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IN THIS ISSUE

ISSN 1144–0546 CODEN NJCHES 47(24) 11357–11738 (2023)

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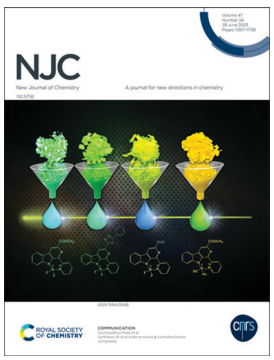

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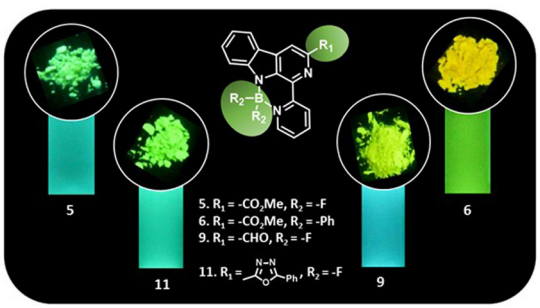
See Soumyaditya Mula *et al.*, pp. 11371–11375. Image reproduced by permission of K. H. Gharat and Soumyaditya Mula from *New J. Chem.*, 2023, **47**, 11371.

COMMUNICATIONS

11371

Synthesis of dual state emissive β-carboline boron complexes

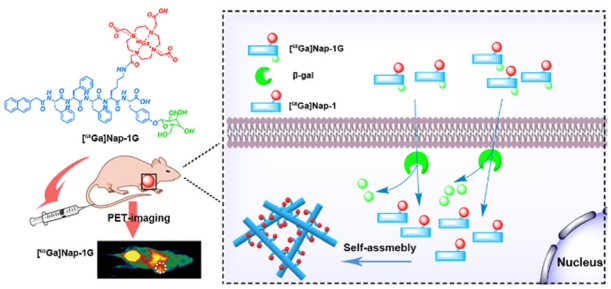
Kartik Dutta, Richa Agrawal, A. P. Wadawale, Sunita Gamre and Soumyaditya Mula*



11376

β-Galactosidase-instructed intracellular nanofiber formation enhances tumor micro-PET imaging

Meimei Wang, Kangxia Yu, Dandan Zhu, Pei Zou, Peiyao Chen, Hongyong Wang, Yaling Liu* and Minhao Xie*



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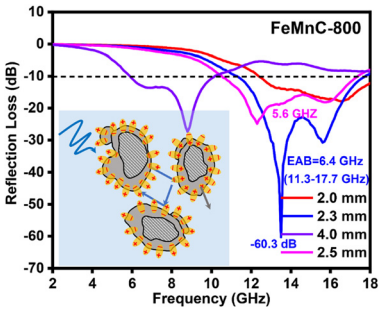
COMMUNICATIONS

11380

FeMnC complex derived from hollow FeMn PBA precursor for highly efficient microwave absorption

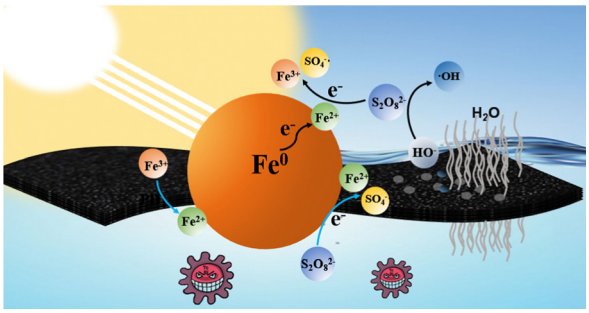
Peng Miao,* Weixing Chen, Dong Zhou, Keji Zhu, Jianing Zhang and Jie Kong



11385

Triple activation of persulfate by a polydopamine/zerovalent iron co-functionalized sponge for synergistic solar driven photocatalytic antibiotic degradation and interfacial evaporation

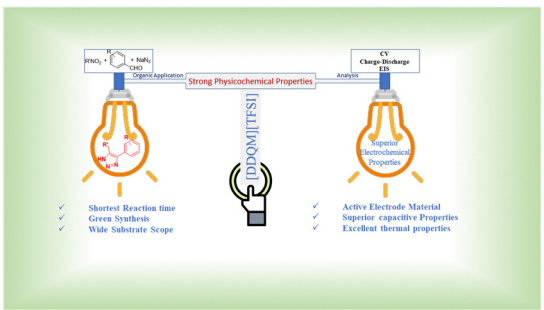
Zhonghua Bao, Fei Yang, Zixin Pan, Jinying Li, Yong Liu* and Shengxu Luo*



11389

[DDQM][TFSI]: a room temperature ionic liquid as an active electrode material for supercapacitor devices and a catalyst for rapid synthesis of 4-aryl-*NH*-1,2,3-triazoles under microwave irradiation

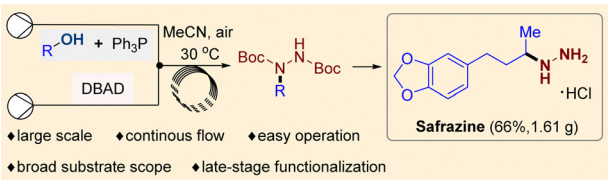
Bidyutjyoti Dutta, Priyanuj Krishnann Hazarika, Pranjal Saikia, Surajit Konwer, Lakhyajyoti Borthakur* and Diganta Sarma*



11394

A practical flow synthesis of hydrazine derivatives from alcohols

Jie Ding, Ye Yang, Mingzhen Xue, Xukai Gong, Hu Cai* and Wentao Xu*



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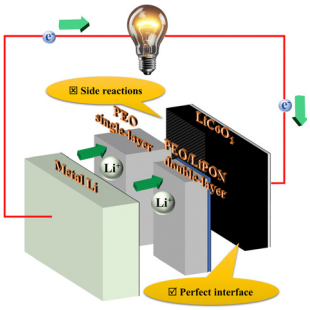
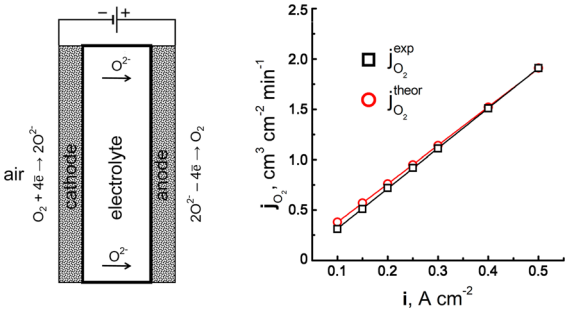


A stable and high-voltage-resistant inorganic/polymer double-layer electrolyte for $LiCoO_2$-based all-solid-state Li batteries

Yuqi Yang, Hongyi Wang, Yuanyuan Zhang, Ying Wang and Jingze Li*

11403

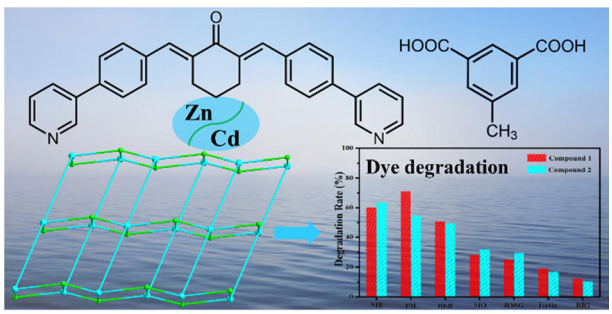


A high performance IT-EOG cell based on a solid/molten Bi_2O_3–B_2O_3 composite electrolyte

Polina E. Dergacheva, Sergey V. Fedorov and Valery V. Belousov*

PAPERS

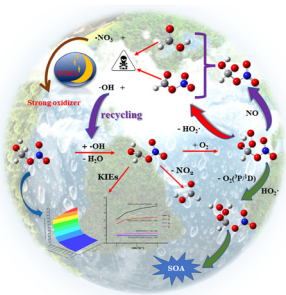
11408



Two novel metal–organic frameworks constructed by pyridinyl-derived and carboxylate mixed ligands for photocatalytic dye degradation

Chixiao Ma, Junyong Zhang,* Hao Xu, Xianghua Zeng, Chunhua Gong* and Jingli Xie*

11414



Theoretical investigation on the atmospheric degradation mechanism, kinetics, and fate of hydroxymethyl nitrate initiated by •OH radicals

Xiang-Huan Liu, Ting-Ting Meng, Feng-Yang Bai,* Shuang Ni* and Zhen Zhao*

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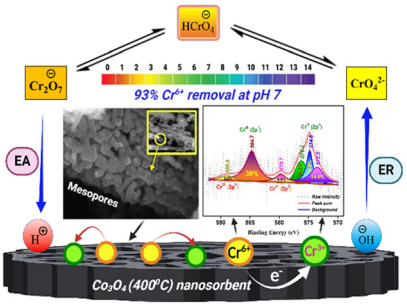
PAPERS

11425

Temperature dependent fabrication of various rod and rhombohedral-shaped mesoporous Co_3O_4 crystals and their capability towards elimination of toxic Cr(VI) ions from the aquatic environment

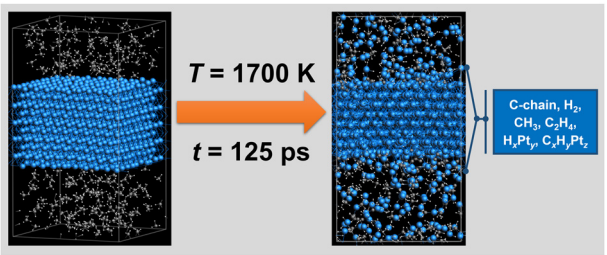
Utsav Sengupta, Ankita Mukherjee, Muthaimanoj Periyasamy, Sudipta Mukhopadhyay, Kellie J. Jenkinson, Andrew E. H. Wheatley and Arik Kar*



11444

CH_4 dehydrogenation and H_2 formation on a Pt(100) surface: an insight from the reactive molecular dynamics simulations

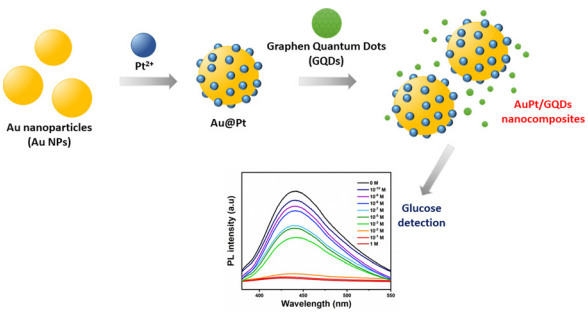
Rizal Arifin* and Darminto



11450

Synthesis of AuPt/graphene quantum dots nanocomposites for determination of glucose by photoluminescence spectroscopy

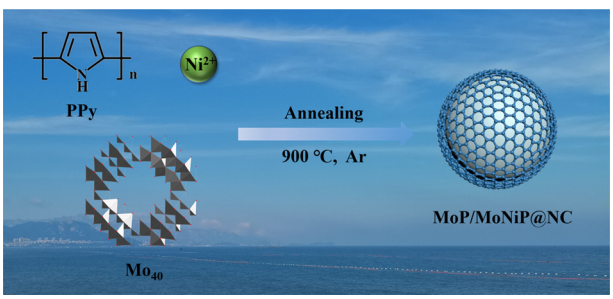
Thieu Quang Quoc Viet, Huynh Phuoc Thanh, Do Minh Khoi, Tran Thi Kieu Trinh, Ngo Nguyen Tra My, Toan Duy Pham, Luong Huynh Vu Thanh, Phuong Lan Tran-Nguyen and Tran Thi Bich Quyen*



11459

Highly active bimetallic phosphide electrocatalysts for hydrogen evolution

Linglan Men, Yu Zhang, Xiao Li,* Qingqing Pan, Jiao Li* and Zhongmin Su*



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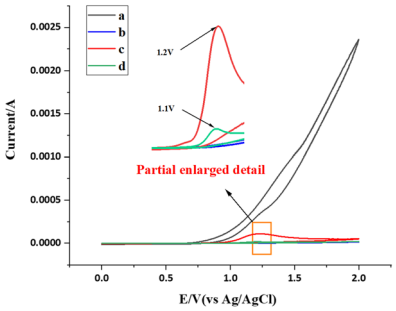
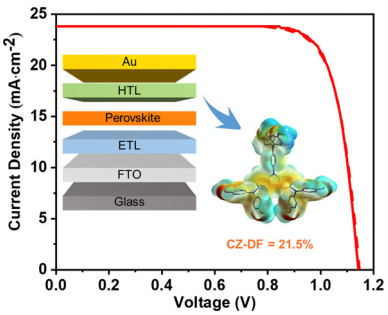


Electrochemically mediated fluoroalkylation/cyclization of unactivated alkenes: synthesis of polycyclic benzimidazoles containing a CF_3 group

Zhiwei Chen,* Ziwei Li, Shuo Li, Guosong Qian and Yanyu Sun

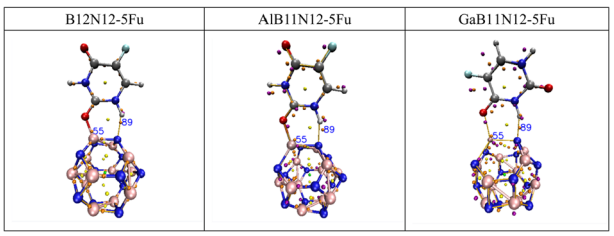
11470



The effects of the planarity of the core building block and peripheral donor groups on the photovoltaic performance of triarylated amine-based hole transport materials

Yicheng Wang, Chuansu Yang, Jinwei Meng, Cheng Chen,* Hao Zhuang, Haoxin Wang, Ming Zhang, Hui Xu and Ming Cheng*

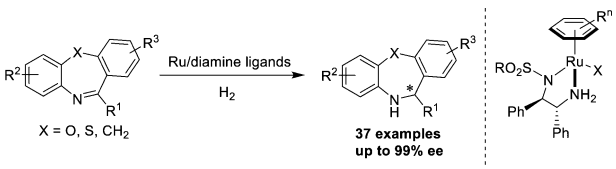
11478



Investigating the drug carrying ability of Al and Ga doped B12N12 nanocages for 5-fluorouracil based on DFT

ShiQuan Wu, Li Li, QiQi Liang, HuaXu Gao, DeYuan Hu, TianYu Tang and YanLin Tang*

11492



Asymmetric hydrogenation of dibenzo-fused azepines with chiral cationic ruthenium diamine catalysts

Zi-Qi Yi, Bo-Wen Deng, Fei Chen,* Yan-Mei He and Qing-Hua Fan*

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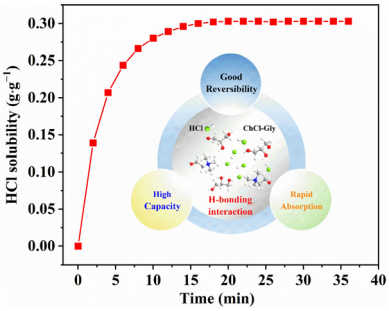
PAPERS

11498

Choline chloride plus glycerol deep eutectic solvents as non-aqueous absorbents for the efficient absorption and recovery of HCl gas

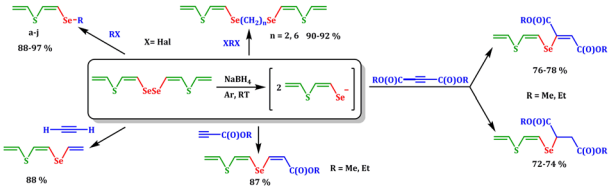
Zi-Teng Gao, Zhang-Min Li, Yan Zhou, Xue-Jun Shu, Zhao-Hui Xu and Duan-Jian Tao*



11505

Polyunsaturated sulfur/selenium-containing products based on regio- and stereoselective nucleophilic addition and substitution reactions of 1,2-bis[(*Z*)-2-(vinylsulfanyl)ethenyl] diselane

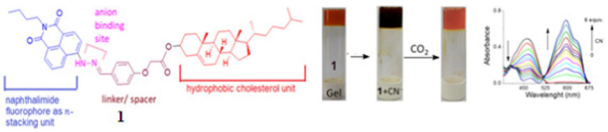
Svetlana V. Amosova,* Andrey S. Filippov, Nataliya A. Makhaeva, Alexander I. Albanov and Vladimir A. Potapov



11515

A new cholesterol-naphthalimide conjugate: aggregation and sensing of CN^- and CO_2 under different conditions

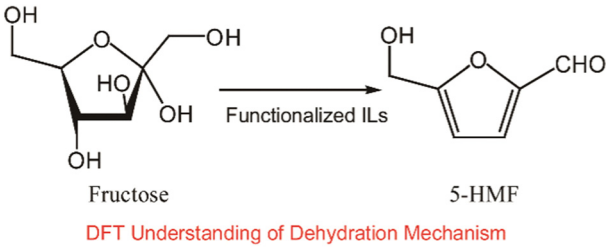
Rameez Raza, Chiranjit Pati, Nabajyoti Baildya and Kumaresh Ghosh*



11525

Dehydration mechanism of fructose to 5-hydroxymethylfurfural catalyzed by functionalized ionic liquids: a density functional theory study

Jiehao Hu, Mengting Yu,* Yao Li, Xiaoli Shen, Shenyu Cheng, Tianyou Xu, Chengsheng Ge, Yihang Yu and Zhaoyang Ju*



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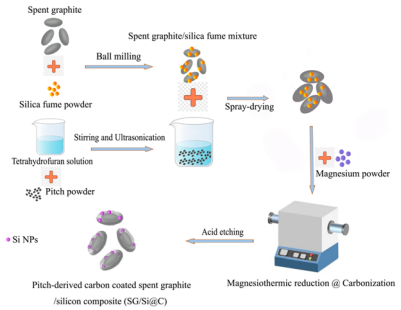
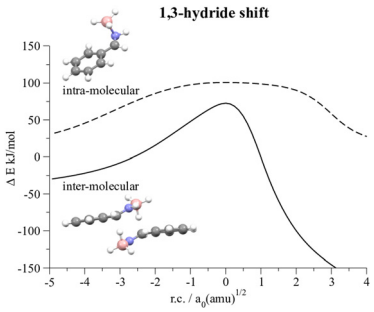


Scalable synthesis of porous graphite/silicon@pitch carbon nanocomposites derived from wastes of silica fume for high-performance lithium storage

Bo Wang, Yue Li,* Nan Wu, Kun Liu, Liujie Yin and Ziyi Han

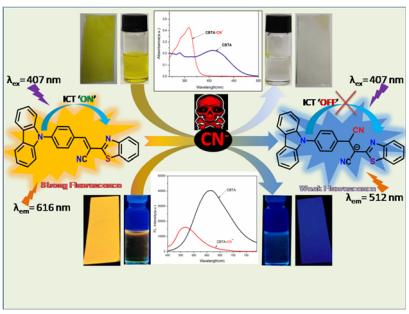
11544



Hydroboration of imines: intermolecular *vs.* intramolecular hydride transfer

Siyuan Zhai, Dragoslav Vidović* and Milena Petković*

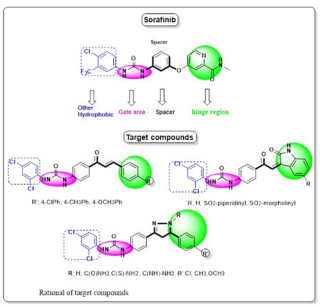
11557



A novel carbazole-benzothiazole-based chemodosimeter for the chromogenic and fluorogenic recognition of CN^-

Atanu Maji, Amitav Biswas, Akash Das, Saswati Gharami, Krishnendu Aich and Tapan K. Mondal*

11565



Mimicry of sorafenib: novel diarylureas as VEGFR2 inhibitors and apoptosis inducers in breast cancer

Magda M. F. Ismail, Ebtehal M. Husseiny* and Mona H. Ibrahim

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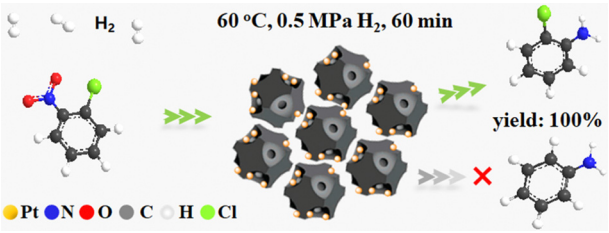
PAPERS

11577

Regulating pore structures of carbon supports toward efficient selective hydrogenation of *o*-chloronitrobenzene on Pt nanoparticles

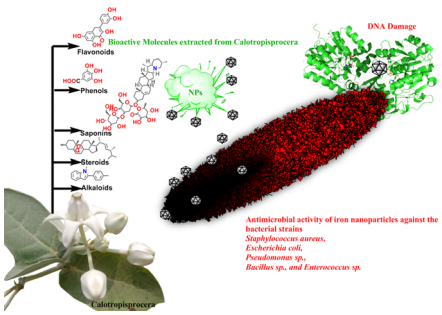
Yun Peng Lv, Fang Yu, Zhi Peng Wang,* Hai Wei Liu, Li Yan Wang, Jian Song,* Yu Li, Gui Qiu Huang* and Jian Cui



11584

Calotropis procera* flower extract for the synthesis of double edged octahedral α-Fe_2O_3 nanoparticles *via* a greener approach: an insight into its structure property relationship for *Escherichia coli

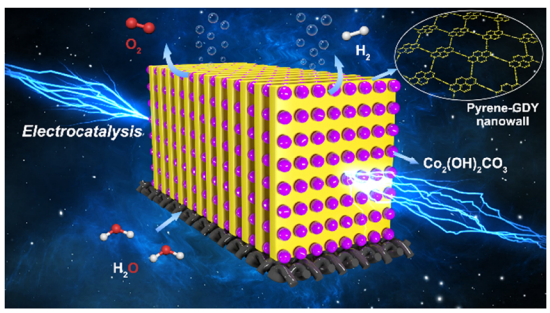
Karuvelan Murugan,* Rajakannu Subashini, Udayadasan Sathiskumar and Greeshma Odukkathil



11594

Cobalt carbonate hydroxides anchored on nanoscale pyrenely-graphdiyne nanowalls toward bifunctional electrocatalysts with high performance and stability for overall water splitting

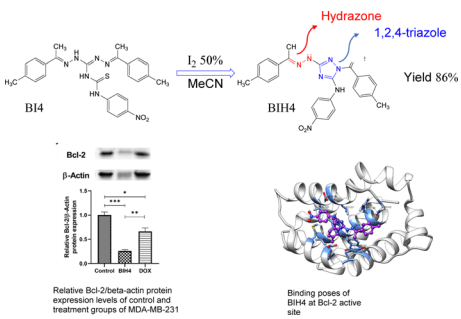
Xiaomei Xu, Yongchun Wang, Wenhui Shang, Fei Wang, Qiang Zhang, Kai Li, Mei Wu and Zhiyu Jia*



11602

Design, synthesis, molecular docking and biological evaluation of 1,2,4-triazole derivatives possessing a hydrazone moiety as anti-breast cancer agents

Michael Tapera, Hüseyin Kekeçmuhammed, Cansu Umran Tunc, Aybuke Ulku Kutlu, İsmail Çelik, Yunus Zorlu, Omer Aydin and Emin Sarıpınar*



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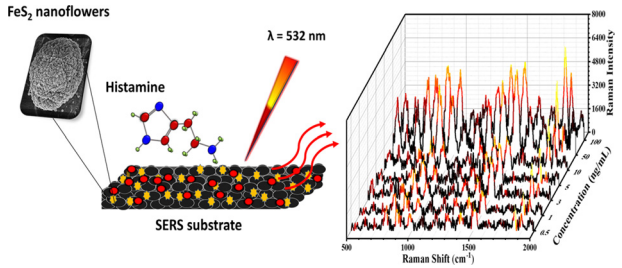
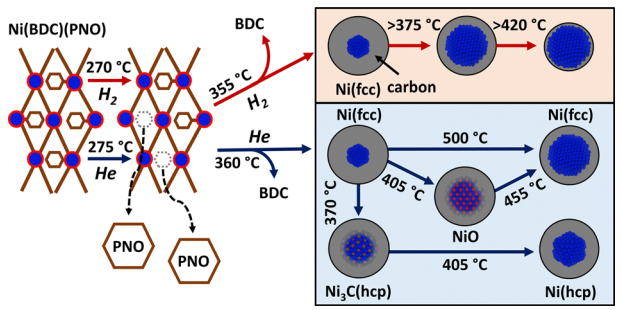
11615



FeS_2-based aerogel as a flexible low-cost substrate for rapid SERS detection of histamine in biofluids

Anjali Sreekumar, Lignesh Durai, Minu Thomas and Sushmee Badhulika*

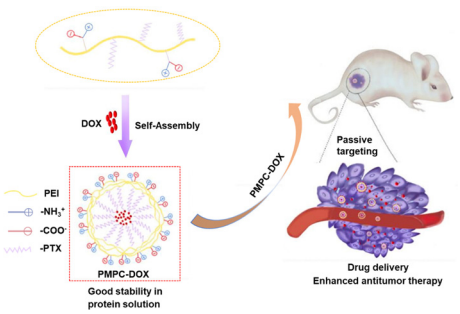
11623



Structural transitions during Ni nanoparticle formation by decomposition of a Ni-containing metal–organic framework using *in situ* total scattering

Nils Prinz, Sven Strübbe, Matthias Bauer and Mirijam Zobel*

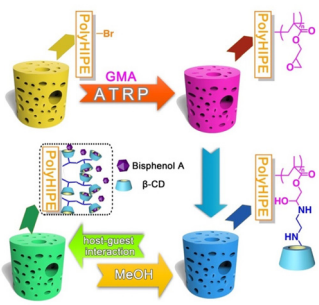
11636



Zwitterionic doxorubicin loaded micelles based on polyethyleneimine for enhanced antitumor therapy *in vivo*

Xiaolei Guo, Yuzhen Xue, Ruixue Zheng, Shengfu Chen, Weili Xue, Xifa Lan,* Longgang Wang* and Haiyan Xiao*

11643



Macroporous polyHIPE modified with β-cyclodextrin for the removal of bisphenol A from water

Chunyao Wang, Xiangnan Chen, Weizhong Yuan* and Mengdie Zhou*

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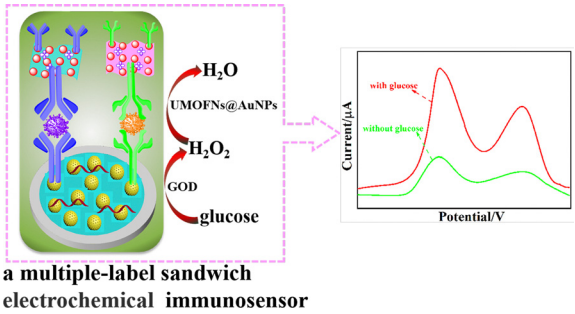
11651

Simultaneous detection of two tumor markers using electrochemical immunosensor based on ultrathin metal–organic framework derived nanosheets as redox probes

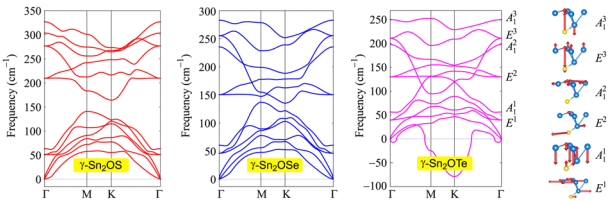
Xiaomei Huang, Xiang Deng,* Zihe Deng, Chaoqin Huang, Xiaoyu Zhu and Li Sun



11660

Strong out-of-plane piezoelectricity and Rashba-type spin splitting in asymmetric structures: first-principles study for Janus γ-Sn_2OX (X = S, Se, Te) monolayers

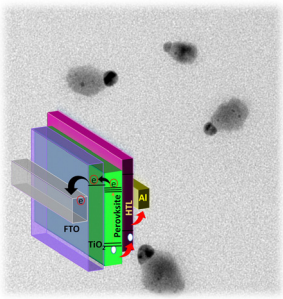
Tuan V. Vu, Nguyen P.Q. Anh, Huynh V. Phuc, A. I. Kartamyshev and Nguyen N. Hieu*



11669

Preparation of nano dumbbell-shaped silver bismuth iodide perovskite hybrids and their enhanced photocurrent properties

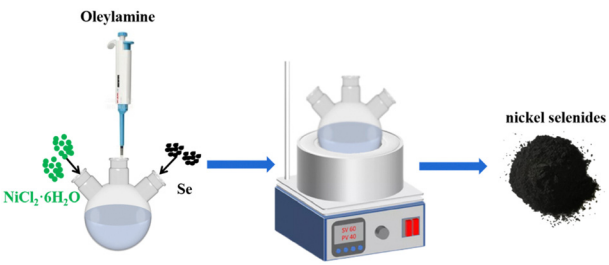
Sellan Premkumar,* Thankappan Thrupthika, Maheswari Palanivel, Dan Liu,* Devaraj Nataraj, Wei Lei and Jianzhou Gui*



11675

Composition regulation of nickel selenide and its effects on the catalytic activity in the oxygen reduction reaction

Huachen Zhang, Shengbiao Zheng,* Jing Tang, Rui Chen, Jingjing Yang, Wenjing Tong and Jiahao Guo*



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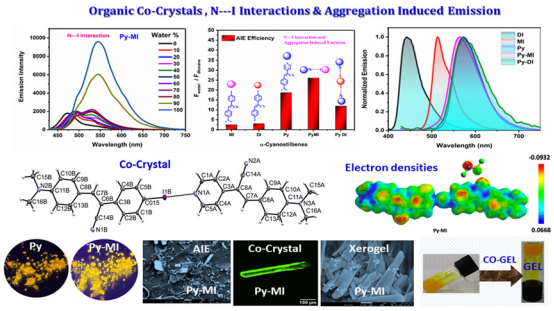
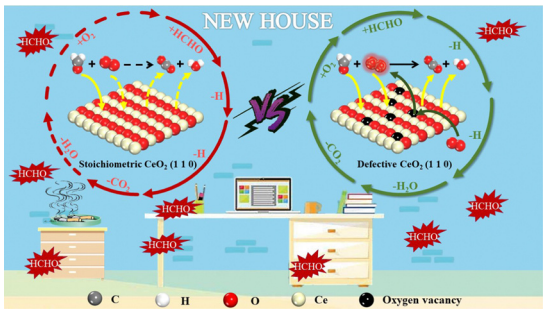
11685



Halogen-bonded co-crystals with AIE-active α-cyanostilbenes

Rahul Dahiwadkar, Gurudutt Dubey, Althaf Shaik, Palash Jana, Vijay Thiruvenkatam and Sriram Kanvah*

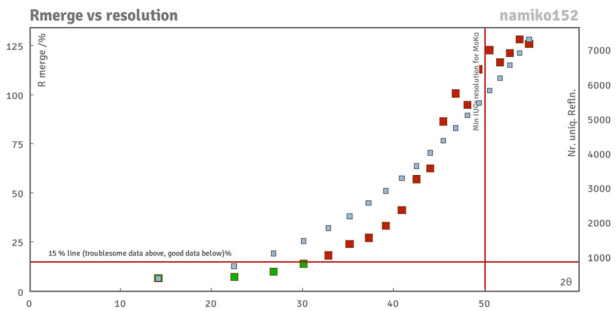
11697



Theoretical study of oxidative removal on the CeO_2(110) surface for formaldehyde: in-depth investigation of oxygen vacancy and chemisorbed oxygen

Yichao Xu, Ye Jiang,* Guomeng Zhang, Zhengda Yang, Congcong Su and Yinsheng Jiang

11708



Synthesis, crystallographic structure, theoretical analysis, molecular docking studies, electronic properties and biological activity evaluation of ruthenium-complex bearing N-heterocyclic carbene ligand

I. Slimani, Nasser Amri, Yousef E. Mukhrish, Nevin Gurbuz, Ismail Özdemir, Houcine Ghalla, Namık Özdemir, Lamjed Mansour and Naceur Hamdi*

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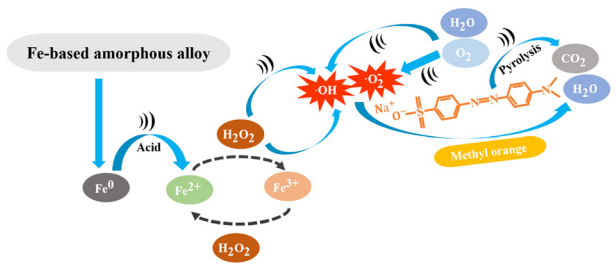

Degradation of methyl orange by an ultrasonic Fenton-like process with Fe-based amorphous alloy powders

Ling Tan, Xiaoyan Wang, Shaoke Wang, Xiaorui Qin, Linfeng Xiao, Chunling Li,* Shuangqing Sun and Songqing Hu

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