

Energy & Environmental Science

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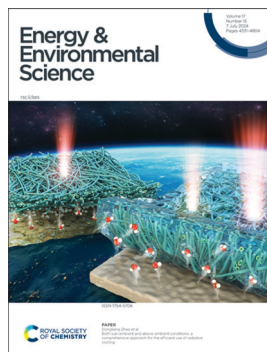
IN THIS ISSUE

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Cover

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Inside cover

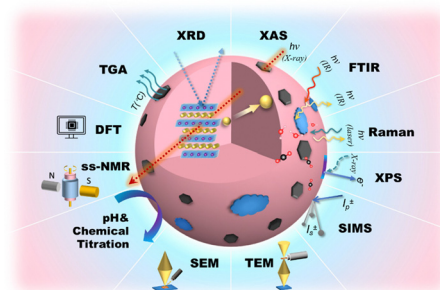
See Dongliang Zhao *et al.*, pp. 4498–4507. Image reproduced by permission of Dongliang Zhao from *Energy Environ. Sci.*, 2024, 17, 4498.

REVIEWS

4343

Unravelling air/moisture stability of cathode materials in sodium ion batteries: characterization, rational design, and perspectives

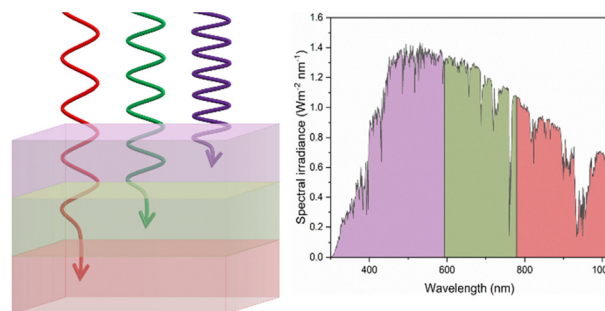
Shipeng Jia, Shinichi Kumakura and Eric McCalla*



4390

All-perovskite tandem solar cells: from fundamentals to technological progress

Jaekeun Lim, Nam-Gyu Park,* Sang Il Seok* and Michael Saliba*



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Fundamental questions
Elemental answers

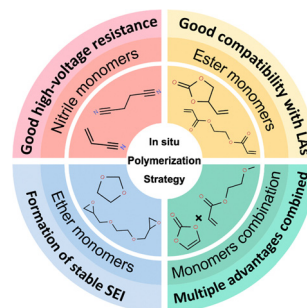


REVIEWS

4426

***In situ* polymerization of solid-state polymer electrolytes for lithium metal batteries: a review**

Shuhao Zou, Yan Yang, Jiarui Wang, Xuanyi Zhou, Xuanhong Wan, Min Zhu and Jun Liu*

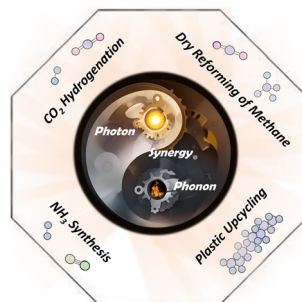


PERSPECTIVE

4461

Photon and phonon powered photothermal catalysis

Chang Xu, Qijun Tang, Wenguang Tu* and Lu Wang*



COMMUNICATION

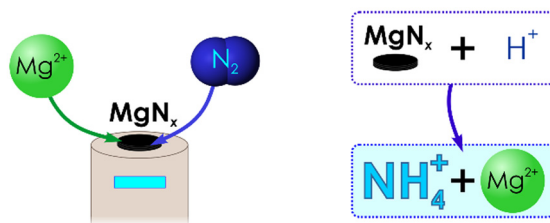
4481

Reduction of dinitrogen to ammonium through a magnesium-based electrochemical process at close-to-ambient temperature

Melinda Krebsz,* Rebecca Y. Hodgetts, Sam Johnston, Cuong K. Nguyen, Yvonne Hora, Douglas R. MacFarlane* and Alexandr N. Simonov*

Step 1: Electroreduction

Step 2: Protonation

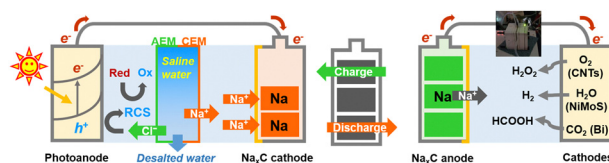


PAPERS

4488

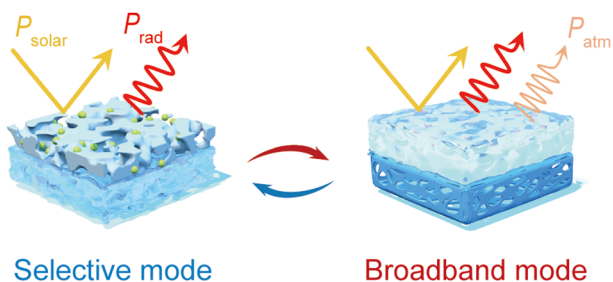
A solar desalination charger for water treatment and value-added chemical production

Seonghun Kim, Dong Suk Han and Hyunwoong Park*



PAPERS

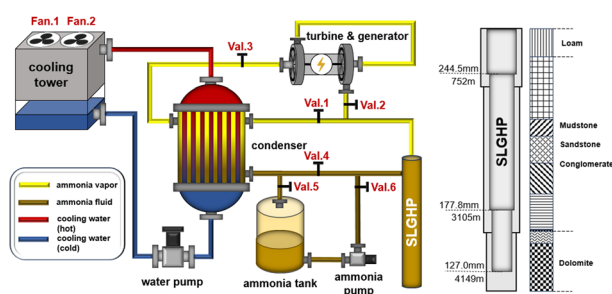
4498



Both sub-ambient and above-ambient conditions: a comprehensive approach for the efficient use of radiative cooling

Huajie Tang, Chenyue Guo, Fan Fan, Haodan Pan, Qihao Xu and Dongliang Zhao*

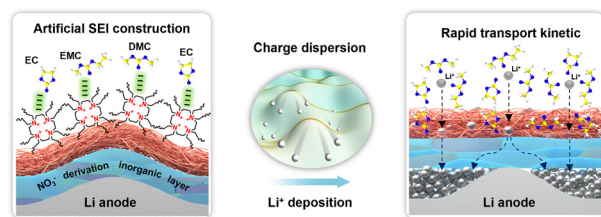
4508



Developing kilometers-long gravity heat pipe for geothermal energy exploitation

Wenbo Huang, Juanwen Chen, Qingshan Ma, Linxiao Xing, Guiling Wang,* Jiwen Cen, Zhibin Li, Ang Li and Fangming Jiang*

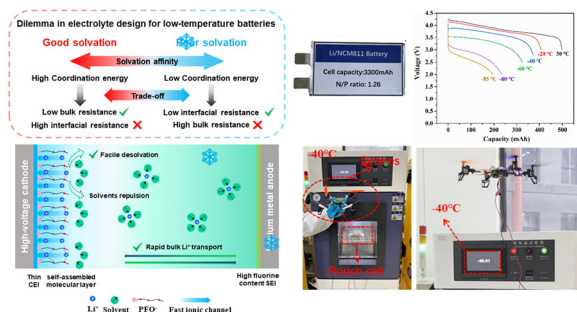
4519



Achieving stable lithium metal anodes via the synergy of electrostatic shielding and the high Li⁺ flux inorganic interphase

Jiangtao Yu, Xinyu Ma, Xiuyang Zou, Yin Hu, Mingchen Yang, Jinhua Yang, Shipeng Sun and Feng Yan*

4531



A reversible self-assembled molecular layer for lithium metal batteries with high energy/power densities at ultra-low temperatures

Weili Zhang, Yang Lu, Qingbin Cao, Hao Liu, Qingqing Feng, Pan Zhou, Yingchun Xia, Wenhui Hou, Shuaishuai Yan and Kai Liu*

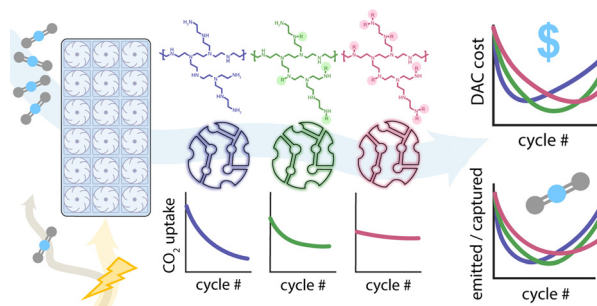


PAPERS

4544

Tuning sorbent properties to reduce the cost of direct air capture

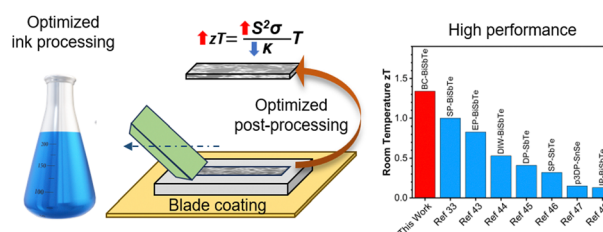
Hannah E. Holmes, Sayan Banerjee, Anthony Wallace, Ryan P. Lively, Christopher W. Jones* and Matthew J. Realff*



4560

High-performance thermoelectric composites via scalable and low-cost ink processing

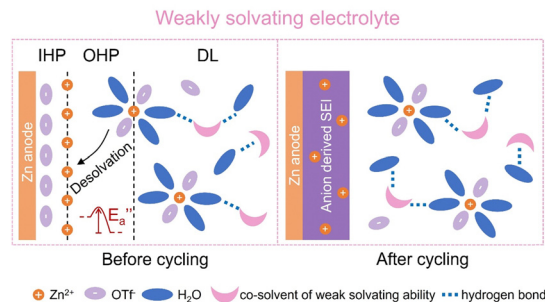
Ali Newaz Mohammad Tanvir, Md Omarsany Bappy, Minxiang Zeng, Wenjie Shang, Ke Wang, Kaidong Song, Yukun Liu, Eleonora Isotta, Mercuri G. Kanatzidis, G. Jeffrey Snyder, Alexander W. Dowling, Tengfei Luo and Yanliang Zhang*



4569

Weakly solvating aqueous-based electrolyte facilitated by a soft co-solvent for extreme temperature operations of zinc-ion batteries

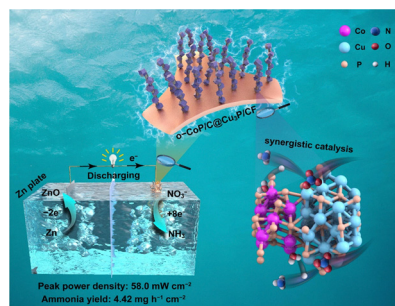
Ruizhi Zhang, Wei Kong Pang, Jitraporn (Pimm) Vongsivut, Jodie A. Yuwono, Guanjie Li, Yanqiu Lyu, Yameng Fan, Yunlong Zhao, Shilin Zhang, Jianfeng Mao, Qiong Cai*, Sailin Liu* and Zaiping Guo*



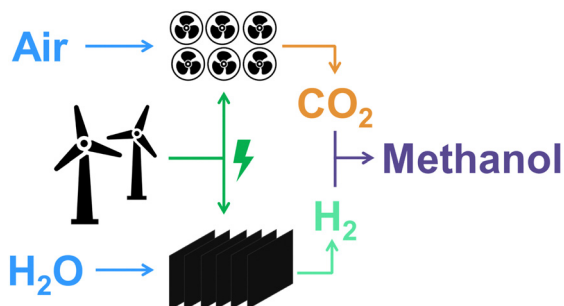
4582

The synergistic catalysis effect on electrochemical nitrate reduction at the dual-function active sites of the heterostructure

Yuxiang Li, Zhenjie Lu, Lei Zheng, Xing Yan, Junliang Xie, Zhonghao Yu, Shengli Zhang, Fang Jiang* and Huan Chen*



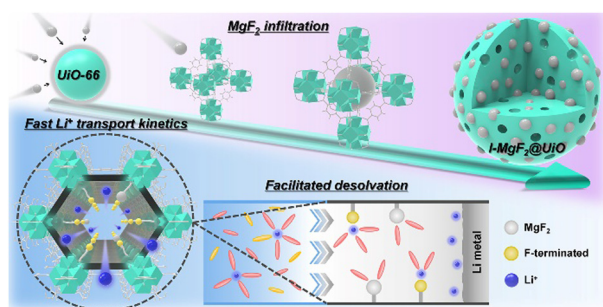
4594



Managing intermittency of renewable power in sustainable production of methanol, coupled with direct air capture

George J. Fulham,* Paula V. Mendoza-Moreno and Ewa J. Marek*

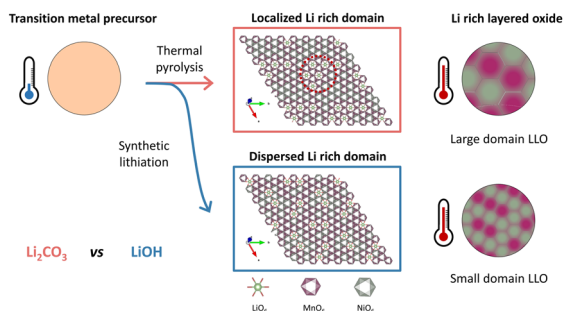
4622



Magnesium fluoride-engineered UiO-66 artificial protection layers for dendrite-free lithium metal batteries

Kunik Jang, Hee Jo Song, Jung Been Park, Sang Won Jung and Dong-Wan Kim*

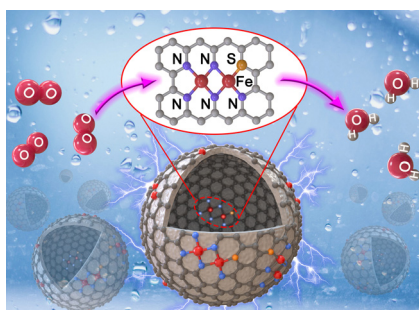
4634



Unraveling and regulating superstructure domain dispersion in lithium-rich layered oxide cathodes for high stability and reversibility

Geunho Choi, Uijin Chang, Jeongjae Lee, Kwanghee Park, Hyuksang Kwon, Hyosung Lee, Yong-Il Kim, Jong Hyeok Seo, Yoon-Cheol Park, Inchul Park, Jieun Kim, Seungmi Lee, Jinuk Choi, Byongyong Yu, Jun-Hyuk Song, Hosun Shin, Seung-Wook Baek, Sung Keun Lee, Hyeokjun Park* and Keeyoung Jung*

4646



Precisely constructing charge-asymmetric dual-atom Fe sites supported on hollow porous carbon spheres for efficient oxygen reduction

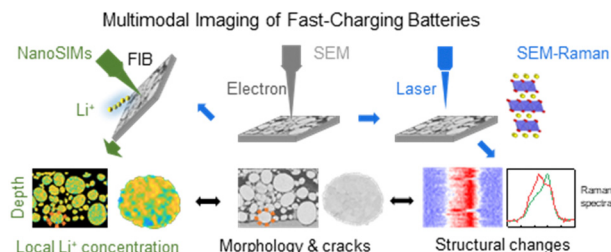
Yaqiong Li, Xuan Luo, Zihao Wei, Fang Zhang, Zhiyi Sun, Ziwei Deng, Ziheng Zhan, Chaofeng Zhao, Qi Sun, Liang Zhang,* Wenxing Chen,* Shenghua Li* and Siping Pang*



4658

Multiscale correlative imaging reveals sequential and heterogeneous degradations in fast-charging batteries

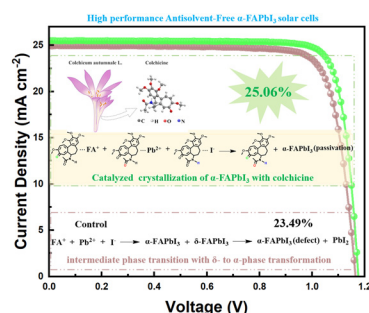
Dechao Meng, Zhichen Xue, Guokang Chen, Dengke Zhou, Yu-Shi He, Zi-Feng Ma, Yijin Liu* and Linsen Li*



4670

The tricyclic alkaloid catalyzed crystallization of α -FAPbI₃ for high performance antisolvent-free perovskite solar cells

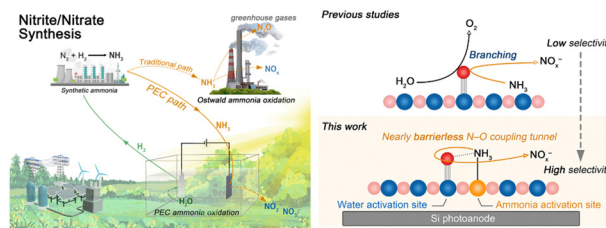
Zhengzhe Wu, Haoyu Cai, Tong Wu, Jiayi Xu, Zhenyue Wang, Hongqiang Du, Juan Zhao, Fuzhi Huang, Yi-Bing Cheng and Jie Zhong*



4681

Cooperative oxidation of NH₃ and H₂O to selectively produce nitrate via a nearly barrierless N–O coupling pathway

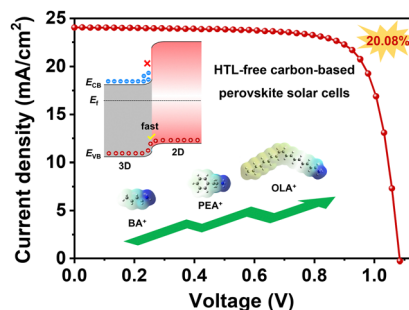
Kun Dang, Lei Wu, Siqin Liu, Hongwei Ji, Chuncheng Chen, Yuchao Zhang* and Jincai Zhao



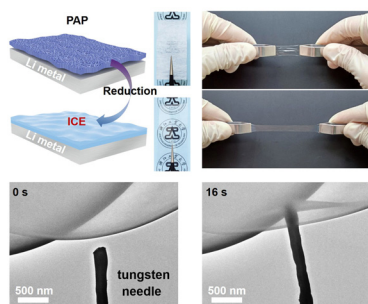
4692

Ultra-large dipole moment organic cations derived 3D/2D p–n heterojunction for high-efficiency carbon-based perovskite solar cells

Yu Lin, Jiawei Tang, Haocong Yan, Jiaru Lin, Wenran Wang, Shengsen Zhang, Huashang Rao, Zhenxiao Pan* and Xinhua Zhong*



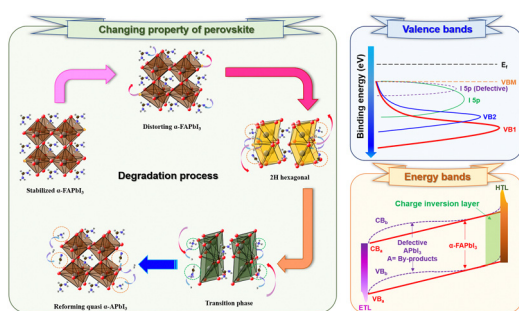
4703



A self-healing Li-crosslinked elastomer promotes a highly robust and conductive solid–electrolyte interphase

Zhijin Ju, Xinyong Tao,* Yao Wang, Qing Yang, Tiefeng Liu, Jianwei Nai, Wenkui Zhang, Si Chen, Yujing Liu,* He Tian* and Jun Lu*

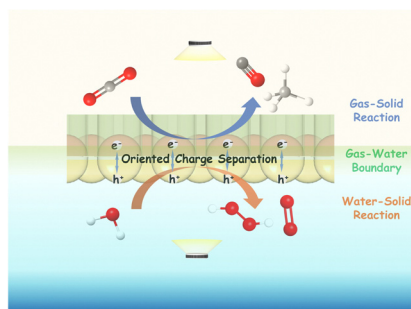
4714



Pyrolytic fragmentation-induced defect formation in formamidinium lead halide perovskite thin films and photovoltaic performance limits

Byung-wook Park,* Geonhwa Kim, Chinnathambi Kamal, BongJin Simon Mun, Ute B. Cappel, Håkan Rensmo, Ki-Jeong Kim,* Michael Odelius* and Sang Il Seok*

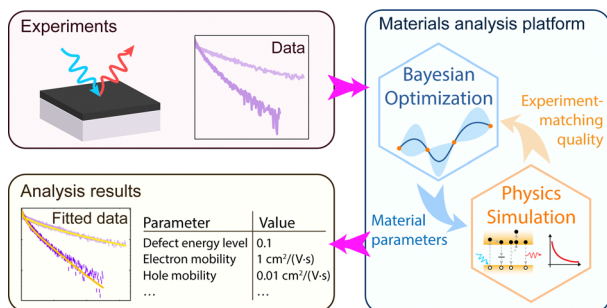
4725



A floatable photocatalyst to synergistically promote CO₂ reduction and water oxidation by creating oriented charge separation across a tri-phase interface

Yangen Xie, Min Wang, Qiang Huang, Qing Huang, Bo Sheng, Wenjing Song, Hua Sheng* and Jincai Zhao

4735



Physics-based extraction of material parameters from perovskite experiments via Bayesian optimization

Hualin Zhan,* Viqar Ahmad, Azul Mayon, Grace Dansoa Tabi, Anh Dinh Bui, Zhuofeng Li, Daniel Walter, Hieu Nguyen, Klaus Weber, Thomas White* and Kylie Catchpole*

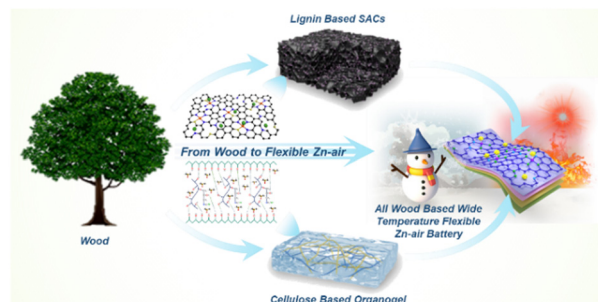


PAPERS

4746

Wood-derived Fe cluster-reinforced asymmetric single-atom catalysts and weather-resistant organohydrogel for wide-temperature flexible Zn–air batteries

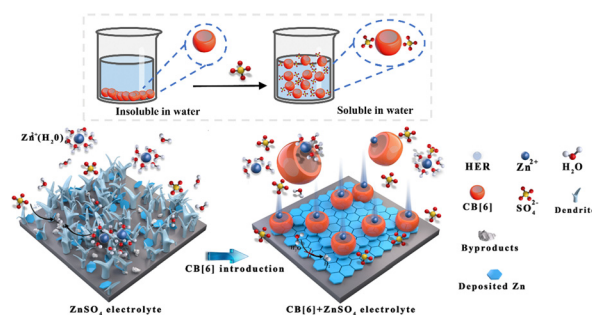
Jiachuan Chen, Chenglong Qiu, Lei Zhang,*
Baobin Wang, Penghua Zhao, Yu Zhao, Huanlei Wang,*
Guihua Yang,* Aoran Sun, Jiaming Fan, Qixi Xu and
Orlando J. Rojas*



4758

Anion-promoted CB[6] macromolecule dissolution for stable Zn-ion batteries

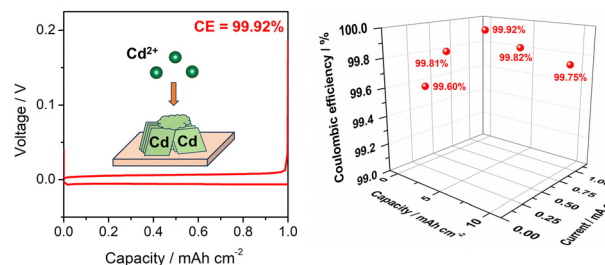
Xiaodong Yang, Yuwei Zhao, Shuangkun Lv, Leheng Zhong,
Chencheng Yue, Shuai Zhan, Linwei Zhao, Chunfang Wang,
Xuejin Li, Xiaoya Liu, Zijie Tang, Chunsun Zhang,*
Chunyi Zhi* and Haiming Lv (Lyu)*



4770

Unlocking the potential of cadmium plating chemistry for low-polarization, long-cycling, and ultrahigh-efficiency aqueous metal batteries

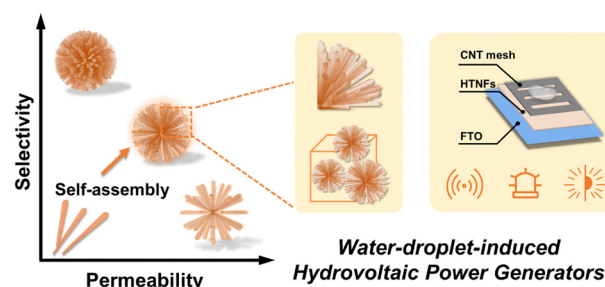
Swati Katiyar, Songyang Chang, Irfan Ullah, Wentao Hou,
Amanda Conde-Delmoral, Shen Qiu, Gerardo Morell and
Xianyong Wu*



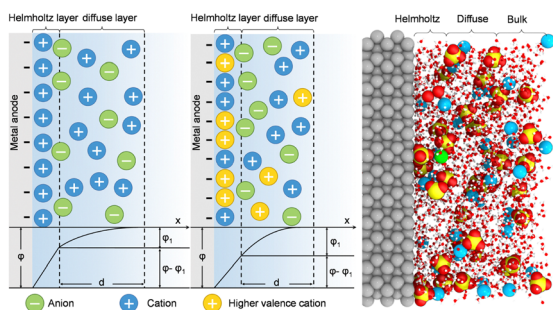
4780

3D dendritic hierarchically gradient nanoflowers *in situ* grown on conductive substrates for efficient hydrovoltaic power generation

Yanan Wang, Xianrong Yuan, Kun Ni, Yuhang Song,
Xiang Li, Xuelian Zeng, Beibei Shao* and Baoquan Sun*



4794



Screening metal cation additives driven by differential capacitance for Zn batteries

Zhengqiang Hu, Fengling Zhang, Feng Wu, Huirong Wang, Anbin Zhou, Yi Chen, Tianyang Xue, Renjie Chen* and Li Li*

