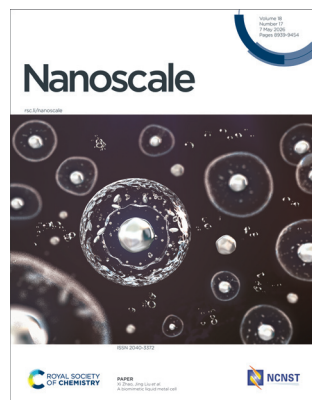


IN THIS ISSUE

ISSN 2040-3372 CODEN NANOHL 18(17) 8939-9454 (2026)



Cover

See Xi Zhao, Jing Liu *et al.*, pp. 9067–9081.

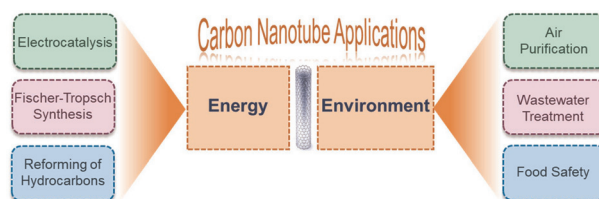
Image reproduced by permission of Jing Liu from *Nanoscale*, 2026, **18**, 9067.

REVIEWS

8953

Catalytic applications of carbon nanotubes in energy and environmental remediation: multifunctional roles and design strategy

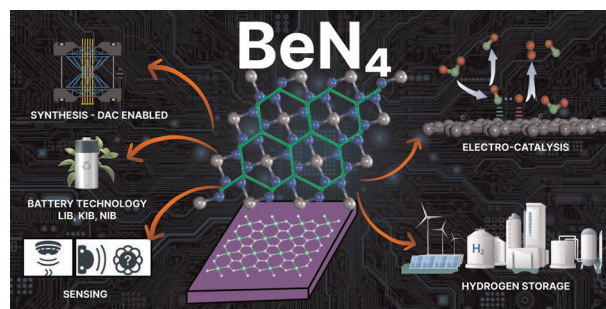
Samson A. Adeoye and Placidus B. Amama*



8991

Heteroatom-based 2D material BeN₄: exciting properties, synthesis, and application in energy storage and sensing

Chaitanya Gend, Sathya Arumugam Thirumalai and Brahmananda Chakraborty*



Industrial Chemistry & Materials

GOLD
OPEN
ACCESS

Focus on industrial chemistry
Advance material innovations
Highlight interdisciplinary feature

Innovative.
Interdisciplinary.
Problem solving

APCs currently waived

Learn more about ICM
Submit your high-quality article

 [@IndChemMater](https://www.facebook.com/IndChemMater)

 [@IndChemMater](https://twitter.com/IndChemMater)

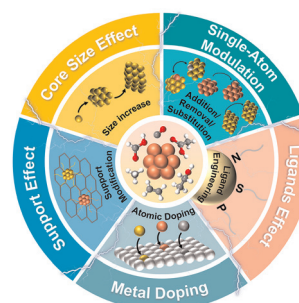
rsc.li/icm

REVIEWS

9012

Recent progress in electrochemical carbon dioxide reduction using atomically precise copper nanoclusters

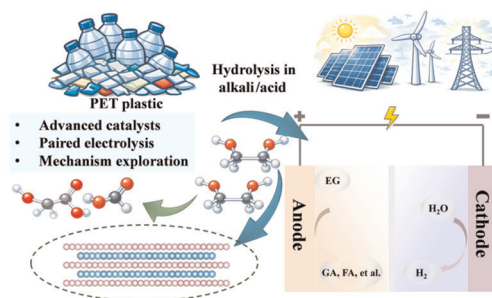
Yang Zuo, Xiaoshuang Ma,* Shuo Zhang* and Shuxin Wang*



9028

Advanced catalyst design and mechanistic insights in electrocatalytic upcycling of PET-derived ethylene glycol and coupled electrolysis systems

Wenjing Huang

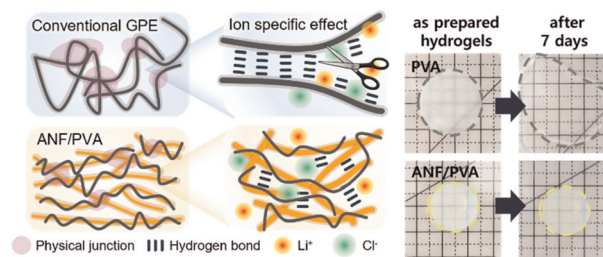


COMMUNICATIONS

9050

Aramid nanofiber–poly(vinyl alcohol) composite gel polymer electrolytes for lithium chloride-based supercapacitors

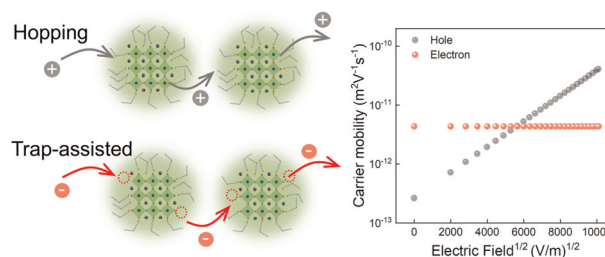
Yuseung Choi, Gilyong Shin, Eun Jae Nam, Ji Heon Hong, Byeong Jun So and Tae June Kang*



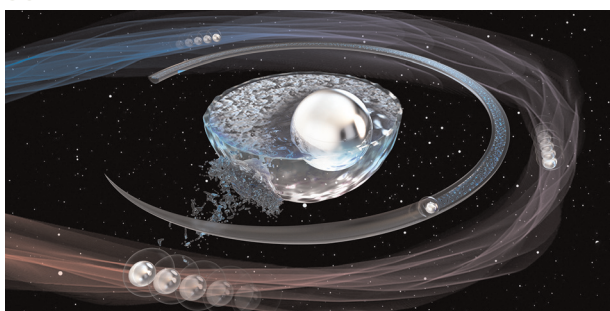
9061

Giant electric field dependent hole mobility of CsPbBr₃ nanocrystal films

Shipei Sun, Hui Bao, Lihao Liu, Jiahao Wan, Haitao Wang, Yunan Gao* and Haizheng Zhong*



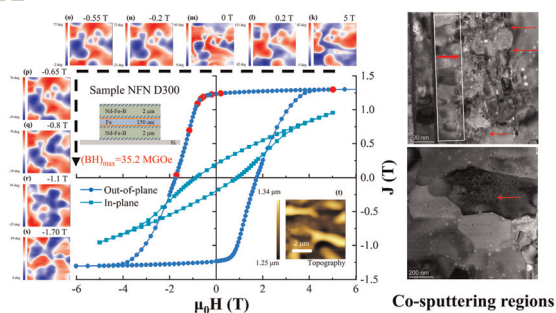
9067



A biomimetic liquid metal cell

Jingyi Li, Mengwen Qiao, Minghui Guo, Zerong Xing, Yunlong Bai, Ju Wang, Yujia Song, Ren Xu, Xi Zhao* and Jing Liu*

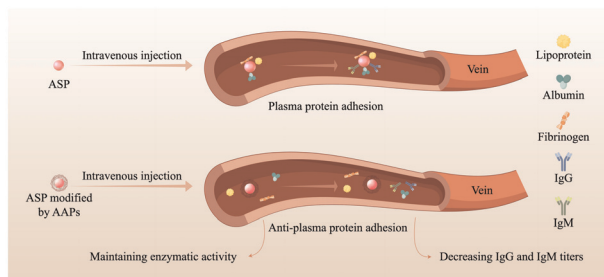
9082



Achieving high energy products in anisotropic Nd–Fe–B/Fe composite thick films by Dy co-sputtering

Chunhao Li, Xiaotian Zhao,* Long Liu,* Weibin Cui, Qiang Li, Zhixing Ye, Bing Li, Wei Liu and Zhidong Zhang

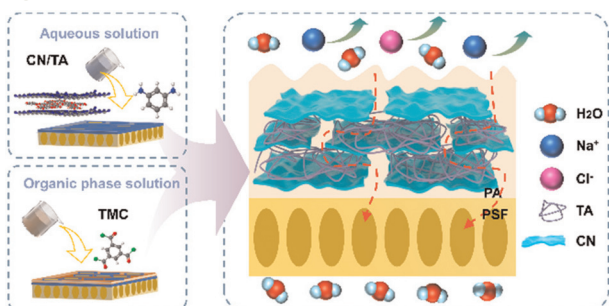
9093



Anti-plasma adhesion peptides from one-bead one-compound technique for drug delivery

Lu-Ming Guo, Jun-Xiao Yuan, Yi-Jing Li, Xi-You Yang, Xin Cui, Guo-Yang Xu, Kuo Zhang, Wen-Jia Lai, Yu-Ting Li, Jia-Qi Feng, Litao Li, Long Yu, Hao Wang, Xu Cui* and Lei Wang*

9101



Enhancing the reverse osmosis desalination performance of thin-film nanocomposite membranes by incorporating tannic acid-modified graphitic carbon nitride nanosheets

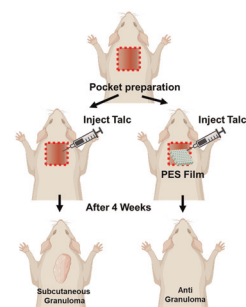
Shaotong Liang, Jiabin Jing, Jiapeng Wang, Haijia Wang, Wenxuan Du, Zhenjie Ding, Yuele Gu and Chengzhen Sun*



9111

Polyethersulfone films as promising biomaterials for reducing granuloma formation and preserving tissue compatibility

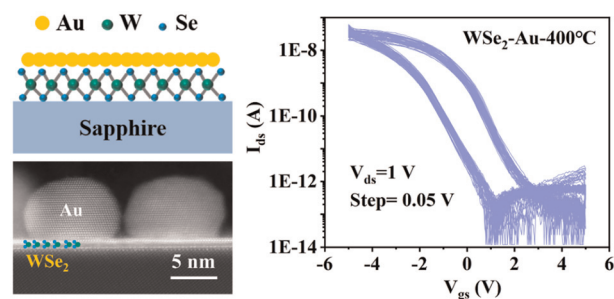
Andrew E.-Y. Chuang,* Chia-Hung Liu, Brian Lu, Pei-Ru Jheng, Lekshmi Rethi, Nattapong Thakham, Thi Linh Le, Chu-Ying Yu, Yan-Ling Yang* and Liao-Ping Cheng



9125

CMOS-compatible Au doping boosts the hole carrier transport in the CVD-grown 2-inch monolayer WSe₂ films for p-type transistors

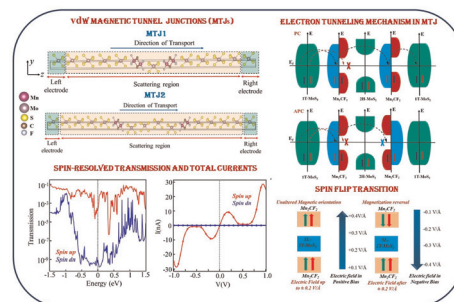
Xin Lu, Kai Huang, Ding Lu, Chao Tan, Xin Hao, Guohua Hu, Siyuan Luo and Zegao Wang*



9133

Two-dimensional Mn₂CF₂ MXene-based magnetic tunnel junctions with giant spin filter tunnel magnetoresistance

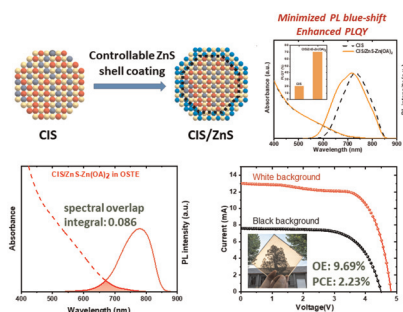
Sonali S. Pradhan, G. Vaitheeswaran* and V. Kanchana*



9146

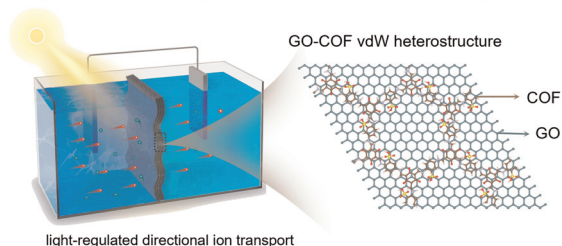
Suppressed spectral blue-shift in ZnS-coated CuInS₂ quantum dots for efficient luminescent solar concentrators

Changhong Cheng, Jiayi Zhang, Yufan Wu, Jingjian Zhou, Qiliang Fu, Ilya Sychugov, Dan Shan, Bo Xu* and Jing Huang*



9156

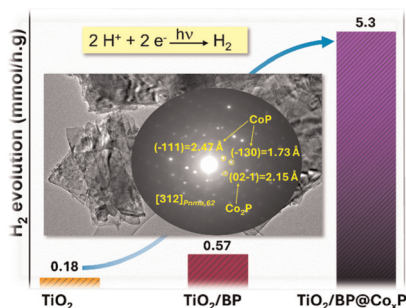
Light-Driven Ion Pumping for Enhanced Osmotic Energy Conversion



Light-driven cation pumping in atomic-level van der Waals heterostructures towards efficient osmotic energy harvesting

Yifan Guo, Xi Wang, Xinyu Chen, Xinyue Cao, Zhengwei Cao, Cuiwen Zong, Jia Ge, Junzhu Tao, Yu Zhang, Gao Liu, Lei Jiang and Zhen Zhang*

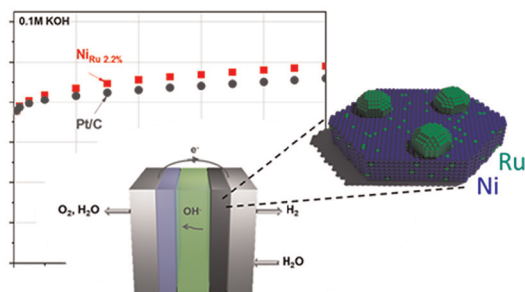
9167



2D black phosphorus as a phosphide source for the formation of mixed cobalt phosphide clusters active in photocatalytic hydrogen evolution

Giacomo Provinciali, Manuel Serrano-Ruiz, Jonathan Filippi, Beatrice Muzzi, Martina Banchelli, Carlo Calcatelli, Alberto Verdini, Stefano Caporali, Francesco D'Acapito, Maurizio Peruzzini and Maria Caporali*

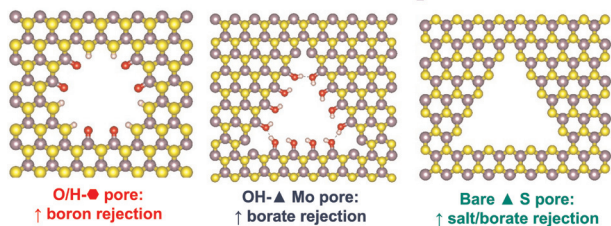
9177



Synergistic ruthenium single-atom and nanoparticles in nickel as cooperative catalysts for the alkaline hydrogen evolution reaction

Gaëlle Khalil, Marie-Sophie Dias-Fernandes, Sumit Bawari, Linghui Li, Chidharth Muthuraj, Florent Ducrozet, Minkyong Kwak, Miguel Comesaña-Hermo, Andrea Zitolo, Stephan N. Steinmann, Shannon W. Boettcher, Cédric Tard, Benedikt Lassalle-Kaiser, Marion Giraud* and Jennifer Peron*

9190

Modeling functionalized MoS₂ edgesAqueous chemistry of MoS₂ nanopores: how functional groups influence water permeation and ion/borate rejection

Pradeep Dhondi and Ananth Govind Rajan*

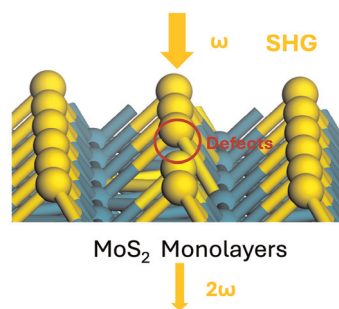


PAPERS

9209

Structural defects dependence of the second-harmonic generation in monolayer MoS₂

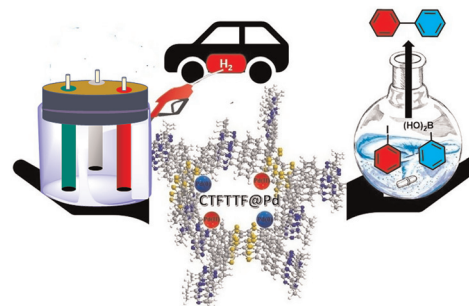
Hongjia Zhao, Anbing Zhang, Shi Qiu, Hongsheng Liu, Yuan Chang* and Junfeng Gao*



9216

Palladium on S,N-containing carbon materials derived from covalent triazine-based frameworks (CTFs) for C–C coupling and electrocatalytic hydrogen production

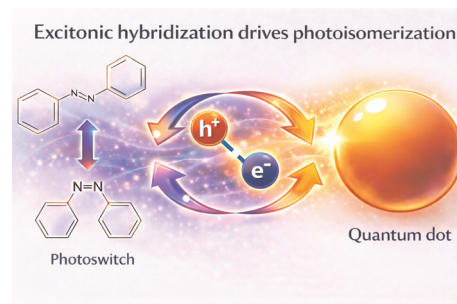
Arijit Maity, Debabrata Patra, Amit Saha and Asamanjoy Bhunia*



9225

Exciton-driven photoisomerization in photoswitch–quantum dot nanohybrids

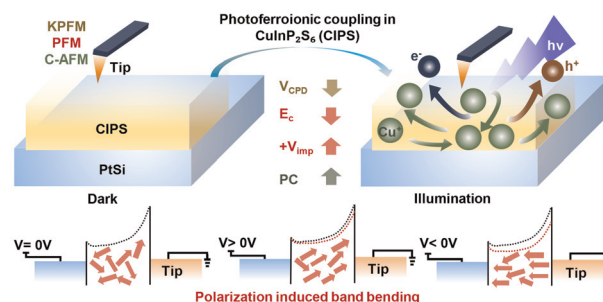
Daniel López Díaz,* Gabriel Gil, Stefano Corni and Guido Goldoni



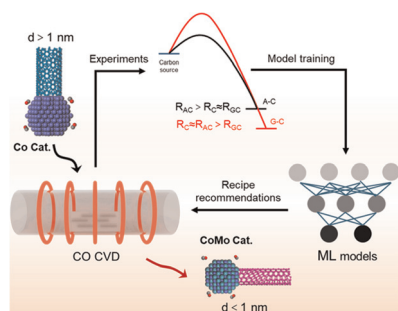
9236

Photoferroelectric coupling and polarization-controlled interfacial band modulation in a van der Waals compound CuInP₂S₆

Subhashree Chatterjee, Rabindra Basnet, Rajeev Nepal and Ramesh C. Budhani*



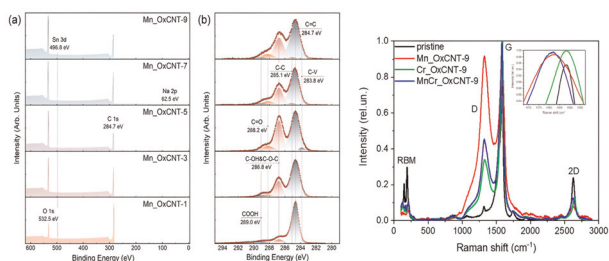
9250



Co-designing growth factors for the synthesis of (6, 5)-enriched single-walled carbon nanotube horizontal arrays

Junxiao Li, Sizhe Lin, Wei Liu, Changlong Li, Jiacheng Song, Zhiwei Liu, Yue Hu and Shuchen Zhang*

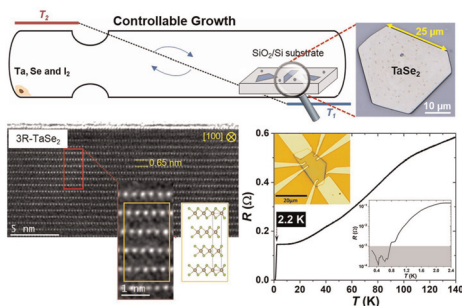
9260



Deep oxidation of single-walled carbon nanotubes toward a versatile platform for direct functionalization

Maksim V. Gudkov,* Nikolai I. Novosadov, Mikhail K. Torkunov, Maxim K. Rabchinskii, Svyatoslav D. Saveliev, Demid A. Kirilenko, Svetlana I. Serebrennikova, Dmitry V. Krasnikov, Ratibor G. Chumakov, Albert G. Nasibulin, Albert F. Arutyunyan, Roman A. Novikov and Valery P. Melnikov

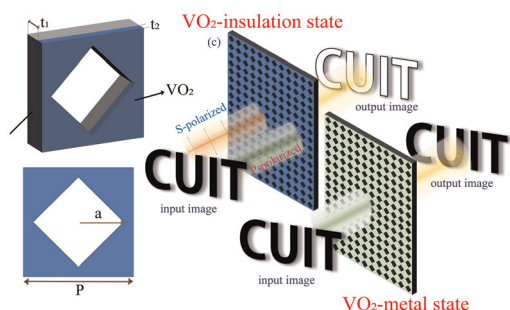
9273



Thermodynamically guided synthesis of 3R-TaSe₂ nanocrystals and their superconducting behavior

Mahmoud M. Hammo,* M. A. A. Mohamed,* Esam K. Moustafa, Daniel Wolf, Samuel Froeschke, Ammar Soliman, Joseph Dufouleur, Romain Giraud, Bernd Büchner, Michael Mertig and Silke Hampel

9282



Phase-change metasurface for switchable terahertz edge detection and bright-field imaging based on quasi-bound states in the continuum

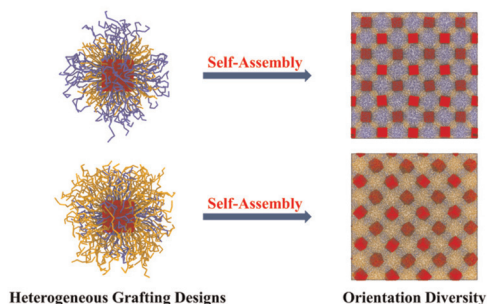
Ling Zhou, Li Luo, Kenan Guo, Lin Liang, Menghan Chen, Shichao Zhao, Yuxin Tang, Tingting Liu, Shuyuan Xiao, Jie Li* and Jianquan Yao



9294

Dictating orientation diversity of body-centered cubic superlattices in the self-assembly of polymer-grafted nanocubes through heterogeneous grafting designs

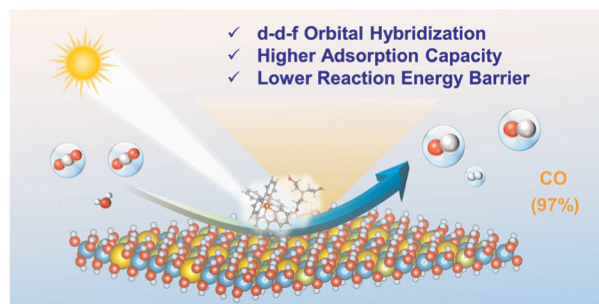
Chong Yu, Wei Deng and Hongxia Guo*



9308

Synergistic effects in NiMnEr-LDH: d-d-f orbital overlap enables efficient CO₂ photoreduction

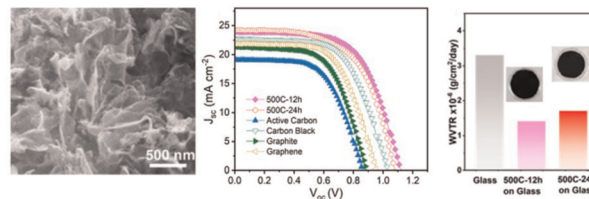
Zirui Wang, Cui Xu, Jiawei Li, Jiabin Li, Ziyang Zhu, Fanfan Meng, Gaofeng Deng, Yilin Yin, Bin Liu* and Zenghe Li*



9318

Design and synthesis of hydrogenated carbon nanomaterials for perovskite solar cells

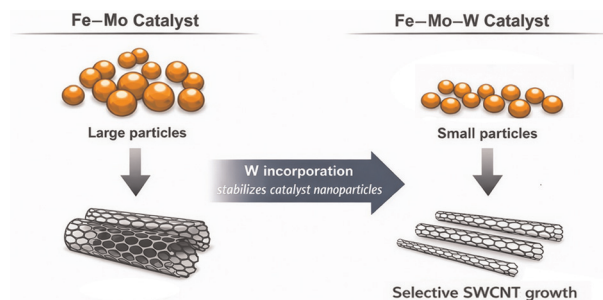
Sanan Appapillai, Sharmin Akter, Tajamul Syed, Hui Wang* and Wei Wei*



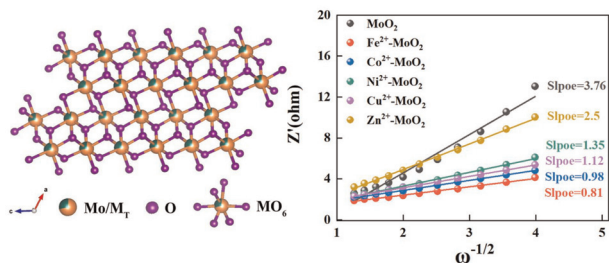
9326

Tungsten-based ternary catalysts for selective growth of single-walled carbon nanotubes

Jae Hun Hwang, Geon Han, Young Soo Park, Sang Won Lee* and Young Chul Choi*



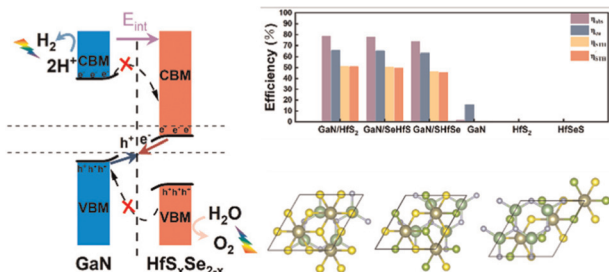
9338



Transition metal doping enhances pseudocapacitive energy storage in monoclinic molybdenum dioxide

Ze-Dong Zhang, Guo-Xian Zhao, Zu-Tao Pan, Yao Xu and Ling-Bin Kong*

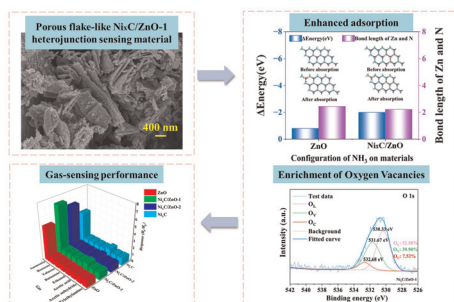
9347



Unlocking ultrahigh solar-to-hydrogen efficiency in 2D GaN via S-scheme heterojunctions with HfS_xSe_{2-x}

Feng Tang, Dinghua Yang, Hongyu Zhu, Ya Nie, Xi Zhang* and Gang Xiang*

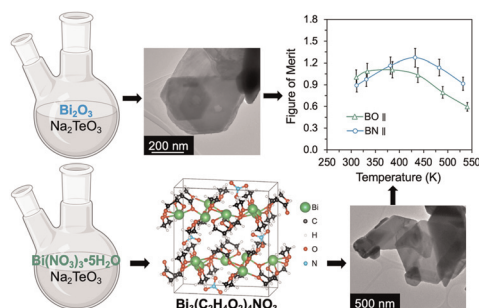
9355



Highly selective room-temperature ammonia gas sensor based on a sheet-like Ni_xC/ZnO heterojunction

Hongmin Zhu, Ying Li, Mingjie Dai, Bicheng Cai, Ru Wang, Yutong Guo, Yanbai Shen, Tianyao Qi,* Fanli Meng* and Yong Zhao*

9365



Precursor effects and formation mechanism of polyol-synthesized thermoelectric Bi₂Te₃

Madison Donohoe, Tristan Liciskai, Ehsan Niknam, Abdeljalil Assoud, Tianze Zou, Jan Kycia and Holger Kleinke*

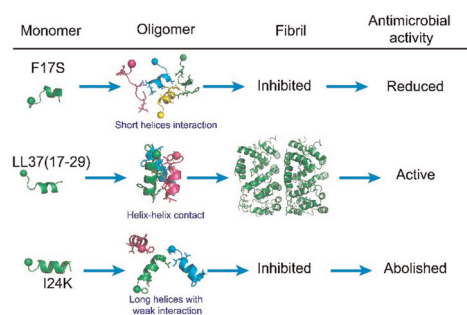


PAPERS

9380

Molecular interaction modes of the host-defense peptide cathelicidin LL-37 and its mutants dictate diverse antimicrobial activities

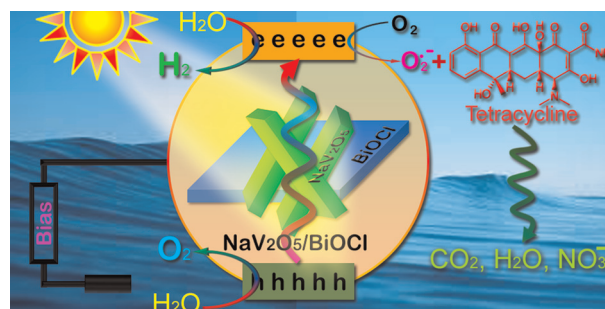
Xiaofei Jin, Huipan Wang* and Huayuan Tang*



9390

Boosting photo-induced charge separation by the NaV₂O₅/BiOCl nanocomposite for alkaline water splitting and environmental remediation

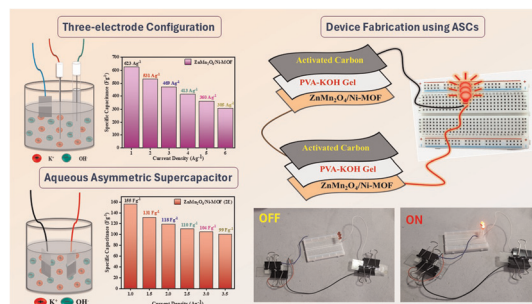
Soumita Sarkar, Soumalya Banerjee, Sk Afsar Ali and Astam K. Patra*



9405

Spinel ZnMn₂O₄/Ni-based metal–organic framework hybrid composite for high-performance asymmetric supercapacitors

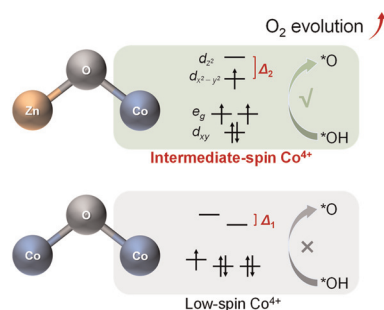
Abinash Kumararaj, Kamala Bharathi Karuppanan and Geetha Arunachalam*



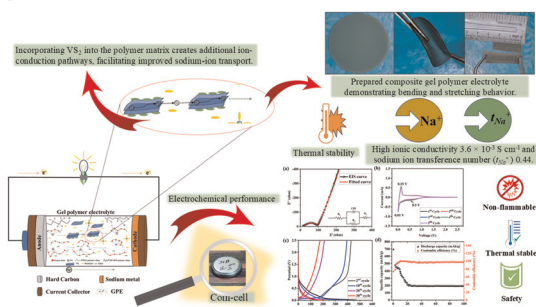
9416

Modulating the electronic structure of cobalt sites using zinc to promote the oxygen evolution electrocatalysis

Chizhong Wang,* Sizhe Chen, Wen Guo, Fanghua Liu, Lei Qiu, Qiufan Xiang, Yijia Cai and Huazhen Chang*



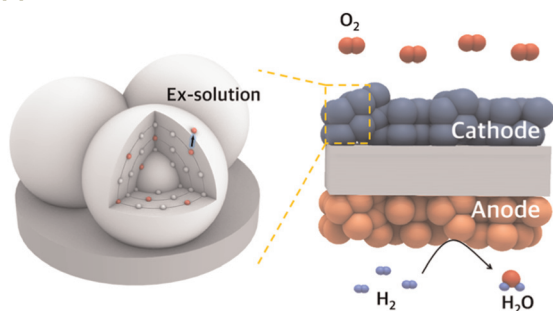
9425



Impact of 2D layered VS_2 on the electrochemical properties of gel polymer electrolytes for sodium-ion battery applications

Awanish Gupta, Ashish Bhatnagar* and Devendra Kumar Rai*

9444



Anchored nanocatalysts enable efficient oxygen reduction in barium cobaltite cathodes

InSik Lim, Hyun Sik Yoo, DongHwan Oh, Gaon Heo, Seonmin Oh, Bonjae Koo, Wonyoung Lee* and Jun Hyuk Kim*

