Journal of Materials Chemistry A

Materials for energy and sustainability

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IN THIS ISSUE

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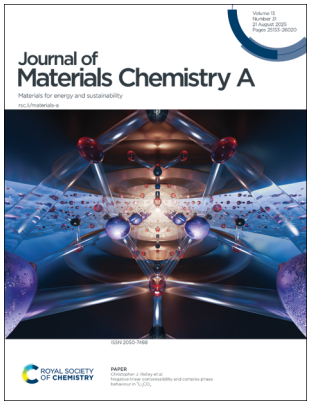

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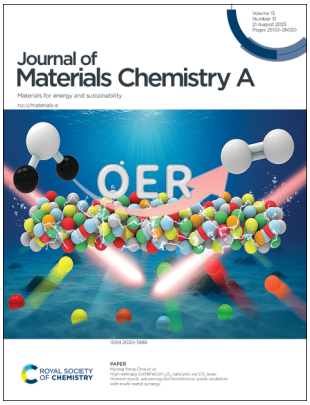
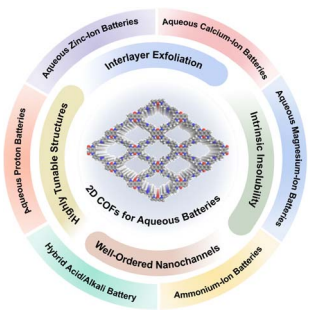
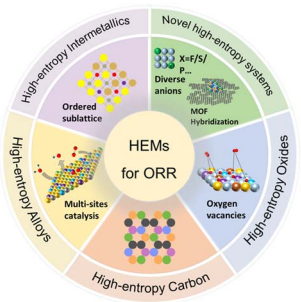
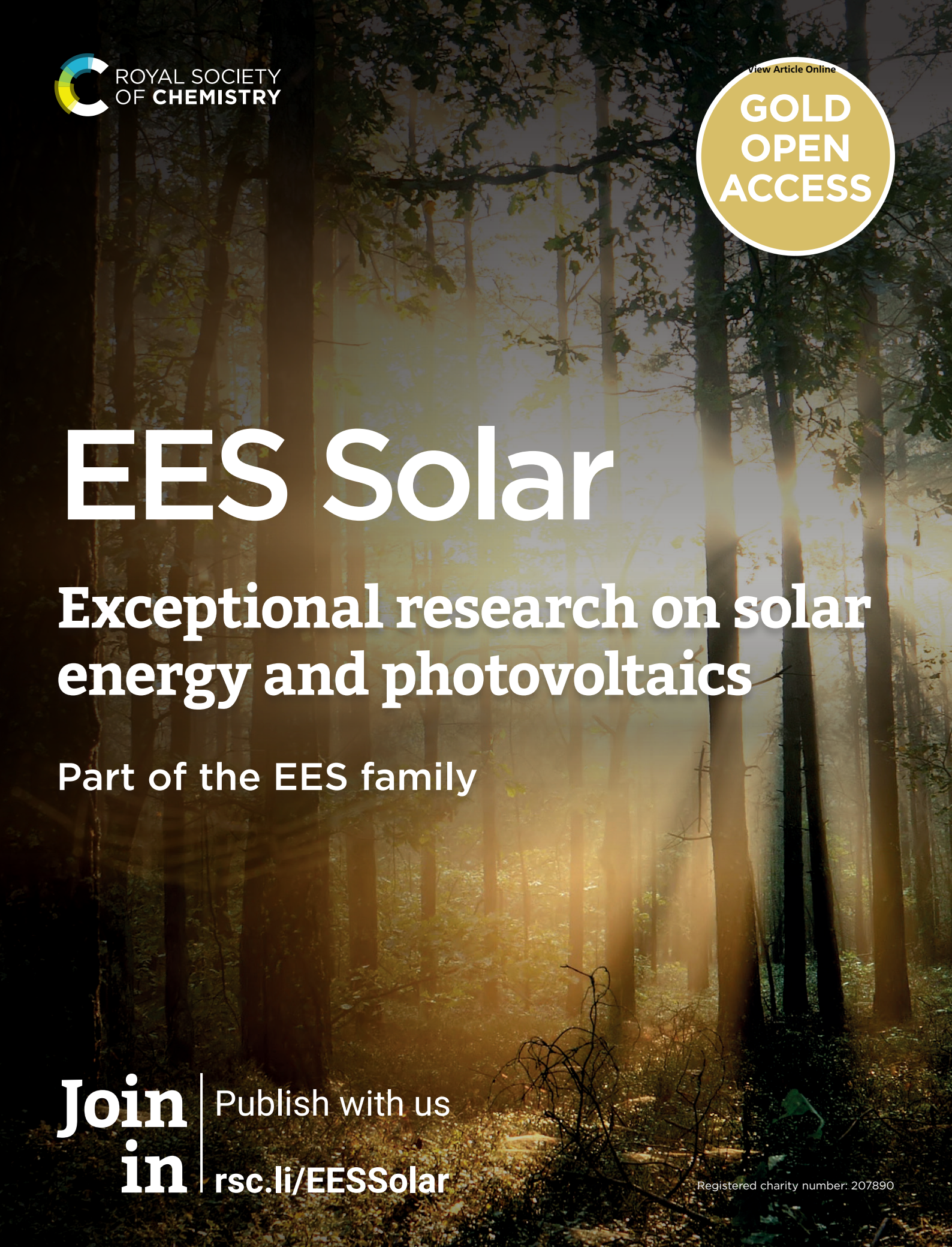


Inside cover
See Myong Yong Choi *et al.*, pp. 25345–25355. Image reproduced by permission of Myong Yong Choi from *J. Mater. Chem. A*, 2025, **13**, 25345.

REVIEWS



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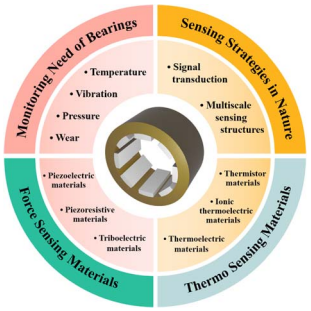

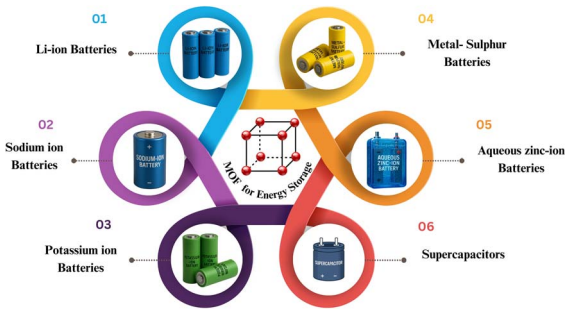

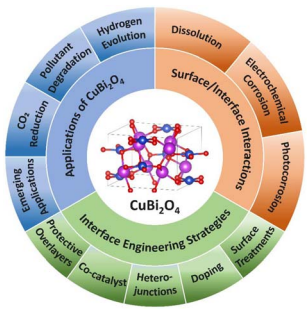

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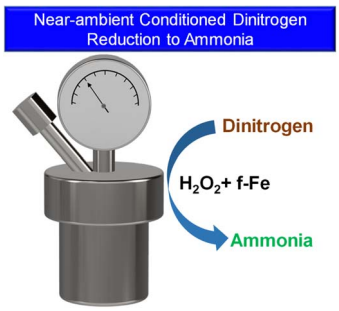

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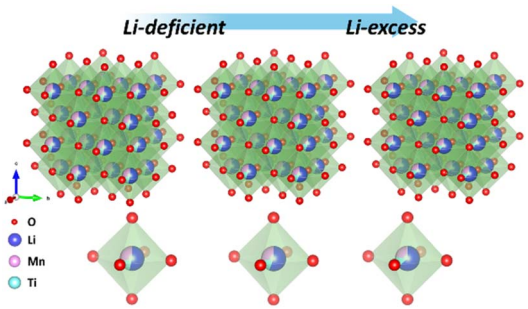
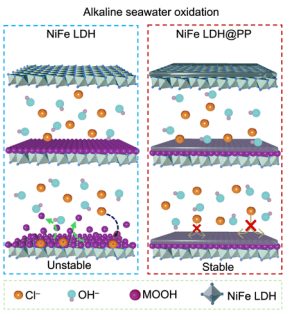


Optimized amounts of excess Li in cation-disordered rocksalt cathodes assisted by carbon nanotubes

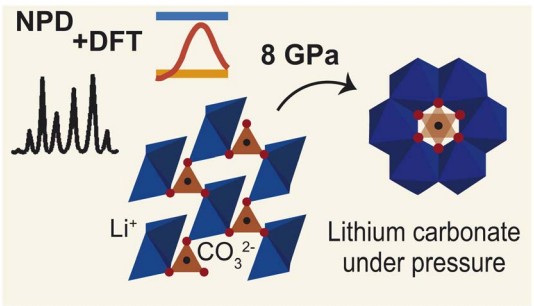
Hyeonji Jeong, Junyoung Lee, Keun Hwa Chae, Sungjun Kwak, Young-Ho Lee, Dae Hong Jeong, Sang Mun Jeong* and Ayeong Byeon*



PEDOT:PSS-modified NiFe layered double hydroxide enables efficient and durable seawater electrolysis at high current density

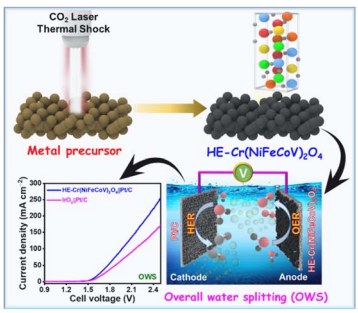
Chaoxin Yang, Yaxin Guo, Shengjun Sun, Zixiao Li, Li Yao, Hefeng Wang, Min Zhang, Meng Yue, Dongdong Zheng, Yongchao Yao, Fatma A. Ibrahim, Mohamed S. Hamdy, Yanqin Lv,* Imran Shakir, Xuping Sun* and Bo Tang

PAPERS



Negative linear compressibility and complex phase behaviour in $^{7}Li_2CO_3$

Christopher J. Ridley,* Fabio Orlandi, Craig L. Bull, Nicholas P. Funnell, Jasmine K. Hinton, Robin S. Perry, Stephen Hull and Rebecca Wurr



High-entropy $Cr(NiFeCoV)_2O_4$ catalysts *via* CO_2 laser thermal shock: advancing electrochemical water oxidation with multi-metal synergy

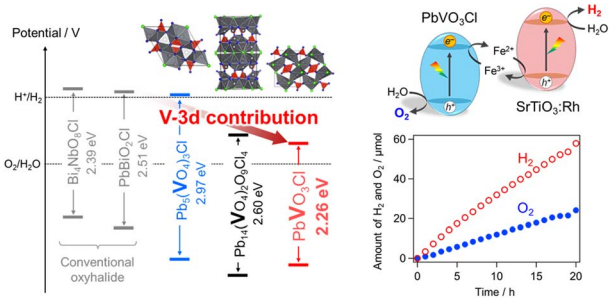
Sharanya Kannan Anbarasu, Raja Arumugam Senthil, Sieon Jung, Anuj Kumar, Mohd Ubaidullah and Myong Yong Choi*

PAPERS

25356

Vanadium-based oxyhalide photocatalysts for visible-light-driven Z-scheme water splitting: advancing conduction band engineering

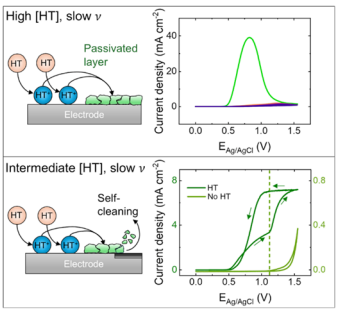
Hajime Suzuki,* Ryuki Tomita, Yusuke Ishii, Osamu Tomita, Akinobu Nakada, Akinori Saeki and Ryu Abe*



25363

Investigation of electrode passivation during oxidation of a nitroxide radical relevant for flow battery applications

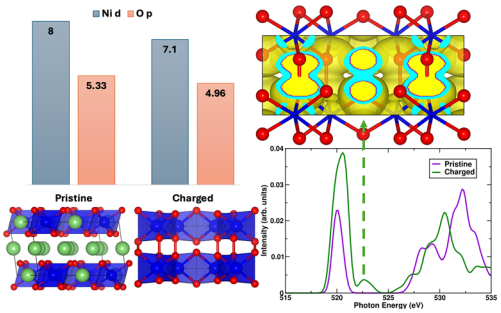
Cailin Buchanan, Nora A. Shaheen, Caroline K. Williams, Igor Messias, Bethany Dean-Kersten, Taewoo Kim, Justin G. Connell, Venkat Srinivasan, Rohan Akolkar and Pietro Papa Lopes*



25375

Demystifying charge-compensation mechanisms and oxygen dimerization in Li-rich Li_2NiO_3 cathodes

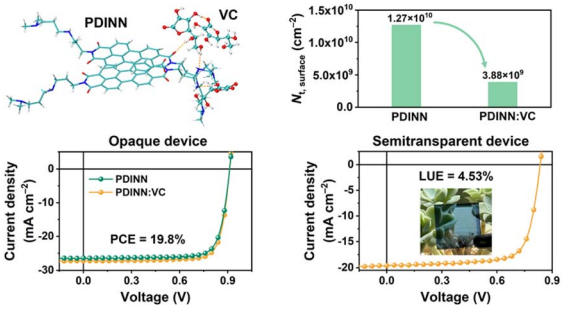
Hrishit Banerjee,* Clare P. Grey and Andrew J. Morris



25384

Vitamin C modified cathode interlayer for efficient opaque and semitransparent organic photovoltaics

Hailin Yu, Jiayu Wang,* Yingyue Hu, Cenqi Yan, Qichao Ran and Pei Cheng*



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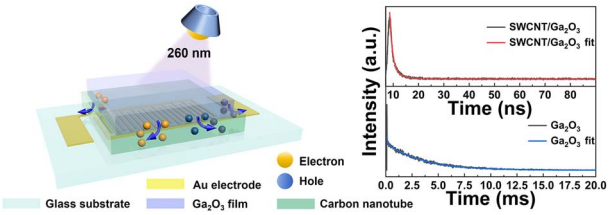
25435

Engineered s-SWCNT network/a-Ga_2O_3 heterointerface for enhanced deep ultraviolet photodetection

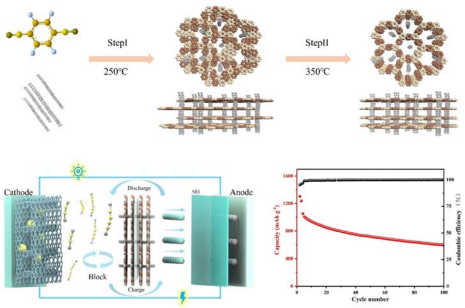
Zhenwei Guo, Yisong Chen, Haoming Wei,* Dayong Jiang,* Man Zhao and Qianli Huang*



25444

Enhancing the catalytic conversion of polysulfides utilizing a covalent organic framework–carbon nanotube interlayer

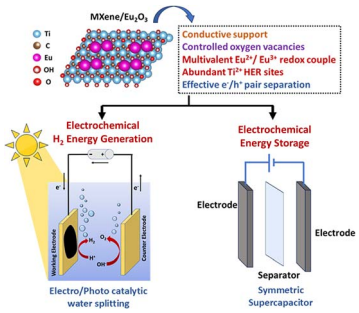
Bowen Sun, Feng Huo,* Chongchong Zhao, Jinhai He, Jiaojiao Xue, Zhiqiang Sun, Jiayao Wu, Xuntao Wang, Jiali Wang, Ruizheng Zhao* and Zixu Sun*



25457

Oxygen vacancy engineering in MXenes for sustainable electrochemical energy conversion and storage applications

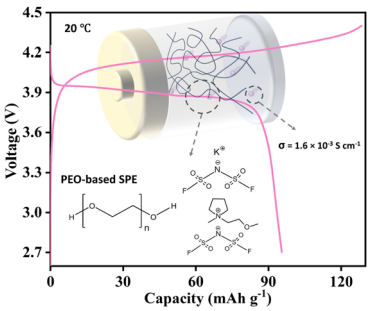
Vaishali Sharma, Jasvir Singh, Rajnish Dhiman, Davinder Pal Sharma and Aman Mahajan*



25476

Polymer electrolytes for potassium batteries: incorporating ionic liquids to enhance the room temperature ionic conductivity

Jinyu Chen, Sohelia Ebrahimi-Koodehi, Boyan Iliev, Yuval Steinberg, Michal Leskes, Thomas J. S. Schubert, Elizabeth Castillo-Martínez, Dominic Bresser and Maider Zarrabeitia*



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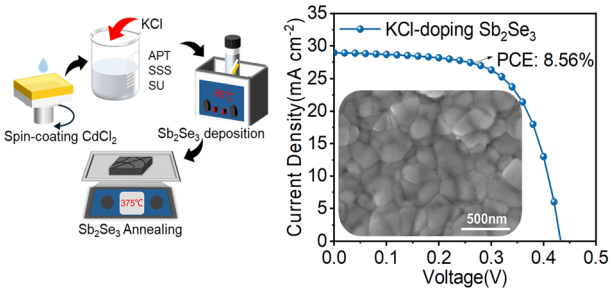

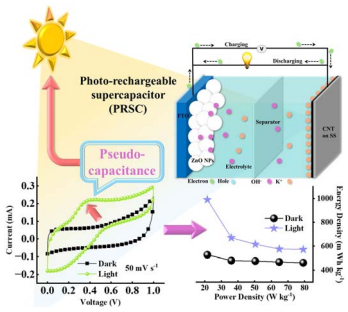

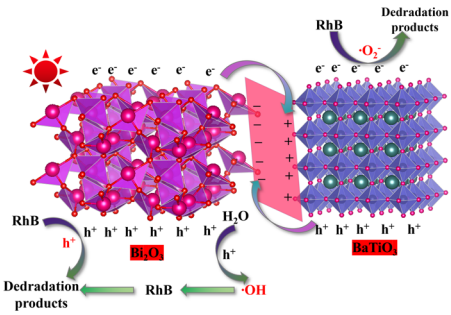

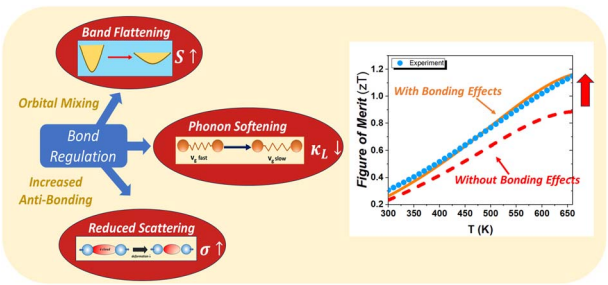

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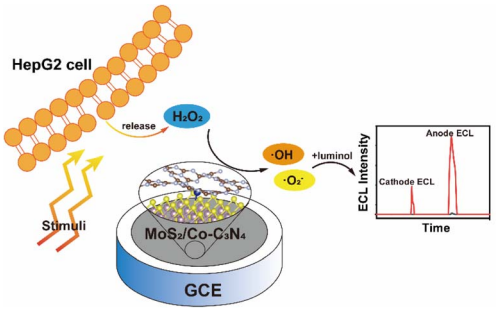

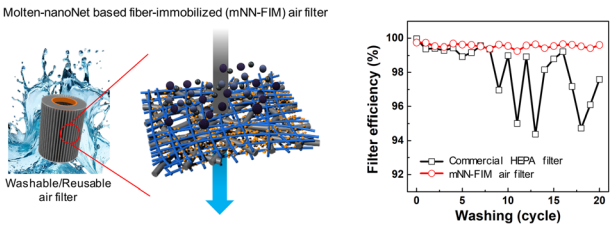

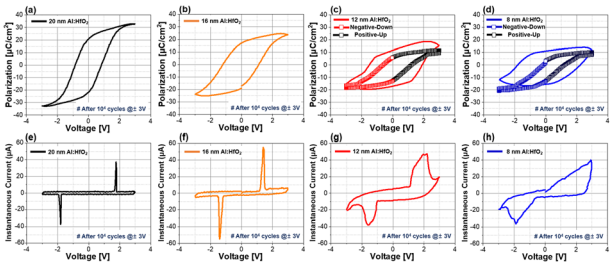

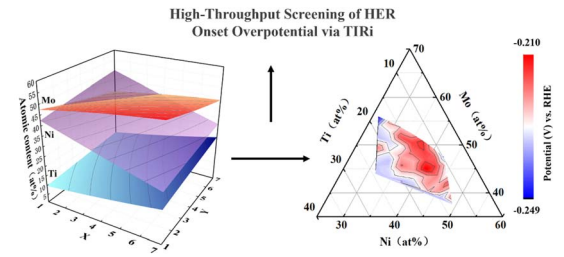

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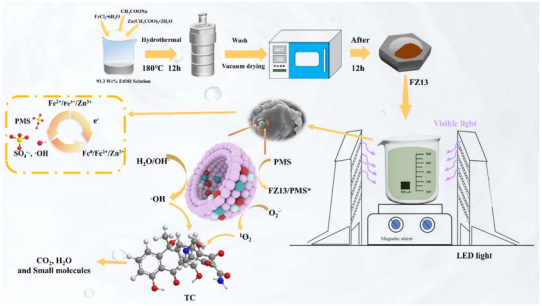

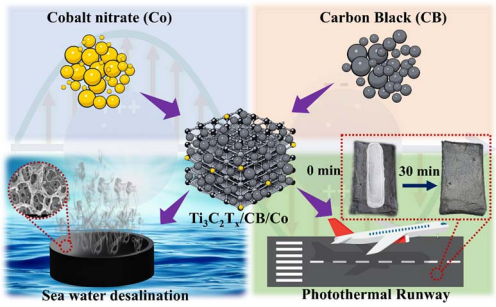

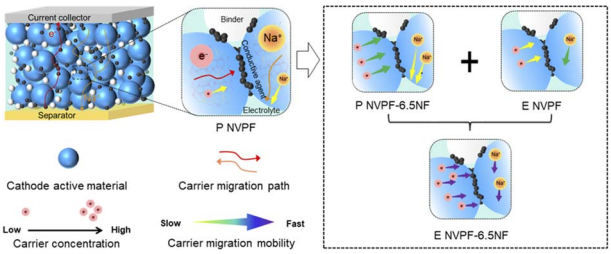

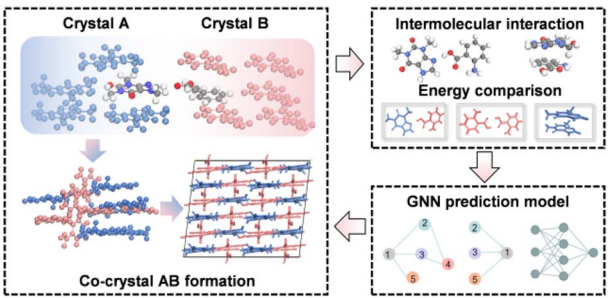

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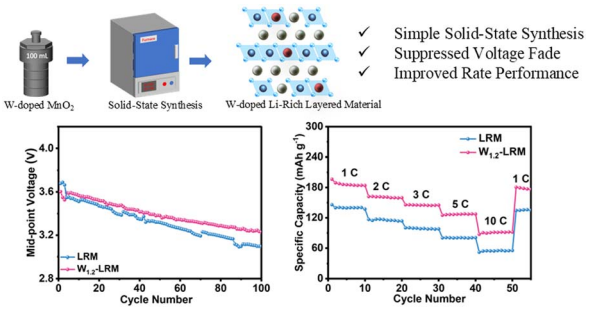
25926

Boosting the rate performance of lithium-rich cathode materials with W-doping

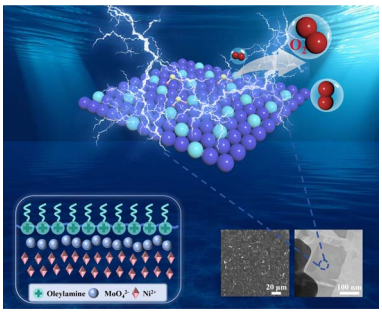
Jing-Zhe Wan, Chao Ma, Liang Gao, Jie-Sheng Chen and Kai-Xue Wang*



25934

Room-temperature high-efficiency electrocatalysis in two-dimensional ultrathin amorphous Ni–Mo–O nanosheets

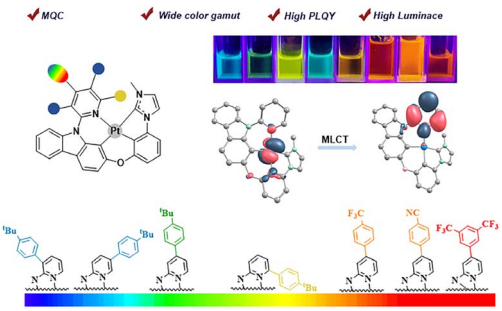
Junyuan Yang, Gong Chen, Wei Feng, Zehua Guo, Long Gu, Zheng Li and Yunhe Zhao*



25943

Wide-colour gamut emission tuning of platinum(II) complexes *via* multi-quantum state coherence

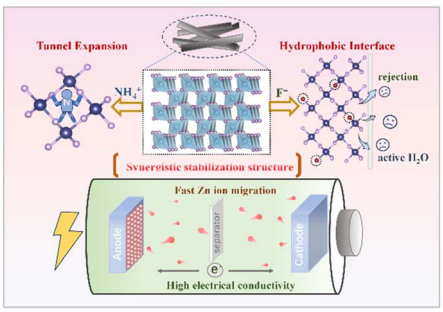
Wei Sun, Yang Zhou, Kai Feng, Rongjie Li, Qian Wang, Xiao Liu, Yibo Shi, Wei-Hai Fang and Xuebo Chen*



25954

Dual-ion synergy in boosting reaction kinetics and conductivity of a $VO_2 \cdot xH_2O$ cathode for stable zinc-ion batteries

Ying Sha, Jianshu Wang, Chaoxuan Wang, Zeqi Liu, Hao Wang and Lei Qian*



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26009

Doping and thermoelectric properties of the zero-dimensional inorganic halide perovskite derivative, $Cs_3Cu_2I_5$

Ceyla Asker, Candida Pipitone, Federica Ursi, Kan Chen, Antonio Gaetano Ricciardulli, Eugenio S. Suena Galindez, Sally Luong, Paolo Samorì, Mike Reece, Antonino Martorana, Francesco Giannici and Oliver Fenwick*