

Journal of Materials Chemistry A

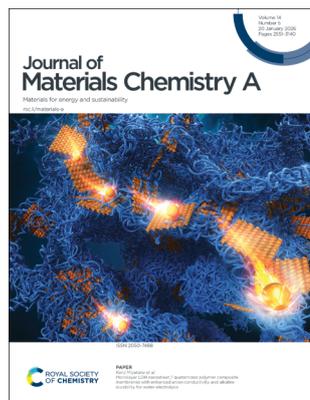
Materials for energy and sustainability

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ISSN 2050-7488 CODEN JMCAET 14(5) 2551–3140 (2026)



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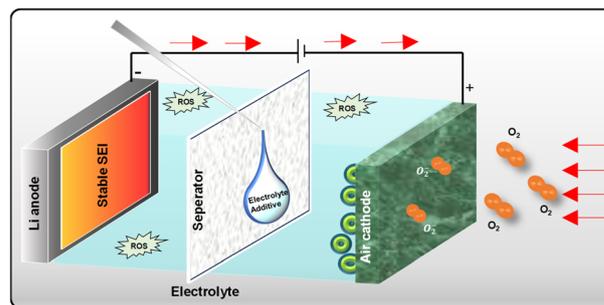
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REVIEWS

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Regulation strategies and design prospects of high-performance catalysts for DMFCs: from monometallic Pt catalysts to high-entropy alloys

Zhiyang Zhong, Yanzhi Sun, Zhenglu Zhu* and Junqing Pan*



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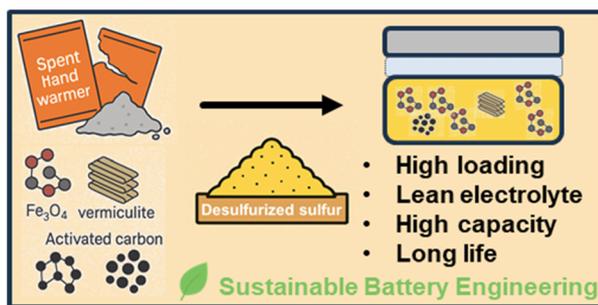
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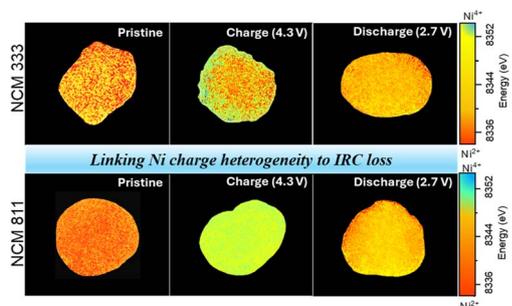
2710



Upcycled spent hand warmers as sustainable multifunctional hosts for high-performance lithium-sulfur cells

Ci-Rong Deng, Cheng-Che Wu and Sheng-Heng Chung*

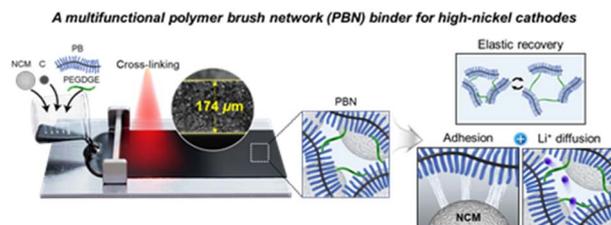
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Correlating charge heterogeneity and first-cycle irreversible capacity loss in lithium-ion batteries

Anil K. Paidi, Jitendra Pal Singh, Jaesub Kwon, Vinod K. Paidi, Ik Seon Kwon, Sangsul Lee, Kug-Seung Lee, Jun Lim, Keun Hwa Chae, Jinsub Lim and Docheon Ahn*

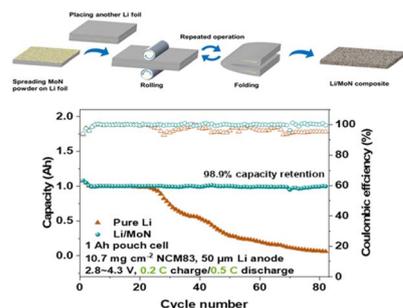
2735



A multifunctional polymer brush network binder for high-nickel cathodes: architecture-driven elastic recovery, adhesion, and Li⁺ transport

Min Seo Jo, Gwangbin Won, Yeong Hun Jeong, Seunghyeon Kim, Sinyoung Seo, Daun Jeong and Jimin Shim*

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Interfacial regulation with 2D MoN nanosheets enables the development of dendrite-free lithium metal anodes

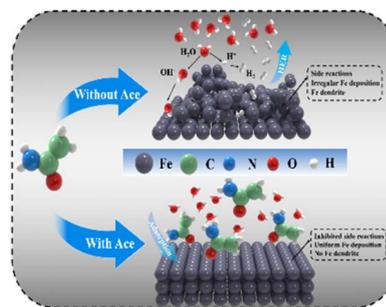
Yang Li, Xuze Guan* and Xingjiang Liu*



2757

Reconstructing hydrogen bond networks to enable highly reversible iron metal anodes

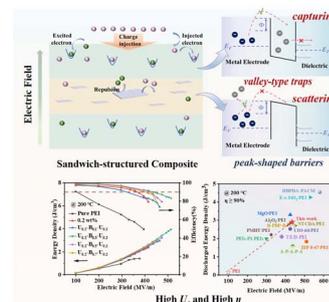
Dongguang Liang, Fangfang Chen, Wenming Tian,^{*}
Jianyu Gu, Yupeng Zou, Mengyang Li, Junyang Zhang,
Yazhou Jia and Wei Wu



2771

Enhanced high-temperature energy storage performance in a PEI-based dielectric composite via constructing dual charge carrier transport barriers

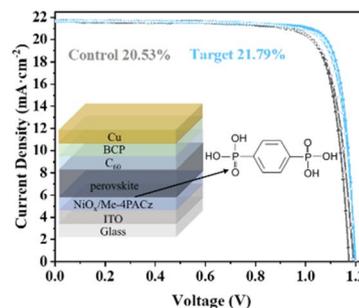
Jiajia Xue, Chuyang Zhang, Yitong Chen, Na Zhang,
Yukun Shi, Shuyang Zhou, Jinbo Bai^{*} and Hang Zhao^{*}



2785

Bisphosphate group molecules contribute to the performance of wide-bandgap perovskite solar cells

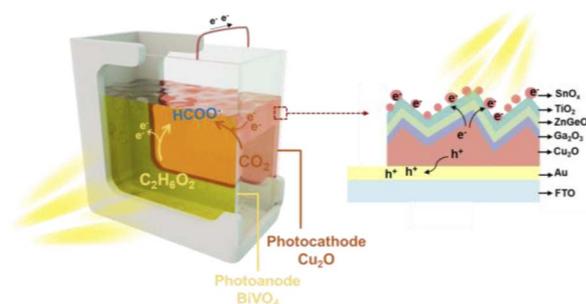
Xiaoling Wu, Hao Yao, Xia Hao, Lili Wu, Peng Tang^{*}
and Jingquan Zhang^{*}



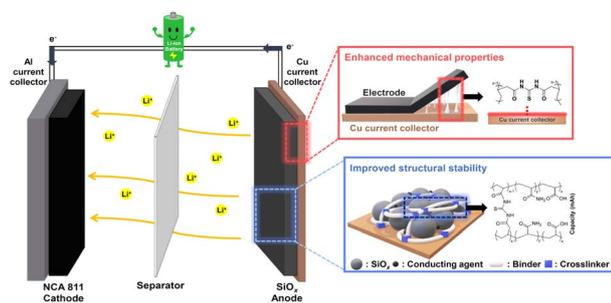
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Activating SnO_x-coated Cu₂O photocathodes for efficient photoelectrochemical CO₂ reduction and unassisted tandem device integration

Lili Wan, Linxiao Wu, Yumeng Han, Fusong Kang,
Dongfeng Du, Jinshui Cheng and Jingshan Luo^{*}



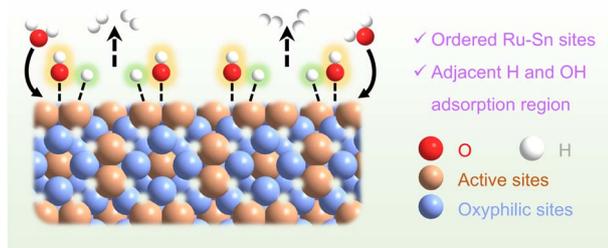
2804



Bidirectional interfacial interactions and Cu_xS bond formation enabled by a thiourea-crosslinked binder for high-performance micro- SiO_x anodes

Jong Hyeok Han, Seo Jin Yeon, Chaeyoung Kim, Senthil Kannan, Taeun Yim* and Tae-Hyun Kim*

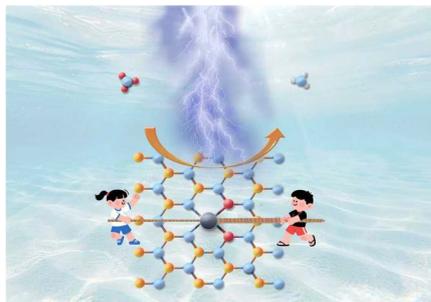
2817



Optimizing interfacial hydroxyl adsorption on an ordered Ru-Sn intermetallic compound for efficient hydrogen evolution

Jialin Li, Jiachen Zhang, Yuhan Dong, Shen Wang, Yawen Tang* and Hanjun Sun*

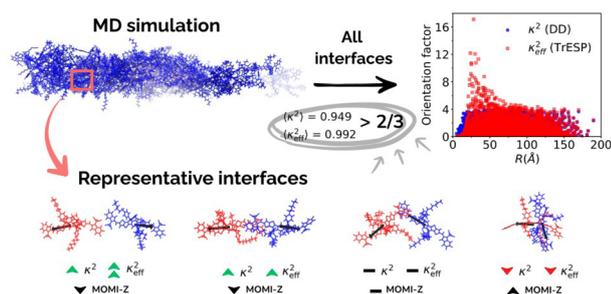
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Asymmetric Fe single atom on BN for boosted nitrate electroreduction to ammonia

Xiaoyu Li, Qin Ding, Jingzhi He, Yu Dong, Xinxu Duan, Weijie Chi, Pingping Sun,* Yin Wang* and Quan Zhuang*

2835



Beyond the 2/3 approximation: a multiscale evaluation of the FRET orientation factor in nonfullerene acceptors

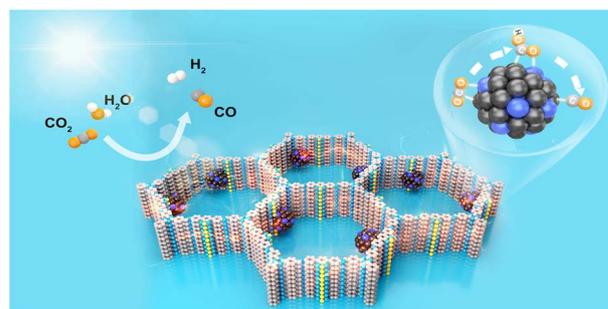
Leandro Benatto,* Rafael B. Ribeiro, Guilherme Carneiro Queiroz da Silva, João Paulo A. Souza, João Lucas B. Rosa, Márcio T. do N. Varella, Graziãni Candioto, Marlus Koehler and Marcos G. Menezes



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Ga alloying-induced electronic modulation of Pt synergized with COFs for boosting photocatalytic CO₂ reduction

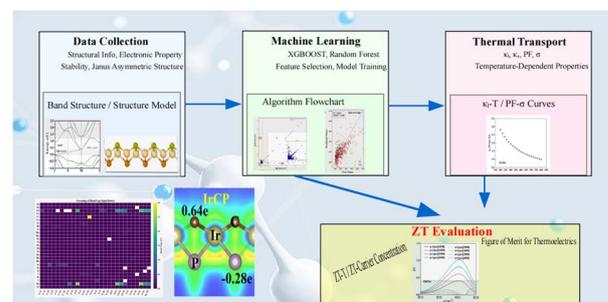
Junhan Huang, Huiwen Yu, Mingfei Yu, Liuyi Li* and Yan Yu*



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High-throughput screening of Janus t-phase TMXY semiconducting materials for thermoelectric applications aided by machine learning

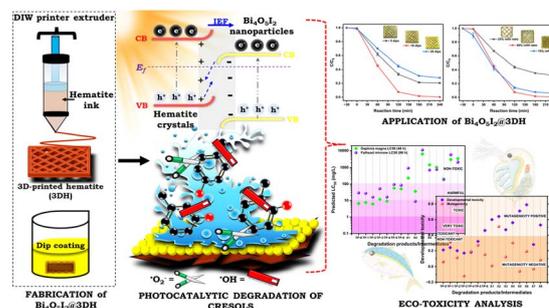
Youchao Kong, Zenghui Li, Pengcheng Shi, Xiaoshuang Li,* Xiaohua Zhang and Xiyuan Feng*



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Engineered 3D-printed Bi₄O₅I₂@hematite scaffolds for visible light photocatalytic degradation of cresols

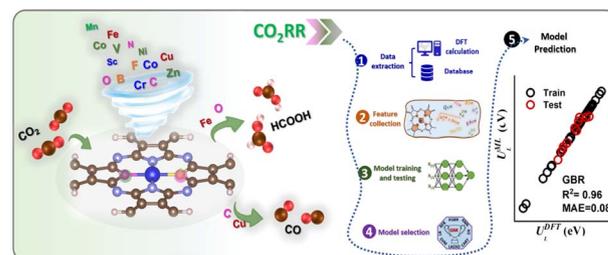
Akash Rawat, Raphael B. de Oliveira, Tapas Pal, Kleuton A. L. Lima, Guilherme S. L. Fabris, Raphael M. Tromer, Marcelo L. Pereira Junior, Adarsh Singh, Ashok Kumar Gupta,* Douglas S. Galvão* and Chandra Sekhar Tiwary*



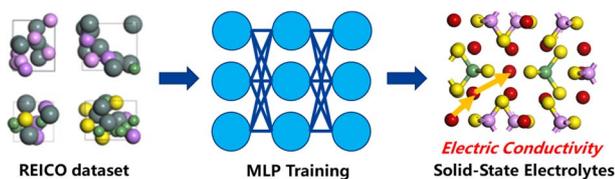
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Tuning the MN₄ plane in π-conjugated metal-phthalocyanine networks toward efficient CO₂ electroreduction: a DFT-ML study

Yilei Yue, Qiaobin Liu, Bo Yang, Jianyu Liu, Tong Liu,* Linan Xu,* Jun Zhong and Song Lin



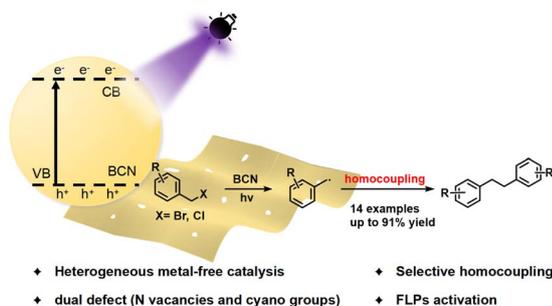
2895



Accelerating solid-state battery design: predicting ionic conductivity with machine learning potentials

Ailian Wang, Xiaoyan Fu,* Panfeng Ji, Jinzhe Ma, Zhongwei Zhang and P. Hu*

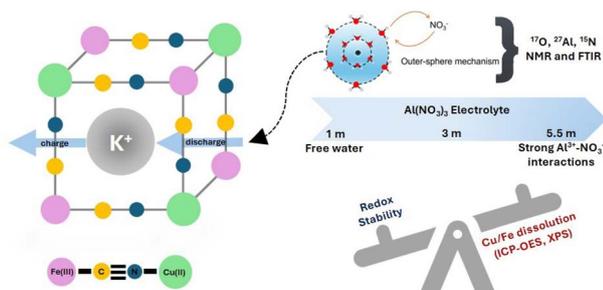
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Photodriven dehalogenative homocoupling for the synthesis of bibenzyl promoted by frustrated Lewis pairs on boron-doped carbon nitride

Xinyu Jin, Yuyang Wang and Chun Cai*

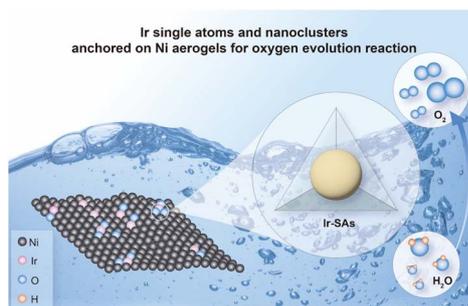
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The critical impact of electrolyte concentration on Al³⁺ redox and stability of CuHCF in aqueous aluminum-ion batteries

Vishnu Priya H. Radhakantha, Julius Tiongson, Udupa Sujit Manjunatha, Luke O'Dell and Aninda J. Bhattacharyya*

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Ir single atoms and nanoclusters anchored on Ni aerogels for enhanced alkaline water oxidation: unravelling the Ir coordination environment and the Ir–Ni synergistic effect

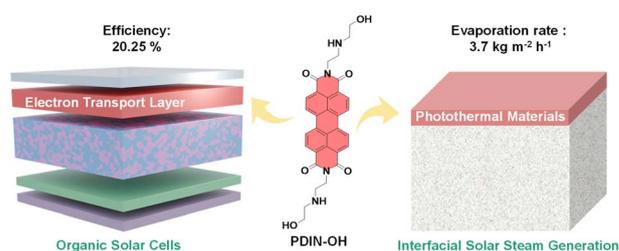
Jiacheng Chen, Zihao Xie, Chengyu Guo, Xianxing Zhou, Xiufang Wang* and Zhenghua Tang*



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Dual-functional perylene diimide derivative for efficient organic solar cells and interfacial solar steam generation

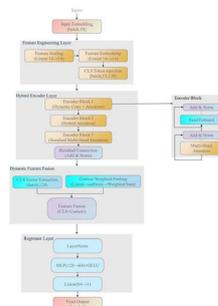
Xiaolan Qin, Feilong Xia, Zhihao Liang, Junbo Chen, Zhuo Wang, Xiaxia Yang, Yuanpeng Xie* and Menglan Lv*



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Mechanism-driven interpretable modeling of hydrogen solubility in organic compounds via a hierarchical transformer

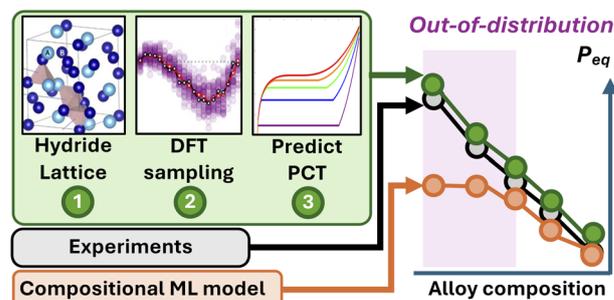
Xiaohui Sun, Shengnan Liu, Zhiyuan Wang, Jintang Wang and Baojiang Sun*



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Efficiently predicting pressure-composition-temperature diagrams to discover low-stability metal hydrides

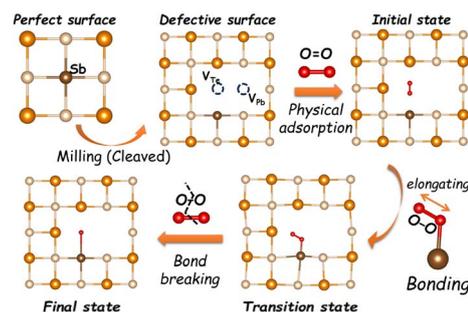
Lauren Way, Veronique Charbonnier, Julien O. Fadonougbo, Rebecca Clulow, Lei Lei, Sanliang Ling, David Grant, Martin Dornheim, Tanumoy Banerjee, Hanna Breunig, Claudia Zlotea, Andrew J. E. Rowberg, Pin-Wen Guan, Vitalie Stavila, Mark D. Allendorf, Martin Sahlberg, Kouji Sakaki, Norman C. Bartelt* and Matthew D. Witman*



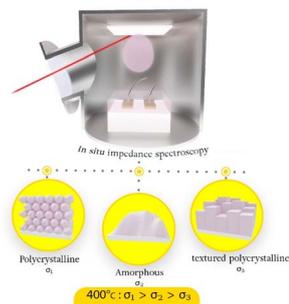
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The role of surface oxygen chemisorption on impurity states and electron localization in n-type PbTe: Ar-protected grinding as a remedy for tripling ZT

Yingfei Tang, Keke Liu, Wei Wei, Shujun Han, Qing Zhang, Lingxiao Yu, Yaqiong Zhong, Vladimir Khovaylo, Qingjie Zhang, Xianli Su* and Xinfeng Tang*



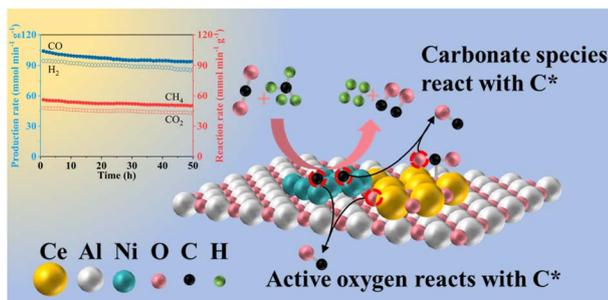
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Enabling high-temperature processing of thin film Li-ion batteries using a LISICON based solid-state electrolyte

Mohammadhossein Montazerian, Kyle J. Stephens, Vladimir Roddatis, Christof Vockenhuber, Arnold Müller, Anders J. Barlow, Thomas Lippert, Nick A. Shepelin* and Daniele Pergolesi*

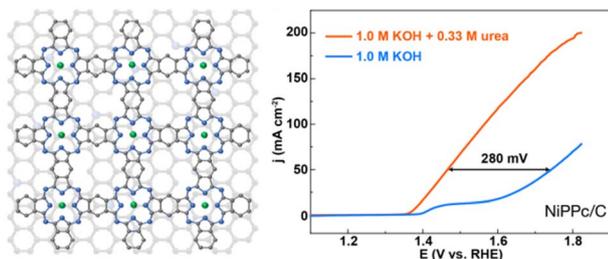
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Light-promoted dual coking-elimination effects enable highly efficient photothermocatalytic dry reforming of methane on Ni/CeO₂-Al₂O₃

Jia Guo, Lei Ji, Yuanzhi Li* and Yulu Zhang

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Precisely controlled low-valent nickel sites in planar polyphthalocyanine for enhanced urea oxidation

Lu Zhao,* Hui Tu, Liping Lin, Kai Chen, Bin Wu, Bing Sun, Weiyi Ge, Chaoqun Chang, Linbo Huang* and Qi An

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Oriented tubular metal-organic framework superstructures *via* conjugate acid-base pair-mediated growth regulation

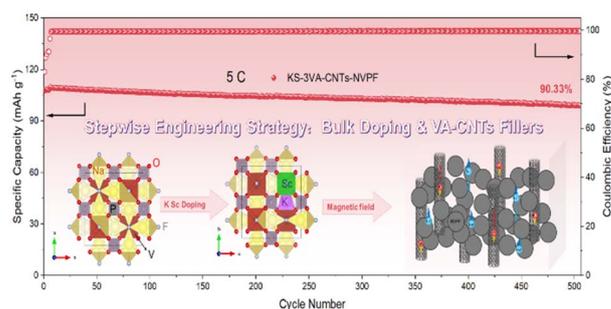
Giwook Lee, Sheng Chen* and Jongkook Hwang*



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Magnetic-field-induced vertical alignment of carbon nanotubes in $\text{Na}_3\text{V}_2(\text{PO}_4)_2\text{F}_3$ with bulk dual-doping for high-rate sodium-ion batteries

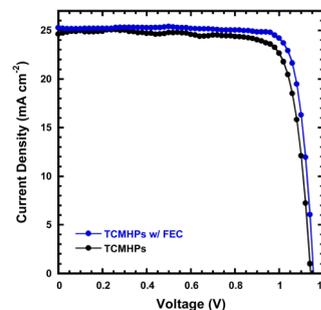
Chen Wu, Yuxing Xu,^{*} Jiechen Song, Chunshan Wang and Qiangqiang Tan^{*}



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Efficient and stable perovskite solar cells processed with fluoroethylene carbonates

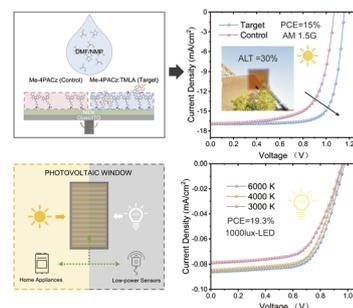
Xiyao Zhang, Zikun Cao and Xiong Gong^{*}



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Mixed-SAM interface enables efficient and stable semi-transparent perovskite solar cells for day–night ambient-light energy harvesting

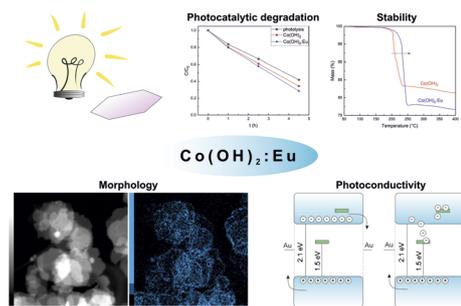
Longxiang Wang, Penghui Liu, Jiapeng Wang, Yashun Lu, Dunyuan Jin, Xinyi Tian and Guiqiang Li^{*}



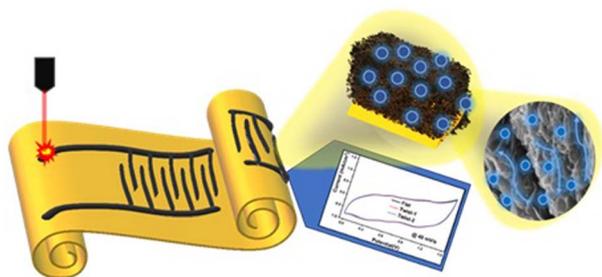
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Influence of europium ion doping on photoinduced properties of 2D cobalt hydroxide: photocatalytic degradation and negative photoconductivity studies

Viktorija Pankratova, Rossella Greco,^{*} Takashi Yamamoto, Joanna Hoszowska, Meng Zhang,^{*} Ali M. Huerta-Flores, Miikka Willman, Kimmo Sirkka, Vladimir Pankratov, Rafal Sliz, Yang Bai and Wei Cao



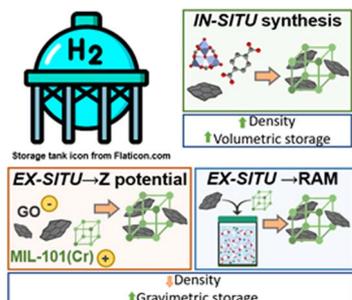
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A simple and scalable fabrication of a high-performance flexible microsupercapacitor using hierarchical Ni–Mo–S nanostructures decorated on $\text{Ti}_3\text{C}_2\text{T}_x$ MXene

Mansi Pathak, Sang Mun Jeong* and Chandra Sekhar Rout*

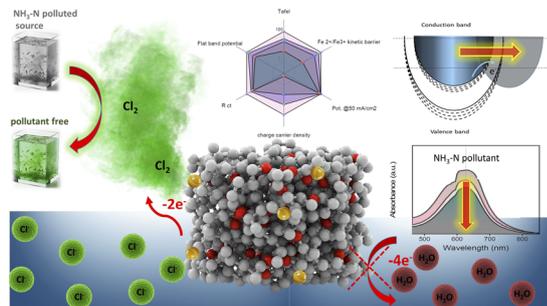
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Tailored hybridization of MIL-101(Cr) with graphene oxide enables enhanced hydrogen storage and delivery

Laura Jimenez Lopez, Rafael Morales-Ospino, Rosana V. Pinto, Jimena Castro-Gutierrez, Georges Mouchaham, Alain Celzard, Christian Serre and Vanessa Fierro*

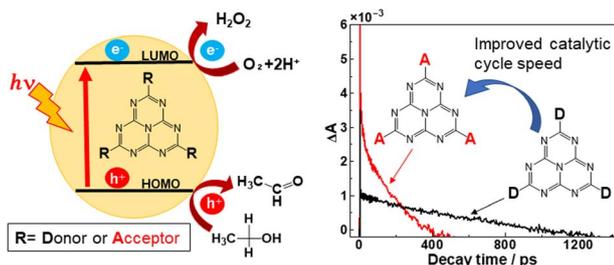
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Bimetal co-doped nickel sulphides for enhanced seawater-mediated chlorine evolution reaction: an avenue for *in situ* pollutant mitigation

Gokul Raj, Arpan Chakraborty,* Malti Kumari,* Ravi Nandan, Soumen Midya, Abhishek Kumar Singh and Karuna Kar Nanda*

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Molecular insight into visible light driven photocatalytic hydrogen peroxide synthesis using a heptazine-imide structure

Yamato Yamanaka, Kohei Sawada, Mizuki Nanke, Xiao-Feng Shen, Jun Tae Song, Tatsuki Abe, Keiji Tanaka, Toshinori Matsushima, Miki Inada, Tatsumi Ishihara and Motonori Watanabe*

