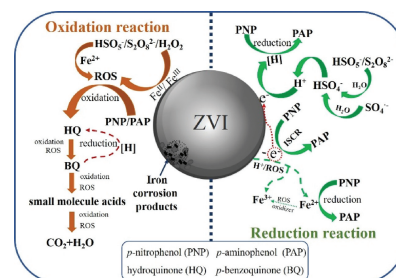
<sup>d</sup> Institute of Environmental Engineering, RWTH Aachen University, Aachen 52072, Germany

<sup>e</sup> Sichuan University Yinbin Park, Yibin Institute of Industrial Technology, Yibin 644044, China

<sup>f</sup> Laboratory of Wastewater Treatment Technology in Sichuan Province, Haitian Water Group, Chengdu 610065, China

This study confirmed the enhancement on the reducibility of ZVI from both the additional H<sup>+</sup> and generated ROS after the addition of oxidizers. The contribution of generated ROS for reductive reaction was quantified.

Chinese Chemical Letters 32 (2021) 2066





## Boron-iron nanochains for selective electrocatalytic reduction of nitrate

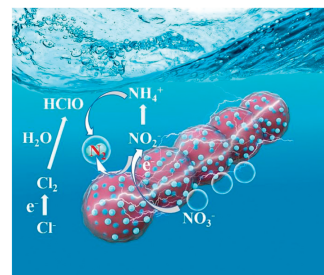
Fanfan Ni<sup>a</sup>, Yuanyuan Ma<sup>a</sup>, Junliang Chen<sup>a</sup>, Wei Luo<sup>a,b</sup>, Jianping Yang<sup>a,b</sup>

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

<sup>b</sup> Institute of Functional Materials, Donghua University, Shanghai 201620, China

The surface introduction of B in the boron-iron nanochains plays a critical role for the boosting of electrocatalytic reduction of nitrate to nitrogen.

Chinese Chemical Letters 32 (2021) 2073



## Sulfonic acid-functionalized core-shell Fe<sub>3</sub>O<sub>4</sub>@carbon microspheres as magnetically recyclable solid acid catalysts

Chenyi Yuan<sup>a,b</sup>, Xiqing Wang<sup>a</sup>, Xuanyu Yang<sup>a</sup>, Abdulaziz A. Alghamdi<sup>c</sup>, Fahad A. Alharthi<sup>c</sup>, Xiaowei Cheng<sup>a</sup>, Yonghui Deng<sup>a,b</sup>

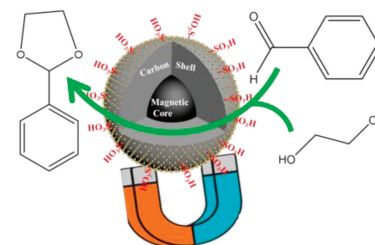
<sup>a</sup> Department of Chemistry, State Key Laboratory of Molecular Engineering of Polymers, Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, Fudan University, Shanghai 200433, China

<sup>b</sup> State Key Lab of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China

<sup>c</sup> Department of Chemistry, College of Science, King Saud University, PO Box 2455, Riyadh 11451, Saudi Arabia

Sulfonic acid-functionalized core-shell Fe<sub>3</sub>O<sub>4</sub>@carbon microspheres (Fe<sub>3</sub>O<sub>4</sub>@C-SO<sub>3</sub>H) are rationally synthesized and utilized as the magnetically recyclable solid acid catalysts for the acetalization reaction between benzaldehyde and ethylene glycol with a high selectivity to benzaldehyde glycol acetal (97%) and good recyclability.

Chinese Chemical Letters 32 (2021) 2079



## In-situ deposition of Pd/Pd<sub>4</sub>S heterostructure on hollow carbon spheres as efficient electrocatalysts for rechargeable Li-O<sub>2</sub> batteries

Xiaomeng Liu<sup>a</sup>, Qishun Huang<sup>a</sup>, Jun Wang<sup>a,b</sup>, Lanling Zhao<sup>c</sup>, Haoran Xu<sup>a</sup>, Qing Xia<sup>a</sup>, Deyuan Li<sup>a</sup>, Lei Qian<sup>a</sup>, Huaisheng Wang<sup>d</sup>, Jintao Zhang<sup>b</sup>

<sup>a</sup> Key Laboratory for Liquid-Solid Structural Evolution and Processing of Materials (Ministry of Education), Shandong University, Ji'nan 250061, China

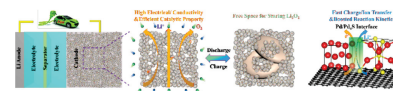
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The hollow carbon spheres loaded with Pd/Pd<sub>4</sub>S heterostructure (Pd/Pd<sub>4</sub>S@HCS) could promote the composition and decomposition of toroid-like discharge product with the efficient bi-functional catalytic activity.

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## Super-assembled highly compressible and flexible cellulose aerogels for methylene blue removal from water

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The TOCN/PVA/M-K10 aerogel fabricated through super-assembly shows excellent mechanical property and methylene blue adsorption performance.

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