

# Journal of Materials Chemistry A

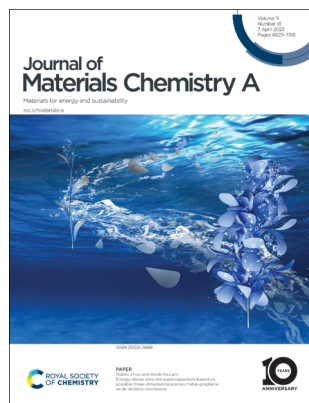
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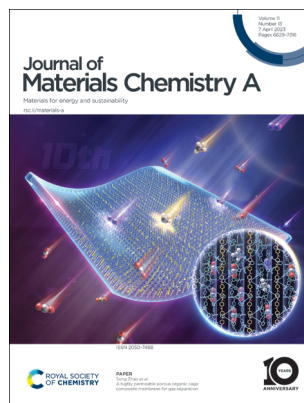
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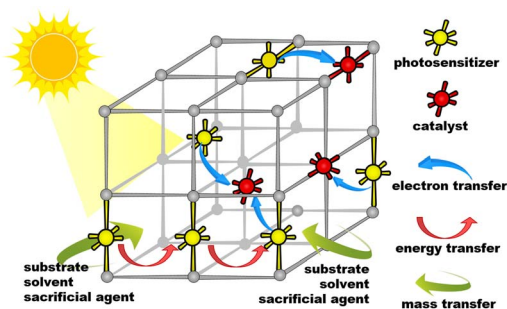
**Inside cover**  
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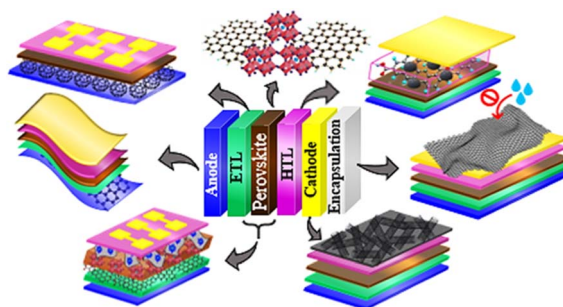
Jiaying Shi,\* Zhifang Su, Xuan Li, Jianxin Feng and Chengzheng Men



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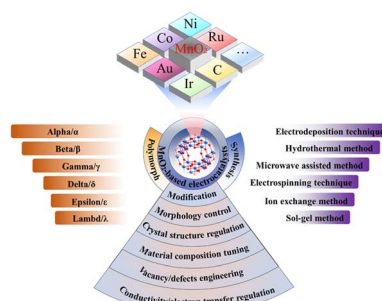
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## Modification of micro/nanoscaled manganese dioxide-based materials and their electrocatalytic applications toward oxygen evolution reaction

Gaihua He\* and Ye Liao\*



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## Functional metal–organic frameworks as adsorbents used for water decontamination: design strategies and applications

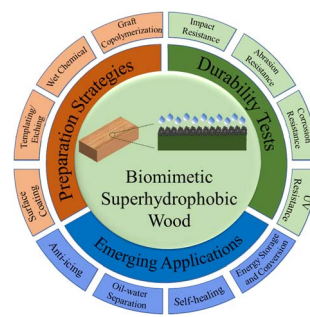
Gege Wu, Jiping Ma,\* Shuang Li, Jinhua Li, Xiaoyan Wang, Zhiyang Zhang and Lingxin Chen\*



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## Recent development and emerging applications of robust biomimetic superhydrophobic wood

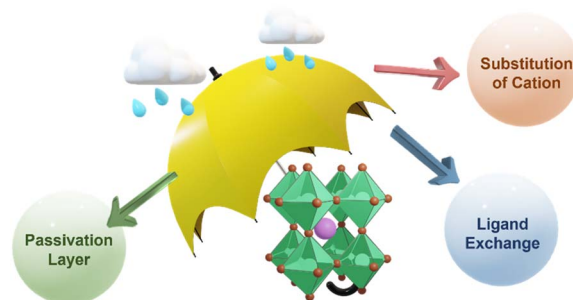
Xiaojun Li, Likun Gao,\* Min Wang, Dong Lv, Peiyao He, Yanjun Xie, Xianxu Zhan,\* Jian Li and Zhiqun Lin\*



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## Various approaches to synthesize water-stable halide PeNCs

Avijit Das, Arup Ghorai, Kundan Saha, Arka Chatterjee and Unyong Jeong\*



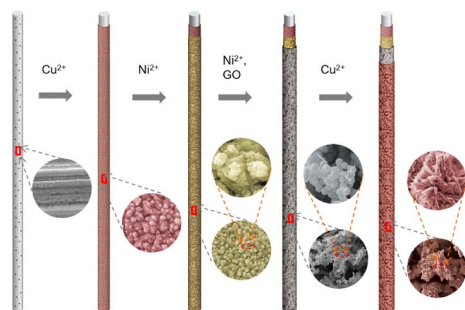
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### Main-group indium single-atom catalysts for electrocatalytic NO reduction to $\text{NH}_3$

Kai Chen, Nana Zhang, Fuzhou Wang, Jilong Kang and Ke Chu\*

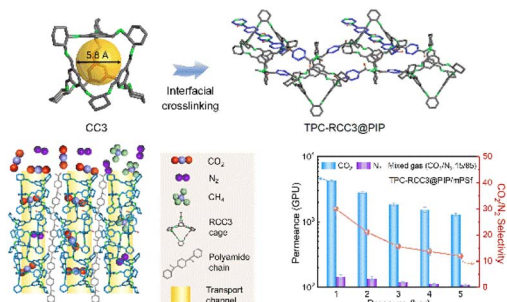
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### Energy-dense wire-like supercapacitors based on scalable three-dimensional porous metal-graphene oxide skeleton electrodes

Ruitao Zhou and Kwok Ho Lam\*

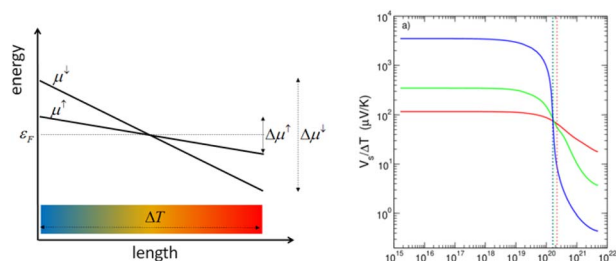
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Zhihao Jiang, Ying Wang, Menglong Sheng, Zhiyuan Zha, Jixiao Wang, Zhi Wang and Song Zhao\*

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### Giant spin-dependent Seebeck effect from fully spin-polarized carriers in n-doped $\text{EuTiO}_3$ : a prototype material for spin-caloritronic applications

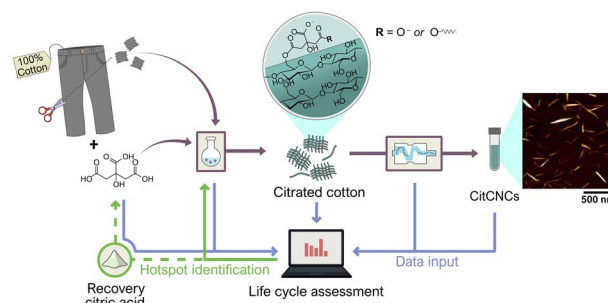
P. Wadhwa, A. Bosin and A. Filippetti\*



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### Citrated cellulose nanocrystals from post-consumer cotton textiles

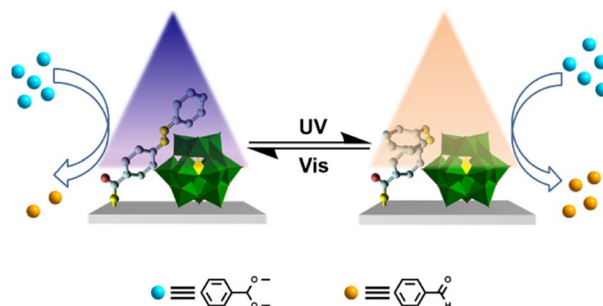
Maria-Ximena Ruiz-Caldas, Varvara Apostolopoulou-Kalkavoura, Anna-Karin Hellström, Jutta Hildenbrand, Mikael Larsson, Aleksander Jaworski, Joseph S. M. Samec, Panu Lahtinen, Tekla Tammelin and Aji P. Mathew\*



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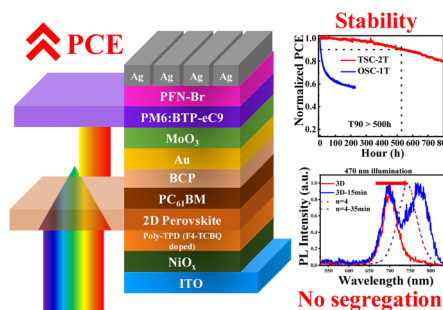
Hui Wen, Guoliang Liu, Shi-Chao Qi, Chen Gu, Tao Yang, Peng Tan and Lin-Bing Sun\*



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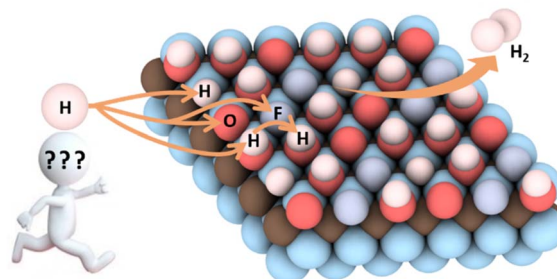
Haotian Wu, Tianyi Chen, Yaokai Li, Shitao Guan, Lin Zhang, Tingjun Chen, Yang Liu, Yizheng Jin, Lijian Zuo, Weifei Fu,\* Gang Wu\* and Hongzheng Chen\*



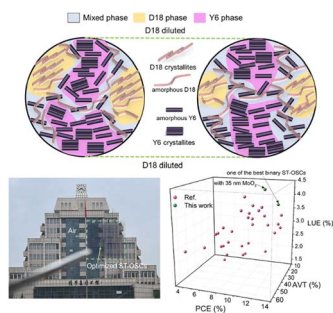
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### Effect of terminations on the hydrogen evolution reaction mechanism on $Ti_3C_2$ MXene

Ling Meng, Li-Kai Yan,\* Francesc Viñes\* and Francesc Illas



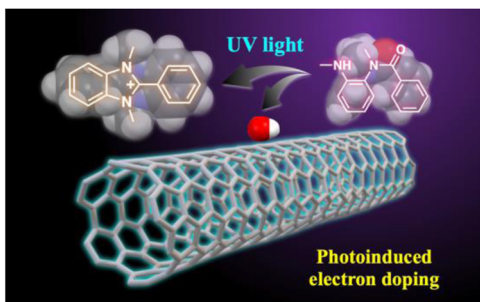
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### A paradigm study of polymer donor diluted bulk heterojunction films for application in semitransparent organic photovoltaics

Zhenyu Chen, Wei Ma and Han Yan\*

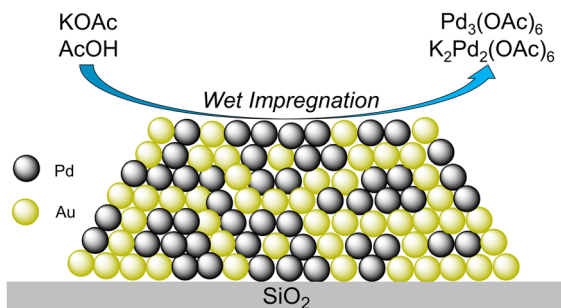
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### Photoinduced electron doping of single-walled carbon nanotubes based on carboxamide photochemical reactions

Naoki Tanaka, Taiki Ishii, Itsuki Yamaguchi, Aoi Hamasuna and Tsuyohiko Fujigaya\*

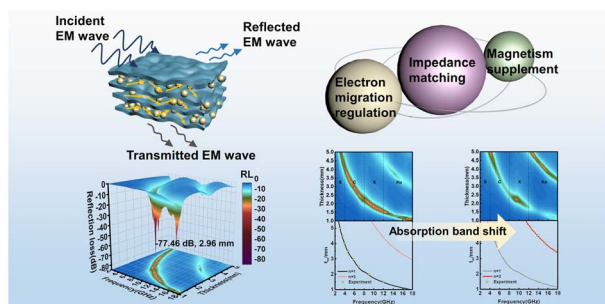
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### Regulated electron migration in sandwich-like m-Ti<sub>3</sub>C<sub>2</sub>/Fe<sub>3</sub>O<sub>4</sub> composites derived from electrostatic assembly boosted electromagnetic wave absorption

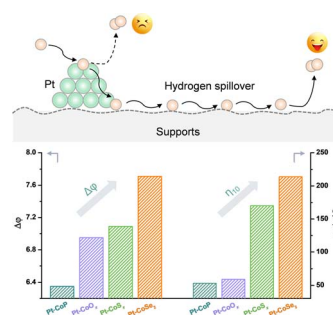
Yuxiao Yang, Jianyun Zhao, JiuHong Wang, Yinhuan Li, Wei Yu\* and Shujiang Ding



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## Boosting hydrogen evolution through hydrogen spillover promoted by Co-based support effect

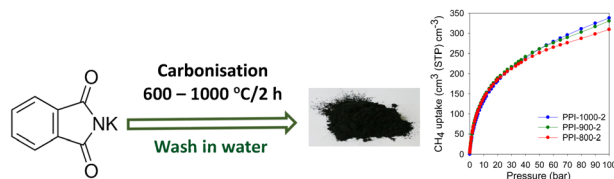
Ya-Nan Zhou, Xin Liu, Cheng-Jie Yu, Bin Dong,\*  
Guan-Qun Han, Hai-Jun Liu, Ren-Qing Lv, Bin Liu  
and Yong-Ming Chai\*



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## Direct synthesis of organic salt-derived porous carbons for enhanced CO<sub>2</sub> and methane storage

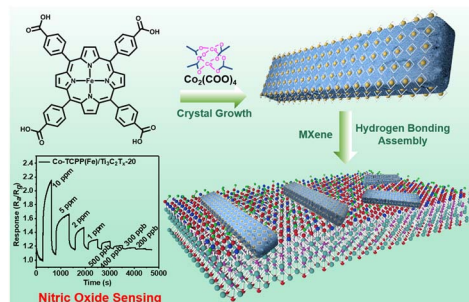
Ibtisam Alali and Robert Mokaya\*



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## Building porphyrin-based MOFs on MXenes for ppb-level NO sensing

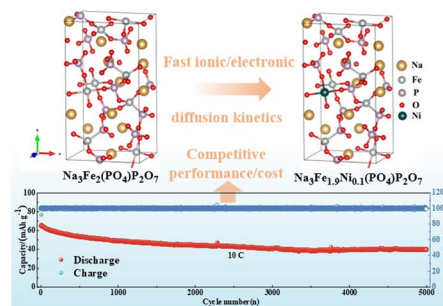
Yanwei Chang, Minyi Chen, Zijing Fu, Ruofei Lu,  
Yixun Gao, Fengjia Chen, Hao Li, Nicolaas Frans de Rooij,  
Yi-Kuen Lee, Yao Wang\* and Guofu Zhou



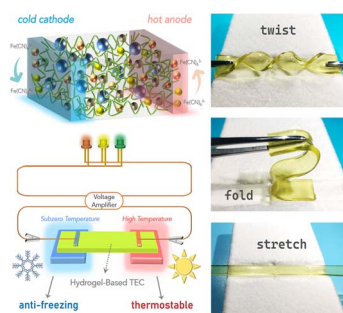
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Xu Wang, Huangxu Li, Wei Zhang, Xiaochen Ge, Liang He,  
Liuyun Zhang, Shihao Li, Naifeng Wen, Juanlang Guo,  
Yanqing Lai, Simin Li and Zhian Zhang\*



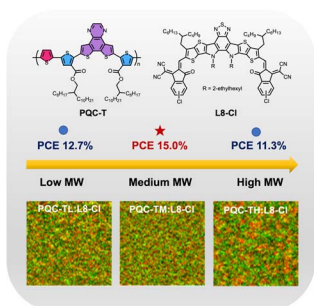
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### Aqueous eutectic hydrogel electrolytes enable flexible thermocells with a wide operating temperature range

Peng Peng, Zhao Li, Daibin Xie, Kaihua Zhu, Chunyu Du, Lirong Liang, Zhuoxin Liu\* and Guangming Chen\*

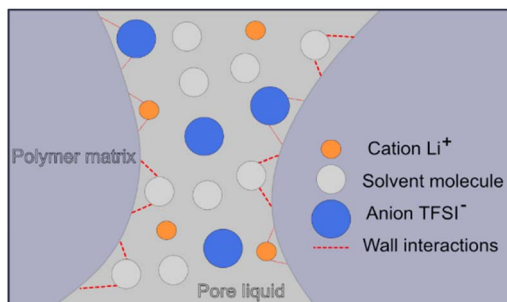
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Shanlu Wang, Tianyi Chen, Shuixing Li,\* Lei Ye, Yuang Fu, Xinhui Lu, Haiming Zhu, Lijian Zuo, Minmin Shi and Hongzheng Chen\*

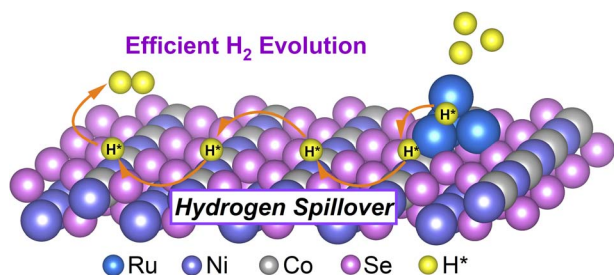
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### Hybrid polymer–liquid lithium ion electrolytes: effect of porosity on the ionic and molecular mobility

Martina Cattaruzza, Yuan Fang, István Furó, Göran Lindbergh, Fang Liu and Mats Johansson\*

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### Fabrication of Ru nanoclusters on Co-doped NiSe nanorods with efficient electrocatalytic activity towards alkaline hydrogen evolution *via* hydrogen spillover effect

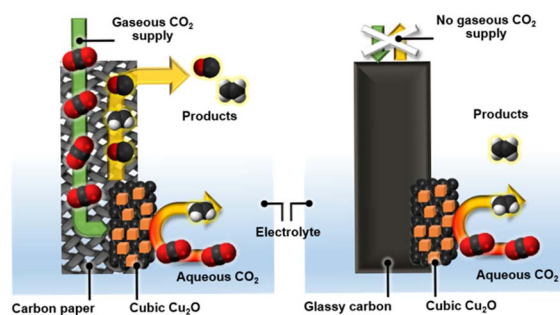
Ce Mu, Hongqiang Xin, Qiaomei Luo, Yan Li\* and Fei Ma\*



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### Tailoring electrochemical CO<sub>2</sub> reduction via substrate-induced gas diffusion

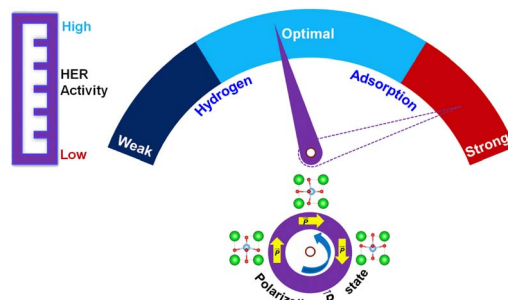
Younghyun Chae, Kyeongsu Kim, Hyewon Yun, Dongjin Kim, Wonsang Jung, Yun Jeong Hwang, Ung Lee, Dong Ki Lee, Byoung Koun Min, Woong Choi\* and Da Hye Won\*



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### Tunable hydrogen evolution activity by modulating polarization states of ferroelectric BaTiO<sub>3</sub>

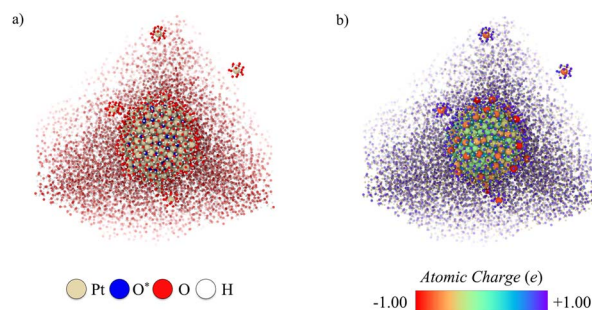
Haifa Qiu, Tong Yang, Jun Zhou, Ke Yang, Yiran Ying, Keda Ding, Ming Yang\* and Haitao Huang\*



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### Atomic-scale modeling of the dissolution of oxidized platinum nanoparticles in an explicit water environment

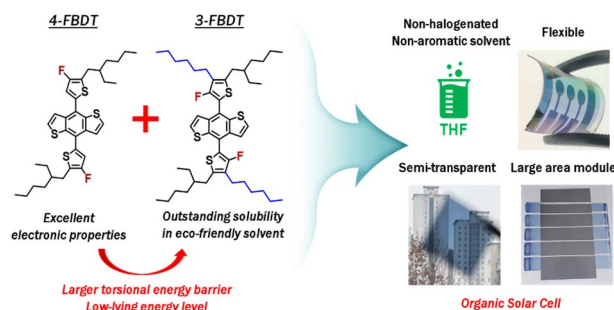
Robert E. Slapikas, Ismaila Dabo and Susan B. Sinnott\*



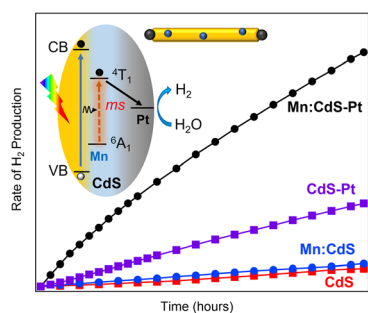
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### A newly designed benzodithiophene building block: tuning of the torsional barrier for non-halogenated and non-aromatic solvent-processible photovoltaic polymers

Hye Won Cho, Sang Young Jeong, Ziang Wu, Hyojin Lim, Won-Woo Park, Woojin Lee, Jonnadula Venkata Suman Krishna, Oh-Hoon Kwon, Jin Young Kim\* and Han Young Woo\*



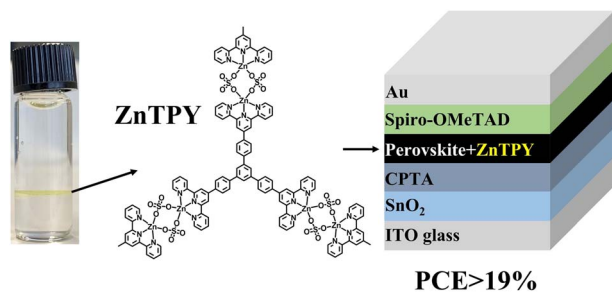
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### Facilitated electron transfer by Mn dopants in 1-dimensional CdS nanorods for enhanced photocatalytic hydrogen generation

Walker MacSwain, Hanjie Lin, Zhi-Jun Li, Shuya Li, Chun Chu, Lacie Dube, Ou Chen, Gyu Leem and Weiwei Zheng\*

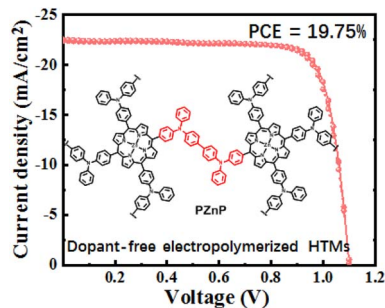
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### Terpyridine-zinc(II) coordination nanosheets as modulators of perovskite crystallization to enhance solar cell efficiency

Ying-Chiao Wang, Chun-Hao Chiang, Chun-Jen Su, Je-Wei Chang, Chi-Ying Lin, Chia-Chun Wei, Shao-Ku Huang, Hiroaki Maeda, Wen-Bin Jian, U-Ser Jeng,\* Kazuhito Tsukagoshi,\* Chun-Wei Chen\* and Hiroshi Nishihara\*

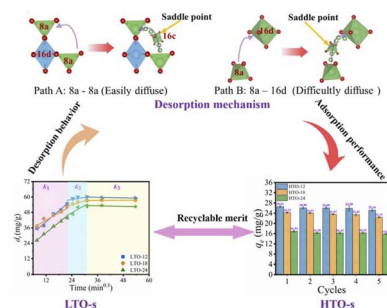
7085



### Thermally stable inverted perovskite solar cells using an electropolymerized Zn-porphyrin film as a dopant-free hole-transporting layer

Yangjie Lan, Yu-Duan Wang, Zhong-Rui Lan, Yang Wang, Bin-Bin Cui,\* Jiang-Yang Shao\* and Yu-Wu Zhong\*

7094



### Unraveling the Li<sup>+</sup> desorption behavior and mechanism of Li<sub>4</sub>Ti<sub>5</sub>O<sub>12</sub> with different facets to enhance lithium extraction

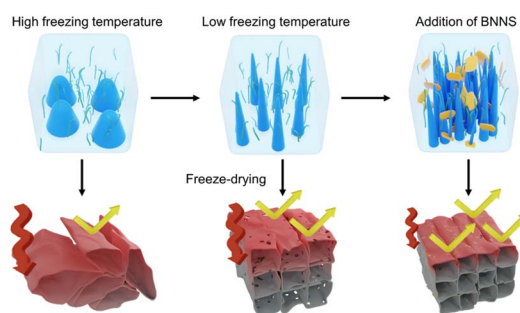
Bing Zhao, Yingjun Qiao, Zhiqiang Qian, Wenfei Wei,\* Jun Li, Zhijian Wu and Zhong Liu\*



7105

### Engineering anisotropic structures of thermally insulating aerogels with high solar reflectance for energy-efficient cooling applications

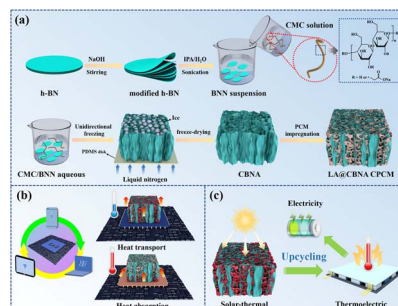
Eunyoung Kim, Kit-Ying Chan, Jie Yang, Harun Venkatesan, Miracle Hope Adegun, Heng Zhang, Jeng-Hun Lee, Xi Shen\* and Jang-Kyo Kim\*



7115

### A green, robust, and versatile BN nanosheet unidirectional aerogel encapsulated phase change material for effective thermal management of electronics and solar-thermoelectric conversion

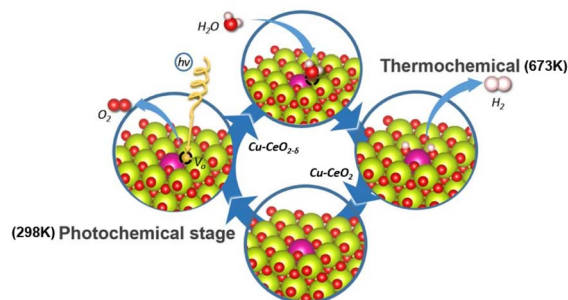
Linda Lv, Hong Ai, Taorui Chen, Wanting Zhu, Yi Guo, Lijie Dong\* and Shaokun Song\*



7128

### The water splitting cycle for hydrogen production at photo-induced oxygen vacancies using solar energy: experiments and DFT calculation on pure and metal-doped CeO<sub>2</sub>

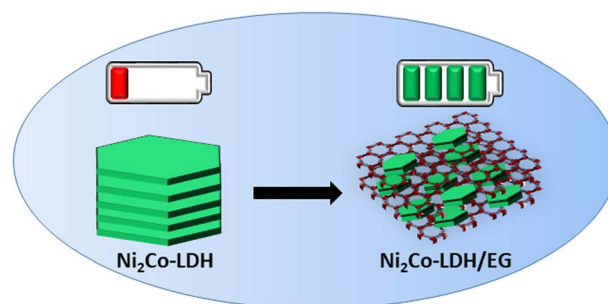
Rui Li, Chang Wen,\* Kai Yan, Tianyu Liu, Bohan Zhang, Mingtao Xu and Zijian Zhou



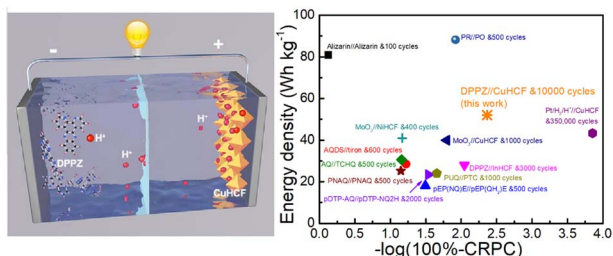
7142

### Enhanced charge storage capacity and high rate capabilities of Ni<sub>2</sub>Co-layered double hydroxides/expanded-graphite composites as anodes for Li-ion batteries

Ramesh Chandra Sahoo, Sreejesh Moolayadukkam, Jun Ho Seok, Sang Uck Lee\* and H. S. S. Ramakrishna Matte\*



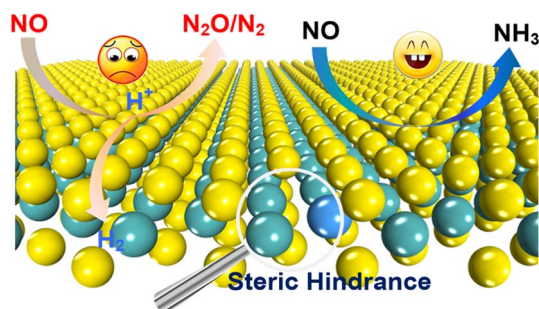
7152



### A rechargeable aqueous phenazine-Prussian blue proton battery with long cycle life

Xiaoqing Zhang, Xin Zhang, Yao Miao, Qinghong Huang, Zhidong Chen, Dengfeng Guo, Juan Xu,<sup>\*</sup> Yong-Miao Shen and Jianyu Cao<sup>\*</sup>

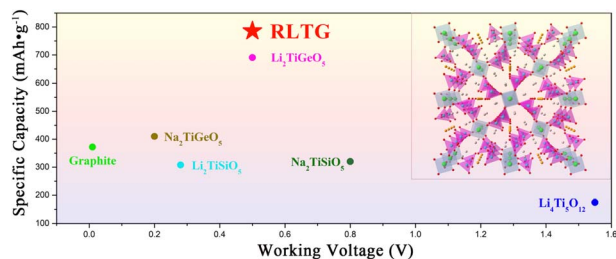
7159



### Using ternary steric hindrance synergy of a defective MoS<sub>2</sub> monolayer to manipulate the electrocatalytic mechanism toward nitric oxide reduction: a first-principles and machine learning study

Lei Yang, Jiake Fan and Weihua Zhu<sup>\*</sup>

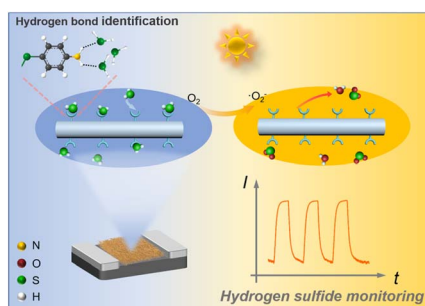
7170



### Rb<sub>4</sub>Li<sub>2</sub>TiOGe<sub>4</sub>O<sub>12</sub>: a novel high-performance titanyl germanate anode for Li-ion batteries

Chuan Tang, Siliang Chang, Qian Wu,<sup>\*</sup> Lei Kang, Kai Feng,<sup>\*</sup> Xianghe Meng, Shengqi Chu, Hongwei Huang and Mingjun Xia<sup>\*</sup>

7179



### Surface fully functionalized metal chalcogenide nanowires for highly sensitive H<sub>2</sub>S sensing

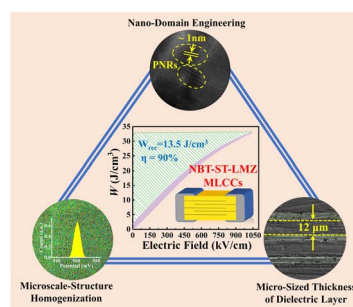
Ying-Xue Jin, Jie Chen, Yong-Jun Chen, Wei-Hua Deng, Xiao-Liang Ye, Guan-E Wang<sup>\*</sup> and Gang Xu<sup>\*</sup>



7184

## High-performance energy-storage ferroelectric multilayer ceramic capacitors via nano-micro engineering

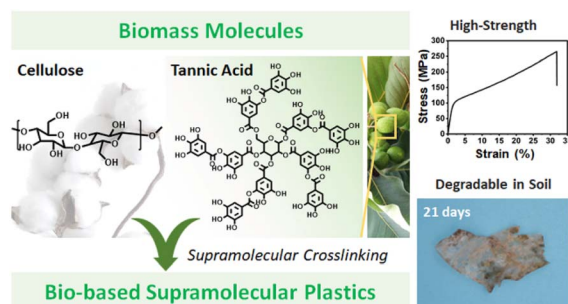
Ziyue Ma, Yong Li,\* Ye Zhao, Ningning Sun, Chunxiao Lu, Pei Han, Dawei Wang,\* Yanhua Hu, Xiaojie Lou and Xihong Hao\*



7193

## Highly tough, degradable, and water-resistant bio-based supramolecular plastics comprised of cellulose and tannic acid

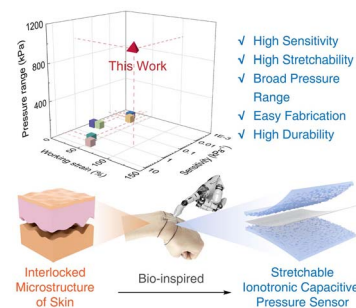
Haoxiang Sun, Xu Fang, Youliang Zhu, Zhuochen Yu, Xingyuan Lu and Junqi Sun\*



7201

## Highly stretchable ionotronic pressure sensors with broad response range enabled by microstructured ionogel electrodes

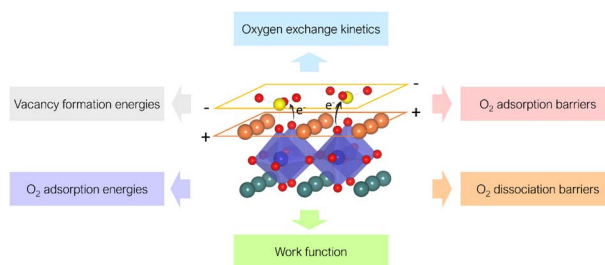
Zhenkai Huang, Yutong Chen, Jianping Peng, Tianrui Huang, Faqi Hu, Xiang Liu, Liguo Xu and Kan Yue\*



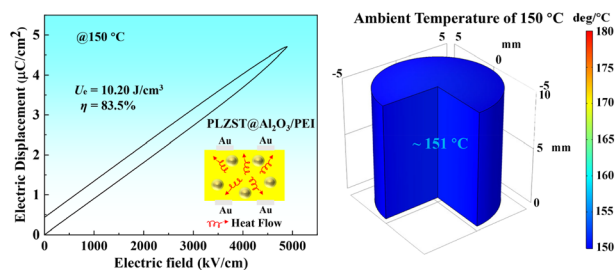
7213

## Electronic and ionic effects of sulphur and other acidic adsorbates on the surface of an SOFC cathode material

Matthäus Siebenhofer,\* Andreas Nenning, George E. Wilson, John A. Kilner, Christoph Rameshan, Markus Kubicek, Jürgen Fleig and Peter Blaha



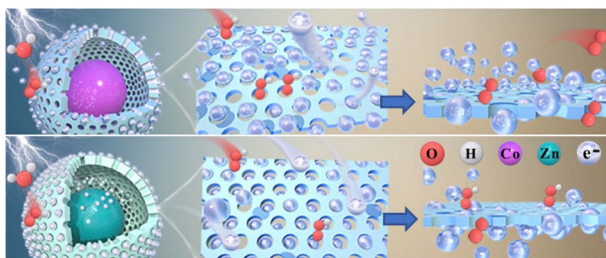
7227



### Ultra-superior high-temperature energy storage properties in polymer nanocomposites via rational design of core-shell structured inorganic antiferroelectric fillers

Zhenhao Fan, Shuaibing Gao, Yunfei Chang,\*  
Dawei Wang, Xin Zhang, Haitao Huang,\* Yunbin He\*  
and Qingfeng Zhang\*

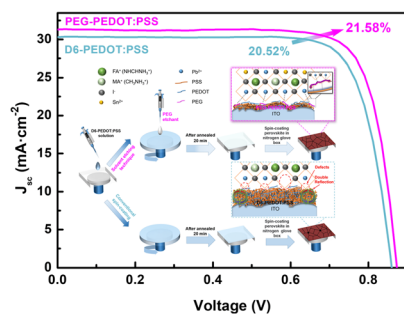
7239



### Ligand-based modulation of the electronic structure at metal nodes in MOFs to promote the oxygen evolution reaction

Hao Wang, Mingzheng Gu, Xiaomin Huang, An Gao,  
Xudong Liu, Ping Sun and Xiaojun Zhang\*

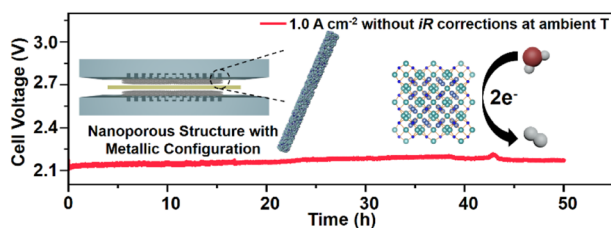
7246



### Fabrication of an ultrathin PEG-modified PEDOT:PSS HTL for high-efficiency Sn-Pb perovskite solar cells by an eco-friendly solvent etching technique

Pengju Guo, Jun Dong, Cunyun Xu, Yanqing Yao,  
Jiayu You, Hongyu Bian, Wenqi Zeng, Guangdong Zhou,  
Xiaofeng He, Meng Wang, Xianju Zhou, Min Wang\*  
and Qunliang Song\*

7256



### Rational nitrogen alloying in nickel-molybdenum nitride can mediate efficient and durable alkaline hydrogen evolution

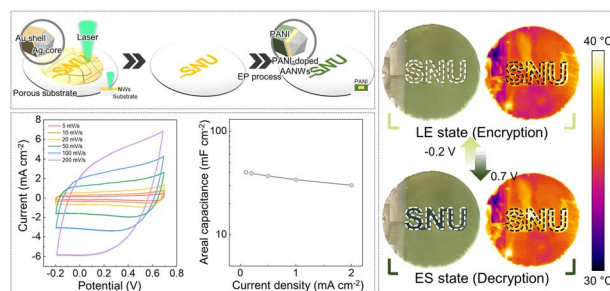
Jia Yue Zhao, Zhen Xin Lou, Liang Yao Xue, Yeliang Ding,  
Xiaoxia Li, Xuefeng Wu, Yuanwei Liu, Hai Yang Yuan, Hai  
Feng Wang, Peng Fei Liu,\* Sheng Dai\* and Hua Gui Yang\*



7264

## An Ag–Au-PANI core–shell nanowire network for visible-to-infrared data encryption and supercapacitor applications

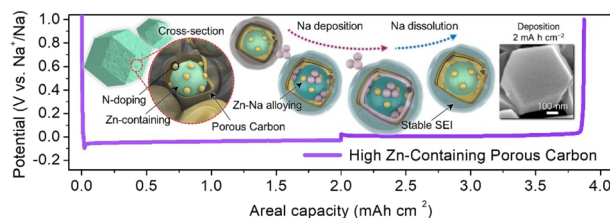
Yeongju Jung, Kyung Rok Pyun, JinKi Min, Hyeokjun Yoon, Minjae Lee, Byung-Wook Kim, Jinwoo Lee\* and Seung Hwan Ko\*



7276

## Superior metal storage behavior of Zn-containing porous carbon nanostructures for Na and Li metal batteries

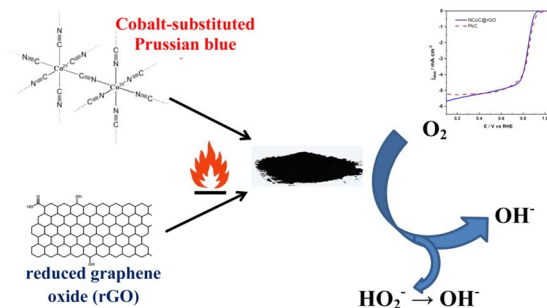
Kyungbae Kim, Seunghwan Jeon, Han-Seul Kim, Hyungeun Seo, Hyun-seung Kim, Marca M. Doeff, Sang-Gil Woo\* and Jae-Hun Kim\*



7286

## Pyrolyzed cobalt hexacyanocobaltate dispersed on reduced-graphene-oxide as an electrocatalyst of the oxygen reduction reaction in an alkaline medium

B. Zakrzewska, A. Jabtońska, L. Adamczyk, B. Dembińska, A. Kostuch, M. Strawski, I. A. Rutkowska, P. J. Kulesza, M. Marcinek, J. A. Cox and K. Miecznikowski\*



7299

## Cation deficiency enables reversal of dopant segregation at perovskite oxide surfaces under anodic potential

Dongha Kim, Adrian Hunt, Iradwikanari Waluyo and Bilge Yildiz\*

