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# CCL
# Chinese Chemical Letters

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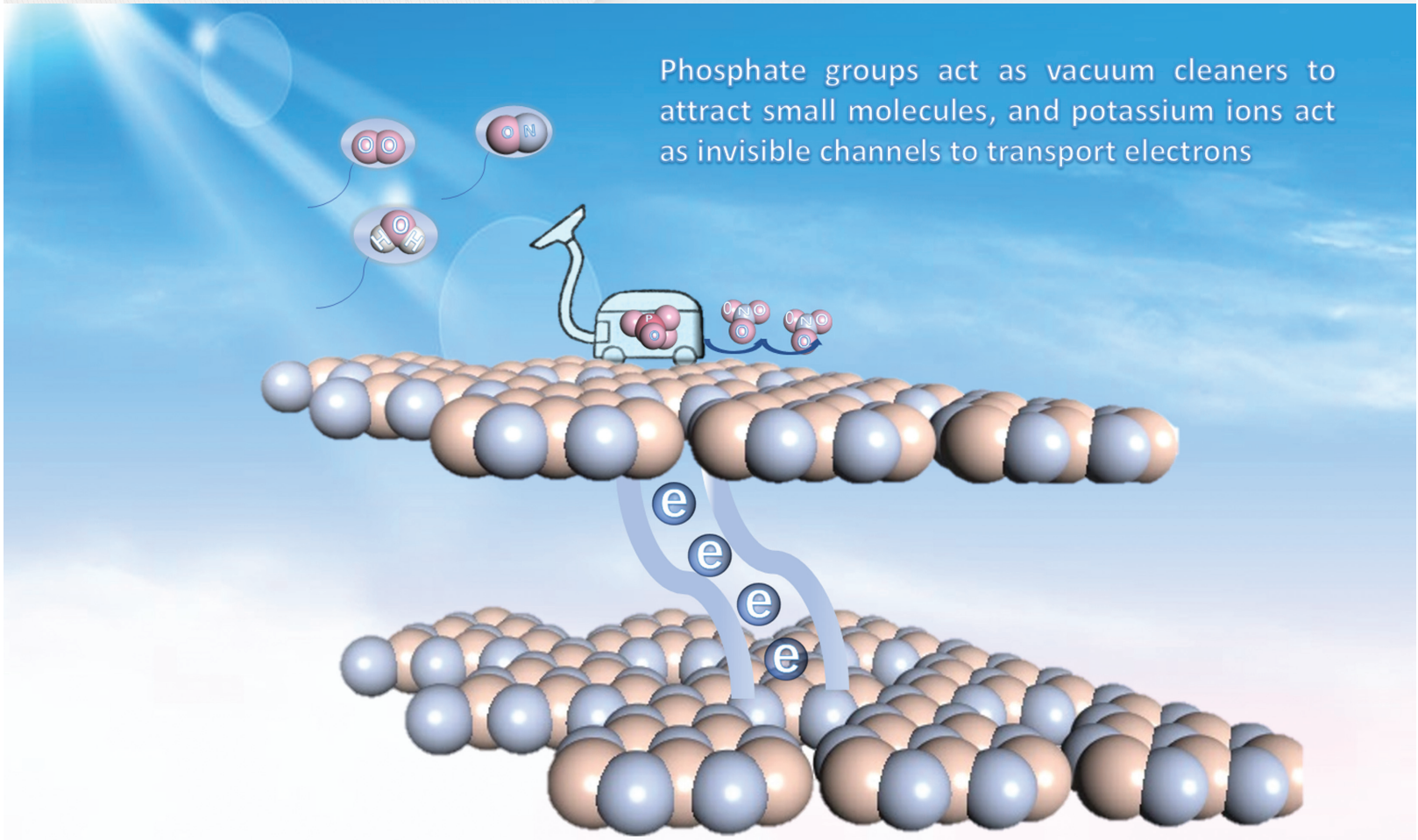


Provided by prof. Fan Dong's group, CTBU, China

REVIEW
Xuhong Qian, Youjun Yang et al.
A general approach to the design of high-performance near-infrared (NIR) D-π-A type fluorescent dyes

COMMUNICATION
Qiang Zhang et al.
Transition metal coordinated framework porphyrin for electrocatalytic oxygen reduction

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# Graphical Abstracts/Chin Chem Lett 30 (2019) iii–viii

## Reviews

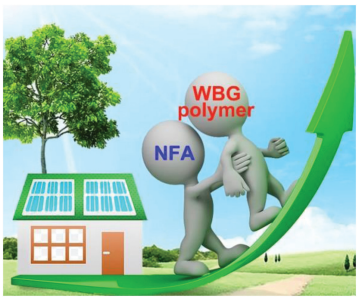
### The recent progress of wide bandgap donor polymers towards non-fullerene organic solar cells

*Chinese Chemical Letters 30 (2019) 809*

Xiaopeng Xu, Guangjun Zhang, Ying Li, Qiang Peng

*Key Laboratory of Green Chemistry and Technology of Ministry of Education, College of Chemistry, State Key Laboratory of Polymer Materials Engineering, Sichuan University, Chengdu 610064, China*

The recent progress of wide bandgap (WBG) donor polymers for non-fullerene polymer solar cells (NF-PSCs) were reviewed in detail, which was classified by D-type and D—A type molecular backbones to discuss the related structure-property correlations and put forward an outlook for future innovations.



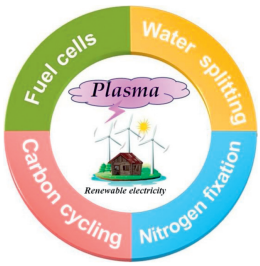

### Low-temperature plasma technology for electrocatalysis

*Chinese Chemical Letters 30 (2019) 826*

Dongdong Wang[a], Yuqin Zou[a], Li Tao[a], Yiqiong Zhang[a], Zhijuan Liu[a], Shiqian Du[a], Shuangquan Zang[b], Shuangyin Wang[a]

[a] *State Key Laboratory of Chem/Bio-Sensing and Chemometrics, Provincial Hunan Key Laboratory for Graphene Materials and Devices, College of Chemistry and Chemical Engineering, Hunan University, Changsha 410082, China*
[b] *College of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou 450001, China*

The latest applications of plasma in energy storage and conversion are summarized here, including using it as the preparation and modification technology of the various electrocatalysts and the usage of it as the synthesis technology directly. Also, the challenges and outlook of plasma technology in energy storage and conversion were summarized, and the solutions and prospected its development in the future were present.



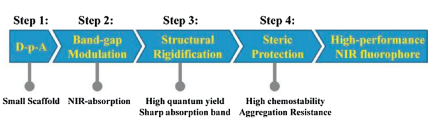

### A general approach to the design of high-performance near-infrared (NIR) D-π-A type fluorescent dyes

*Chinese Chemical Letters 30 (2019) 839*

Xiao Luo[a], Jin Li[b], Jie Zhao[b], Luyan Gu[b], Xuhong Qian[a,b], Youjun Yang[b]

[a] *School of Chemistry and Molecular Engineering, East China Normal University, Shanghai 200062, China*
[b] *State Key Laboratory of Bioreactor Engineering, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China*

A four-step method is presented as a general guideline for design of high performance NIR absorbing/emitting dyes.




doi:10.1016/S1001-8417(19)30168-8

## A mini-review and perspective on ferroptosis-inducing strategies in cancer therapy

Shuaifei Wang[a], Hongwei Liao[a], Fangyuan Li[a], Daishun Ling[a,b,c]

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[b] *Hangzhou Institute of Innovative Medicine, College of Pharmaceutical Sciences, Zhejiang University, Hangzhou 310018, China*
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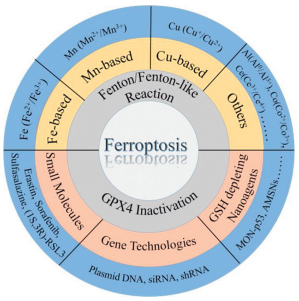
This review summarized recent advances and challenges in ferroptosis-based anticancer strategies through Fenton reaction or GPX4 inactivation, with highlights on nanomaterials and perspectives on future development of next-generation ferroptosis-inducing agents based on diverse polyvalent metals.

*Chinese Chemical Letters 30 (2019) 847*




## Research progress of photocatalysis based on highly dispersed titanium in mesoporous $SiO_2$

Chencheng Dong[a], Jiahui Ji[a], Zhe Yang[b], Yifei Xiao[a], Mingyang Xing[a], Jinlong Zhang[a]

[a] *Key Laboratory for Advanced Materials and Institute of Fine Chemicals, School of Chemistry & Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China*
[b] *Department of Civil Engineering, The University of Hong Kong, Hong Kong, China*

This paper reviewed the $TiO_2$-$SiO_2$ and Ti-$SiO_2$ mesoporous materials and their applications in photocatalysis.

*Chinese Chemical Letters 30 (2019) 853*



# Communications

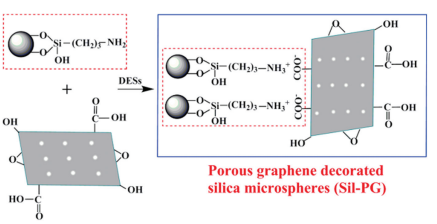

## Porous graphene decorated silica as a new stationary phase for separation of sulfanilamide compounds in hydrophilic interaction chromatography

Lijun Song[a,b], Haijuan Zhang[b], Tianpei Cai[b], Jia Chen[b], Zhan Li[b], Ming Guan[a], Hongdeng Qiu[a,b]

[a] *Laboratory on Pollution Monitoring and Control, College of Chemistry and Chemical Engineering, Xinjiang Normal University, Urumqi 830054, China*
[b] *CAS Key Laboratory of Chemistry of Northwestern Plant Resources and Key Laboratory for Natural Medicine of Gansu Province, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, China*

Porous graphene (PG) was prepared by combustion method and then coated onto aminopropyl-silica in deep eutectic solvents (DESs). PG-modified silica was evaluated in hydrophilic interaction chromatography for the separation and determination of sulfonamides in human serum samples.

*Chinese Chemical Letters 30 (2019) 863*



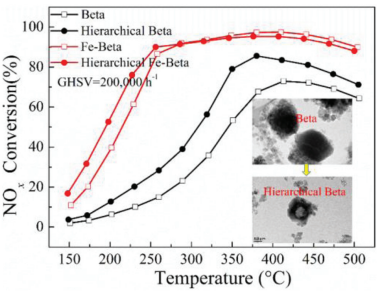

## Improvement of low-temperature catalytic activity over hierarchical Fe-Beta catalysts for selective catalytic reduction of $NO_x$ with $NH_3$

Na Zhu[a,b], Zhihua Lian[a], Yan Zhang[a,c], Wenpo Shan[a,c], Hong He[a,b,c,d]

[a] *Center for Excellence in Regional Atmospheric Environment and Key Laboratory of Urban Pollutant Conversion, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, China*
[b] *University of Chinese Academy of Sciences, Beijing 100049, China*
[c] *Ningbo Urban Environment Observation and Research Station-NUEORS, Institute of Urban Environment, Chinese Academy of Sciences, Ningbo 315800, China*
[d] *State Key Joint Laboratory of Environment Simulation and Pollution Control, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing 100085, China*

Hierarchical Fe-Beta exhibited higher low-temperature $NH_3$-SCR activity than conventional Fe-Beta, due to more active sites and better dispersion of Fe species.

*Chinese Chemical Letters 30 (2019) 867*

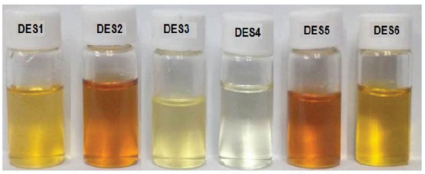


## New deep eutectic solvents composed of crown ether, hydroxide and polyethylene glycol for extraction of non-basic N-compounds

Chinese Chemical Letters 30 (2019) 871

Mohammad Chand Ali[a], Ruirui Liu[b], Jia Chen[a], Tianpei Cai[a], Haijuan Zhang[a], Zhan Li[a], Honglin Zhai[b], Hongdeng Qiu[a]

[a] *CAS key laboratory of Chemistry of Northwestern Plant Resources/Key Laboratory for Natural Medicine of Gansu Province, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, China*
[b] *Department of Chemistry, Lanzhou University, Lanzhou 730000, China*



Crown ether cation-based deep eutectic solvents

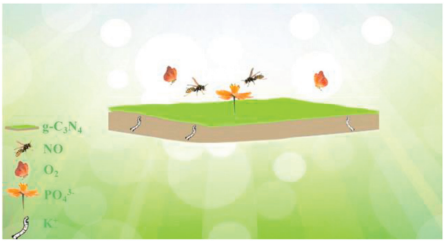
A new family of deep eutectic solvents (DESs) induced by small amounts of crown ether complex and formed mainly by polyethylene glycol was found.

## Promoted reactants activation and charge separation leading to efficient photocatalytic activity on phosphate/potassium co-functionalized carbon nitride

Chinese Chemical Letters 30 (2019) 875

Maoxi Ran[a,b], Peng Chen[a,b], Jiarui Li[a,b], Wen Cui[b,c], Jieyuan Li[b,d], Ye He[b], Jianping Sheng[b], Yanjuan Sun[a,b], Fan Dong[a,b]

[a] *Engineering Research Center for Waste Oil Recovery Technology and Equipment of Ministry of Education, Chongqing Key Laboratory of Catalysis and New Environmental Materials, College of Environment and Resources, Chongqing Technology and Business University, Chongqing 400067, China*
[b] *Research Center for Environmental Science & Technology, Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China, Chengdu 611731, China*
[c] *The Center of New Energy Materials and Technology, School of Materials Science and Engineering, Southwest Petroleum University, Chengdu 610500, China*
[d] *College of Architecture and Environment, Sichuan University, Chengdu 610065, China*



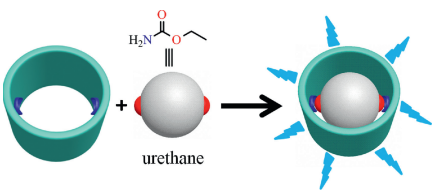

The enhanced photocatalytic activity of phosphate/potassium co-functionalized carbon nitride can be attributed to the promoted reactants activation capacity, the decreased of carriers recombination, and the construction of electronic channels between CN layers.

## Molecular recognition and fluorescent sensing of urethane in water

Chinese Chemical Letters 30 (2019) 881

Lin-Ming Bai[a,b], Huan Yao[b], Liu-Pan Yang[b], Wen Zhang[a], Wei Jiang[b]

[a] *School of Science, Xi'an Jiaotong University, Xi'an 710049, China*
[b] *Department of Chemistry, Southern University of Science and Technology, Shenzhen 518055, China*



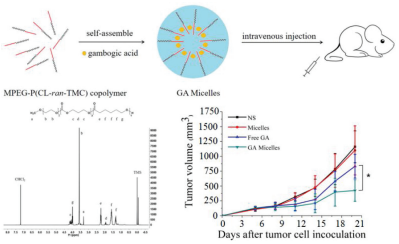

Molecular recognition and fluorescent sensing of Group 2A carcinogen-urethane was achieved in aqueous solution with *endo*-functionalized molecular tubes. The *syn*-configured molecular tube was found to be a good fluorescent sensor for urethane in water (concentration range: 6.2–60 μmol/L) and in beer (concentration range: 22.9–60 μmol/L).

## Gambogic acid-encapsulated polymeric micelles improved therapeutic effects on pancreatic cancer

Chinese Chemical Letters 30 (2019) 885

Yan Wang[a], Xinxin Wang[a], Jing Zhang[a], Li Wang[a], Chunqing Ou[a], Yaqian Shu[a], Qinjie Wu[a], Guolin Ma[b], Changyang Gong[a]

[a] *State Key Laboratory of Biotherapy and Cancer Center, West China Hospital, Sichuan University, Chengdu 610041, China*
[b] *Department of Radiology, China-Japan Friend Hospital, Beijing 100029, China*




Monomethyl poly(ethylene glycol)-poly(ε-caprolactone)-poly(trimethylene carbonate) (MPEG-P(CL-ran-TMC)) copolymer was synthesized, which could encapsulate GA by a single-step solid dispersion and form nano-sized micelles. The MPEG-P(CL-ran-TMC) based nano-formulation of GA could improve the anti-tumor effect *in vivo*, which may serve as a candidate for pancreatic cancer therapy.

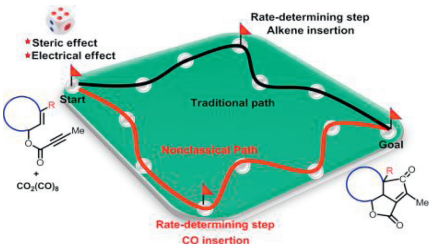
## Theoretical prediction on the reactivity of the Co-mediated intramolecular Pauson-Khand reaction for constructing bicyclo-skeletons in natural products

Lei Zhu[a], Zheyuan Wang[a], Song Liu[a], Tao Zhang[a], Zhen Yang[c], Ruopeng Bai[a], Yu Lan[a,b]

[a] *School of Chemistry and Chemical Engineering, Chongqing Key Laboratory of Theoretical and Computational Chemistry, Chongqing University, Chongqing 400030, China*
[b] *College of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou 450001, China*
[c] *Laboratory of Chemical Genomics, School of Chemical Biology and Biotechnology, Peking University Shenzhen Graduate School, Shenzhen 518055, China*

This work performed a theoretical investigation to explore the mechanism and reactivity of the Co-mediated intramolecular Pauson-Khand reaction for constructing bicyclo-skeletons.

*Chinese Chemical Letters 30 (2019) 889*




## A naked-eye colorimetric sensor for chloroform

Kai Sheng[a,b], Haifeng Lu[b], Anbang Sun[b], Yanmin Wang[c], Yuantao Liu[a], Feng Chen[a], Wenchao Bian[a], Yang Li[a], Rui Kuang[c], Di Sun[b]

[a] *School of Aeronautics, Shandong Jiaotong University, Ji'nan 250037, China*
[b] *School of Chemistry and Chemical Engineering, Shandong University, Ji'nan 250100, China*
[c] *School of Transportation and Civil Engineering, Shandong Jiaotong University, Ji'nan 250037, China*

A phenoxazine based sensor molecule shows fast response (within 5 s) to halogenated solvents, especially chloroform *via* obvious color change under 365 nm UV light irradiation.

*Chinese Chemical Letters 30 (2019) 895*

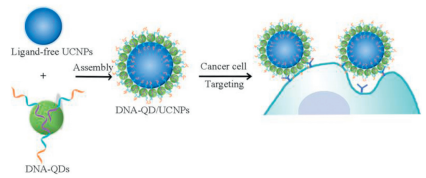

## DNA-mediated coordinative assembly of upconversion hetero-nanostructures for targeted dual-modality imaging of cancer cells

Wenting Xue[a,b], Zhenghan Di[b,c], Ya Zhao[b], Aiping Zhang[a], Lele Li[b,c]

[a] *College of Pharmacy, Shanxi Medical University, Taiyuan 030001, China*
[b] *CAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety and CAS Center for Excellence in Nanoscience, National Center for Nanoscience and Technology, Beijing 100190, China*
[c] *University of Chinese Academy of Sciences, Beijing 100049, China*

We reported a simple and universal strategy for DNA-mediated assembly of CdTe quantum dots (QDs) and lanthanide-doped upconversion nanoparticles (UCNPs). Such DNA-QD/UCNPs heterostructures not only maintains both fluorescent properties of QDs and upconversion luminescence behaviors of UCNPs, but also offers a polyvalent DNA surface, allowing for targeted dual-modality imaging of cancer cells using an aptamer

*Chinese Chemical Letters 30 (2019) 899*



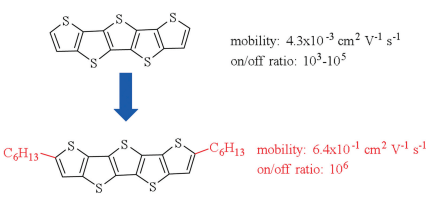

## Hexyl substitution of pentathienoacene toward a significant improvement in charge transport

Ping He[a,b], Hantang Zhang[c], Chunhui Xu[b], Yonggang Zhen[b], Huanli Dong[b], Wenping Hu[d]

[a] *Chemical Synthesis and Pollution Control Key Laboratory of Sichuan Province, China West Normal University, Nanchong 637000, China*
[b] *Beijing National Laboratory for Molecular Science, Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China*
[c] *College of Chemistry and Material Science, Shandong Agriculture University, Tai'an 271018, China*
[d] *Tianjin Key Laboratory of Molecular Optoelectronic Sciences, Department of Chemistry, School of Science, Tianjin University and Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin 300072, China*

The introduction of hexyl chains endows the semiconductor with two or three orders of magnitudes enhancement in carrier mobility or current on/off ratio respectively.

*Chinese Chemical Letters 30 (2019) 903*



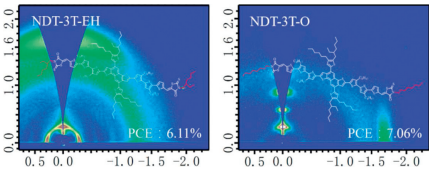
## A-π-D-π-A small-molecule donors with different end alkyl chains obtain different morphologies in organic solar cells

Chinese Chemical Letters 30 (2019) 906

Yanan Shi[a,b], Chen Yang[a,b], Huan Li[a,b], Lixuan Liu[a,b], Ruimin Zhou[a,c], Wenjun Zou[a], Zhen Wang[a,b], Qiong Wu[a,b], Dan Deng[a], Jianqi Zhang[a], Kun Lu[a], Zhixiang Wei[a,b]

[a] CAS Key Laboratory of Nanosystem and Hierarchical Fabrication, CAS Center for Excellence in Nanoscience, National Center for Nanoscience and Technology, Beijing 100190, China
[b] University of Chinese Academy of Sciences, Beijing 100049, China
[c] Sino-Danish College, University of Chinese Academy of Sciences, Beijing 100190, China

The small molecular donors with different end alkyl chains provide appropriate phase separation and molecular stacking orientation for all-small-molecule solar cells. The power conversion efficiency (PCE) have been improved obviously, and the highest PCE reaches 7.06%. The results demonstrate that the optimized end alkyl chains can be used to design A-π-D-π-A backbone structure small molecular electron donors for small-molecule organic solar cells.



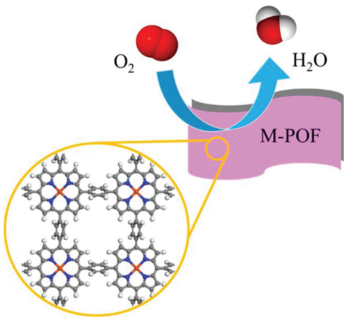

## Transition metal coordinated framework porphyrin for electrocatalytic oxygen reduction

Chinese Chemical Letters 30 (2019) 911

Chang-Xin Zhao[a], Bo-Quan Li[a], Jia-Ning Liu[a], Jia-Qi Huang[b], Qiang Zhang[a]

[a] Beijing Key Laboratory of Green Chemical Reaction Engineering and Technology, Department of Chemical Engineering, Tsinghua University, Beijing 100084, China
[b] Advanced Research Institute of Multidisciplinary Science, Beijing Institute of Technology, Beijing 100081, China

A series of transition metal coordinated framework porphyrin was evaluated regarding the electrocatalytic oxygen reduction reactivity for an optimized selection of the coordinated metal ion.



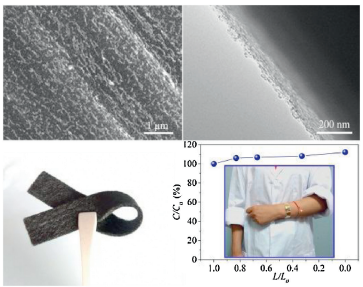

## Activated carbon felts with exfoliated graphene nanosheets for flexible all-solid-state supercapacitors

Chinese Chemical Letters 30 (2019) 915

Zifang Zhao[a], Xiaojun Wang[a], Minjie Yao[a], Lili Liu[b], Zhiqiang Niu[a], Jun Chen[a]

[a] Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), Renewable Energy Conversion and Storage Center (ReCast), College of Chemistry, Nankai University, Tianjin 300071, China
[b] Tianjin Key Laboratory for Photoelectric Materials and Devices, School of Materials Science and Engineering, Tianjin University of Technology, Tianjin 300384, China

Porous activated carbon felts (ACFs) with exfoliated graphene nanosheets were prepared by a simple thermal treatment strategy. They exhibit high gravimetric and areal specific capacitances as well as long-term cycling stability. Impressively, the all-solid-state supercapacitors based on ACFs electrodes deliver stable electrochemical performance even under different bending states.



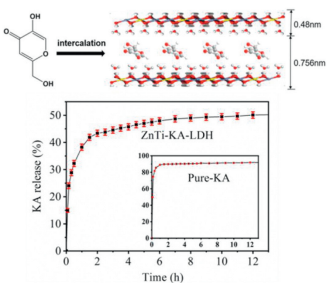

## Intercalation assembly of kojic acid into Zn-Ti layered double hydroxide with antibacterial and whitening performances

Chinese Chemical Letters 30 (2019) 919

Xin-Rui Wang[a], Hui-Min Cheng[a], Xue-Wei Gao[a], Wei Zhou[a], Shu-Jing Li[a], Xue-Li Cao[a], Dongpeng Yan[b]

[a] Beijing Advanced Innovation Center for Food Nutrition and Human Health, Beijing Technology and Business University, Beijing 100048, China
[b] Department of Chemistry, Beijing Normal University, Beijing 100875, China

The inhibitor of melanin and the bacteriostatic agent kojic acid was inserted into Zn-Ti layered double hydroxide (LDH) by anion-exchange reaction. The structure, slow release, antibacterial and skin whitening activity were studied.



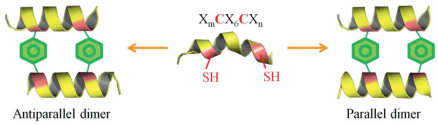
## Interchain doubly-bridged $\alpha$-helical peptides for the development of protein binders

Chinese Chemical Letters 30 (2019) 924

Yaqi Chen, Jingjing Liang, Tao Li, Ping Lin, Yibing Zhao, Chuanliu Wu

*Department of Chemistry, College of Chemistry and Chemical Engineering, The MOE Key Laboratory of Spectrochemical Analysis and Instrumentation, State Key Laboratory of Physical Chemistry of Solid Surfaces, Xiamen University, Xiamen 361005, China*

This work reported the design and synthesis of interchain doubly-bridged $\alpha$-helical peptides, involving mutual stabilization of two $\alpha$-helical peptides crosslinked by two interchain bisthioether crosslinkers.



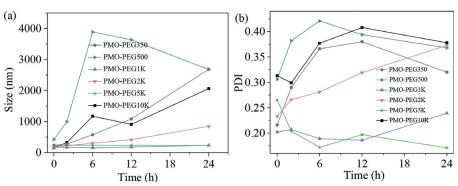

## Controlled PEGylation of periodic mesoporous organosilica nanospheres for improving their stability in physiological solutions

Chinese Chemical Letters 30 (2019) 929

Xiaodan Su[a], Jun Tao[a], Qing Wang[b], Peng Xu[b], Wei Luo[c], Meng Dang[a], Jiang Wu[d], Zhaogang Teng[a,b]

[a] *Key Laboratory for Organic Electronics and Information Displays, Jiangsu Key Laboratory for Biosensors, Institute of Advanced Materials, Jiangsu National Synergetic Innovation Centre for Advanced Materials, Nanjing University of Posts & Telecommunications, Nanjing 210023, China*
[b] *College of Chemical Engineering, Nanjing Forestry University, Nanjing 210037, China*
[c] *State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai 201620, China*
[d] *Department of Nuclear Medicine, Jinling Hospital, School of Medicine, Nanjing University, Nanjing 210002, China*

Thioether-bridged PMO nanospheres are synthesized and modified with different molecular weighted polyethylene glycol (PEG) *via* click reaction for the irst time. This work provides important method and knowledge to guide the modification of PMO for biomedical applications.




## Polymorphism dependent triplet-involved emissions of a pure organic luminogen

Chinese Chemical Letters 30 (2019) 933

Zihan He, Wenbo Li, Gan Chen, Yongming Zhang, Wang-Zhang Yuan

*School of Chemistry and Chemical Engineering, Shanghai Key Lab of Electrical Insulation and Thermal Aging, Shanghai Electrochemical Energy Devices Research Center, Shanghai Jiao Tong University, Shanghai 200240, China*

Fine tuning of the triplet-involved emission is realized in a pure organic polymorphic compound through the changes of conformation and vibration.