

IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 49(28) 12019–12454 (2025)



Cover

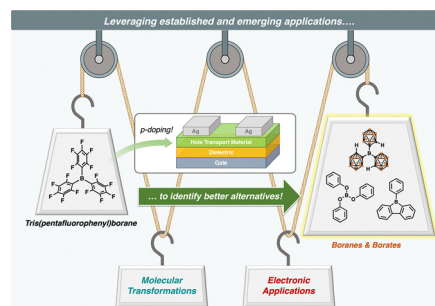
See Kathryn M. Wolfe, Michael J. Grant, Irene E. Park and Gregory C. Welch pp. 12032–12060. Image reproduced by permission of Kathryn M. Wolfe and Irene E. Park from *New J. Chem.*, 2025, 49, 12032.

PERSPECTIVE

12032

Tris(pentafluorophenyl)borane: leveraging historical and emerging work to identify alternatives for organic electronic applications

Kathryn M. Wolfe, Michael J. Grant, Irene E. Park and Gregory C. Welch*

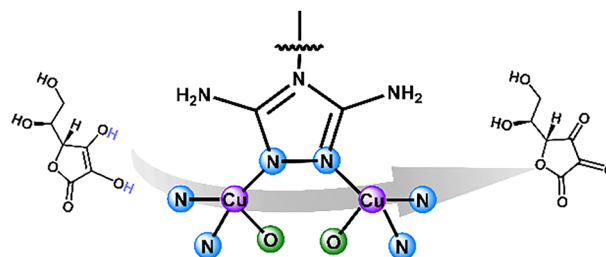


COMMUNICATION

12061

Mimicking ascorbic acid oxidase-like catalysis over adjacent dicopper centers

Ziheng Huang, Jinzhe Song, Nannan Xia, Yanqin Lv,* Xun Hu* and Fei He*



Advance your career in science

with professional recognition that showcases your **experience, expertise and dedication**

Stand out from the crowd

Prove your commitment to attaining excellence in your field

Gain the recognition you deserve

Achieve a professional qualification that inspires confidence and trust

Unlock your career potential

Apply for our professional registers (RSci, RSciTech) or chartered status (CChem, CSci, CEnv)

Apply now

rsc.li/professional-development

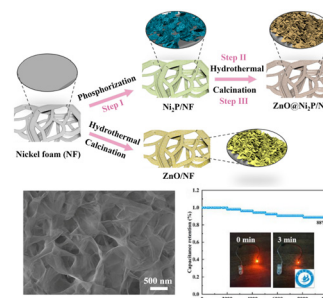


PAPERS

12066

Decoration of three-dimensional ZnO@Ni₂P heterostructure nanoflake arrays: a novel electrode material for hybrid supercapacitors

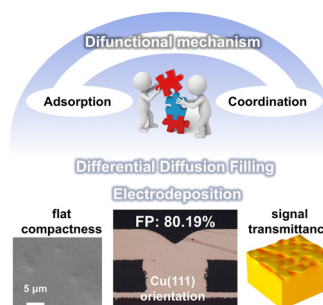
Lihua Cui,* Kefeng Yang, Minhui Mao, Qingru Wang, Haoxu Yin and Wenbo Bao



12079

Insights into the role of Basic Blue 7 as a leveler in copper superfilling within microvias

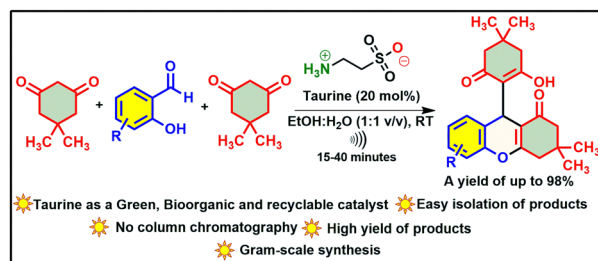
Yaqiang Li, Xuesong Peng, Ruopeng Li,* Jie Jiang, Fan Meng, Youzheng Wu, Changsheng Cao, Guangzhao Wang, Penghui Ren,* Hao Xu* and Maozhong An



12090

Ultrasonication-assisted, multicomponent, green and sustainable synthesis of benzopyrans employing taurine as a bioorganic catalyst

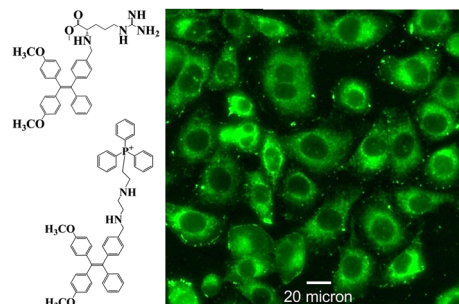
Swadhin Swaraj Acharya, Liza Mama Barad, Padma Ranjan Rout, Akash Bisoyi and Bibhuti Bhusan Parida*



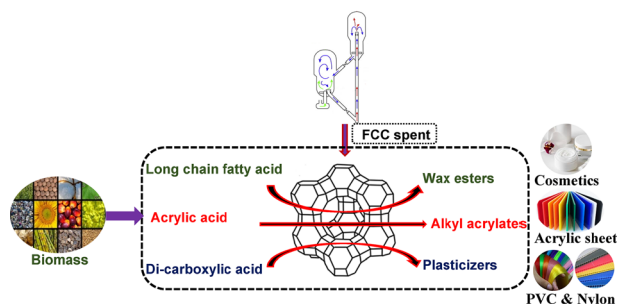
12102

Mitochondrial delivery of aggregation-induced emission active molecules *via* a micellar nanocarrier

Kuheli Mandal, Santanu Shaw and Nikhil R. Jana*



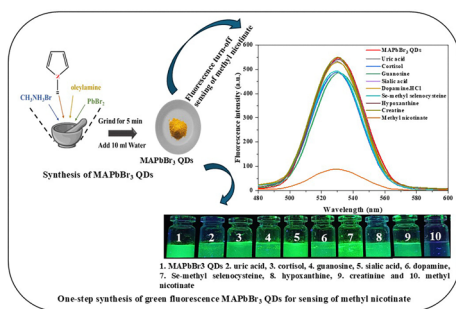
12109



FCC spent catalyst: a reusable catalyst for efficient esterification to synthesize wax esters, acrylates and plasticizers

Durgaiah Chevella, Mridula Choudhary, Divya Dhakar, Supriyo Majumder,* Saurabh Kumar Singh* and Chiranjeevi Thota

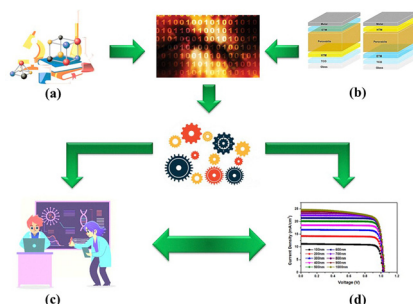
12118



One-step synthesis of water stable MAPbBr₃ quantum dots for the fluorescence detection of methyl nicotinate as a tuberculosis biomarker

Nirav Vajubhai Ghinaiya, Pinalben Angarbhai Garasiya, Tae Jung Park and Suresh Kumar Kailasa*

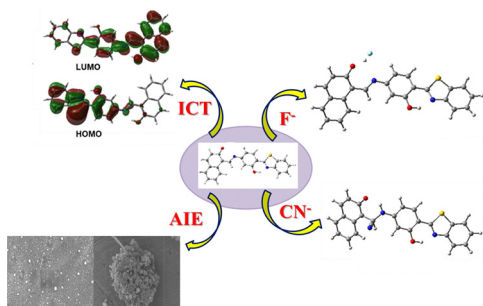
12129



A group-improved PSO-random forest-based intelligent hybrid approach for advancing perovskite solar cell efficiency

Pratik De Sarkar,* Subhajit Kar, Debashis De and K. K. Ghosh

12140



Multistate luminescent probe: ICT-driven dual ESIPT-AIE for selective fluoride and cyanide ion recognition

Aastha Palta, Gulshan Kumar, Kamaldeep Paul and Vijay Luxami*

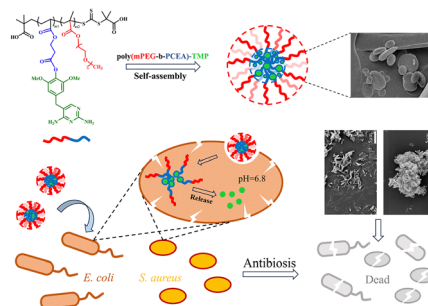


PAPERS

12154

Antibacterial efficacy and pharmacokinetics of a poly(mPEG-*b*-PCEA)-trimethoprim conjugate

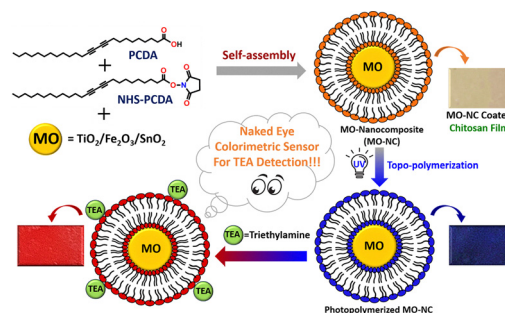
Ming Niu, Zhenghua Zhang, Rourou Wang, Yaxin Zhou, Jing Zhou, Lumei Pu and Weibing Xu*



12165

 π -conjugated polymer/metal oxide colorimetric sensor film for rapid, real-time, and ppb-level detection of triethylamine

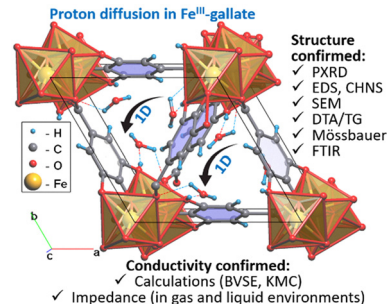
Karnan Sugantharam, Chezhiyan Sumithaa, Balasubramani Saveetha, Paramasivam Jaividhya, Rangasamy Aswapathi and Mani Ganeshpandian*



12174

The study of the structure and conductive properties of an iron gallate MOF: $[\text{Fe}^{\text{III}}(\text{C}_7\text{H}_4\text{O}_5)]_n \cdot 2n\text{H}_2\text{O}$

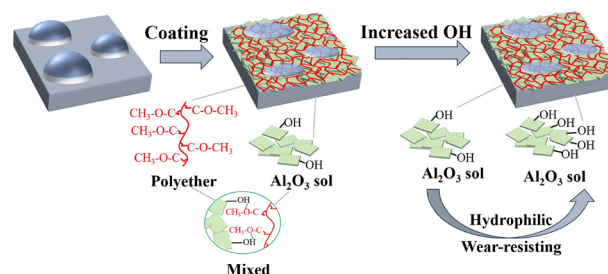
Andrey V. Sokolov, Yelizaveta A. Morkhova,* Maxim N. Kachalkin and Alexander A. Shindrov



12182

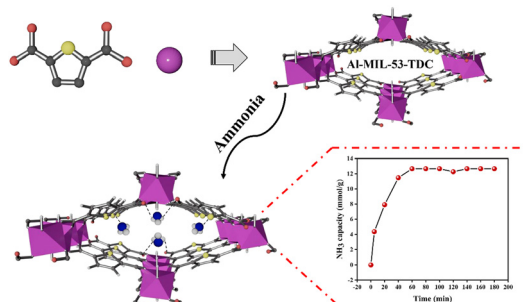
Different-crystallinity pseudoboehmites for enhancing polyethylene film's anti-fogging performance

Dandan Jiao, Peng Tian,* Hongye Qian, Dexin Kong, Chenxi Mu, Hongchang Pang and Junwei Ye



PAPERS

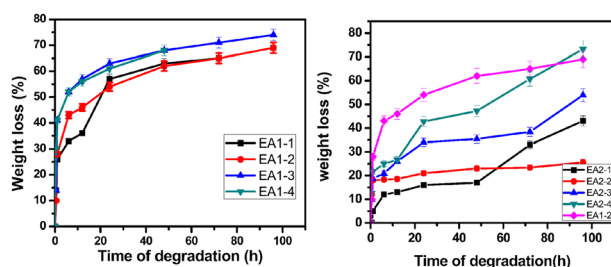
12189



Ammonia adsorption by Al-MIL-53-TDC: performance evaluation and mechanistic study

Xiaona Wang, Hong Wen, Shenghan Wu, Guowang Xiao, Li Wei* and Jingai Hao*

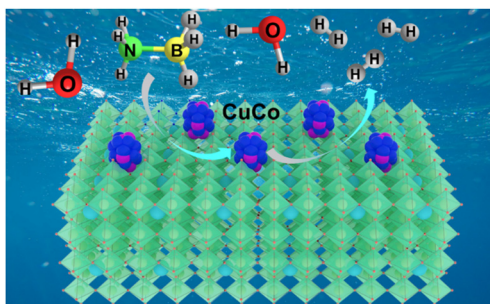
12194



Performance assessment of coumarin-quinoline hybrid-loaded PVA/sodium alginate composite hydrogel membranes with dual anticancer and antimicrobial drug delivery potential

Elbadawy A. Kamoun,* Eman Abdelaziz, Shahira H. EL-Moslami, Nihal Almuraikhi, Ezat A. Mersal, Amal F. Dawood, Tamer M. Shawky, Abrar Alanazi, Nashwa Almatrudi, Amr Negm and Ibrahim E. T. El Sayed*

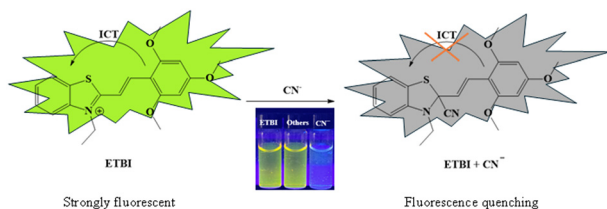
12211



Construction of CuCo bimetallic nanoparticles on perovskite oxide LaFeO₃ for efficient hydrogen production from ammonia borane hydrolysis

Hai Wang, Yuxin Shao, Xiaoyi Wu, Siyuan Tang, Linlin Xu,* Yufang Xie, Haotian Qin, Tong Liu* and Yin Yin*

12218



A "turn-off" ICT-based optical probe for the selective detection of cyanide ions in real samples

Sisay Uota, Daniella Gross, Bor-Jang Hwang, Raymond Butcher, Yousef Hijji, James Wachira, Solomon Tadesse, Jesse Edwards, Kyle Edwards and Fasil Abebe*

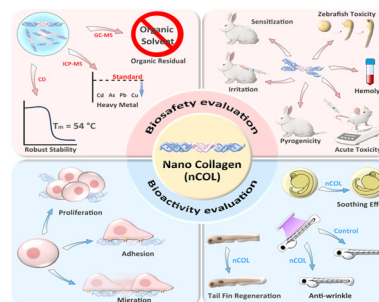


PAPERS

12231

Design and evaluation of the biosafety and bioactivity of highly stable nano collagen

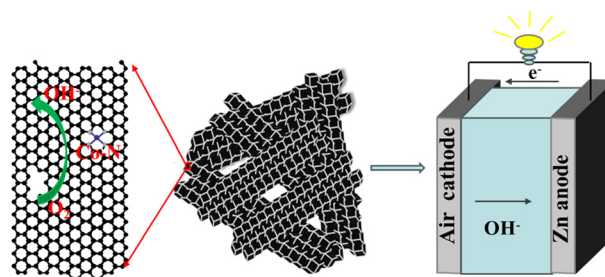
Jingting Zhang, Biyang Ling, Yi Yang, Linyan Yao* and Jianxi Xiao*



12243

Self-template synthesized ZIF-derived polyhedron-connected porous Co–N–C as an oxygen reduction catalyst for Zn–air batteries

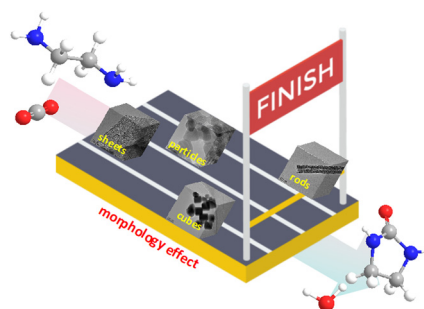
Jiaming Cui, Xiaoting Cao, Xi Wang, Jie Liu, Ningyi Yuan* and Jianning Ding



12252

Morphology-driven oxygen vacancy engineering in Co₃O₄ nanostructures for enhanced catalytic conversion of CO₂ to 2-imidazolidinone

Fei Wang, Yonggang Xu, Qiqi Miao, Xuejiao Wei,* Yihu Ke, Yinwen Gu, Jie Xu and Bing Xue*

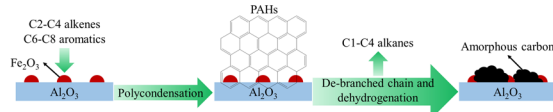


12260

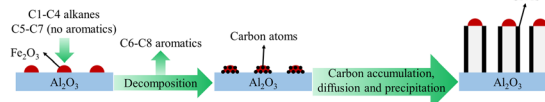
Insights into CNT synthesis process and mechanism in terms of the composition and transformation of hydrocarbon cracked gas

Siqi Liu, Dongzhe Cui, Xu Hou,* Changchang Tian, Ao Dong, Li Yin and Jing Huang

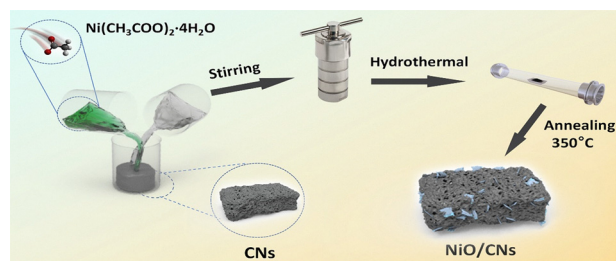
Reaction pathway for amorphous carbon formation



Reaction pathway for CNTs formation



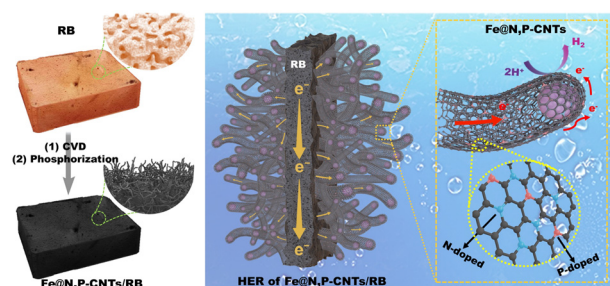
12271



Engineering crystalline–amorphous interfaces in nickel oxide/porous carbon hybrids for enhanced electrocatalytic water splitting

Zimeng Kong, Junqing Li* and Dongxuan Guo*

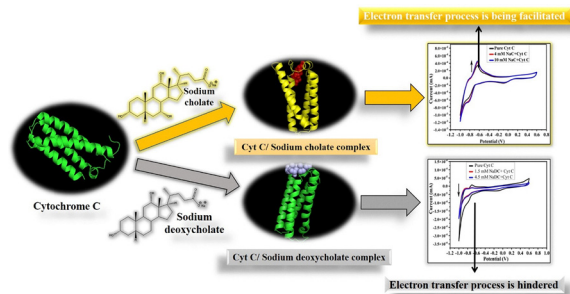
12279



Upcycling red brick into a superior monolithic hydrogen evolution electrocatalyst

Zhengguo Zhang,* Yiming Li, Jiao Zhang, Yaoyao Zhao, Mengjuan Xu, Fang Wang and Shixiong Min*

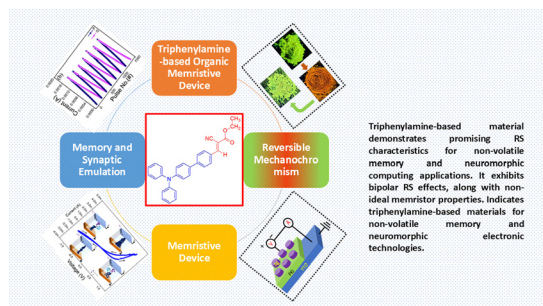
12289



Hydrophobicity-directed structural alteration in cytochrome C induced by bile salts: physicochemical, spectroscopic, and atomic force microscopic studies with molecular docking analysis

Raju Sardar, Rajesh Banik, Susmita Chowdhury and Soumen Ghosh*

12306



A triphenylamine-based organic memristive device: a promising candidate for memory and synaptic emulation applications

Kishor S. Jagadhane, Neha B. Tadavalekar, Amitkumar R. Patil, Govind B. Kolekar, Rajanish K. Kamat, Tukaram D. Dongale* and Prashant V. Anbhule*

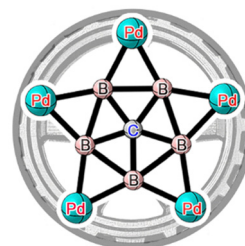


PAPERS

12315

CB₅Pd₅⁺: a boron-based global minimum with a planar pentacoordinate carbon

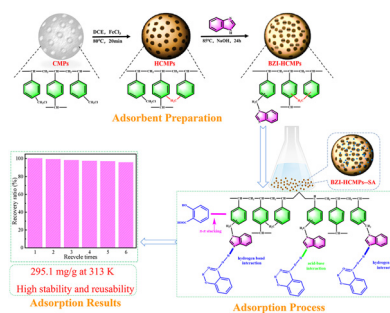
Rui Sun,* Xiao-Ling Guan, Bo Jin, Xin Wu, Caixia Yuan* and Yan-Bo Wu*

Boron-based planar pentacoordinate carbon in global minimum CB₅Pd₅⁺

12322

Synthesis, structural characteristics, and adsorption properties of benzimidazole-functionalized hyper-cross-linked resin

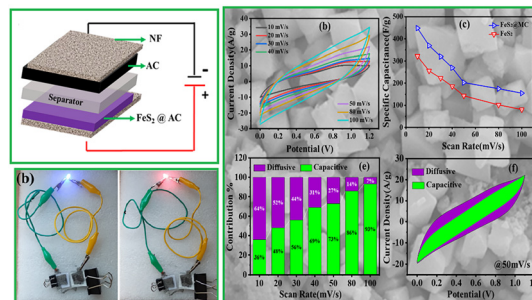
Jixia Li, Yang Tan, Wenkai Chen, Gui Chen,* Lizhi Chen, Jiahui He, Sitong Wang, Haizhou Zhang and Ye Yuan*



12331

Core-shell mesoporous carbon@FeS₂ nanocubes for advanced quasi-solid-state symmetric and asymmetric configurations

Muzahir Iqbal, Abhijeet Singh, Manawwer Alam, Anil Arya* and Santosh K. Mahapatra*



12339

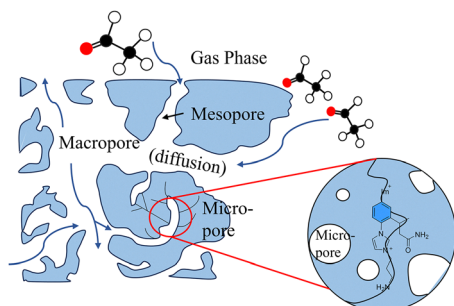
Hollow P, N dual-doped mesoporous carbon supported Pd nanoparticles for efficient catalytic H₂ generation from formic acid

Firouzeh Nemati* and Marzie Sadat Mirhosseini*



PAPERS

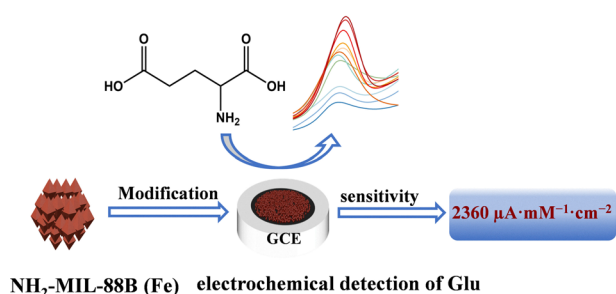
12348



Novel amino-functionalized poly(ionic liquid)s for enhanced acetaldehyde adsorption: synthesis and performance evaluation

Zhen Yang, Xian Dong, Longchao Liang and Zhuo Chen*

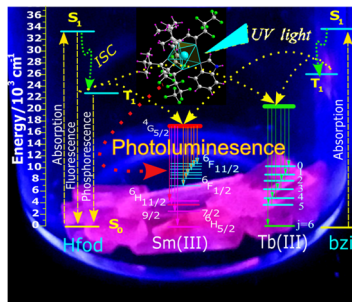
12359



An electrochemical sensor based on an amino-functionalized metal–organic framework for the highly sensitive detection of glutamate

Jianbo Tong,* Qi Hou and Yakun Zhang

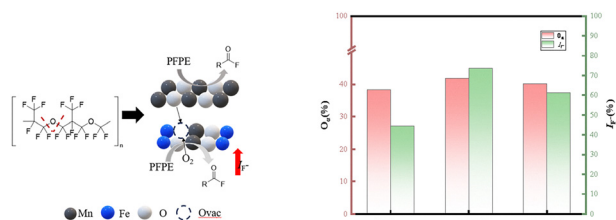
12368



Photophysical studies of low-symmetry Sm(III) and Tb(III) complexes reveal remarkable quantum yields

Asgar Ali,* Zubair Ahmed,* Khalid Iftikhar and Rahis Uddin*

12382



Synergistic effect of a manganese-based catalyst and its performance in catalytic cracking of PFPE

Yang Tang, Jing Zhan, Weifu Xiong, Yanli Liang* and Xiaoyan Ma*

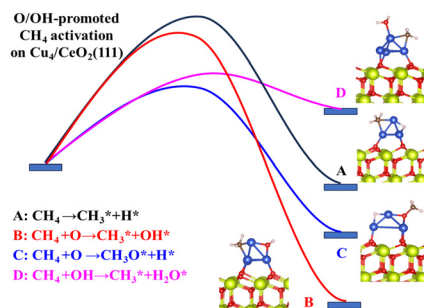


PAPERS

12393

A theoretical study on the promotion of methane activation by adsorption of O species on Cu/CeO₂(111)

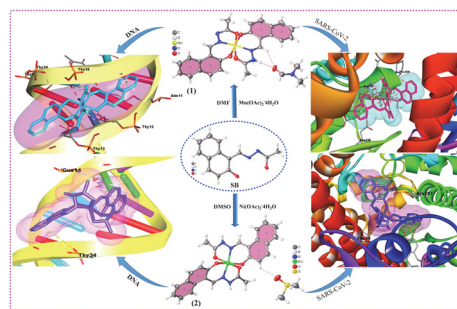
Meng Miao, Yang Xiang, Xin Wei, Qiaoling Xu, Maolin Sha and Qiangqiang Meng*



12401

Synthesis and design of manganese and nickel complexes with potential anticancer and antibacterial activities and antiviral properties for therapeutic applications

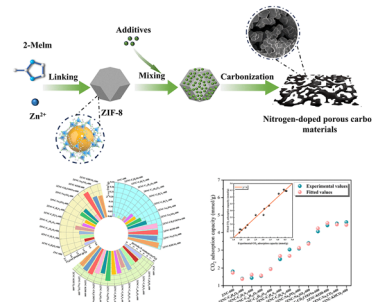
Reyaz Ahmad and Mukesh Choudhary*



12423

Structural optimization of ZIF-8-derived porous N-doped carbon materials for effective CO₂ capture

Hao Wang, Jiadi Gao, Xianyi Liu, Zhiguo Zhang, Zhigeng Fan and Yange Suo*



12439

Mechanoluminescence and nonlinear optical properties of a self-assembled piperazine-based supramolecular system: structural insights and computational analysis

Krishna Murthy Potla,* Suneetha Vankayalapati, Francisco A. P. Osório, Clodoaldo Valverde, Raja Murugesan, Zainab M. Almarhoon, Mahboob Alam and Mohammad Shahidul Islam*

