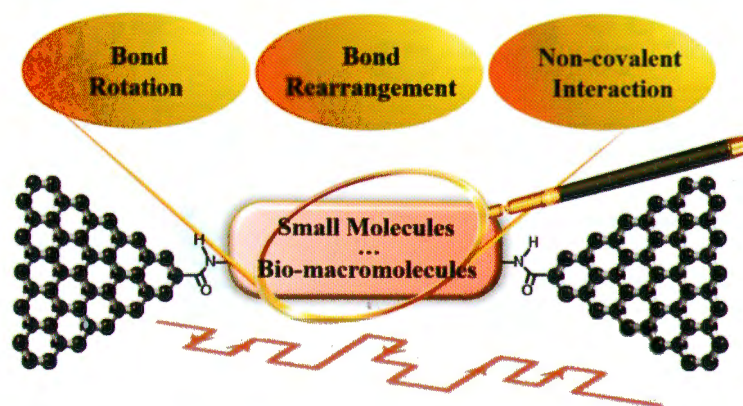


## Chemistry Authors Up Close

### Structural Transition Dynamics in Carbon Electrode-Based Single-Molecule Junctions

Peihui Li, Chuancheng Jia,\* and Xuefeng Guo\*

*Chin. J. Chem.* 2021, 39, 223–231. DOI: 10.1002/cjoc.202000529

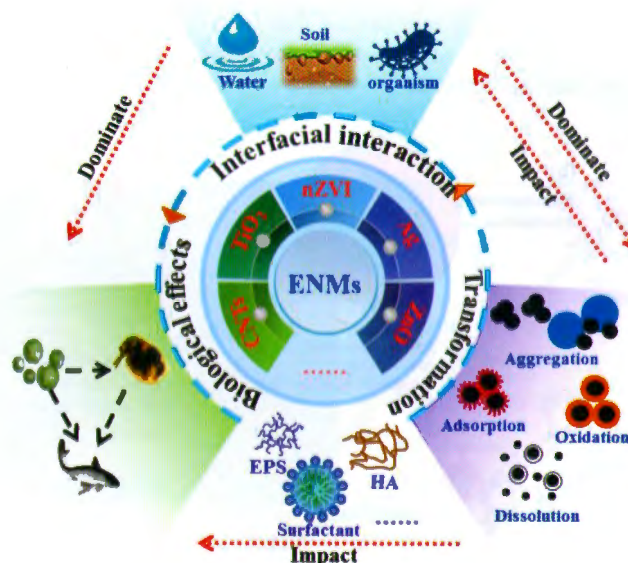


A reliable strategy of using single-molecule electrical approaches to study molecular structure transitions at the single-molecule level in real time was introduced.

### Environmental Behaviors and Biological Effects of Engineered Nanomaterials: Important Roles of Interfacial Interactions and Dissolved Organic Matter

Yanlong Wang, Cheng Lei, and Daohui Lin\*

*Chin. J. Chem.* 2021, 39, 232–242. DOI: 10.1002/cjoc.202000466

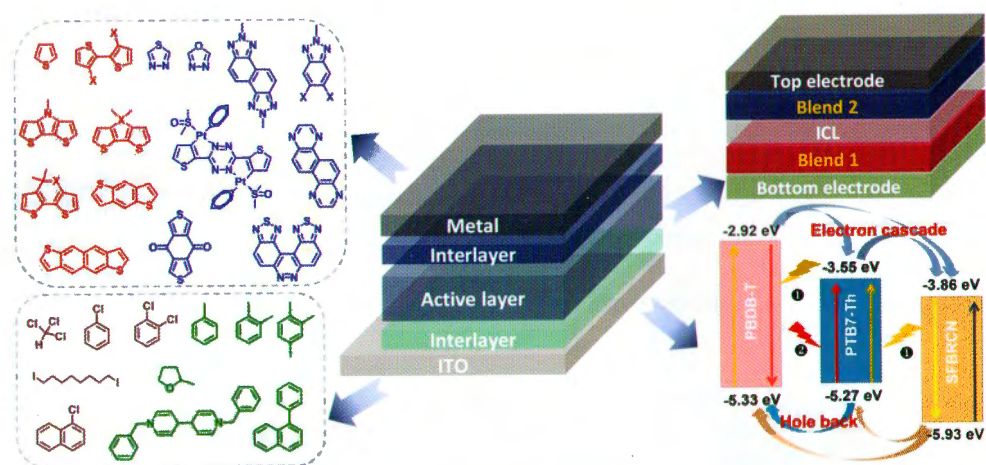




## Recent Advances in Wide Bandgap Polymer Donors and Their Applications in Organic Solar Cells

Xiaopeng Xu, Liyang Yu, and Qiang Peng\*

Chin. J. Chem. 2021, 39, 243–254. DOI: 10.1002/cjoc.202000451



This account mainly summarizes our recent studies on the structural design of wide bandgap (WBG) polymers and their morphology control as well as applications in OSCs, including binary and ternary blend devices as well as tandem solar cells.

## Recent Advances of Trifluoromethoxylation Reactions Using TFMS and TFBO

Xiaohuan Jiang and Pingping Tang\*

Chin. J. Chem. 2021, 39, 255–264. DOI: 10.1002/cjoc.202000465

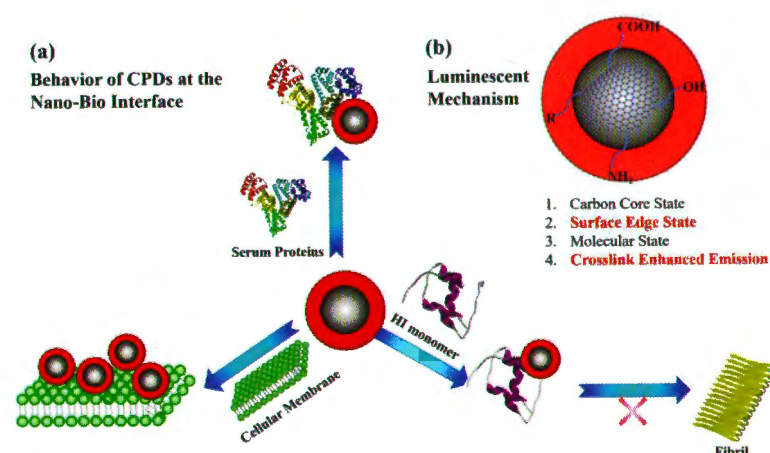


Trifluoromethoxy ( $\text{OCF}_3$ ) group has received increasing attention due to its strong electron-withdrawing effect and high lipophilicity. However, methods for the synthesis of trifluoromethyl ethers are limited due to the reversible decomposition of trifluoromethoxide anion and limited trifluoromethoxylation reagents. This account mainly focuses on the recent advances of trifluoromethoxylation reactions with our new trifluoromethoxylation reagents.

## The Behavior of Carbonized Polymer Dots at the Nano-Bio Interface and Their Luminescent Mechanism: A Physical Chemistry Perspective

Ziqiang Xu and Yi Liu\*

Chin. J. Chem. 2021, 39, 265–273. DOI: 10.1002/cjoc.202000334



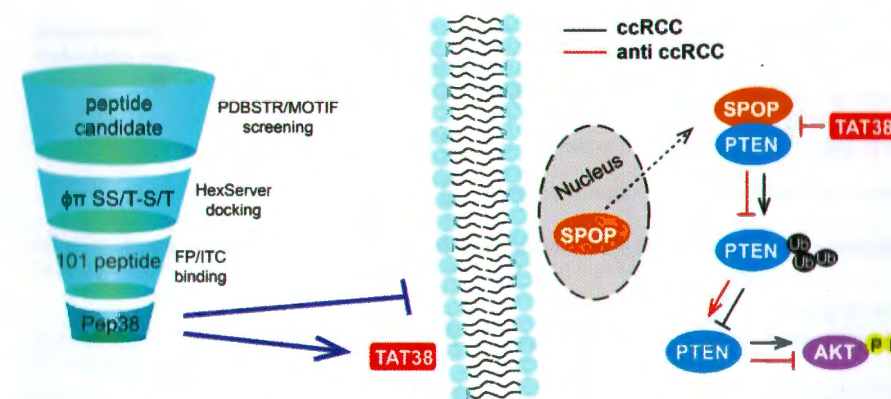
The behavior of CPDs at nano-bio interface has been elucidated from the perspective of physical chemistry. And their luminescent mechanism has also been included in this review.

## Concise Reports

## A Peptide Binder of E3 Ligase Adaptor SPOP Disrupts Oncogenic SPOP-Protein Interactions in Kidney Cancer Cells

Zhen Wang, Hao Zhang, Baoen Chen, Sisheng Ouyang, Tong Zheng, Ran Zhou, Ze Dong, Yue Huang, Tao Zhang, Hualiang Jiang, Jianhua Gan, Cheng Luo,\* and Cai-Guang Yang\*

Chin. J. Chem. 2021, 39, 274–280. DOI: 10.1002/cjoc.202000462

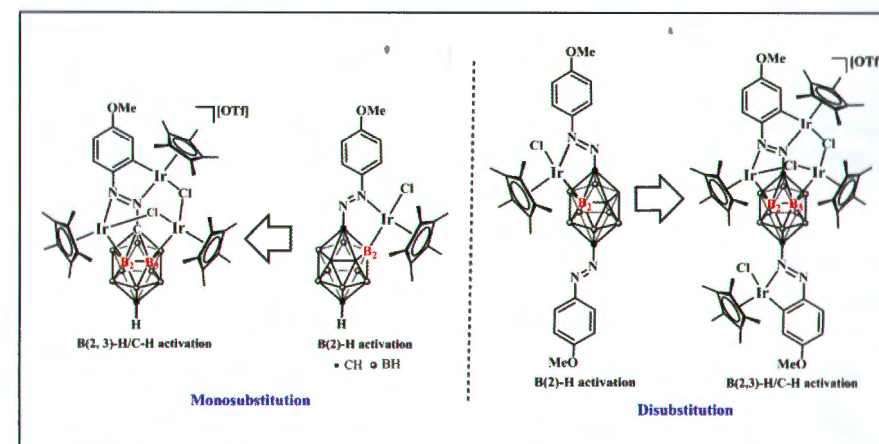


The E3 ligase adaptor SPOP is overexpressed and dislocated into the cytoplasm in all ccRCC, which can promote proliferation and lead to kidney tumorigenesis. Through computational design, biophysical characterization and a TAT-delivery sequence incorporated, we identified TAT38 that can disrupt SPOP-substrate interactions. The peptide inhibitors provide that the oncogenic SPOP-signaling pathway in ccRCC could be a druggable target specifically applicable to the therapy of kidney cancers.

## Regioselective B—H/C—H Bond Activation at Azo-Substituted Carboranes Induced by Half-Sandwich Iridium(III) Complex

Peng-Fei Cui, Yang Gao, Shu-Ting Guo, and Guo-Xin Jin\*

Chin. J. Chem. 2021, 39, 281–287. DOI: 10.1002/cjoc.202000461

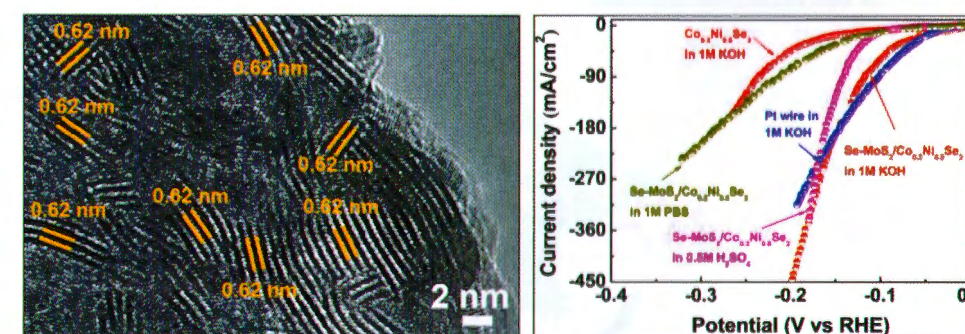


Iridium-induced selective C—H/B—H bond activations has been achieved featuring azobenzene directing groups. A series of mono-nuclear, dinuclear, trinuclear and even tetra-nuclear complexes have been obtained.

## Boosting pH-Universal Hydrogen Evolution of Molybdenum Disulfide Particles by Interfacial Engineering

Liling Liao, Lun Yang, Gang Zhao, Haiqing Zhou,\* Fengming Cai, Yi Li, Xiuzhang Wang,\* and Fang Yu\*

Chin. J. Chem. 2021, 39, 288–294. DOI: 10.1002/cjoc.202000487



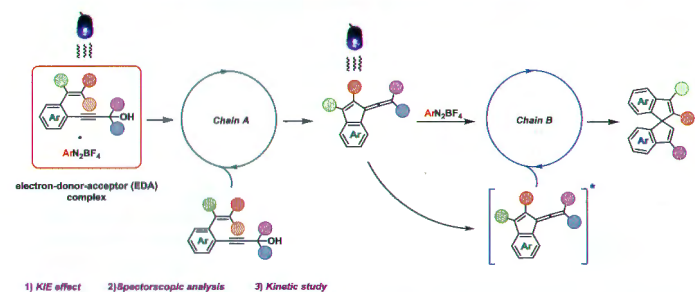
Se-doped  $\text{MoS}_2$  particles are in-situ synthesized on  $\text{Co}_{0.2}\text{Ni}_{0.8}\text{Se}_2$  nanostructured arrays to form a hybrid catalyst with numerous active edge sites exposed on the surface, which exhibit outstanding catalytic performance with intriguing pH universality for the hydrogen evolution, featured by extremely low overpotentials of 30, 93 and 94 mV to deliver  $10 \text{ mA/cm}^2$  with outstanding durability in basic, acidic and neutral electrolytes, respectively.



## Mechanistic Studies on Propargyl Alcohol-Tethered Alkylidenecyclopropane with Aryldiazonium Salt Initiated by Visible Light

Jiaxin Liu, Yin Wei,\* and Min Shi

Chin. J. Chem. 2021, 39, 295–300. DOI: 10.1002/cjoc.202000469



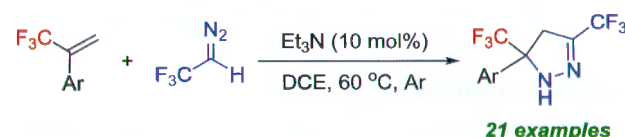
The plausible reaction mechanism of a visible-light photo-induced reaction for rapidly constructing spirobi[indene]s has been established through systematically mechanistic studies.

1) KIE effect 2) Spectroscopic analysis 3) Kinetic study

Et<sub>3</sub>N-Catalyzed Cycloaddition Reactions of  $\alpha$ -(Trifluoromethyl)styrenes with 2,2,2-Trifluorodiazethane to Access Bis(trifluoromethyl)-Substituted Pyrazolines

Chunmei Li, Xuxue Zhang, Jingjing He, Sixue Xu, and Song Cao\*

Chin. J. Chem. 2021, 39, 301–306. DOI: 10.1002/cjoc.202000480



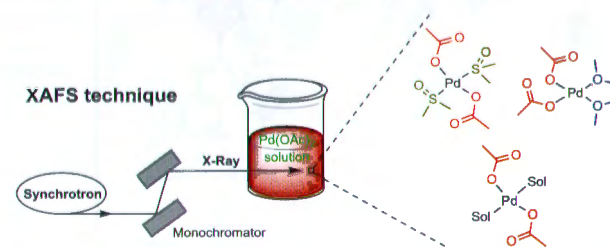
- Good to excellent yields
- Excellent functional group tolerance
- High atom economy
- High regioselectivity
- Mild reaction conditions
- Gram-scale synthesis

A novel method for the synthesis of bis(trifluoromethyl)-substituted pyrazolines by cycloaddition reactions of  $\alpha$ -(trifluoromethyl)styrenes with CF<sub>3</sub>CHN<sub>2</sub> has been developed. The cyclization reaction proceeds smoothly in the presence of a catalytic amount of Et<sub>3</sub>N, affording a variety of bis(trifluoromethyl)-substituted 2-pyrazolines in good to excellent yields. This method also exhibits a broad substrate scope and tolerates various functional groups.

The Real Structure of Pd(OAc)<sub>2</sub> in Various Solvents

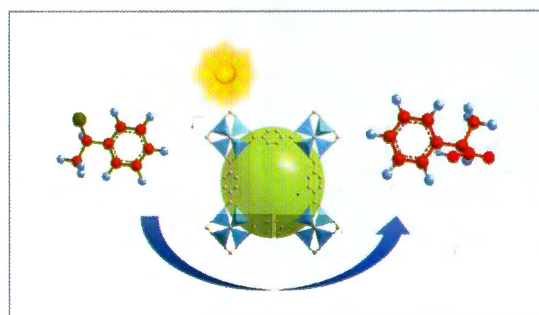
Dongchao Zhang, Dali Yang, Shengchun Wang, Li Zeng, Jie Xin, Heng Zhang,\* Aiwen Lei\*

Chin. J. Chem. 2021, 39, 307–311. DOI: 10.1002/cjoc.202000483

Photocatalytic Carboxylation of Phenyl Halides with CO<sub>2</sub> by Metal-Organic Frameworks Materials

Lina Su, Yin Zhang, Xueying Qiu, Jianyu Han, and Zhiyong Tang\*

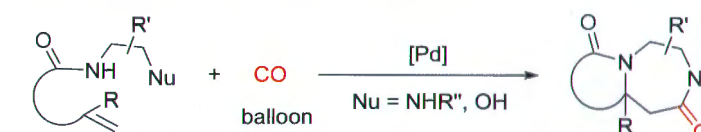
Chin. J. Chem. 2021, 39, 312–316. DOI: 10.1002/cjoc.202000463



## Palladium-Catalyzed Tandem Carbonylative Aza-Wacker-Type Cyclization of Nucleophile Tethered Alkene to Access Fused N-Heterocycles

Lijun Shi, Mingshan Wen, and Fuwei Li\*

Chin. J. Chem. 2021, 39, 317–322. DOI: 10.1002/cjoc.202000491



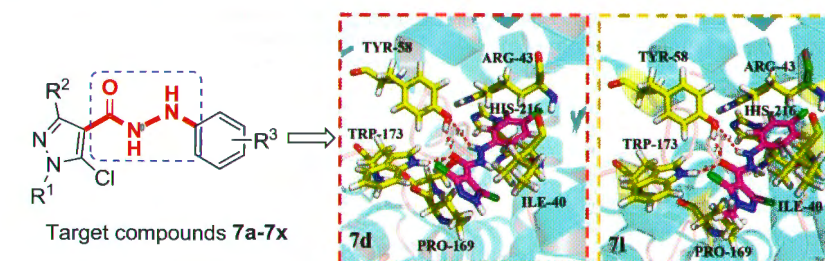
- amide favors the aminopalladation of alkenes
- the formation of urea derivative is efficiently inhibited
- catalytic amount of Cl<sup>-</sup> promotes the carbonylation

An efficient Pd-catalyzed tandem carbonylative aza-Wacker difunctionalization of alkene to synthesize fused seven-membered N-heterocycles has been developed with good functional-group compatibility and high selectivity.

## Synthesis, Bioactivity Evaluation, 3D-QSAR, and Molecular Docking of Novel Pyrazole-4-carbohydrazides as Potential Fungicides Targeting Succinate Dehydrogenase

Jian Jiao, Min Chen, Shengxin Sun, Weijie Si, Xiaobin Wang, Weijie Ding, Xincan Fu, An Wang, and Chunlong Yang\*

Chin. J. Chem. 2021, 39, 323–329. DOI: 10.1002/cjoc.202000438



Target compounds 7a-7x

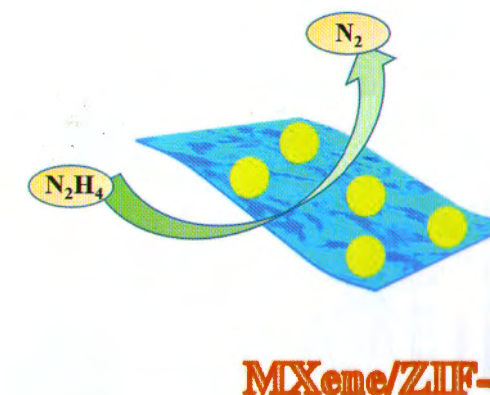
Antifungal activities against *F. graminearum* :  
 7d: R<sup>1</sup> = H, R<sup>2</sup> = Cl, R<sup>3</sup> = 4-Cl. EC<sub>50</sub> = 0.56  $\mu$ g/mL;  
 7l: R<sup>1</sup> = Me, R<sup>2</sup> = Cl, R<sup>3</sup> = 4-Cl. EC<sub>50</sub> = 0.47  $\mu$ g/mL.

The compounds 7d and 7l were identified as the most promoting fungicide candidates against *F. graminearum* with the comparable antifungal EC<sub>50</sub> values (0.56 and 0.47  $\mu$ g/mL) to that of carbendazim (0.43  $\mu$ g/mL). Compounds 7d and 7l showed three visible strong hydrogen bonds with the side chain amino acid residues of Tyr58 and Trp173, which play a crucial role in maintaining fungicidal activity.

## Detection of Hydrazine at MXene/ZIF-8 Nanocomposite Modified Electrode

Yanqing Yao, Xuhui Han, Xuanhe Yang, Jia Zhao, and Chunpeng Chai\*

Chin. J. Chem. 2021, 39, 330–336. DOI: 10.1002/cjoc.202000398



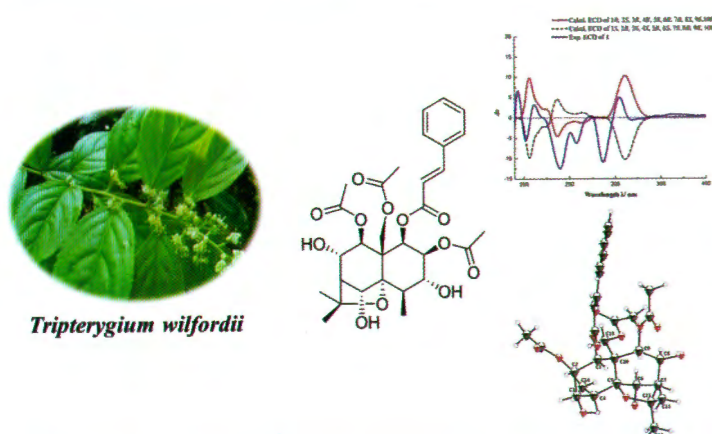
The ZIF-8 loaded on MXenes composite has been synthesized by a simple method. The obtained MXene/ZIF-8 hybrid is used as electrocatalyst for the oxidation of hydrazine.



Discovery of  $\beta$ -Dihydroagarofuran-Type Sesquiterpenoids from the Leaves of *Tripterygium wilfordii* with Neuroprotective Activities

Shuhui Dong, Bin Lin, Xiaobian Xue, Ming Bai, Xiaoxiao Huang, and Shaojiang Song\*

Chin. J. Chem. 2021, 39, 337–344. DOI: 10.1002/cjoc.202000471



In this study, nine undescribed sesquiterpenoid esters and one known analogue were isolated and their absolute configurations were elucidated by means of single-crystal X-ray diffraction analysis and electron circular dichroism (ECD) techniques.

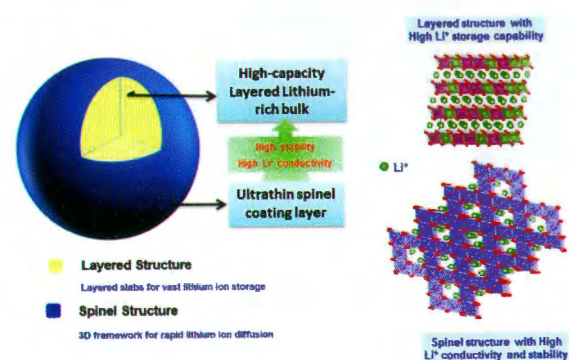
Tripterygium wilfordii

## Comprehensive Reports

## Ultrathin 3 V Spinel Clothed Layered Lithium-Rich Oxides as Heterostructured Cathode for High-Energy and High-Power Li-ion Batteries

Liqin Dai, Ning Li,\* Lai Chen, Yuefeng Su,\* Cheng-Meng Chen, Fangyuan Su, Liying Bao, Shi Chen, and Feng Wu

Chin. J. Chem. 2021, 39, 345–352. DOI: 10.1002/cjoc.202000371

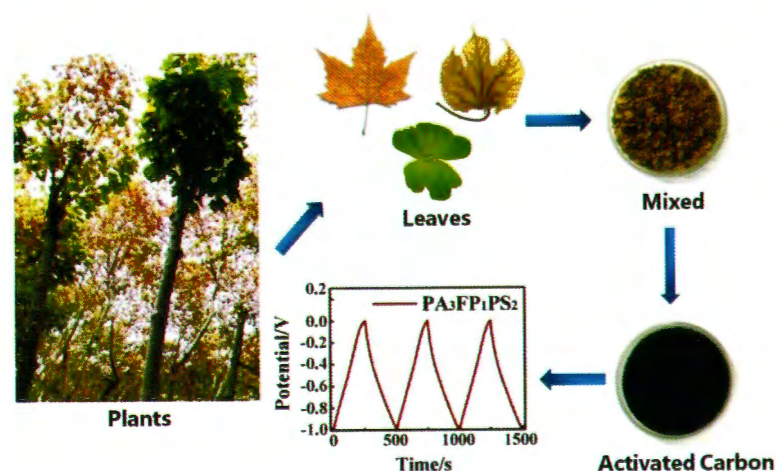


Ultrathin 3 V spinel clothing enables high capacity, superior cycling stability and outstanding rate performance of the layered lithium-rich cathode materials.

## Preparation and Characterization of Porous Carbon from Mixed Leaves for High-Performance Supercapacitors

Xiaoxiang Yang, Jie Xu, Xin Chen,\* Yuli Lei, Lingling Wang, Siyu Cheng, Yan Li, Yuxuan Lu, Yupeng Zhu, and Na Chen

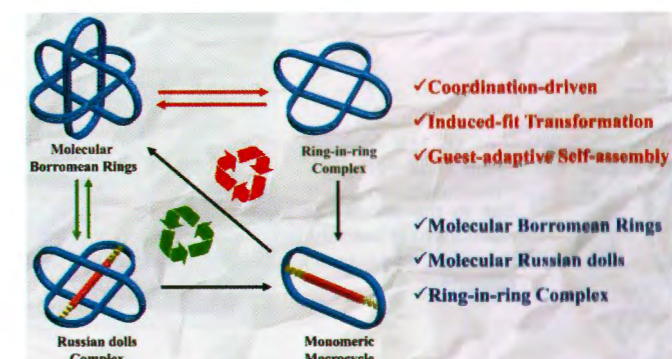
Chin. J. Chem. 2021, 39, 353–359. DOI: 10.1002/cjoc.202000348



## Adaptive Self-Assembly and Induced-Fit Interconversions between Molecular Borromean Rings, Russian Dolls and Ring-in-Ring Complexes

Ye Lu\*, Dong Liu, Zheng Cui, Yue-Jian Lin, and Guo-Xin Jin\*

Chin. J. Chem. 2021, 39, 360–366. DOI: 10.1002/cjoc.202000406



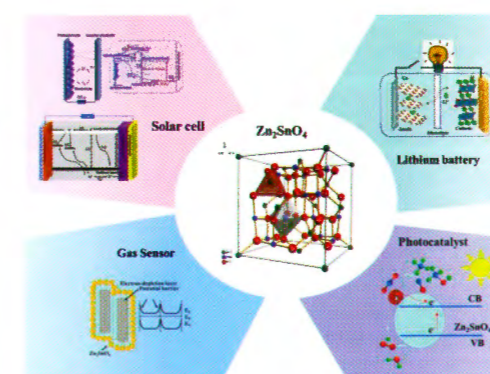
Herein, we report an artificially assembled interlocked system that shows adaptive self-assembly and induced-fit transformation behavior in the presence of appropriate guest molecules. By careful choice of solvent and guests, a molecular Borromean rings complex based on organometallic half-sandwich units could be stepwise and reversibly transformed to a ring-in-ring complex, a Russian dolls complex and a monomeric rectangle.

## Recent Advances

## Zinc Stannate Nanostructures for Energy Conversion

Jie Dou and Qi Chen\*

Chin. J. Chem. 2021, 39, 367–380. DOI: 10.1002/cjoc.202000369

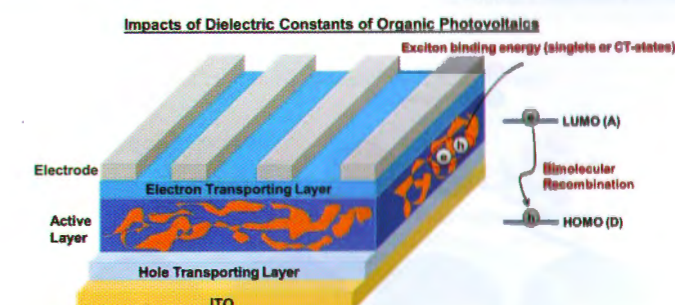


We summarized the crystalline structures, synthesis methods and applications of Zn<sub>2</sub>SnO<sub>4</sub>.

## On the Understandings of Dielectric Constant and Its Impacts on the Photovoltaic Efficiency in Organic Solar Cells

Zihao Fu, Xuning Zhang, Hong Zhang, Yanxun Li, Huiqiong Zhou, and Yuan Zhang\*

Chin. J. Chem. 2021, 39, 381–390. DOI: 10.1002/cjoc.202000289



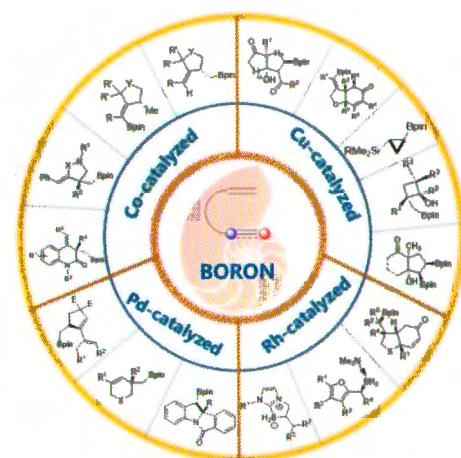
Increasing dielectric constant of bulk heterojunctions can benefit the performance of OSCs, as an increased dielectric constant will reduce the influence of Coulomb interactions between weakly bound electron-hole pairs on charge transfer-states and bimolecular recombination via mobile carriers to reduce geminate or nongeminate losses.



## Transition Metal Catalyzed Enantioselective Borylative Cyclization Reactions

Yuqi Ji, Min Zhang, Mimi Xing, Huanhuan Cui, Qian Zhao, and Chun Zhang\*

Chin. J. Chem. 2021, 39, 391–401. DOI: 10.1002/cjoc.202000419

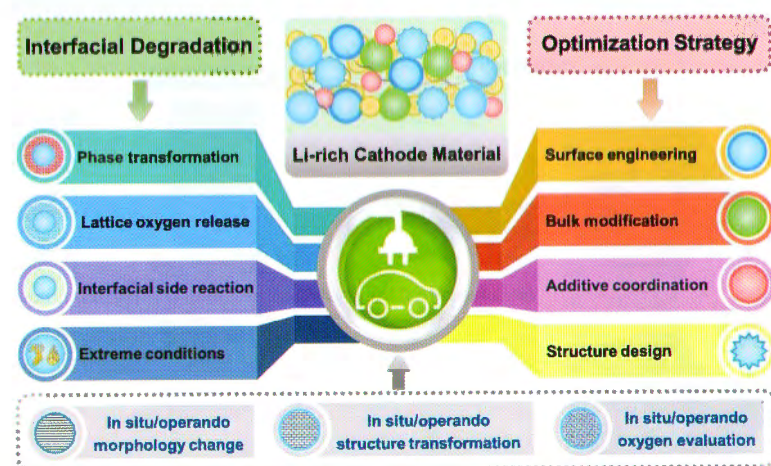


Due to the importance of corresponding products, enantioselective borylative cyclization reactions have been studied intensively in recent years. This review summarized and reviewed the recent advances in this field, and classified these work according to the species of metal catalysts.

## Interfacial Degradation and Optimization of Li-rich Cathode Materials

Yuefeng Su, Jiayu Zhao, Lai Chen,\* Ning Li, Yun Lu, Jinyang Dong, Youyou Fang, Shi Chen, and Feng Wu

Chin. J. Chem. 2021, 39, 402–420. DOI: 10.1002/cjoc.202000387

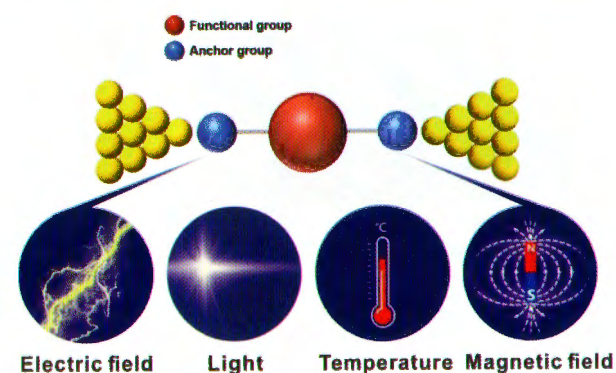


## Critical Review

## Towards Responsive Single-Molecule Device

Yaorong Chen, Longfeng Huang, Hang Chen, Zhixin Chen, Hwei Zhang, Zongyuan Xiao,\* and Wenjing Hong\*

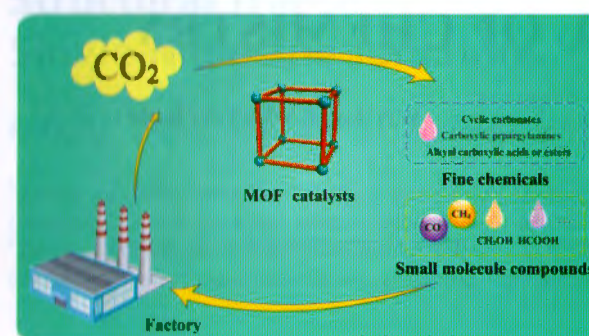
Chin. J. Chem. 2021, 39, 421–439. DOI: 10.1002/cjoc.202000420



## Recent Advances on Metal-Organic Frameworks in the Conversion of Carbon Dioxide

Xiongli Liu, Jinli Li, Na Li, Baiyan Li,\* and Xian-He Bu\*

Chin. J. Chem. 2021, 39, 440–462. DOI: 10.1002/cjoc.202000357

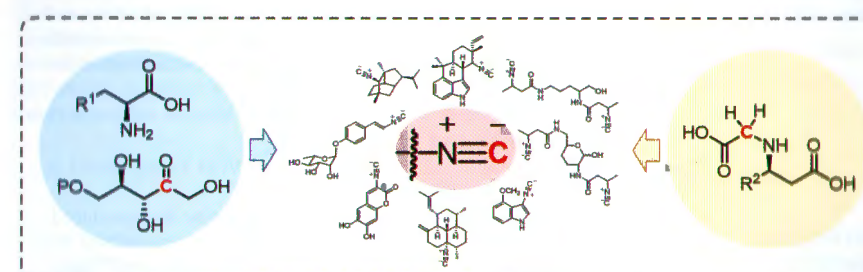


Conversion of CO<sub>2</sub> to useful chemicals by MOFs became one of the efficient methods to solve the environmental problems. In this article, we accounted for the recent advances in the chemicals catalyzed by MOFs.

## Current Understanding toward Isonitrile Group Biosynthesis and Mechanism

Tzu-Yu Chen, Jinfeng Chen, Yijie Tang, Jiahai Zhou,\* Yisong Guo,\* and Wei-chen Chang\*

Chin. J. Chem. 2021, 39, 463–472. DOI: 10.1002/cjoc.202000448

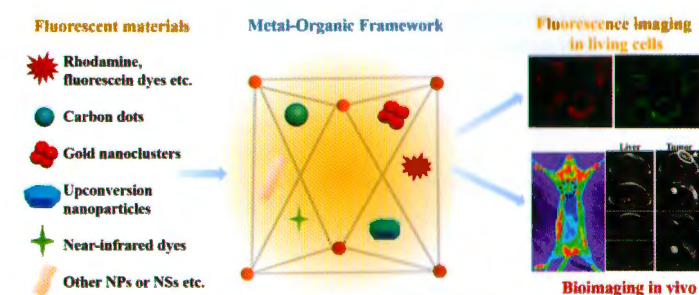


Isonitrile, a.k.a. isocyanide, is an important functional group found in natural products. Recent progress in elucidating biosynthetic pathways and the corresponding enzymes involved in isonitrile group installation is summarized.

Metal-Organic Frameworks-Based Fluorescent Nanocomposites for Bioimaging in Living Cells and *In vivo*

Meijia Liu, Xiangling Ren, Xianwei Meng, and Hongbo Li\*

Chin. J. Chem. 2021, 39, 473–487. DOI: 10.1002/cjoc.202000410



## Chiral Imidazoline Ligands and Their Applications in Metal-Catalyzed Asymmetric Synthesis

Jiajing Li, Bing Yu, and Zhan Lu\*

Chin. J. Chem. 2021, 39, 488–514. DOI: 10.1002/cjoc.202000486

