

Chinese Chemical Letters (中国化学快报)

$\text{NaHCO}_3$ -based cancer therapy

Tumor cells

Provided by Prof. Qiang Peng's Group





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

## Reviews

### Long-wavelength (red to near-infrared) emissive carbon dots: Key factors for synthesis, fluorescence mechanism, and applications in biosensing and cancer theranostics

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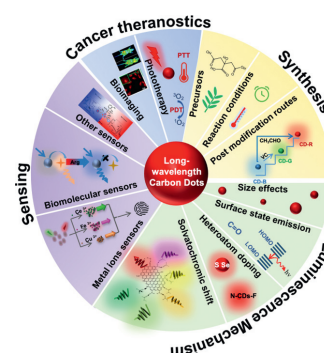
<sup>b</sup> Cixi Institute of Biomedical Engineering, Chinese Academy of Science (CAS) Key Laboratory of Magnetic Materials and Devices & Zhejiang Engineering Research Center for Biomedical Materials, Ningbo Institute of Materials Technology and Engineering, CAS, Ningbo 315201, China

<sup>c</sup> International Joint Research Center for Photo-responsive Molecules and Materials, School of Chemical and Material Engineering, Jiangnan University, Wuxi 214122, China

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Key factors for preparation, fluorescence mechanism, and applications in biosensing and cancer theranostics of long-wavelength (red to near-infrared) emissive carbon dots (L-w CDs) were summarized in this review for guiding their synthesis with desirable properties.

Chinese Chemical Letters 32 (2021) 3653



### Nanotechnology combining photoacoustic kinetics and chemical kinetics for thrombosis diagnosis and treatment

Hao Tian<sup>a</sup>, Lin Lin<sup>a</sup>, Zhaojing Ba<sup>a</sup>, Fangchao Xue<sup>a</sup>, Yanzhao Li<sup>b</sup>, Wen Zeng<sup>a,b,c</sup>

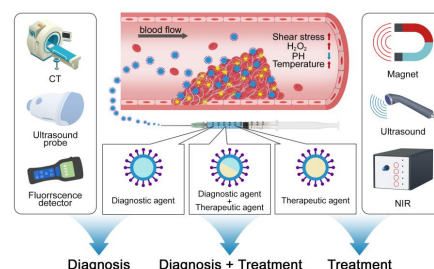
<sup>a</sup> Department of Cell Biology, Army Medical University, Chongqing 400038, China

<sup>b</sup> Department of Anatomy, Army Medical University, Chongqing 400038, China

<sup>c</sup> Departments of Neurology, Southwest Hospital, Army Medical University, Chongqing 400038, China

Nanotechnology combining photoacoustic kinetics and chemical kinetics are used in thrombosis diagnosis and treatment. In diagnosis, it mainly consist of nano-related optical imaging, nano-related optical imaging, nano-related radioisotope labeling, nano-related radioisotope labeling, etc. In treatment, there are mainly three kinds of nano therapeutic systems, including nano therapeutic system based on targeted modification, nano therapeutic system based on internal microenvironmental response and nano therapy system based on external stimulation. Besides, integrating diagnosis with treatment of thrombosis is also a vital part.

Chinese Chemical Letters 32 (2021) 3665



### The point-of-care-testing of nucleic acids by chip, cartridge and paper sensors

Yuyue Xu<sup>a</sup>, Tao Wang<sup>a</sup>, Zhu Chen<sup>a</sup>, Lian Jin<sup>a</sup>, Zuozhong Wu<sup>d</sup>, Jinqiu Yan<sup>d</sup>, Xiaoni Zhao<sup>e</sup>, Lei Cai<sup>e</sup>, Yan Deng<sup>a</sup>, Yuan Guo<sup>c</sup>, Song Li<sup>a</sup>, Nongyue He<sup>a,b</sup>

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

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

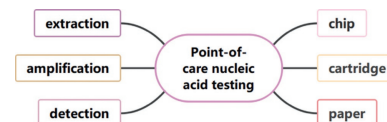
<sup>c</sup> Department of Cardiovascular Medicine, Zhuzhou Hospital Affiliated to Xiangya School of Medical, Central South University, Zhuzhou 412000, China

<sup>d</sup> Hunan Shengzhou Biotechnology Ltd., Zhuzhou 412000, China

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This paper mainly reviews the development of point-of-care nucleic acid testing (POCNAT) devices in recent years. We introduce the basic nucleic acids detection methods (extraction, amplification, and detection) and new experimental carriers (chips, cartridges, and papers), and particular focus on structural design and innovative applications. Besides, the novel technologies and applications of POCNAT devices in the future were provided.

Chinese Chemical Letters 32 (2021) 3675





## Sodium bicarbonate, an inorganic salt and a potential active agent for cancer therapy

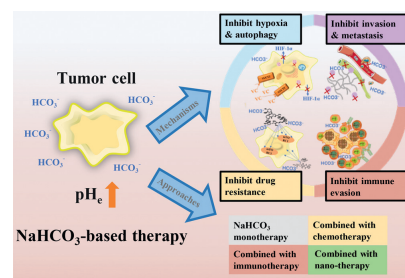
Yue Wang<sup>a</sup>, Xueer Zhou<sup>a</sup>, Wenxuan Wang<sup>a</sup>, Yongyao Wu<sup>a</sup>, Zhiyong Qian<sup>b</sup>, Qiang Peng<sup>a</sup>

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

NaHCO<sub>3</sub>, a simple inorganic salt, has been found to be able to reverse the pH of tumor microenvironment and inhibit the invasion, metastasis, immune evasion, drug resistance and hypoxia of tumor cells. Thus, NaHCO<sub>3</sub>-based therapy is a potential approach for the treatment of cancer.

Chinese Chemical Letters 32 (2021) 3687



## New advances in gated materials of mesoporous silica for drug controlled release

Ping Huang<sup>a</sup>, Daizheng Lian<sup>b</sup>, Hualin Ma<sup>b</sup>, Nansha Gao<sup>a</sup>, Limin Zhao<sup>c</sup>, Ping Luan<sup>d</sup>, Xiaowei Zeng<sup>a</sup>

<sup>a</sup> Institute of Pharmaceutics, School of Pharmaceutical Sciences (Shenzhen), Sun Yat-sen University, Shenzhen 518107, China

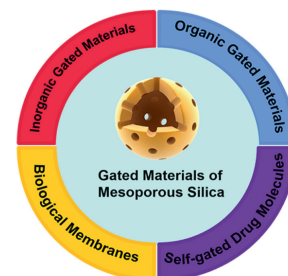
<sup>b</sup> Shenzhen Key Laboratory of Kidney Diseases, Department of Nephrology; Department of Radiation Oncology, Shenzhen People's Hospital (The Second Clinical Medical College, Jinan University, The First Affiliated Hospital, Southern University of Science and Technology), Shenzhen 518020, China

<sup>c</sup> School of Chemistry and Chemical Engineering, Guangdong Pharmaceutical University, Guangzhou 510000, China

<sup>d</sup> Health Science Center, Shenzhen University, Shenzhen 518060, China

Mesoporous silica nanoparticles (MSNs) have attracted a lot of attention for the advantages. Based on the pore system and surface modification, gated mesoporous silica nanoparticles can be designed to realize on-command drug release, which provides a new approach for selective delivery of drugs. Herein, this review mainly focuses on the "gate keepers" of mesoporous silica for drug controlled release in nearly few years (2017–2020). We summarize different gated materials: inorganic gated materials, organic gated materials, self-gated drug molecules, and biological membranes.

Chinese Chemical Letters 32 (2021) 3696



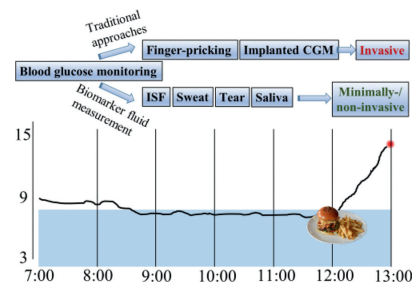
## Current development in wearable glucose meters

Qiuyuan Chen, Yan Zhao, Yunqi Liu

Department of Materials Science, Fudan University, Shanghai 200433, China

This review summarizes the current development of wearable minimally-/non-invasive blood glucose monitoring methods and their applications. The key evaluation of each method is also considered. These methods detect biomarker fluids containing glucose, including interstitial fluid, sweat, tears and saliva. Finally, the future developments are prospected.

Chinese Chemical Letters 32 (2021) 3705



## Progress in mechanochromic luminescence of gold(I) complexes

Shiqi Cheng<sup>a</sup>, Zhao Chen<sup>b</sup>, Ya Yin<sup>a</sup>, Yue Sun<sup>a</sup>, Shenghua Liu<sup>c</sup>

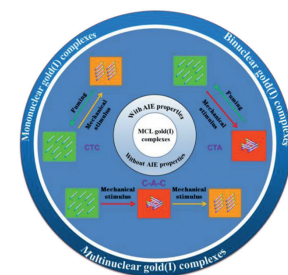
<sup>a</sup> Hubei Key Laboratory of Catalysis and Materials Science, College of Chemistry and Material Sciences, South-Central University for Nationalities, Wuhan 430074, China

<sup>b</sup> Jiangxi Key Laboratory of Organic Chemistry, Jiangxi Science and Technology Normal University, Nanchang 330013, China

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

Progress in mechanochromic luminescence of gold(I) complexes during the last two decades are summarized in this review, which is expected to provide a valuable reference for scientists in the field of mechanoluminescent gold(I) complexes.

Chinese Chemical Letters 32 (2021) 3718



## Recent advances in the synthesis of non-carbon two-dimensional electrode materials for the aqueous electrolyte-based supercapacitors

Hongfei Wang<sup>a,b</sup>, Yijun Zhong<sup>a</sup>, Jiqiang Ning<sup>c</sup>, Yong Hu<sup>a</sup>

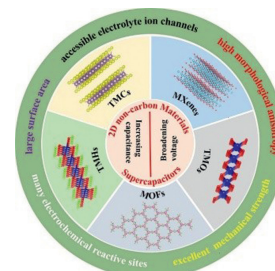
<sup>a</sup> Key Laboratory of the Ministry of Education for Advanced Catalysis Materials, Department of Chemistry, Zhejiang Normal University, Jinhua 321004, China

<sup>b</sup> Department of Chemical Physics, University of Science and Technology of China, Hefei 230026, China

<sup>c</sup> Vacuum Interconnected Nanotech Workstation, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou 215123, China

This review summarizes some recent advances of 2D non-carbon transition metal oxides (TMOs), transition metal hydroxides (TMHs), transition metal chalcogenides (TMCs), MXenes and metal-organic frameworks (MOFs) as high-performance supercapacitor electrode materials.

Chinese Chemical Letters 32 (2021) 3733



## Recent advances of vanadium-based cathode materials for zinc-ion batteries

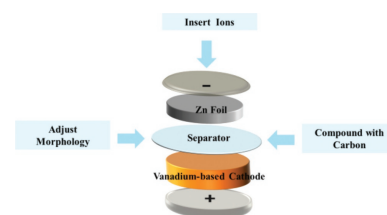
Xuerong Li<sup>a,b</sup>, Haoyan Cheng<sup>a</sup>, Hao Hu<sup>a</sup>, Kunming Pan<sup>a,b</sup>, Tongtong Yuan<sup>a</sup>, Wanting Xia<sup>a</sup>

<sup>a</sup> School of Materials Science and Engineering, Henan University of Science and Technology, Luoyang 471023, China

<sup>b</sup> Henan Key Laboratory of High-temperature Structural and Functional Materials, National Joint Engineering Research Center for Abrasion Control and Molding of Metal Materials, Henan University of Science and Technology, Luoyang 471003, China

In this mini-review, the approaches to promote the valuable performance of vanadium-based cathodes were summarized. The reaction mechanism of vanadium-based aqueous Zn-ion batteries were elucidated in detail, as well as the future perspectives and research directions.

Chinese Chemical Letters 32 (2021) 3753



## A bibliometric analysis: Research progress and prospects on transition metal dichalcogenides in the biomedical field

Yaping Liu<sup>a,b</sup>, Shuang Zhu<sup>b</sup>, Zhanjun Gu<sup>b,c</sup>, Yuliang Zhao<sup>a,b,d</sup>

<sup>a</sup> The First Affiliated Hospital of University of Science and Technology of China, Hefei 230001, China

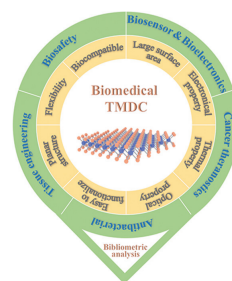
<sup>b</sup> CAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety, Institute of High Energy Physics and National Center for Nanoscience and Technology, Chinese Academy of Sciences, Beijing 100049, China

<sup>c</sup> College of Materials Science and Optoelectronic Technology, University of Chinese Academy of Sciences, Beijing 100049, China

<sup>d</sup> GBA Research Innovation Institute for Nanotechnology, Guangzhou 510700, China

The biomedical applications of TMDCs and their related properties were explored via a bibliometric analysis. Owing to unique physicochemical properties, TMDCs provide vast opportunities for applications including biosensing and bioelectronics, cancer theranostics, antibacterial and tissue engineering, etc.

Chinese Chemical Letters 32 (2021) 3762



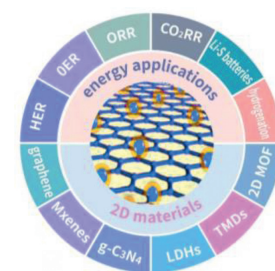
## Single-atom site catalysts supported on two-dimensional materials for energy applications

Qi Xu, Jian Zhang, Dingsheng Wang, Yadong Li

Department of Chemistry, Tsinghua University, Beijing 100084, China

This review provides a brief overview of the recent development of single-atom site catalysts supported on two-dimensional materials. According to the types of substrates, their applications in energy conversion field are discussed respectively. Challenges and perspectives in this specific field are also proposed in the end.

Chinese Chemical Letters 32 (2021) 3771





## Communications

### Sequence modulation of tunneling barrier and charge transport across histidine doped oligo-alanine molecular junctions

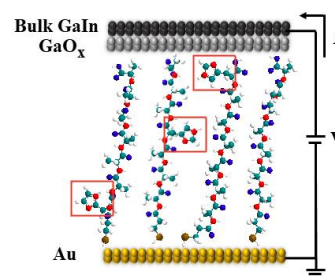
Baili Li<sup>a</sup>, Xuan Ji<sup>a</sup>, Lixian Tian<sup>a</sup>, Xianneng Song<sup>a</sup>, Ziyang Wang<sup>a</sup>, Hira Khalid<sup>a</sup>, Xi Yu<sup>a</sup>, Lejia Wang<sup>b</sup>, Wenping Hu<sup>a</sup>

<sup>a</sup> Department of Chemistry, Tianjin Key Laboratory of Molecular Optoelectronic Sciences, School of Science, Tianjin University and Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin 300072, China

<sup>b</sup> School of Materials and Chemical Engineering, Ningbo University of Technology, Ningbo 315211, China

Histidine can fine tune the energy landscape of the peptide junction with sequence dependent manner, thus modifies the peptide junction overall conductance and proved to be promising candidate for multi-function bio-electronics.

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### Polydopamine-mediated synthesis of Si@carbon@graphene aerogels for enhanced lithium storage with long cycle life

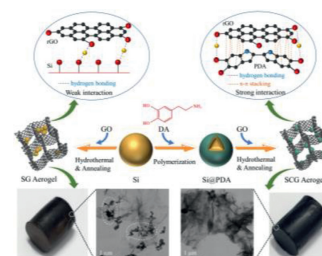
Ningning Li<sup>a</sup>, Yi Liu<sup>a</sup>, Xiaoyu Ji<sup>a</sup>, Jiaxin Feng<sup>a</sup>, Kai Wang<sup>a</sup>, Jiayue Xie<sup>a</sup>, Guanglu Lei<sup>a</sup>, Xianghong Liu<sup>a,b</sup>, Xiangxin Guo<sup>a</sup>, Jun Zhang<sup>a</sup>

<sup>a</sup> College of Physics, Qingdao University, Qingdao 266071, China

<sup>b</sup> Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), Nankai University, Tianjin 300071, China

A feasible polydopamine-assisted strategy is developed for constructing three-dimensional (3D) Si@carbon@graphene (SCG) aerogels, which delivers high capacity and long cycle life for both half and full lithium-ion batteries.

Chinese Chemical Letters 32 (2021) 3787



### High-performance (NH<sub>4</sub>)<sub>2</sub>V<sub>6</sub>O<sub>16</sub>·0.9H<sub>2</sub>O nanobelts modified with reduced graphene oxide for aqueous zinc ion batteries

Fang Hu<sup>a</sup>, Yao Gu<sup>a</sup>, Fuhan Cui<sup>a</sup>, Guihong Song<sup>a</sup>, Kai Zhu<sup>b,c</sup>

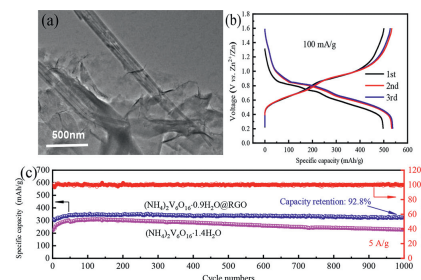
<sup>a</sup> School of Materials Science and Engineering, Shenyang University of Technology, Shenyang 110870, China

<sup>b</sup> Key Laboratory of Superlight Materials and Surface Technology of Ministry of Education, College of Materials Science and Chemical Engineering, Harbin Engineering University, Harbin 150010, China

<sup>c</sup> Department of Mechanical Engineering, the Hong Kong Polytechnic University, Hong Kong 999077, China

(NH<sub>4</sub>)<sub>2</sub>V<sub>6</sub>O<sub>16</sub>·0.9H<sub>2</sub>O nanobelts modified with RGO as cathode material for ZIBs exhibit a high capacity of 540 mAh/g and excellent cycle stability with a high capacity retention of 92.8% at 5 A/g after 1000 cycles.

Chinese Chemical Letters 32 (2021) 3793



### Highly stable dioxin-linked metallophthalocyanine covalent organic frameworks

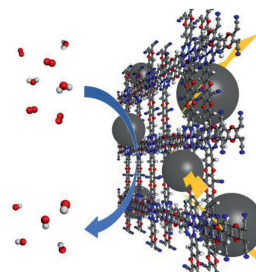
Zepeng Lei<sup>a</sup>, Francisco W.S. Lucas<sup>b</sup>, Enrique Canales Moya<sup>a</sup>, Shaofeng Huang<sup>a</sup>, Yicheng Rong<sup>a</sup>, Aaron Wesche<sup>a</sup>, Patrick Li<sup>a</sup>, Lauren Bodkin<sup>a</sup>, Yinghua Jin<sup>a</sup>, Adam Holewinski<sup>b</sup>, Wei Zhang<sup>a</sup>

<sup>a</sup> Department of Chemistry, University of Colorado Boulder, Boulder, CO 80309, United States

<sup>b</sup> Renewable and Sustainable Energy Institute, and Department of Chemical and Biological Engineering, University of Colorado Boulder, Boulder, CO 80309, United States

Highly stable phthalocyanine-based covalent organic frameworks (COFs) linked by robust 1,4-dioxin bonds were prepared via nucleophilic aromatic substitution reaction. These COFs exhibit exceptional stability under various harsh conditions and can be directly used as efficient electrocatalysts for oxygen reduction reaction in aqueous solution without conventional pyrolysis pre-treatment.

Chinese Chemical Letters 32 (2021) 3799



## The chain-shaped coordination polymers based on the bowl-like $\text{Ln}_{18}\text{Ni}_{24(23.5)}$ clusters exhibiting favorable low-field magnetocaloric effect

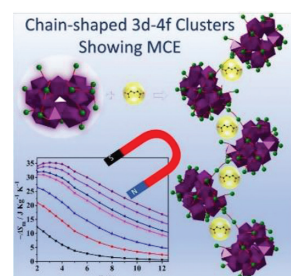
Ningfang Li<sup>a</sup>, Qingfang Lin<sup>b</sup>, Yemin Han<sup>a</sup>, Zeyu Du<sup>a</sup>, Yan Xu<sup>a</sup>

<sup>a</sup> College of Chemical Engineering, State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Tech University, Nanjing 210093, China

<sup>b</sup> Department of Chemistry, Bengbu Medical College, Bengbu 233030, China

Two fantastic mixed-metal high-nuclearity clusters were successfully synthesized, **1**-( $\text{Gd}_{18}\text{Ni}_{24}$ )<sub>n</sub> and **2**-( $\text{Eu}_{18}\text{Ni}_{23.5}$ )<sub>n</sub>, based on the “carbonate-template” method. Compounds **1**-( $\text{Gd}_{18}\text{Ni}_{24}$ )<sub>n</sub> and **2**-( $\text{Eu}_{18}\text{Ni}_{23.5}$ )<sub>n</sub> are not only featuring the rarely one-dimensional (1D) chain-like structure but showing fantastic magnetic properties.

Chinese Chemical Letters 32 (2021) 3803



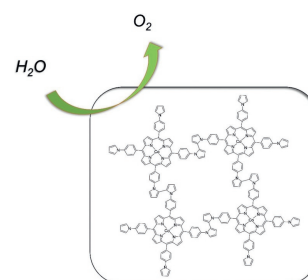
## Electropolymerization of cobalt porphyrins and corroles for the oxygen evolution reaction

Qingxin Zhang, Yabo Wang, Yanzhi Wang, Shujiao Yang, Xuan Wu, Bin Lv, Ni Wang, Yimei Gao, Xiaoran Xu, Haitao Lei, Rui Cao

Key Laboratory of Applied Surface and Colloid Chemistry, Ministry of Education, School of Chemistry and Chemical Engineering, Shaanxi Normal University, Xi'an 710119, China

A monolithic electrode with large active area was successfully produced through electropolymerization of cobalt porphyrin molecules on carbon cloth, which exhibited excellent OER performance and stability.

Chinese Chemical Letters 32 (2021) 3807



## Porous carbon globules with moss-like surfaces from semi-biomass interpenetrating polymer network for efficient charge storage

Guchuan Ping<sup>a</sup>, Ling Miao<sup>a</sup>, Abuduheiremu Awati<sup>a</sup>, Xiaoyu Qian<sup>a</sup>, Ting Shi<sup>a</sup>, Yaokang Lv<sup>b</sup>, Yafei Liu<sup>a</sup>, Lihua Gan<sup>a</sup>, Mingxian Liu<sup>a,c</sup>, Dazhang Zhu<sup>a</sup>

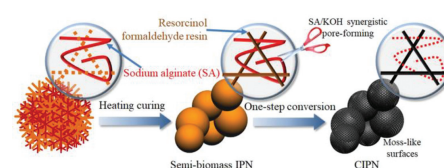
<sup>a</sup> Shanghai Key Lab of Chemical Assessment and Sustainability, School of Chemical Science and Engineering, Tongji University, Shanghai 200092, China

<sup>b</sup> College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, China

<sup>c</sup> College of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou 450001, China

The semi-biomass interpenetrating polymer network is successfully converted into porous carbon globules with moss-like surfaces, and sodium alginate functions as an in-knitted bio-porogen and morphology-directing agent for interconnected porosity.

Chinese Chemical Letters 32 (2021) 3811



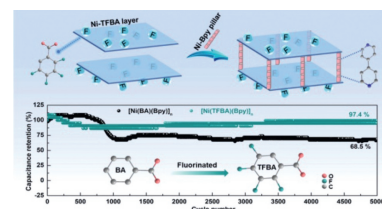
## Fluorinated pillared-layer metal-organic framework microrods for improved electrochemical cycling stability

Shasha Zheng, Yue Ru, Huaiguo Xue, Huan Pang

School of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou 225009, China

The fluorinated pillared-layer  $[\text{Ni}(\text{TFBA})(\text{Bpy})]_n$  materials were constructed through a facile room-temperature solution reaction and used as electrode materials for supercapacitors. The fluorinated MOF microrods show remarkable cycling properties after 5000 cycles with 97.4% capacitance retention at  $3 \text{ mA}/\text{cm}^2$ , while the non-fluorinated MOFs were only 68.5%.

Chinese Chemical Letters 32 (2021) 3817



## Rich B active centers in Penta-B<sub>2</sub>C as high-performance photocatalyst for nitrogen reduction

Ran Wang<sup>a,b</sup>, Chaozheng He<sup>a,b</sup>, Weixing Chen<sup>a,b</sup>, Chenxu Zhao<sup>a,b</sup>, Jinrong Huo<sup>c</sup>

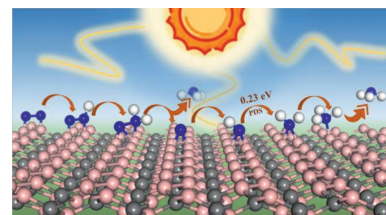
<sup>a</sup> Institute of Environmental and Energy Catalysis, School of Materials Science and Chemical Engineering, Xi'an Technological University, Xi'an 710021, China

<sup>b</sup> Shaanxi Key Laboratory of Optoelectronic Functional Materials and Devices, School of Materials Science and Chemical Engineering, Xi'an Technological University, Xi'an 710021, China

<sup>c</sup> School of Sciences, Xi'an Technological University, Xi'an 710021, China

Rich B atoms as activation sites in Penta-B<sub>2</sub>C facilitate capturing N<sub>2</sub>. In particular, the activated side-on N<sub>2</sub> is further reduced to NH<sub>3</sub> through an enzymatic mechanism with an onset potential of 0.23 V.

Chinese Chemical Letters 32 (2021) 3821



## Thermodynamic insights into *n*-alkanes phase change materials for thermal energy storage

Huimin Yan<sup>a,c</sup>, Huning Yang<sup>b</sup>, Jipeng Luo<sup>a,c</sup>, Nan Yin<sup>a</sup>, Zhicheng Tan<sup>a</sup>, Quan Shi<sup>a</sup>

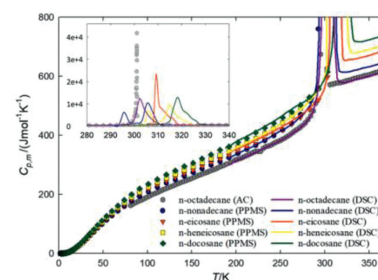
<sup>a</sup> Thermochemistry Laboratory, Liaoning Province Key Laboratory of Thermochemistry for Energy and Materials, Dalian National Laboratory for Clean Energy, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China

<sup>b</sup> Beijing Institute of Spacecraft System Engineering, Beijing 100094, China

<sup>c</sup> University of Chinese Academy of Sciences, Beijing 100049, China

Thermodynamic properties of *n*-alkanes have been systematically studied by different thermal analysis and calorimetry methods.

Chinese Chemical Letters 32 (2021) 3825



## Robust photocatalytic hydrogen production on metal-organic layers of Al-TCPP with ultrahigh turnover numbers

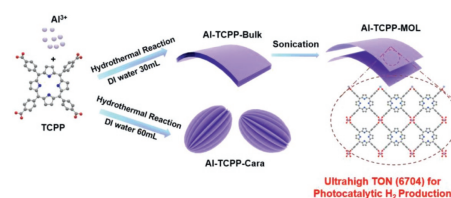
Hui Yu<sup>a,b</sup>, Xiang Wu<sup>a,b</sup>, Qiaoqiao Mu<sup>a,b</sup>, Zhihe Wei<sup>a,b</sup>, Yindong Gu<sup>a,b</sup>, Xuzhou Yuan<sup>a,b</sup>, Yongtao Lu<sup>a,b</sup>, Zhao Deng<sup>a,b</sup>, Yang Peng<sup>a,b</sup>

<sup>a</sup> Soochow Institute for Energy and Materials Innovations, College of Energy, Soochow University, Suzhou 215006, China

<sup>b</sup> Key Laboratory of Advanced Carbon Materials and Wearable Energy Technologies of Jiangsu Province, Soochow University, Suzhou 215006, China

Morphology-dependent photocatalytic activities in hydrogen production are witnessed and the exfoliated metal organic layers (MOLs) of Al-TCPP demonstrated a high hydrogen yield rate and ultrahigh TON.

Chinese Chemical Letters 32 (2021) 3833



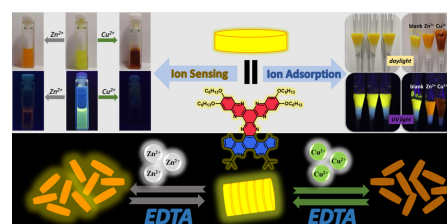
## A hexaazatriphenylene fused large discotic polycyclic aromatic hydrocarbon with selective and sensitive metal-ion sensing properties

Wenxiu Qu, Wei Yuan, Mengwei Li, Yulan Chen

Tianjin Key Laboratory of Molecular Optoelectronic Sciences, Department of Chemistry, Institute of Molecular Plus, Tianjin University, Tianjin 300072, China

A HAT based large PAH discotic molecule PN<sub>8</sub> is developed. The enlarged chromophoric core and doping heteroatoms enable colorimetric and fluorometric sensing of Cu<sup>2+</sup> and Zn<sup>2+</sup> with highly appreciable optical changes, good selectivity and low detection limit. Moreover, PN<sub>8</sub> was demonstrated as an excellent adsorbent to remove Cu<sup>2+</sup> and Zn<sup>2+</sup> from wastewater.

Chinese Chemical Letters 32 (2021) 3837





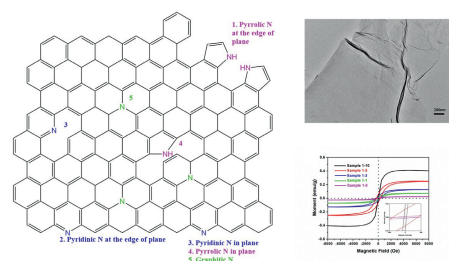
## Facilely synthesized N-doped graphene sheets and its ferromagnetic origin

Yunpeng Wu, Deyang Yu, Yi Feng, Leiyun Han, Xilong Liu, Xudong Zhao, Xiaoyang Liu

State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, College of Chemistry, Jilin University, Changchun 130012, China

When the amount graphitic N reached the threshold, the origin of the ferromagnetism will change from defects induced by nitrogen atoms to the transition in energy band caused by graphitic N.

Chinese Chemical Letters 32 (2021) 3841



## The synergistic effect of P-doping and carbon coating for boosting electrochemical performance of TiO<sub>2</sub> nanospheres for sodium-ion batteries

Zixing Guan<sup>a</sup>, Kaixiang Zou<sup>a</sup>, Xiao Wang<sup>a</sup>, Yuanfu Deng<sup>a,b</sup>, Guohua Chen<sup>c</sup>

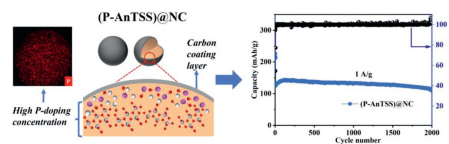
<sup>a</sup> The Key Laboratory of Fuel Cell for Guangdong Province, School of Chemistry and Chemical Engineering, South China University of Technology, Guangzhou 510640, China

<sup>b</sup> Electrochemical Energy Engineering Research Center of Guangdong Province, South China University of Technology, Guangzhou 510640, China

<sup>c</sup> Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong, China

N-doped carbon coated P-doped TiO<sub>2</sub> solid sphere, prepared from a novel strategy using the ultra-high specific area amorphous TiO<sub>2</sub> nanosphere as the precursor, displays excellent rate and cycle performance as an anode for sodium ion batteries.

Chinese Chemical Letters 32 (2021) 3847



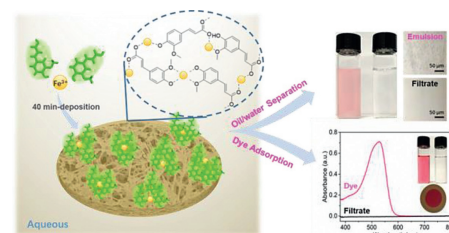
## Rapid formation of metal–monophenolic networks on polymer membranes for oil/water separation and dye adsorption

Jia-Lu Shen, Bing-Pan Zhang, Di Zhou, Zhi-Kang Xu, Ling-Shu Wan

MOE Key Laboratory of Macromolecular Synthesis and Functionalization, Key Laboratory of Adsorption and Separation Materials & Technologies of Zhejiang Province, Department of Polymer Science and Engineering, Zhejiang University, Hangzhou 310027, China

This communication reports a fast and effective Fe<sup>3+</sup>-monophenol surface-deposition system and demonstrates the applications in the preparation of superhydrophilic and multifunctional polymer membranes

Chinese Chemical Letters 32 (2021) 3852



## Theoretical investigation on the elusive biomimetic iron(III)-iodosylarene chemistry: An unusual hydride transfer triggers the Ritter reaction

Lanping Gao<sup>a,b</sup>, Xiaolu Chen<sup>a,b</sup>, Dongru Sun<sup>a,b</sup>, Hua Zhao<sup>a,b</sup>, Yufen Zhao<sup>a,b</sup>, Wonwoo Nam<sup>a,c</sup>, Yong Wang<sup>a,b</sup>

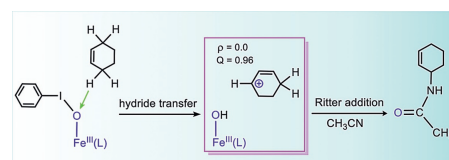
<sup>a</sup> Institute of Drug Discovery Technology, Ningbo University, Ningbo 315211, China

<sup>b</sup> Qian Xuesen Collaborative Research Center of Astrochemistry and Space Life Sciences, Ningbo University, Ningbo 315211, China

<sup>c</sup> Department of Chemistry and Nano Science, Ewha Womans University, Seoul 03760, Korea

DFT calculations reveal that an unusual hydride transfer process generates a carbonium intermediate and triggers Ritter addition to afford the amide product.

Chinese Chemical Letters 32 (2021) 3857



## Clickable rhodamine spirolactam based spontaneously blinking probe for super-resolution imaging

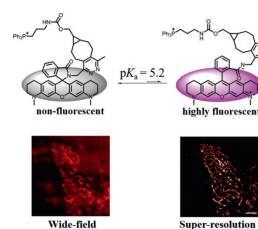
Zengjin Liu<sup>a</sup>, Ying Zheng<sup>b</sup>, Ting Xie<sup>a</sup>, Zihan Chen<sup>a</sup>, Zhenlong Huang<sup>a,b</sup>, Zhiwei Ye<sup>b</sup>, Yi Xiao<sup>b</sup>

<sup>a</sup> Drug Research Center of Integrated Traditional Chinese and Western Medicine, Affiliated Traditional Chinese Medicine Hospital, Southwest Medical University, Luzhou 646000, China

<sup>b</sup> State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian 116024, China

Atto565-Tet with the desirable  $pK_a$  value for spontaneously blinking after biorthogonal labelling was developed and successfully applied to super resolution imaging of mitochondria and lysosomes.

Chinese Chemical Letters 32 (2021) 3862



## “Xanthene” is a premium bridging group for xanthenoid dyes

Jin Li<sup>a</sup>, Mengmeng Zhang<sup>a</sup>, Lu Yang<sup>c</sup>, Yubing Han<sup>c</sup>, Xiao Luo<sup>b</sup>, Xuhong Qian<sup>a</sup>, Youjun Yang<sup>a</sup>

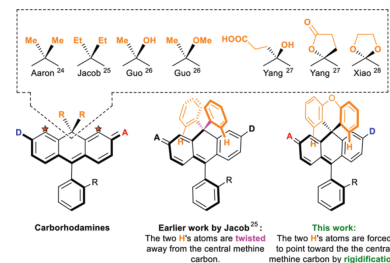
<sup>a</sup> State Key Laboratory of Bioreactor Engineering, Shanghai Key Laboratory of Chemical Biology, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China

<sup>b</sup> School of Chemistry and Molecular Engineering, East China Normal University, Shanghai 200062, China

<sup>c</sup> State Key Laboratory of Modern Optical Instrumentation, College of Optical Science and Engineering, Hangzhou 310027, China

A novel class of bright, stable and easily derivatizable xanthenoid dyes were developed by replacing the central oxygen atom of rhodamine with a “xanthene”. Such xantheno-xanthene dyes are feasible for imaging methods demanding high stability and brightness.

Chinese Chemical Letters 32 (2021) 3865



## Distinguishable multi-substance detection based on three-channel NIR fluorescent probe in physiology and pathology of living cells and zebrafish

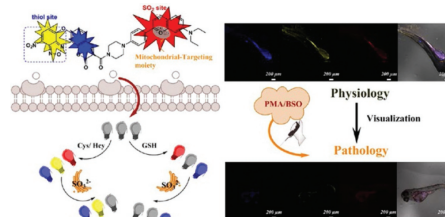
Sha Li<sup>a</sup>, Fangjun Huo<sup>b</sup>, Yongkang Yue<sup>a</sup>, Kaiqing Ma<sup>a</sup>, Ying Wen<sup>a</sup>, Caixia Yin<sup>a</sup>

<sup>a</sup> Institute of Molecular Science, Key Laboratory of Chemical Biology and Molecular Engineering of Ministry of Education, Shanxi University, Taiyuan 030006, China

<sup>b</sup> Research Institute of Applied Chemistry, Shanxi University, Taiyuan 030006, China

A multi-site multicolor mitochondrial targeting probe PI-CO-NBD was constructed. The probe could distinguishably detect reactive sulfur species. Thus the probe could image thiols and  $SO_2$  in mitochondria of living cells and zebrafish. In addition, the probe was successfully applied to monitoring oxidative stress and apoptosis process in living cells and zebrafish.

Chinese Chemical Letters 32 (2021) 3870



## A compact fluorescence/circular dichroism dual-modality probe for detection, differentiation, and detoxification of multiple heavy metal ions via bond-cleavage cascade reactions

Junwei Chen<sup>a</sup>, Na Wang<sup>a</sup>, Hongjuan Tong<sup>b</sup>, Chao Song<sup>a</sup>, Huijuan Ma<sup>a</sup>, Yajun Zhang<sup>a</sup>, Feng Gao<sup>a</sup>, Huan Xu<sup>a</sup>, Wei Wang<sup>a,c</sup>, Kaiyan Lou<sup>a</sup>

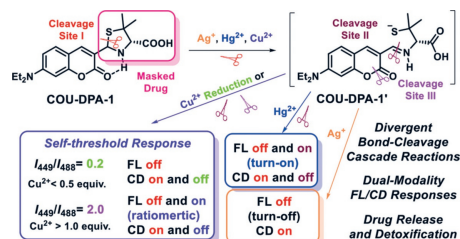
<sup>a</sup> State Key Laboratory of Bioengineering Reactor, Shanghai Key Laboratory of New Drug Design, and Shanghai Key Laboratory of Chemical Biology, School of Pharmacy, East China University of Science & Technology, Shanghai 200237, China

<sup>b</sup> School of Pharmacy, Collaborative Innovation Center of Green Manufacturing Technology for Traditional Chinese Medicine in Shaanxi Province, Shaanxi Institute of International Trade & Commerce, Xi'an 712046, China

<sup>c</sup> Department of Pharmacology and Toxicology and BIO5 Institute, University of Arizona, Tucson AZ 85721-0207, United States

Coumarin-thiazolidine masked D-penicillamine enables complimentary divergent fluorescence/circular dichroism detection, differentiation, and detoxification of multiple heavy metal ions via divergent bond-cleavage cascade reactions.

Chinese Chemical Letters 32 (2021) 3876



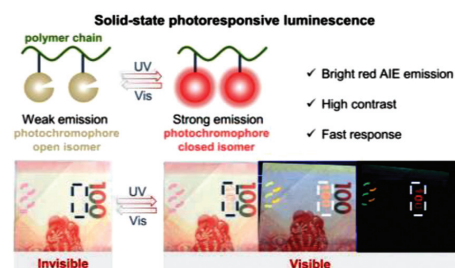
## Photoresponsive aggregation-induced emission polymer film for anti-counterfeiting

Hong Yang, Mengqi Li, Weijun Zhao, Zhiqian Guo, Wei-Hong Zhu

Shanghai Key Laboratory of Functional Materials Chemistry, Key Laboratory for Advanced Materials and Institute of Fine Chemicals, Joint International Research Laboratory of Precision Chemistry and Molecular Engineering, Feringa Nobel Prize Scientist Joint Research Center, School of Chemistry and Molecular Engineering, East China University of Science & Technology, Shanghai 200237, China

Integrating steric-hindrance diarylethene into flexible polymer chains enables reversibly solid-state photochromism and excellent AIE activity. Such fascinating polymer film with phototransformation between invisible and visible is successfully established in anti-counterfeiting.

Chinese Chemical Letters 32 (2021) 3882



## Aza-BODIPY based probe for photoacoustic imaging of ONOO<sup>-</sup> in vivo

Danghui Ma<sup>a</sup>, Shumin Hou<sup>a</sup>, Chaeon Bae<sup>d</sup>, Thanh Chung Pham<sup>d</sup>, Songyi Lee<sup>c,d</sup>, Xin Zhou<sup>a,b</sup>

<sup>a</sup> Department of Chemistry, College of Chemistry and Chemical Engineering, Qingdao 266071, China

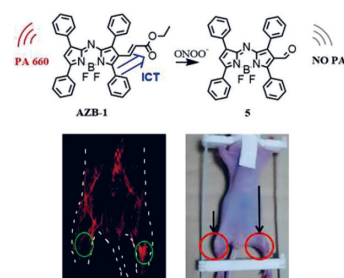
<sup>b</sup> Qingdao Cancer Institute, Qingdao University, Qingdao 266071, China

<sup>c</sup> Department of Chemistry, Pukyong National University, Busan 48513, Korea

<sup>d</sup> Industry 4.0 Convergence Bionics Engineering, Pukyong National University, Busan 48513, Korea

We reported here a photoacoustic (PA) probe **AZB-1** for imaging ONOO<sup>-</sup> in vivo. **AZB-1** showed an originally strong photoacoustic signal at 660 nm. Upon addition of ONOO<sup>-</sup>, its PA signal was turned off by shutting the ICT effect. Moreover, the probe was successfully employed to imaging ONOO<sup>-</sup> variations in inflammatory mice models. Wisely utilized this strategy may serve as powerful platforms for the preparation of novel PA chemosensors.

Chinese Chemical Letters 32 (2021) 3886



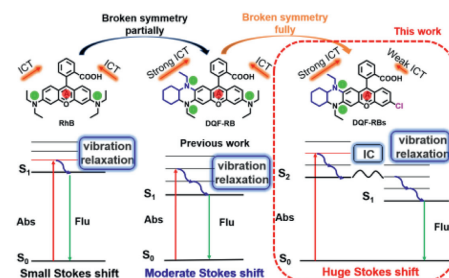
## Rational design of far red to near-infrared rhodamine analogues with huge Stokes shifts for single-laser excitation multicolor imaging

Xingxing Zhang, Tianbing Ren, Feiyu Yang, Lin Yuan

State Key Laboratory of Chemo/Biosensing and Chemometrics, College of Chemistry and Chemical Engineering, Hunan University, Changsha 410082, China

In this work, we report a strategy to develop rhodamine dye with huge Stokes shifts (> 150 nm) and far red to NIR emission (> 650 nm). With completely breaking the symmetry of traditional rhodamine, the novel rhodamine dye DQF-RB-Cl exhibited the largest Stokes shift in near-infrared rhodamine derivatives which is up to 205 nm. When combined with commercial dyes, single-laser excitation three colors imaging with organic fluorophore was achieved in different cells for the first time.

Chinese Chemical Letters 32 (2021) 3890



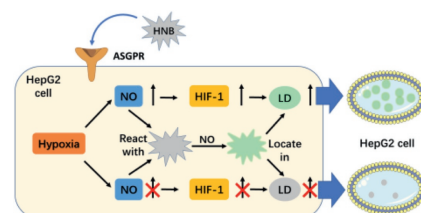
## Visualizing nitric oxide-dependent HIF-1 activity under hypoxia with a lipid droplet-targeting fluorescent probe

Ying-Hao Pan, Xiao-Xiao Chen, Lei Dong, Na Shao, Li-Ya Niu, Qing-Zheng Yang

Key Laboratory of Radiopharmaceuticals, Ministry of Education, College of Chemistry, Beijing Normal University, Beijing 100875, China

BODIPY based glycosyl fluorescent probe were developed for nitric oxide imaging targeting lipid droplets in hepatocytes. The probe visualizes NO-dependent HIF-1 upregulation under hypoxia through LD accumulation behavior and NO imaging.

Chinese Chemical Letters 32 (2021) 3895





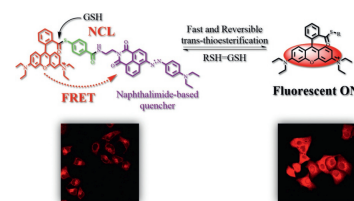
## NCL-based mitochondrial-targeting fluorescent probe for the detection of glutathione in living cells

Tongxia Jin, Mengyu Cui, Dan Wu, Weiping Zhu, Yufang Xu, Xuhong Qian

State Key Laboratory of Bioreactor Engineering, Shanghai Key Laboratory of Chemical Biology, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China

NCL-based mitochondrial-targeting fluorescent probe QZ was designed, synthesized and utilized for tracking intracellular glutathione in living cells with high sensitivity and selectivity.

Chinese Chemical Letters 32 (2021) 3899



## Self-assembly of amphiphilic peptides to construct activatable nanophotosensitizers for theranostic photodynamic therapy

Shuang Chen<sup>a</sup>, Yongzhuo Liu<sup>b</sup>, Ri Liang<sup>a</sup>, Gaobo Hong<sup>a</sup>, Jing An<sup>a</sup>, Xiaojun Peng<sup>a</sup>, Wen-Heng Zheng<sup>a</sup>, Fengling Song<sup>a,d</sup>

<sup>a</sup> State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian 116024, China

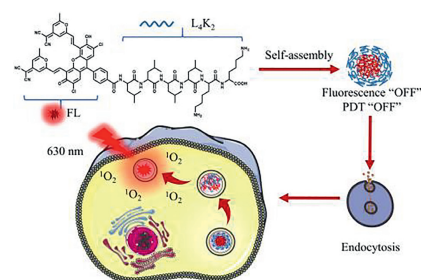
<sup>b</sup> Shandong Collaborative Innovation Center of Eco-Chemical Engineering, College of Chemical Engineering, Qingdao University of Science and Technology, Qingdao 266042, China

<sup>c</sup> Department of Medical Imaging, Cancer Hospital of China Medical University, Liaoning Cancer Hospital and Institute, Shenyang 110042, China

<sup>d</sup> Institute of Frontier and Interdisciplinary Science, Shandong University, Qingdao 266237, China

We reported acid-activatable theranostic nanophotosensitizers based on self-assembly of amphiphilic peptides.

Chinese Chemical Letters 32 (2021) 3903



## Blue-to-green manipulation of carbon dots from fluorescence to ultralong room-temperature phosphorescence for high-level anti-counterfeiting

Youfusheng Wu<sup>a</sup>, Xinyi Fang<sup>a</sup>, Jiaqi Shi<sup>a</sup>, Weijing Yao<sup>a,b</sup>, Wei Wu<sup>a</sup>

<sup>a</sup> Laboratory of Printable Functional Materials and Printed Electronics, School of Printing and Packaging, Wuhan University, Wuhan 430072, China

<sup>b</sup> School of Materials Science and Engineering, Zhengzhou University, Zhengzhou 450001, China

Tunable emissions of fluorescence and phosphorescence in CDs systems exhibits great potential in the high-level anti-counterfeiting application.

Chinese Chemical Letters 32 (2021) 3907



## One-pot synthesis of nuclear targeting carbon dots with high photoluminescence

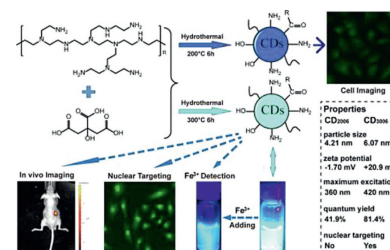
Pengchong Wang<sup>a,b</sup>, Hongrui Ji<sup>b</sup>, Shiyan Guo<sup>b</sup>, Ying Zhang<sup>b</sup>, Yan Yan<sup>a,b</sup>, Ke Wang<sup>b</sup>, Jianfeng Xing<sup>b</sup>, Yalin Dong<sup>a</sup>

<sup>a</sup> Department of Pharmacy, the First Affiliated Hospital of Xi'an Jiaotong University, Xi'an 710061, China

<sup>b</sup> School of Pharmacy, Xi'an Jiaotong University, Xi'an 710061, China

Comparing the carbon dots prepared under 200 °C for 6 h (CD<sub>2006</sub>), CD<sub>3006</sub> shows better fluorescence properties and is more suitable for nuclear targeting, bioimaging and ion detection.

Chinese Chemical Letters 32 (2021) 3911



## Photoluminescent chiral carbon dots derived from glutamine

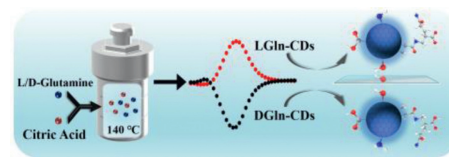
Wenyan Ma<sup>a</sup>, Bolun Wang<sup>a</sup>, Yonggang Yang<sup>b</sup>, Jiyang Li<sup>a</sup>

<sup>a</sup> State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, College of Chemistry, Jilin University, Changchun 130012, China

<sup>b</sup> Jiangsu Key Laboratory of Advanced Functional Polymer Design and Application Department of Polymer Science and Engineering, College of Chemistry, Chemical Engineering and Materials Science, Soochow University, Suzhou 215123, China

Chiral carbon dots (CDs) with blue fluorescence emissions have been hydrothermally synthesized by using amino acid enantiomers as the precursors. Their optical properties and possible chiral mechanism have been demonstrated.

Chinese Chemical Letters 32 (2021) 3916



## Selective coordination and localized polarization in graphene quantum dots: Detection of fluoride anions using ultra-low-field NMR relaxometry

Yongqiang Li<sup>a,b,c</sup>, Yi Xiao<sup>a,b,c</sup>, Quan Tao<sup>a,b,c</sup>, Mengmeng Yu<sup>a,b,c</sup>, Li Zheng<sup>a</sup>, Siwei Yang<sup>a,c</sup>, Guqiao Ding<sup>a,c</sup>, Hui Dong<sup>a,b,c</sup>, Xiaoming Xie<sup>a,b,c</sup>

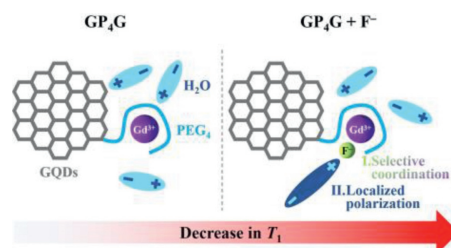
<sup>a</sup> State Key Laboratory of Functional Materials of Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences (CAS), Shanghai 200050, China

<sup>b</sup> CAS Center for Excellence in Superconducting Electronics (CENSE), Chinese Academy of Sciences, Shanghai 200050, China

<sup>c</sup> Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing 100049, China

The  $F^-$  can selectively coordinate with the  $Gd^{3+}$  in GQDs-PEG<sub>4</sub>-Gd (GP<sub>4</sub>G), locally polarize the water molecules around GP<sub>4</sub>G, and lead to the decrease in  $T_1$  recorded by the ultra-low-field (118  $\mu$ T) NMR relaxometry.

Chinese Chemical Letters 32 (2021) 3921



## Red, green and blue aggregation-induced emissive carbon dots

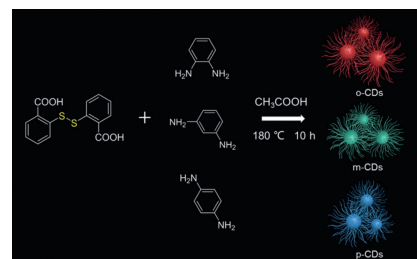
Xiaokai Xu<sup>a,b</sup>, Luoqi Mo<sup>a,b</sup>, Wei Li<sup>a,b</sup>, Yadong Li<sup>a,b</sup>, Bingfu Lei<sup>a,b</sup>, Xuejie Zhang<sup>a,b</sup>, Jianle Zhuang<sup>a,b</sup>, Chaofan Hu<sup>a,b</sup>, Yingliang Liu<sup>a,b</sup>

<sup>a</sup> Key Laboratory for Biobased Materials and Energy of Ministry of Education/Guangdong Provincial Engineering Technology Research Center for Optical Agriculture, College of Materials and Energy, South China Agricultural University, Guangzhou 510642, China

<sup>b</sup> Guangdong Laboratory for Lingnan Modern Agriculture, Guangzhou 510642, China

Red, green and blue aggregation-induced emissive carbon dots were prepared solvothermally with dithiosalicylic acid (D TSA) and *o*-phenylenediamine, *m*-phenylenediamine, and *p*-phenylenediamine using acetic acid as solvent, respectively.

Chinese Chemical Letters 32 (2021) 3927



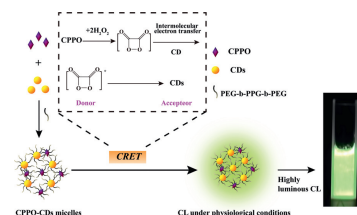
## Carbon dots-peroxyoxalate micelle as a highly luminous chemiluminescence system under physiological conditions

Chi Zhang, Jingjing Jin, Ke Liu, Xuejuan Ma, Xinfeng Zhang

College of Materials and Chemistry & Chemical Engineering, Chengdu University of Technology, Chengdu 610059, China

Highly luminous carbon dots-CPPO micelle chemiluminescence system was developed for sensitive biosensing and bioimaging.

Chinese Chemical Letters 32 (2021) 3931



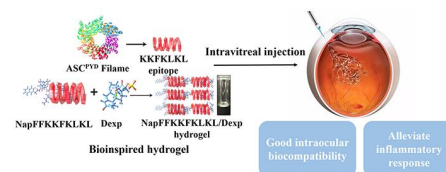
## Bioinspired self-assembly supramolecular hydrogel for ocular drug delivery

Xianglian Li, Hui Liu, Ailing Yu, Dan Lin, Zhishu Bao, Yuqin Wang, Xingyi Li

Institute of Biomedical Engineering, School of Ophthalmology & Optometry, Eye Hospital, Wenzhou Medical University, Wenzhou 325027, China

A bioinspired hydrogel was formed by dexamethasone phosphate sodium (Dexp) and peptide (NapFFKKFKLKL) to effectively cure posterior disorders (*i.e.*, uveitis).

Chinese Chemical Letters 32 (2021) 3936



## A porous hydrogel scaffold mimicking the extracellular matrix with swim bladder derived collagen for renal tissue regeneration

Heng Wu<sup>a,b</sup>, Rui Zhang<sup>a,b</sup>, Bianxiang Hu<sup>a</sup>, Yutong He<sup>b</sup>, Yuehang Zhang<sup>a,b</sup>, Liu Cai<sup>c</sup>, Leyu Wang<sup>c</sup>, Guobao Wang<sup>a</sup>, Honghao Hou<sup>b</sup>, Xiaozhong Qiu<sup>b</sup>

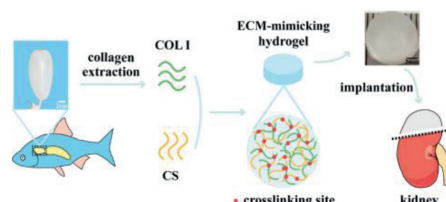
<sup>a</sup> State Key Lab for Organ Failure Research, National Clinical Research Center of Kidney Disease, Division of Nephrology, Nanfang Hospital, Southern Medical University, Guangzhou 510515, China

<sup>b</sup> Guangdong Provincial Key Laboratory of Construction and Detection in Tissue Engineering, School of Basic Medical Sciences, Southern Medical University, Guangzhou 510515, China

<sup>c</sup> Biomaterials Research Center, School of Biomedical Engineering, Southern Medical University, Guangzhou 510515, China

A novel extracellular matrix-mimicking hydrogel scaffolds was developed through covalent and physical cross-linking between swim bladder-derived natural collagen and anti-fibrosis chondroitin sulfate derivatives, which exhibit good performance for renal tissue regeneration *in vitro* and *in vivo*.

Chinese Chemical Letters 32 (2021) 3940



## Tumor microenvironment triggered local oxygen generation and photosensitizer release from manganese dioxide mineralized albumin-ICG nanocomplex to amplify photodynamic immunotherapy efficacy

Ning Jiang<sup>a</sup>, Zaigang Zhou<sup>b,c</sup>, Wei Xiong<sup>d</sup>, Jiashe Chen<sup>b,c</sup>, Jianliang Shen<sup>b,c</sup>, Rongtao Li<sup>a</sup>, Ruiyong Ye<sup>a</sup>

<sup>a</sup> Faculty of Life Science and Technology, Kunming University of Science and Technology, Kunming 650500, China

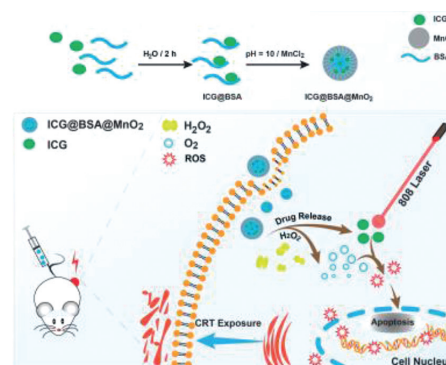
<sup>b</sup> State Key Laboratory of Ophthalmology, Optometry and Vision Science, School of Ophthalmology and Optometry, School of Biomedical Engineering, Wenzhou Medical University, Wenzhou 325027, China

<sup>c</sup> Wenzhou Institute, University of Chinese Academy of Sciences, Wenzhou 325001, China

<sup>d</sup> Department of Urology, Xiangya Hospital, Central South University, Changsha 410008, China

Highly expressed  $H_2O_2$  in the tumor microenvironment triggered local oxygen generation and ICG release from manganese dioxide mineralized albumin-ICG nanocomplex (ICG@BSA@MnO<sub>2</sub>) to amplify photodynamic immunotherapy efficacy.

Chinese Chemical Letters 32 (2021) 3948



## Dual-labeled visual tracer system for topical drug delivery by nanoparticle-triggered P-glycoprotein silencing

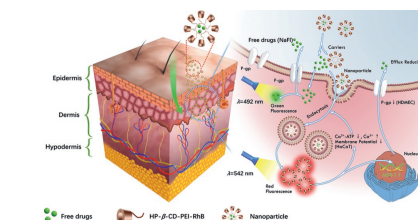
Jushan Gao<sup>a</sup>, Shanbo Ma<sup>b</sup>, Xinxin Zhao<sup>a</sup>, Jinpeng Wen<sup>a</sup>, Datao Hu<sup>a</sup>, Xiaoye Zhao<sup>a</sup>, Xiaopeng Shi<sup>b</sup>, Ke Wang<sup>a</sup>

<sup>a</sup> School of Pharmacy, Health Science Center, Xi'an Jiaotong University, Xi'an 710061, China

<sup>b</sup> Department of Pharmacy, Xijing Hospital, Fourth Military Medical University, Xi'an 710032, China

A dual-labeled nanoparticle drug delivery system was developed for topical drug delivery by nanoparticle-triggered P-glycoprotein silencing, which can simultaneously track a drug and its carrier to systematically and vividly observe the transdermal process.

Chinese Chemical Letters 32 (2021) 3954





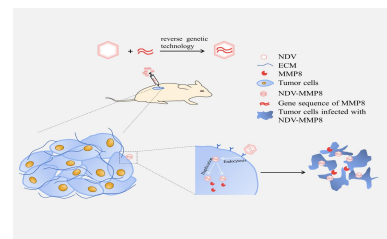
## A recombinant Newcastle disease virus expressing MMP8 promotes oncolytic efficacy

Tong Guo, Xiuli Liu, Zhikun Zhang, Yiqun Luo, Tong Li, Lan Li, Huixue Wang, Yong Huang, Jian He, Qiaoying Chen, Yongxiang Zhao, Lu Gan, Liping Zhong

National Center for International Research of Biotargeting Theranostics, Guangxi Key Laboratory of Biotargeting Theranostics, Collaborative Innovation Center for Targeting Tumor Diagnosis and Therapy, Guangxi Talent Highland of Biotargeting Theranostics, Guangxi Medical University, Nanning 530021, China

A recombinant Newcastle disease virus expressing MMP8 was constructed to administration intratumorally, thereby enhancing degradation of extracellular matrix, spreading of virus and the oncolytic effect.

Chinese Chemical Letters 32 (2021) 3962



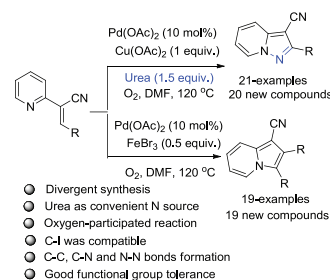
## Transition-metal-switchable divergent synthesis of nitrile-containing pyrazolo[1,5-a]pyridines and indolizines

Chongjiu Lu, Min Ye, Min Li, Zhijierong Zhang, Yuxin He, Lipeng Long, Zhengwang Chen

Key Laboratory of Organo-Pharmaceutical Chemistry of Jiangxi Province, Gannan Normal University, Ganzhou 341000, China

Divergent syntheses of nitrile-substituted pyrazolo[1,5-a]pyridines and indolizines via the palladium-catalyzed oxidative formal [4 + 1] annulation of pyridine-substituted acrylonitriles is achieved. The reaction involves the cleavage of C-N/C-C bonds and the formation of new C-C/C-N/N-N bonds. The advantages of this transformation include readily accessible substrates, controllable selectivity, oxygen participated reaction, and good functional group tolerance.

Chinese Chemical Letters 32 (2021) 3967



## Synthesis of tetrasubstituted thiophenes from pyridinium 1,4-zwitterionic thiolates and modified activated alkynes

Taimin Wang<sup>a</sup>, Xuecheng Zhu<sup>a</sup>, Qingqing Tao<sup>a</sup>, Wei Xu<sup>a</sup>, Haiyan Sun<sup>a</sup>, Ping Wu<sup>c</sup>, Bin Cheng<sup>a</sup>, Hongbin Zhai<sup>a,b</sup>

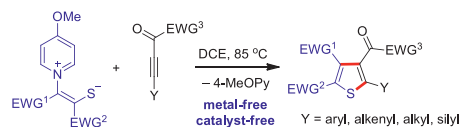
<sup>a</sup> Institute of Marine Biomedicine/Hoffmann Institute of Advanced Materials, Shenzhen Polytechnic, Shenzhen 518055, China

<sup>b</sup> State Key Laboratory of Chemical Oncogenomics, Shenzhen Engineering Laboratory of Nano Drug Slow-Release, Peking University Shenzhen Graduate School, Shenzhen 518055, China

<sup>c</sup> Key Laboratory of Coordination Chemistry and Functional Materials in Universities of Shandong, Dezhou College, Dezhou 253023, China

Pyridinium 1,4-zwitterionic thiolates were applied to a formal [3 + 2] annulation reaction with modified activated alkynes, affording various tetrasubstituted thiophenes with aryl, alkenyl, alkyl or silyl group at the special position. The structural modification of alkyne substrates enabled the synthesis of diverse thiophenes to be achieved using the pyridinium 1,4-zwitterionic thiolates as the sulfur-containing building blocks. This approach is metal-free and catalyst-free.

Chinese Chemical Letters 32 (2021) 3972



## Overcoming the limitations of anthracene alkylation using SZ-DeAl-DFNS acid catalyst

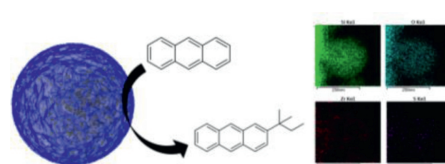
Yangyang Fang<sup>a</sup>, Xiaozhong Wang<sup>a,b</sup>, Qianyan Pan<sup>a</sup>, Yingqi Chen<sup>a,b</sup>, Liyan Dai<sup>a,b</sup>

<sup>a</sup> College of Chemical and Biological Engineering, Zhejiang University, Zhejiang Provincial Key Laboratory of Advanced Chemical Engineering Manufacture Technology, Hangzhou 310027, China

<sup>b</sup> Institute of Zhejiang University - Quzhou, Quzhou 324000, China

*In situ* formation of micro-mesoporous Al-DFNS and further modification for SZ-DeAl-DFNS solid-acid catalyst are designed for the anthracene alkylation reaction with the highest conversion of 60.8%. The productive catalysts and reaction conditions can provide a practical method for the synthesis of *tert*-amylanthracene in industry.

Chinese Chemical Letters 32 (2021) 3976



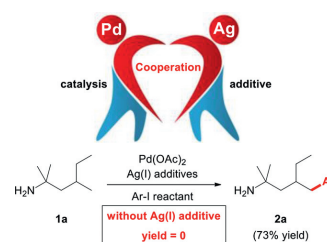
## Exploring the pivotal role of silver(I) additives in palladium-catalyzed $\text{NH}_2$ -directed $\text{C}(\text{sp}^3)\text{-H}$ arylation reactions

Ning Zhao, Xiaojiao Jin, Yanfeng Dang

Tianjin Key Laboratory of Molecular Optoelectronic Sciences, Department of Chemistry, Tianjin University, Tianjin 300072, China

The mechanism of Pd-catalyzed  $\delta\text{-C}(\text{sp}^3)\text{-H}$  arylation of amines has been explored by a computational and experimental study. Instead of the monomeric Pd mechanism, our research unveils that all steps including C-H activation, oxidative addition and reductive elimination take place via the heterodimeric Pd-Ag pathway.

Chinese Chemical Letters 32 (2021) 3980



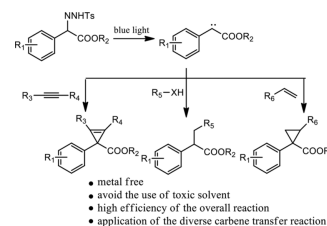
## Blue light-promoted cyclopropenizations of *N*-tosylhydrazones in water

Kaichuan Yan, Hua He, Jianglian Li, Yi Luo, Ruizhi Lai, Li Guo, Yong Wu

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

We reported on blue light-induced cyclopropenizations of *N*-tosylhydrazones in water, which avoids the use of expensive metal based catalysts and toxic organic solvents.

Chinese Chemical Letters 32 (2021) 3984



## Tunable construction of transition metal-coordinated helicene cages

Yongle Ding<sup>a,b</sup>, Chengshuo Shen<sup>a</sup>, Fuwei Gan<sup>a</sup>, Jinghao Wang<sup>a</sup>, Guoli Zhang<sup>a</sup>, Lingling Li<sup>b</sup>, Mouhai Shu<sup>a</sup>, Bangshang Zhu<sup>b</sup>, Jeanne Crassous<sup>c</sup>, Huibin Qiu<sup>a</sup>

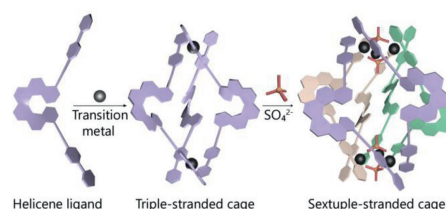
<sup>a</sup> School of Chemistry and Chemical Engineering, Frontiers Science Center for Transformative Molecules, State Key Laboratory of Metal Matrix Composites, Shanghai Jiao Tong University, Shanghai 200240, China

<sup>b</sup> Instrumental Analysis Center, Shanghai Jiao Tong University, Shanghai 200240, China

<sup>c</sup> Univ Rennes, Institut des Sciences Chimiques de Rennes, UMR CNRS 6226, Campus de Beaulieu, Rennes 35042, France

Coordination of bis-dipyridine-terminated helicene ligands with a variety of transition metals leads to the formation of various triple-stranded binuclear chiral cages and the addition of sulfate further promotes the transformation to sextuple-stranded hexanuclear chiral cages.

Chinese Chemical Letters 32 (2021) 3988



## $\text{Ag}_2\text{CO}_3$ -catalyzed efficient synthesis of internal or terminal propargylicamines and chalcones via $\text{A}^3$ -coupling under solvent-free condition

Ningbo Li<sup>a,c</sup>, Shitang Xu<sup>b</sup>, Xueyan Wang<sup>b</sup>, Li Xu<sup>a</sup>, Jie Qiao<sup>a,c</sup>, Zhiwu Liang<sup>b</sup>, Xinhua Xu<sup>b</sup>

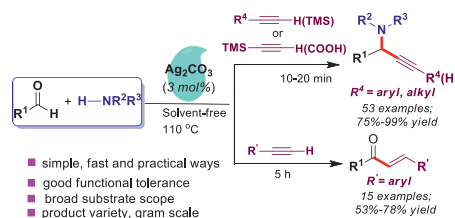
<sup>a</sup> Basic Medical College, Shanxi Medical University, Taiyuan 030001, China

<sup>b</sup> College of Chemistry and Chemical Engineering, Hunan University, Changsha 410082, China

<sup>c</sup> Key Laboratory of Cellular Physiology, Ministry of Education, Shanxi Medical University, Taiyuan 030001, China

In this paper, we reported  $\text{Ag}_2\text{CO}_3$  as a commercial catalyst for the efficient preparation of internal or terminal propargylicamines and chalcones via  $\text{A}^3$  coupling reaction of aldehydes, alkynes and amines under solvent-free condition. The present protocols provide several simple, fast, cost-effective and practical ways for the preparation of various propargylicamines and chalcones.

Chinese Chemical Letters 32 (2021) 3993



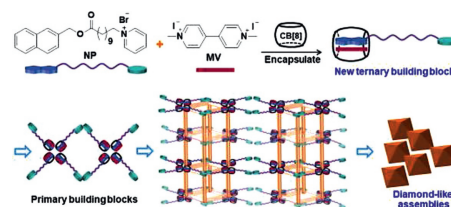
## Host-guest interactions directed the morphology transformation of a charge-transfer complex of a naphthalene-tailored amphiphile/methyl viologen: From thin-films into diamond-like assemblies

Qingtian Ji, Lijun Fan, Shuaishuai Liu, Haojie Ye, Shuzhen Xiang, Peiyi Wang

State Key Laboratory Breeding Base of Green Pesticide and Agricultural Bioengineering, Key Laboratory of Green Pesticide and Agricultural Bioengineering, Ministry of Education, Center for R&D of Fine Chemicals of Guizhou University, Guiyang 550025, China

A host molecule cucurbit[8]uril (CB[8]) was introduced into a charge transfer system containing a naphthalene-tailored amphiphile (NP) and an electron-deficient molecule methyl viologen (MV), thereby affording a novel ternary building block which led to the formation of diamond-like assemblies.

Chinese Chemical Letters 32 (2021) 3998



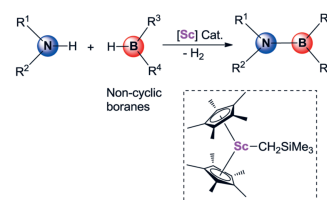
## Dehydrocoupling of boranes with amines using a scandium catalyst

Yang Wang, Pengfei Xu, Xin Xu

Key Laboratory of Organic Synthesis of Jiangsu Province, College of Chemistry, Chemical Engineering and Materials Science, Soochow University, Suzhou 215123, China

Dehydrocoupling of non-cyclic boranes with a wide range of amines has been achieved for the first time by using a scandocene alkyl catalyst under mild conditions.

Chinese Chemical Letters 32 (2021) 4002



## Direct identification of HMX via guest-induced fluorescence turn-on of molecular cage

Chen Wang<sup>a,e</sup>, Jin Shang<sup>b</sup>, Li Tian<sup>a</sup>, Hongwei Zhao<sup>a</sup>, Peng Wang<sup>a</sup>, Kai Feng<sup>a</sup>, Guokang He<sup>a</sup>, Jefferson Zhe Liu<sup>c</sup>, Wei Zhu<sup>d</sup>, Guangtao Li<sup>a</sup>

<sup>a</sup> Department of Chemistry, Tsinghua University, Beijing 100084, China

<sup>b</sup> School of Energy and Environment, City University of Hong Kong, Hong Kong, China

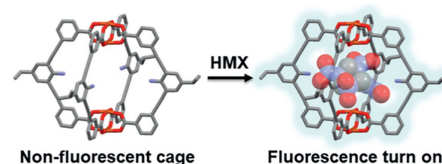
<sup>c</sup> Department of Mechanical Engineering, The University of Melbourne, Parkville, VIC 3010, Australia

<sup>d</sup> School of Biology and Biological Engineering, South China University of Technology, Guangzhou 510006, China

<sup>e</sup> Institute of chemistry, Hebrew University of Jerusalem, Jerusalem 91904, Israel

Direct identification of HMX at ppb sensitivity based on a designed metal-organic cage was developed. Capture of HMX inside the cavity strongly induced fluorescence "turn-on" (160 folds) due to mutual fit of both size and binding sites between host and guest, leading to synergistic effects that perturb ligand-to-metal charge-transfer process.

Chinese Chemical Letters 32 (2021) 4006



## Carbazole ring: A delicate rack for constructing thermally activated delayed fluorescent compounds with through-space charge transfer

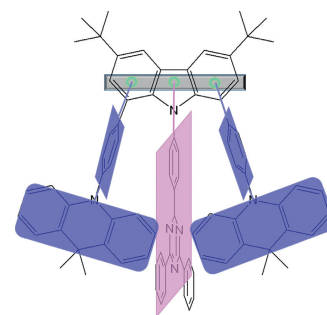
Kuofei Li<sup>a,b</sup>, Tao Wang<sup>a</sup>, Bing Yao<sup>a</sup>, Yuannan Chen<sup>a</sup>, Hao Deng<sup>a,b</sup>, Hongmei Zhan<sup>a</sup>, Zhiyuan Xie<sup>a</sup>, Yanxiang Cheng<sup>a,b</sup>

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

<sup>b</sup> School of Applied Chemistry and Engineering, University of Science and Technology of China, Hefei 230026, China

Two six-membered cyclic aromatic amine and one diphenyltriazine groups are fixed at 1,8,9-positions of a single carbazole ring via phenylene, respectively, affording three compounds with TADF feature, which originates from the edge-to-face through-space  $\pi$ - $\pi$  interaction between the donor and acceptor groups.

Chinese Chemical Letters 32 (2021) 4011





## Thiocarbonylation of C(sp<sup>3</sup>)-H bonds in pyridylamines with CS<sub>2</sub>: Facile synthesis of pyrido[1,2-*a*]pyrimidine-4-thiones

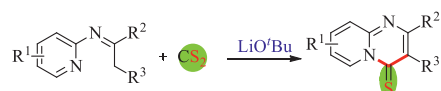
Xiao-Yu Zhou<sup>a</sup>, Xiang-Yu Li<sup>a</sup>, Zhen Zhang<sup>a,b</sup>, Da-Gang Yu<sup>a</sup>

<sup>a</sup> Key Laboratory of Green Chemistry & Technology of Ministry of Education, College of Chemistry, Sichuan University, Chengdu 610064, China

<sup>b</sup> Key Laboratory of Coarse Cereal Processing of Ministry of Agriculture and Rural Affairs, College of Food and Biological Engineering, Chengdu University, Chengdu 610106, China

A facile synthesis of valuable pyrido[1,2-*a*]pyrimidine-4-thiones is reported via novel thiocarbonylation of pyridylamines with carbon disulfide (CS<sub>2</sub>). This reaction features easy availability of substrates, good functional group tolerance, high yields and facile scalability.

Chinese Chemical Letters 32 (2021) 4015



- Simple reaction conditions
- High yields
- Broad substrate scope
- Facile scale-up reaction
- Atom economy
- Valuable products

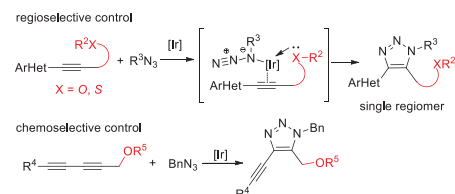
## Remote ether groups-directed regioselective and chemoselective cycloaddition of azides and alkynes

Xuelun Duan, Nan Zheng, Ming Li, Xinhao Sun, Zhuye Lin, Pan Qiu, Wangze Song

State Key Laboratory of Fine Chemicals, School of Chemical Engineering, Department of Pharmaceutical Science, Dalian University of Technology, Dalian 116024, China

Remote ether groups-directed azide-alkyne cycloaddition reactions were developed to access 5-ether triazoles with excellent 1,5-regioselectivities and chemoselectivities.

Chinese Chemical Letters 32 (2021) 4019



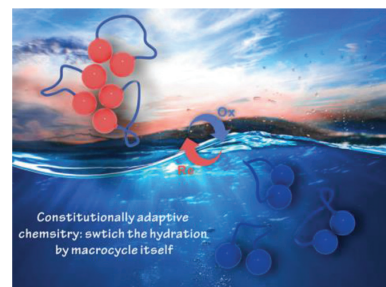
## Constitutionally adaptive crown ether-based macrocyclic bolaamphiphile with redox-responsive switching of lower critical solution temperature behaviors

Qiangqiang Xu, Zhiliyu Cui, Jizhen Yao, Bo Li, Ping Lv, Xin Shen, Zhuo Yu, 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), Xi'an 710072, China

Constitutionally adaptive chemistry of selenium-containing crown ethers (CEs) offers a new platform for controlling/switching the hydration of bolaamphiphile skeletons in water in an effective and simple manner by the virtue of covalent bonding. The adaptive behaviour of the macrocyclic bolaamphiphiles (transformations between C7SeBola and C7SeOBola) in response to redox environment was found to be a decisive factor.

Chinese Chemical Letters 32 (2021) 4024



## Constitutionally adaptive crown ether-based macrocyclic bolaamphiphile with redox-responsive switching of lower critical solution temperature behaviors

Yi-Nan Li<sup>a</sup>, Xin Chang<sup>a</sup>, Qi Xiong<sup>a</sup>, Xiu-Qin Dong<sup>a,c</sup>, Chun-Jiang Wang<sup>a,b</sup>

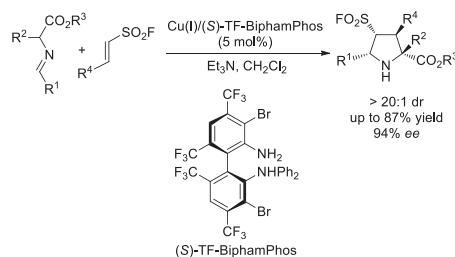
<sup>a</sup> Engineering Research Centre of Organosilicon Compounds & Materials, Ministry of Education, College of Chemistry and Molecular Sciences, Wuhan University, Wuhan 430072, China

<sup>b</sup> Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai 200032, China

<sup>c</sup> Suzhou Institute of Wuhan University, Suzhou 215123, China

Cu-catalyzed *endo*-selective asymmetric 1,3-dipolar cycloaddition of azomethine ylides with ethenesulfonyl fluorides (ESFs) was successfully developed, this protocol provided an efficient and facile method to a wide range of chiral pyrrolidine-3-sulfonyl fluorides with good to excellent results (up to 87% yield, > 20:1 dr, 94% *ee*). Some other chiral sulfonyl derivatives, such as sulfonamide and sulfonate, were easily accessible through simple transformations with high yields, which demonstrated that the cycloaddition products could be synthetically useful in the sulfur(VI) fluoride exchange (SuFEx) chemistry.

Chinese Chemical Letters 32 (2021) 4029



## Visible-light-induced chemoselective reactions of quinoxalin-2(1*H*)-ones with alkylboronic acids under air/N<sub>2</sub> atmosphere

Lingling Yao<sup>a</sup>, Defeng Zhu<sup>a</sup>, Lei Wang<sup>a,b</sup>, Jie Liu<sup>a</sup>, Yicheng Zhang<sup>a</sup>, Pinhua Li<sup>a,c</sup>

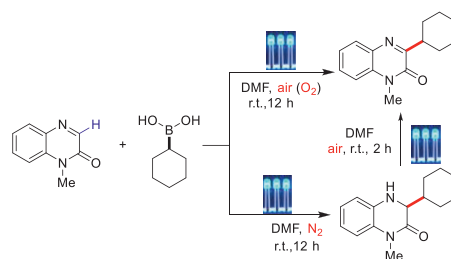
<sup>a</sup> Key Laboratory of Green and Precise Synthetic Chemistry and Applications, Ministry of Education, Department of Chemistry, Huaibei Normal University, Huaibei 235000, China

<sup>b</sup> Advanced Research Institute and Department of Chemistry, Taizhou University, Taizhou 318000, China

<sup>c</sup> Anhui Laboratory of Clean Catalytic Engineering, Anhui Laboratory of Functional Complexes for Materials Chemistry and Application, College of Chemical and Environmental Engineering, Anhui Polytechnic University, Wuhu 241000, China

A visible light-promoted switchable synthetic procedure for the synthesis of 3-alkylquinoxalin-2(1*H*)-ones and 3,4-dihydroquinoxalin-2(1*H*)-ones under photoredox catalyst free and transition-metal-free conditions.

Chinese Chemical Letters 32 (2021) 4033



## Nickel-catalyzed asymmetric arylation cyclization of *N*-alkynones: Efficient access to 1,2,3,6-tetrahydropyridines with a tertiary alcohol

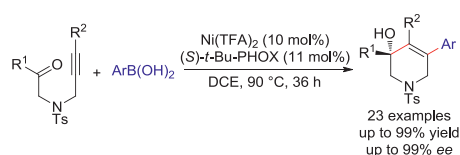
Jiangyan Tian<sup>a</sup>, Wendian Li<sup>a</sup>, Ruihao Li<sup>a</sup>, Lin He<sup>b</sup>, Hui Lv<sup>a,b</sup>

<sup>a</sup> Key Laboratory of Biomedical Polymers of Ministry of Education & College of Chemistry and Molecular Sciences, Engineering Research Center of Organosilicon Compounds & Materials, Ministry of Education, Sauvage Center for Molecular Sciences, Wuhan University, Wuhan 430072, China

<sup>b</sup> Key Laboratory for Green Processing of Chemical Engineering of Xinjiang Bingtuan, School of Chemistry and Chemical Engineering, Shihezi University, Shihezi 832000, China

Nickel/(*S*)-*t*-Bu-PHOX complex catalyzed intramolecular asymmetric arylation cyclization of acetylenic ketones has been achieved, affording 1,2,3,6-tetrahydropyridines bearing a chiral tertiary alcohol in high yields and excellent enantioselectivities.

Chinese Chemical Letters 32 (2021) 4038



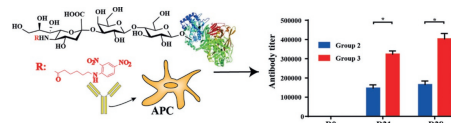
## Synthesis of DNP-modified GM3-based anticancer vaccine and evaluation of its immunological activities for cancer immunotherapy

Han Lin, Haofei Hong, Lipeng Feng, Jie Shi, Zhifang Zhou, Zhimeng Wu

Key Laboratory of Carbohydrate Chemistry & Biotechnology, Ministry of Education, School of Biotechnology, Jiangnan University, Wuxi 214122, China

A DNP-modified GM3-based anticancer vaccine elicited robust immune responses by recruiting anti-DNP antibodies and exhibited the potential as an immunotherapy against cancer cells glycoengineered with GM3-NHDNP antigens.

Chinese Chemical Letters 32 (2021) 4041



## Peptide stapling with the retention of double native side-chains

Ye Wu<sup>a,b</sup>, Yan Zou<sup>b</sup>, Lingling Sun<sup>c</sup>, Alfredo Garzino-Demo<sup>c,d</sup>, Honggang Hu<sup>e</sup>, Weidong Zhang<sup>a,b</sup>, Xiang Li<sup>b</sup>

<sup>a</sup> Institute of Interdisciplinary Integrative Medicine Research, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China

<sup>b</sup> School of Pharmacy, Second Military Medical University, Shanghai 200433, China

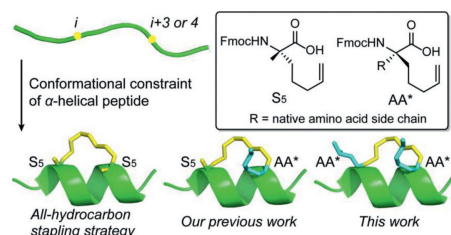
<sup>c</sup> Institute of Human Virology and Department of Microbiology and Immunology, University of Maryland School of Medicine, Baltimore MD 21201, United States

<sup>d</sup> Department of Molecular Medicine, University of Padova, Padova 35121, Italy

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

Peptide stapling with the retention of double native side-chains facilitates the design of the stapled lengthy peptides regardless of the stapling sites.

Chinese Chemical Letters 32 (2021) 4045



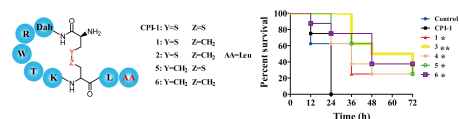
## Diaminodiacid bridge improves enzymatic and *in vivo* inhibitory activity of peptide CPI-1 against botulinum toxin serotype A

Jintao Shen, Jia Liu, Shuo Yu, Yunzhou Yu, Chao Huang, Xianghua Xiong, Junjie Yue, Qiuyun Dai

Beijing Institute of Biotechnology, Beijing 100071, China

The replacement of a disulfide bridge by diaminodiacid bridge significantly improves enzymatic and *in vivo* inhibitory activity of peptide CPI-1 against botulinum toxin serotype A, the addition of hydrophobic or positive amino acid at C-terminus of modified peptides further improves the inhibitory activity.

Chinese Chemical Letters 32 (2021) 4049



## Boronic acid-containing diarylpyrimidine derivatives as novel HIV-1 NNRTIs: Design, synthesis and biological evaluation

Da Feng<sup>a</sup>, Fenju Wei<sup>a</sup>, Yanying Sun<sup>a</sup>, Prem Prakash Sharma<sup>b</sup>, Tao Zhang<sup>a</sup>, Hao Lin<sup>a</sup>, Brijesh Rath<sup>b</sup>, Erik De Clercq<sup>c</sup>, Christophe Pannecouque<sup>c</sup>, Dongwei Kang<sup>a,e</sup>, Peng Zhan<sup>a,d</sup>, Xinyong Liu<sup>a,d</sup>

<sup>a</sup> Department of Medicinal Chemistry, Key Laboratory of Chemical Biology (Ministry of Education), School of Pharmaceutical Sciences, Cheeloo College of Medicine, Shandong University, Ji'nan 250012, China

<sup>b</sup> Laboratory for Translational Chemistry and Drug Discovery, Department of Chemistry, Hansraj College, University of Delhi, Delhi 110007, India

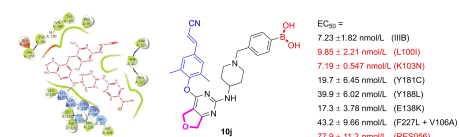
<sup>c</sup> Rega Institute for Medical Research, Laboratory of Virology and Chemotherapy, K.U. Leuven, Leuven B-3000, Belgium

<sup>d</sup> China-Belgium Collaborative Research Center for Innovative Antiviral Drugs of Shandong Province, Ji'nan 250012, China

<sup>e</sup> Suzhou Research Institute, Shandong University, Suzhou 215123, China

To address the drug resistance, a series of novel boronic acid-containing diarylpyrimidine (DAPY) derivatives were designed via bioisosterism and scaffold-hopping strategies, and compound **10j** yielded the most potent activity and turned out to be a single-digit nanomolar inhibitor towards the HIV-1 IIB, L100I and K103N strains.

Chinese Chemical Letters 32 (2021) 4053



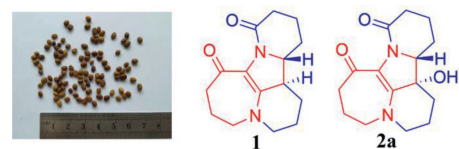
## Alopecuroidines A–C, three matrine-derived alkaloids from the seeds of *Sophora alopecuroides*

Xiang Yuan, Zhenyuan Li, Ziming Feng, Jianshuang Jiang, Yanan Yang, Peicheng Zhang

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

Three compounds were isolated from *Sophora alopecuroides*, which possess an unprecedented rearranged fused 7/6/5/6 tetracyclic skeleton with a diazacycloheptane structure. Compounds **1** and **2a** were evaluated for their anti-proliferative effects on human lung cancer A549 cells.

Chinese Chemical Letters 32 (2021) 4058



## Spinel-type bimetal sulfides derived from Prussian blue analogues as efficient polysulfides mediators for lithium-sulfur batteries

Ruijian Li<sup>a</sup>, Zhe Bai<sup>a</sup>, Wenshuo Hou<sup>a</sup>, Jinshuo Qiao<sup>a</sup>, Wang Sun<sup>a</sup>, Yu Bai<sup>a</sup>, Zhenhua Wang<sup>a,b</sup>, Kening Sun<sup>a,b</sup>

<sup>a</sup> Beijing Key Laboratory for Chemical Power Source and Green Catalysis, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, China

<sup>b</sup> Collaborative Innovation Center of Electric Vehicles in Beijing, Beijing 100081, China

In this work, spinel-type hollow NiCo<sub>2</sub>S<sub>4</sub> nanocubes are synthesized through a facile route Prussian blue analogue derived as the sulfur host to improve the electrochemical performance of Li-S battery. The synthetic route is shown in the figure above. Besides the high conductivity and catalytic performance of the bimetal sulfide, the NiCo<sub>2</sub>S<sub>4</sub> nanocubes have more specific surface area to react and have more volume to prevent volume expansion.

Chinese Chemical Letters 32 (2021) 4063

