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IN THIS ISSUE

ISSN 1144–0546 CODEN NJCHES 47(27) 12495–13018 (2023)

Cover
See Yuji Kubo *et al.*, pp. 12554–12560.
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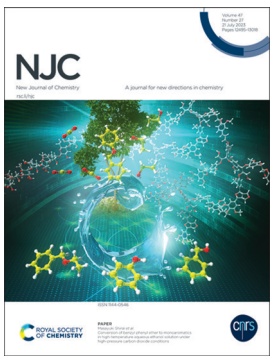

Inside cover
See Masayuki Shirai *et al.*, pp. 12561–12569.
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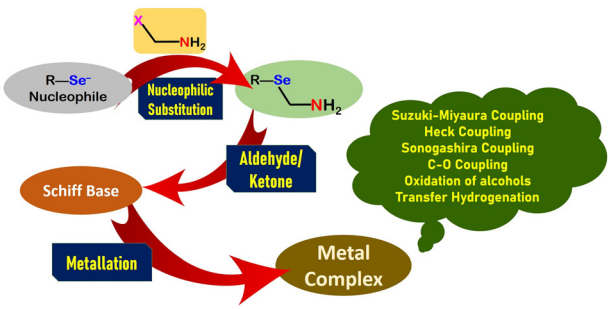
PERSPECTIVE

12511

Nucleophilic substitution reaction as an important tool in the synthetic protocol for selenium donor containing Schiff bases: applications of metal complexes in homogeneous catalysis

Anupma Tyagi, Suraj Purohit, Preeti Oswal, Saumya Rawat, Varsha Negi, Ajai K. Singh and Arun Kumar*

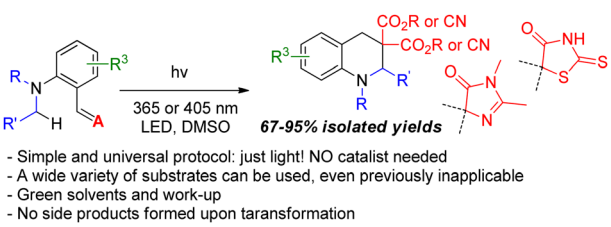


COMMUNICATIONS

12536

Photoinduced [1,5]-hydride shift triggered cyclization

Nadezhda S. Baleeva, Alexander Yu. Smirnov, Elvira R. Zaitseva, Dmitrii S. Ivanov, Anatolii I. Sokolov, Andrey A. Mikhaylov, Ivan N Myasnyanko and Mikhail S. Baranov*



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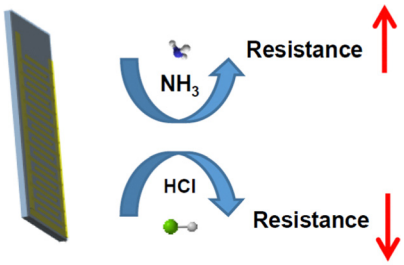
COMMUNICATIONS

12541

Non-stoichiometric hybrid halide perovskite film for gaseous NH_3 and HCl sensing

Guishun Li, Guangning Hou, Xinghan Zhang, Chongyu Yu, Dianrong Han, Chengbin Jing* and Junhao Chu

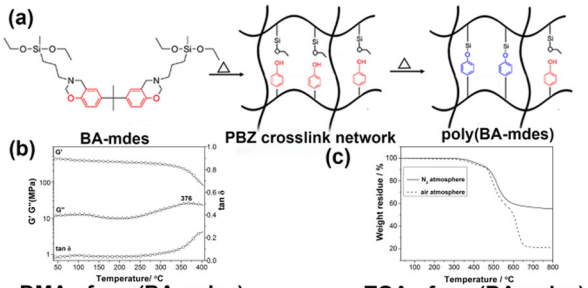


PbI_2-rich $MAPbI_3$–based sensor

12546

Additionally cross-linked organic–inorganic hybrid polybenzoxazine with a high T_g

Bin Wang, Haoxiang Zang, Jiahao Liu, Shiqiang Liu and Sheng Gao*

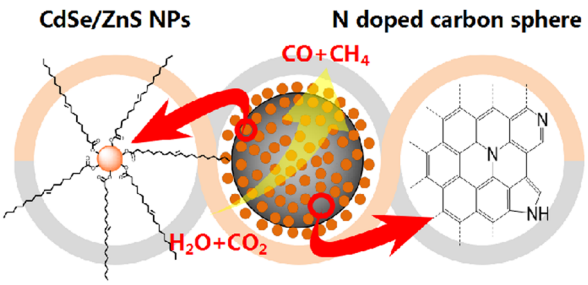


DMA of poy(BA-mdes) TGA of poy(BA-mdes)

12550

Preparation and properties of ZnS–CdSe@Co/N–C core/shell composites for visible light photoconversion of CO_2

Kai Zhang, Yue Xu, Fan Liu,* Guo-Ping Yan* and San-Wei Guo*



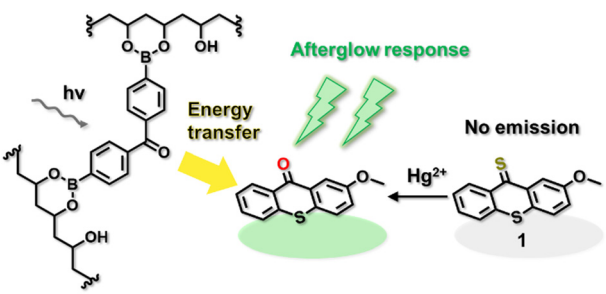
CdS-CdSe@$CoCl_2$/N-C

PAPERS

12554

Turn-on type afterglow probe for Hg^{2+} sensing by a PVA-mediated triplet sensitizer

Satoshi Takegawa, Masato Ito and Yuji Kubo*



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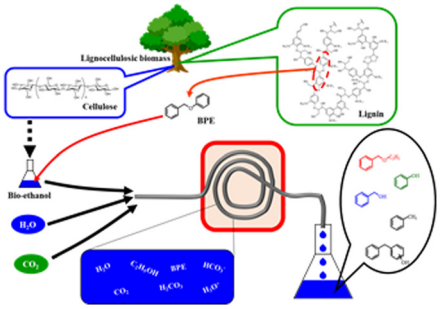
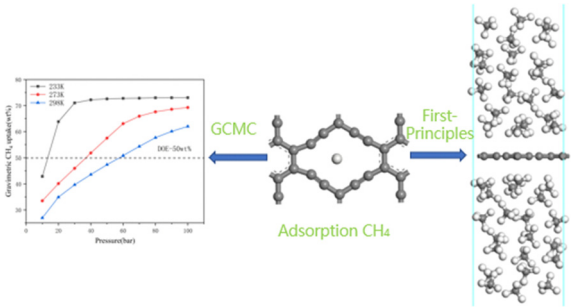
12561



Conversion of benzyl phenyl ether to monoaromatics in high-temperature aqueous ethanol solution under high-pressure carbon dioxide conditions

Kenkichi Taniguchi, Etty N. Kusumawati, Hidetaka Nanao, Chandrashekhar V. Rode, Osamu Sato, Aritomo Yamaguchi and Masayuki Shirai*

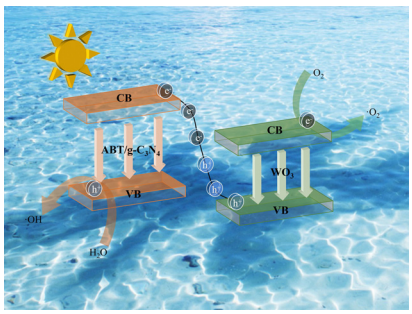
12570



Storage properties of 6,6,12-graphyne methane: a Monte Carlo and first-principles study

Cheng-Hui Chen, Yu-Hong Chen,* Jia-Lin Sun, Zhi-Wei Chen, Cai-Cai Zhou, Mei-Ling Zhang, Cui-Cui Sang and Cai-Rong Zhang

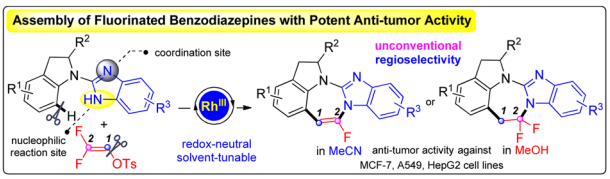
12580



Construction of 2-aminobenzothiazole (ABT)-g-C_3N_4/WO_3 composites with enhanced visible-light photocatalytic activity and properties

Pengpeng Li, Fangfang Li and Fu Su*

12589



Assembly of fluorinated benzodiazepines *via* Rh(III)-catalysed [5+2] annulation of *N*-benzo[*d*]imidazole indolines with 2,2-difluorovinyl tosylate

Fu-Xiaomin Liu, Weijie Chen, Lei Ma, Kui Cheng,* Zhi Zhou* and Wei Yi*

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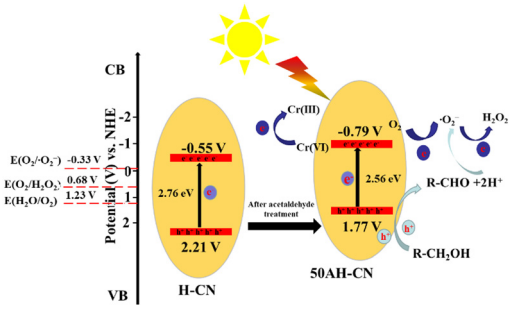
12595

Fabrication of nitrogen-deficient g-C_3N_4 nanosheets *via* an acetaldehyde-assisted hydrothermal route and their high photocatalytic performance for H_2O_2 production and Cr(VI) reduction

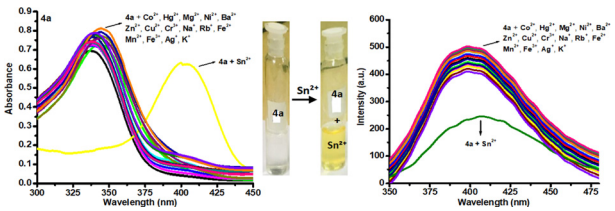
Longtao Wang, Feng Li, Qingyun He, Xingqiang Liu* and Changlin Yu*



12608

Heterocycle-derived organosilatranes as naked eye sensors for Sn^{2+} ions and their potential inhibiting activity against HIV-1 protease *via* a computational approach

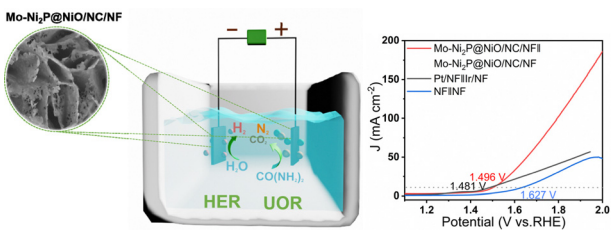
Gurjaspreet Singh,* Diksha,* Mohit, Priyanka, Anita Devi, Swati Devi, Harshbir Kaur, Jandeep Singh and Gurleen Singh



12620

***In situ*-grown Mo-doped MOF-derived phosphide supported nanosheets as an efficient bifunctional electrocatalyst towards urea–water electrolysis**

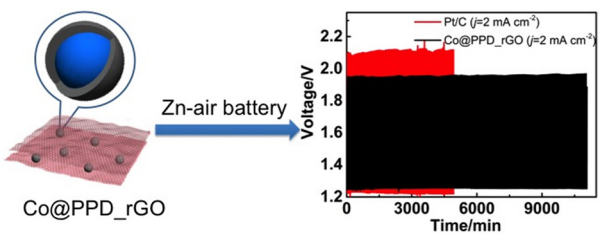
Ying Wu, Junhao Lu, Jinjin Zhao, Ran Zhang, Shaohong Zhang and Zhijuan Wang*



12628

Dual-protected Co@PPD_rGO core@bishell nanomaterials as efficient bifunctional electrocatalysts for long-life rechargeable zinc–air battery

Ran Zhang, Junhao Lu, Jinjin Zhao, Ying Wu and Zhijuan Wang*



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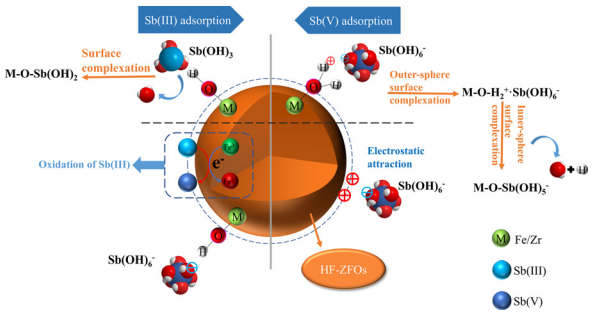
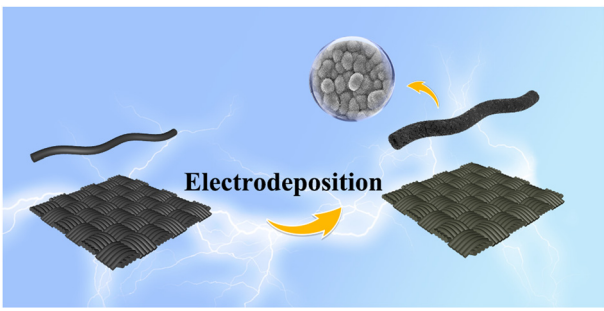


Highly efficient adsorption of Sb(III) and Sb(V) from water using a hybrid functional Zr–Fe metallic oxide composite

Yan Qin, Yang Zeng, Xiangtao Tang, Wenqing Zhang and Lingfan Zhang*

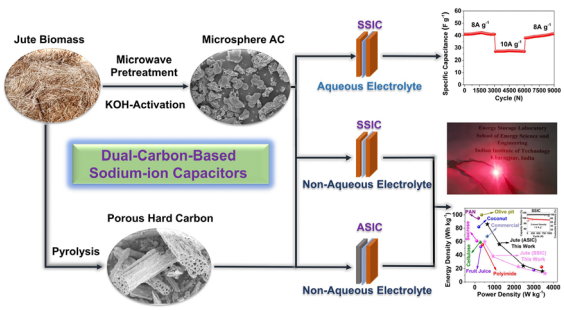
12649



One-step electrodeposition preparation of $NiCoSe_2$@carbon cloth as a flexible supercapacitor electrode material

Yi Jiang,* Bin Cai, Ruixiang Xu, Hao Gu, Xin Qi, Zhenjun Xu, Jing Xu and Guosong Liu*

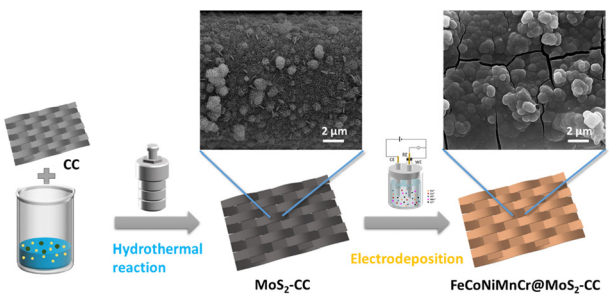
12658



Utilization of single biomass-derived micro-mesoporous carbon for dual-carbon symmetric and hybrid sodium-ion capacitors

Nagmani, Biraj Kanta Satpathy, Abhijeet Kumar Singh, Debabrata Pradhan and Sreeraj Puravankara*

12670



An amorphous FeCoNiMnCr high-entropy alloy supported by 2H-MoS_2 on carbon cloth as a highly efficient and robust electrocatalyst for water oxidation

Weiwen Cao, Xuanyu Yang, Weiji Dai,* Bing Wu, Yudong Zhang, Cuijiao Zhao, Yanwei Sui and Saifang Huang*

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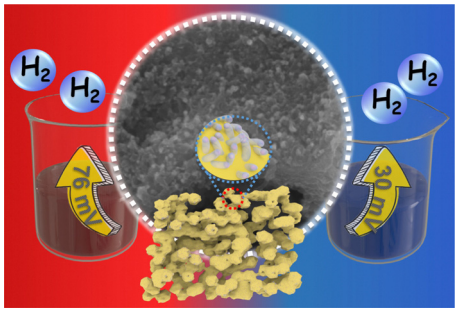
Rough Ni@MoN corals for the hydrogen evolution reaction in acidic and alkaline media

Yu Zhang, Baiqing Zhang, Xiangcun Liu, Zhuoxun Yin,* Xinzhi Ma,* Yang Zhou,* Wei Chen, Jinlong Li and Lingling Xu



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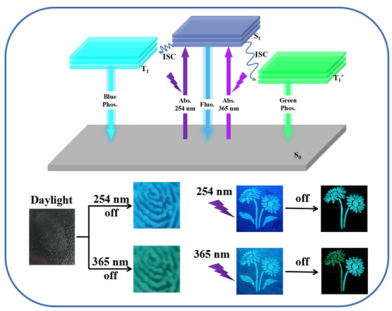
The synthesis and application of an excitation-dependent ultra-long lifetime room temperature phosphorescence carbon dot composite

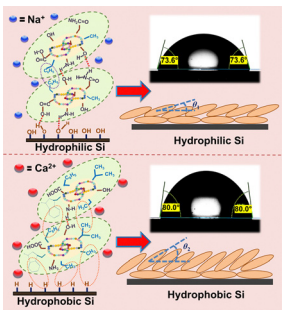
Zhaopeng Chen, Xiumin Liang, Dan He, Min Hu* and Luan Wen



12697

Effect of ions on the adsorption of lysozyme protein below its isoelectric point on hydrophilic (OH–Si) and hydrophobic (H–Si) surfaces

Sanu Sarkar, Aditi Saikia and Sarathi Kundu*



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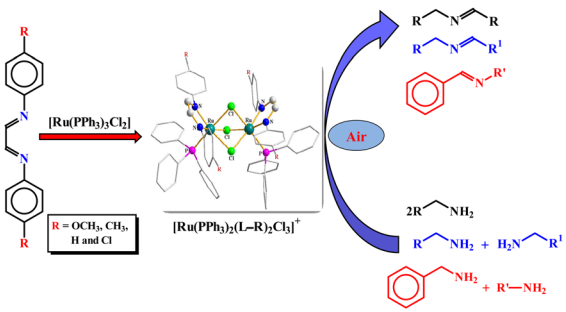
Di-ruthenium complexes of 1,4-diazabutadiene ligands: synthesis, characterization and utilization as catalyst precursors for the oxidative coupling of amines to imines in air

Rumpa Saha, Aparajita Mukherjee and Samaresh Bhattacharya*



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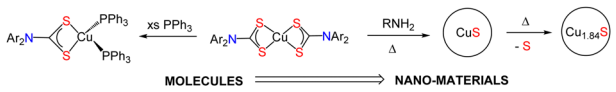
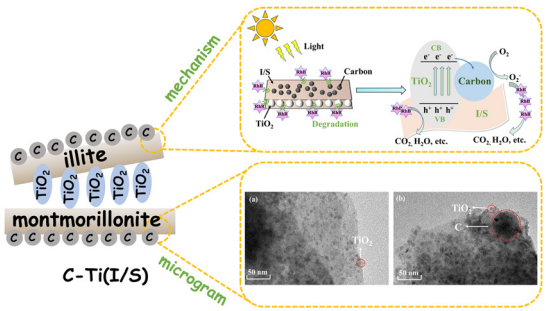


Copper diaryl-dithiocarbamate complexes and their application as single source precursors (SSPs) for copper sulfide nanomaterials

Jagodish C. Sarker, Xiang Xu, Firoz Alam, Rosie Nash, Suwimon Boonrungsiman, David Pugh, Jeremy K. Cockcroft, David J. Lewis and Graeme Hogarth*

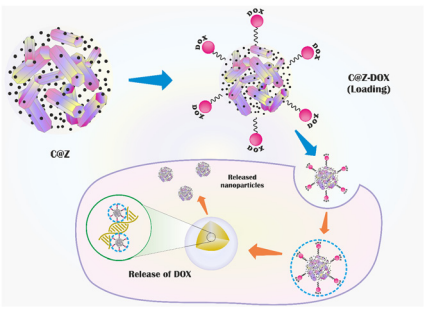
12728



Carbon modified Ti(I/S) composites and their photocatalytic degradation of rhodamine B

Jing Yang, Jie Wang, Chuanfang Xie, Yang Zhou, Liang Wei* and Xiande Yang*

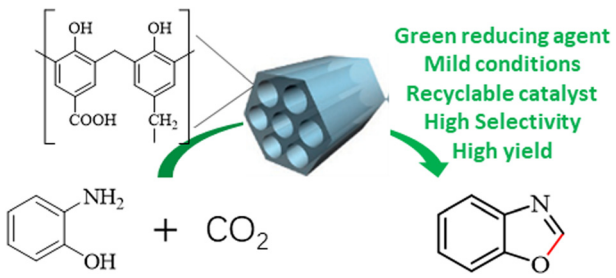
12739



Mesoporous carbon encapsulated zinc oxide nanorods derived from plant species '*Argyreia sharadchandrajii*' for live cell imaging of drug delivery and multimodal bioactivities

Sneha R. Bhosale, Kishor S. Jagadhane, Rakhee R. Bhosale, Sharadrao A. Vanalakar, Mohammad H. Qureshi, Devashree N. Patil, Rushikesh P. Dhavale, Vinod B. Shimpale, Govind B. Kolekar and Prashant V. Anbhule*

12752



Preparation of carboxyl group functionalized FDU-15 type materials for the cyclization of CO_2 with 2-aminophenol

Shuaiyin Zhu, Teng Xue* and Haihong Wu*

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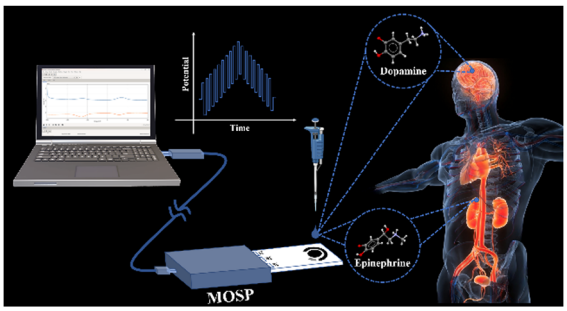
12759

A novel strategy for the simultaneous discrimination of dopamine and epinephrine by cyclic square wave voltammetry implemented with a customized potentiostat

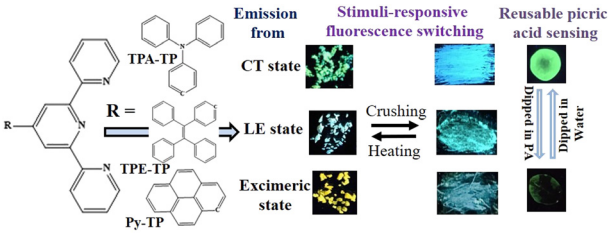
Yuheng Deng, Jie Zhao,* Yaoguang Yu, Junhan Gao, Shifan Zhao, Jianying Yuan, Qingze Han and Guofeng Cui



12770

Distinct fluorescence state, mechanofluorochromism of terpyridine conjugated fluorophores and the reusable sensing of nitroaromatics in aqueous medium

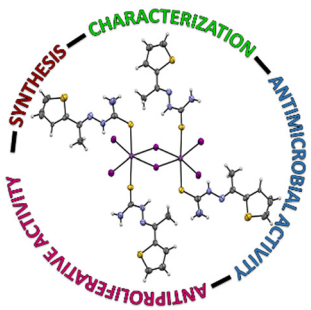
Deepanjaly K. Sivadas, Parthasarathy Gayathri, Sasikala Ravi, Subramanian Karthikeyan, Mehboobali Pannipara, Abdullah G. Al-Sehemi, Dohyun Moon,* Savarimuthu Philip Anthony* and Vedichi Madhu*



12779

Heteroleptic six-coordinate bismuth(III) complexes with 2-acetylthiophene thiosemicarbazones: synthesis, characterization, and biological properties

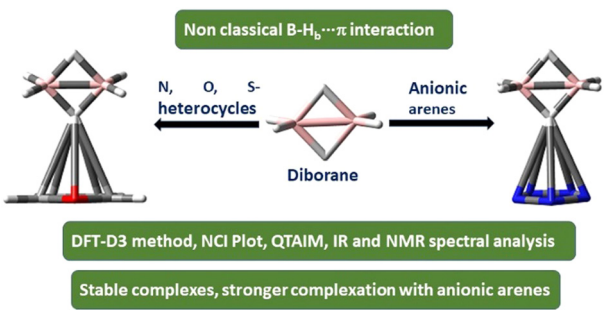
Ibrahim I. Ozturk,* Kadriye Turk, Anita M. Grześkiewicz, Maciej Kubicki, Christina N. Banti and Sotiris K. Hadjikakou



12790

B–H$_b$· · ·π interaction in heteroaromatics and anionic arenes: a DFT study

Bapan Saha* and Pradip Kumar Bhattacharyya



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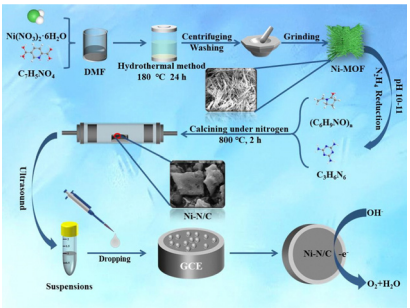
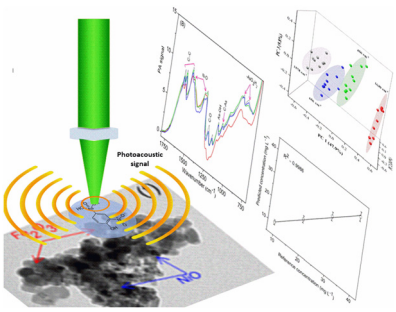
12799



Nickel nanoparticle-embedded N-doped carbon catalysts formed by MOF derivatives for the oxygen evolution reaction

Linghui Cao, Bowen Chen, Jinyang Yan, Shixin Jiang, Zilong Su, Kaixuan Chen, Jiajun Wang, Zhongxiang Liu, Aijuan Xie* and Shiping Luo*

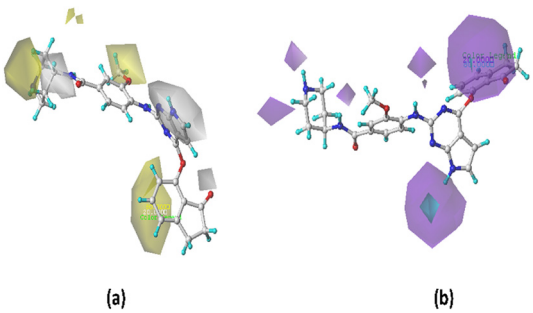
12806



Fe_2O_3/NiO nanocomposites: synthesis, characterization and roxarsone sensing by Fourier transform infrared photoacoustic spectroscopy

R. Suresh,* Ángela Álvarez, Claudio Sandoval, Eimmy Ramírez, Paola Santander, R. V. Mangalaraja and Jorge Yáñez*

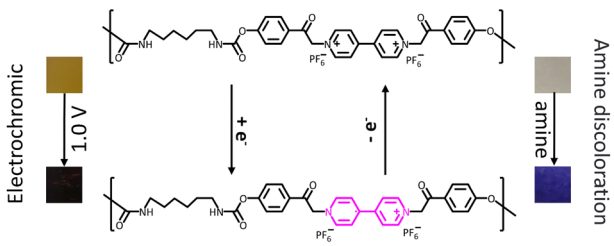
12816



Computational investigation of novel pyrimidine derivatives as potent FAK inhibitors *via* 3D-QSAR, molecular docking, molecular dynamics simulation and retrosynthesis

Salma El Bahi, Meryem Boutalaka, Moulay Ahfid El Alaouy, Soukaina Bouamrane, Marwa Alaqarbeh,* M'barek Choukrad, Abdelouahid Sbai, Mohammed Bouachrine and Tahar Lakhlifi

12830



A stimuli-responsive viologen-containing polymer for use in electrochromic devices and amine-detecting paper

Tian Tan, Shaowei He, Guomei He* and Jiangxi Chen

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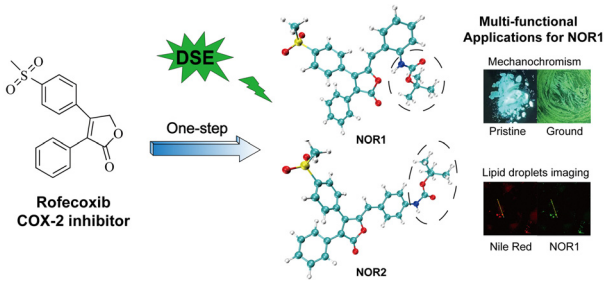
12839

One-step facile transformation from rofecoxib to reversible mechanofluorochromic materials with dual-state emission

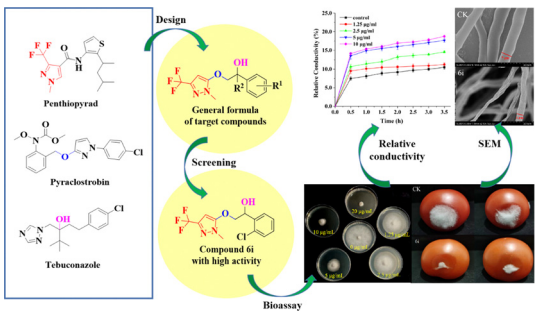
Zhong Chen, Zexin Wang, Wei Liu, Yongbo Wei, Yuqiu Ye, Yanbing Ke, Tong Wu, Nannan Chen, Jingming Zhou, Xiaopo Zhang, Yingfeng Tan, Hong Jiang,* Xin Zhai* and Lijun Xie*



12850

Novel fungicidal phenylethanol derivatives linking a trifluoromethyl pyrazole pharmacophore: design, synthesis, crystal structure, and biology evaluation

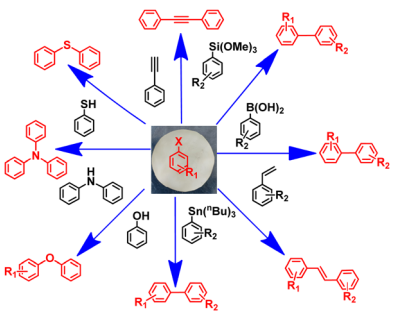
Lang Tai, Sheng-Xin Sun, Kai Yue, Jian-Qi Chai, Shuai-Tao Hou, Guang-Yu Dai, Chun-Long Yang* and Min Chen*



12861

A palladium nanoparticle implanted polymer membrane for reusable dip-catalysis of diverse C–C and C–heteroatom (O/S/N) coupling reactions

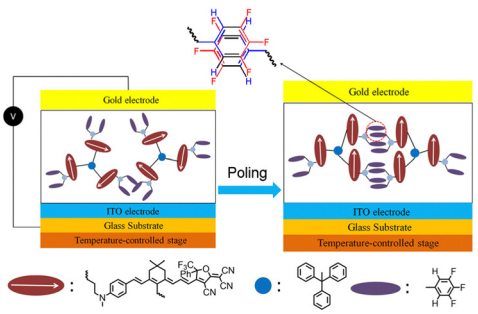
Raj Laxmi, Ravi Prakash Behere, Arunava Manna* and Biplab Kumar Kuila*



12874

Design and synthesis of self-assembled nonlinear optical multichromophore dendrimers with different acceptors

Zhibei Li, Tongyu Luo, Shuhui Feng, Qi Ye, Ziyun Zheng, Huiyuan Liang, Jianhua Liu and Fenggang Liu*



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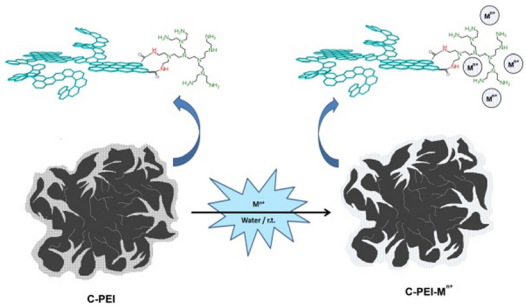
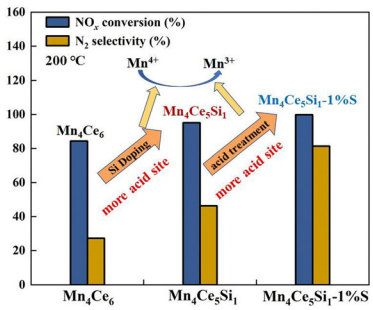
12883



A linear free-energy relationship for the prediction of metal ion complexing properties in hybrid carbon-based scavengers

Antonio Peñas-Sanjuán, Rubén Cruz-Sánchez, Celeste García-Gallarín, Manuel Pérez-Mendoza, Rafael López-Garzón and Manuel Melguizo*

12893



Si-modified Mn–Ce oxide catalysts for selective catalytic reduction of NO_x with NH_3 at low temperatures

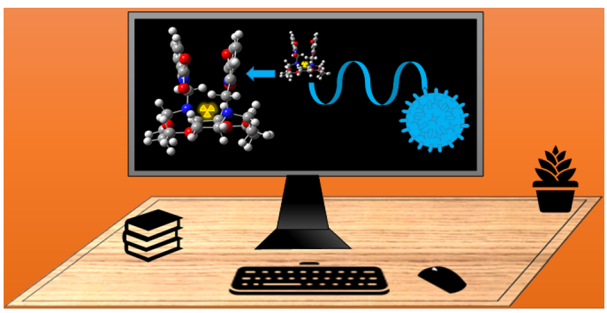
Shuai Wang, Na Zhu,* Pengpeng Xu, Shuai Li and Di Chen

12902

Noncovalent interactions of antitumor cycloplatinated complexes containing trifluoroacetate ligands as the leaving group with bovine serum albumin. Implications for drug design

Marzieh Dadkhah Aseman,* Parisa Negaresh, Zahra Shojaeifard, Bahram Hemmateenejad and S. Masoud Nabavizadeh*

12914



Tailoring an efficient computational methodology for studying ligand interactions with heavy radiometals in solution: the case of radium

Hamissou Mohaman, Steffen Happel, Gilles Montavon and Nicolas Galland*

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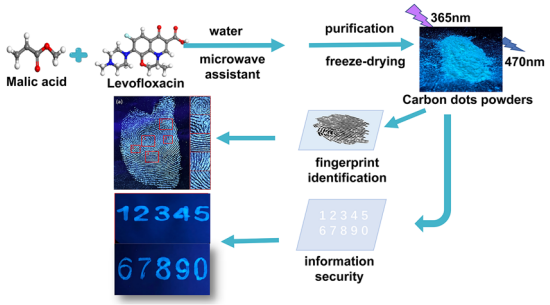
12926

One-step synthesis of self-quenching-resistant carbon dot phosphors and their application in fingerprint identification and anti-counterfeiting

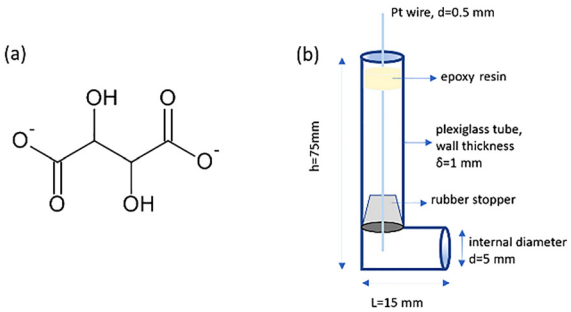
Lichao Pei, Weiyuan Zhang, Shuqin Yang, Xingtai Wang, Aohua Liu, Kangli Chen, Yan Zhao* and Shumin Han*



12934

The effect of tartrate on the mild leaching of low-grade polymetallic complex chalcopyrite ore in acidic ferric chloride solution

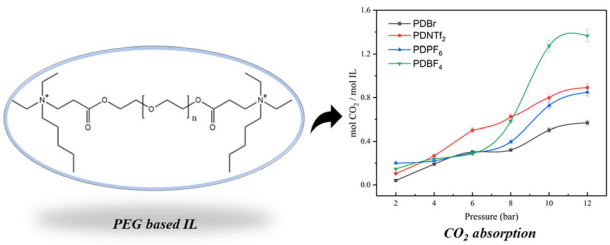
Xin-Jie Liu, Yalong Liao,* Qingfeng Liu and Min Wu



12944

Tetraalkylammonium-based dicationic ionic liquids (ILs) for CO_2 capture

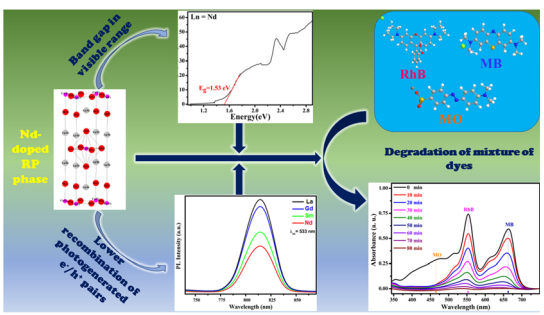
Prashant S. Kulkarni,* Prathamesh Ranjane, Karun Mishra, Swati Sundararajan and Sanjay Kamble



12955

Effect of rare earth doping on the structural, magnetic and photocatalytic properties of newly synthesized nanocrystalline rare earth doped Ruddlesden–Popper oxides $LnSrFe_{0.5}Co_{0.5}O_4$ (Ln = La, Nd, Sm, Gd)

Amit Kumar Atri, Sumit Singh, Irfan Qadir, Shikha Sharma, Ujwal Manhas and Devinder Singh*



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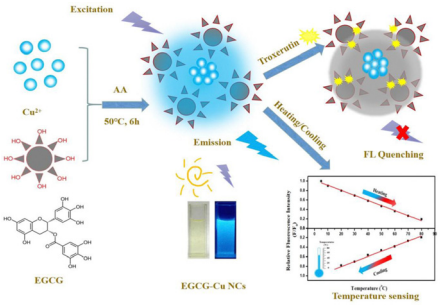
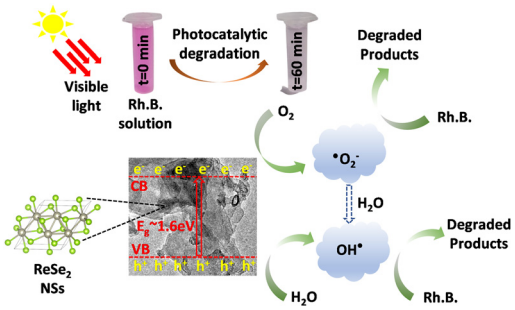
12973



Green synthesis of fluorescent copper nanoclusters stabilized by epigallocatechin gallate and their applications as a novel troxerutin (trihydroxyethylrutin) and temperature sensor

Yanfang Tai,* Lu Li, Huaiqing Tang and Qitao Wang

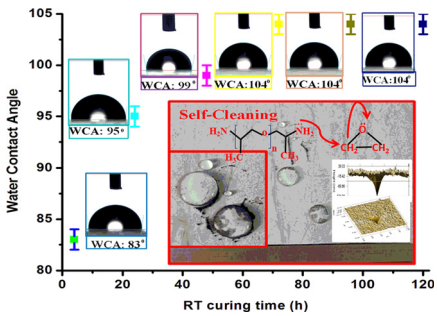
12983



Two-dimensional $ReSe_2$ nanosheets as a high-performance photocatalyst

Anamika Pandey, Ranjana Verma and Anchal Srivastava*

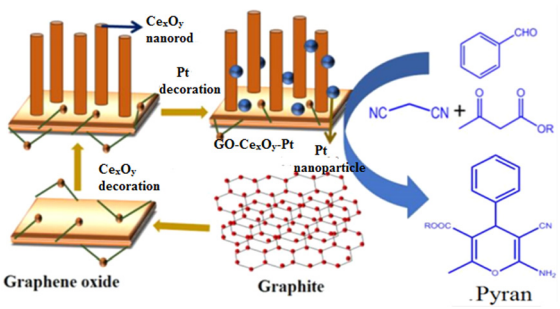
12992



Room temperature curable inorganic–organic hybrid nanocomposite hydrophobic coating: mechanistic understanding of the role of Ti(IV) and the diamine based curing agent

Srikrishna Manna, Santanu Maity, Milan Kanti Naskar and Samar Kumar Medda*

13004



Oxygen vacancy enhanced catalytic activity in a Pt nanoparticle decorated GO–Ce_xO_y catalyst for the efficient synthesis of pyran based derivatives

Pratap S. Nayak, Banalata Maji, Bapun Barik, Shital Jyotsna Sahoo, Vishal Rout, Adyasha Das and Priyabrat Dash*

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