

Energy & Environmental Science

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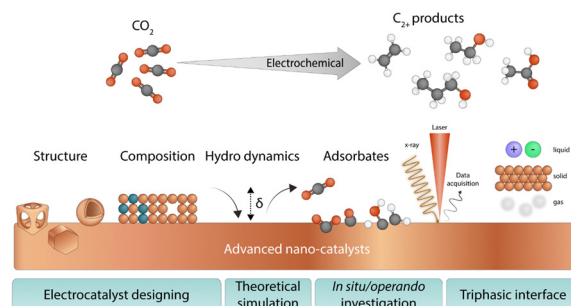
See Bin Chang, Huabin Zhang *et al.*, pp. 4714–4758. Image reproduced by permission of Huabin Zhang and Bin Chang from *Energy Environ. Sci.*, 2023, 16, 4714.

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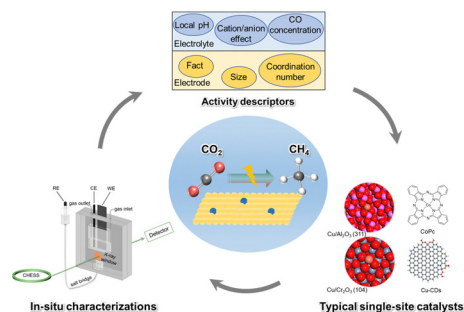


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Advances and challenges in single-site catalysts towards electrochemical CO₂ methanation

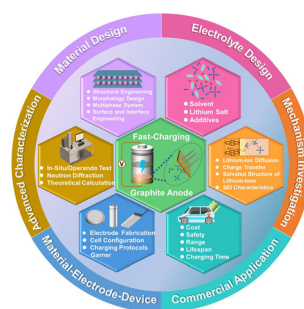
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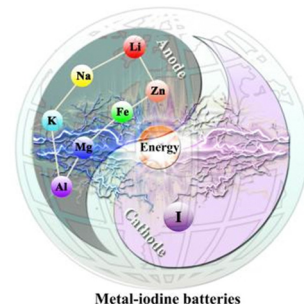
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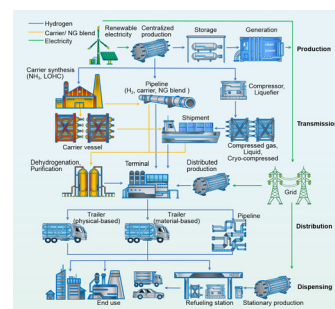


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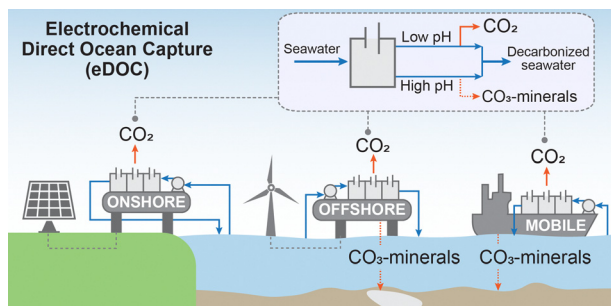
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Daqin Guan, Bowen Wang, Jiguang Zhang, Rui Shi, Kui Jiao,* Lincal Li, Yang Wang, Biao Xie, Qingwen Zhang, Jie Yu, Yunfeng Zhu, Zongping Shao* and Meng Ni*



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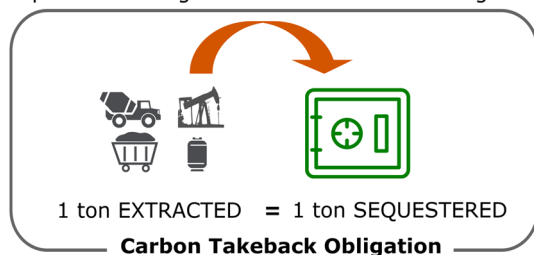


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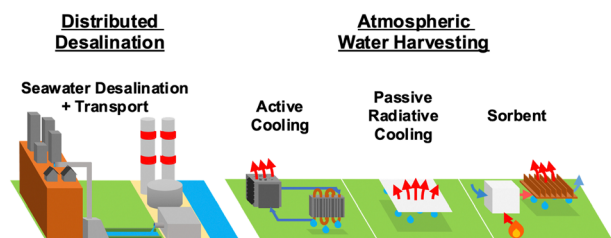
Carbon accounting without Life Cycle Analysis is possible through the Carbon Takeback Obligation



Carbon accounting without life cycle analysis

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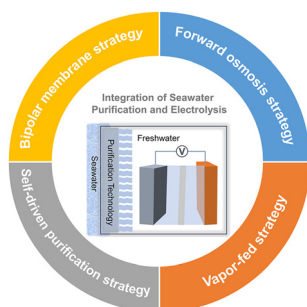


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Jordan D. Kocher and Akanksha K. Menon*

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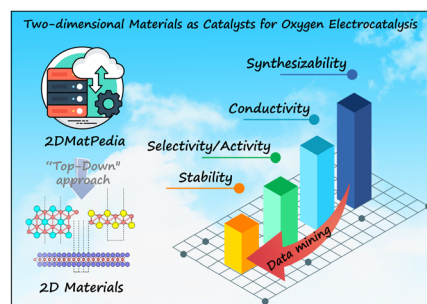
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Xiangyu Guo, Shengli Zhang,* Liangzhi Kou, Chi-Yung Yam, Thomas Frauenheim, Zhongfang Chen* and Shiping Huang*

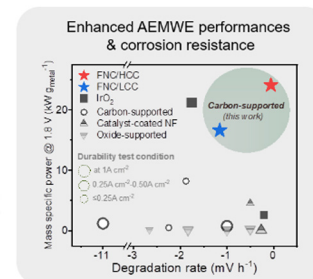
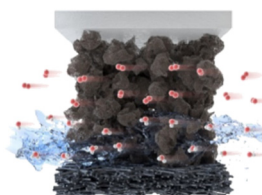


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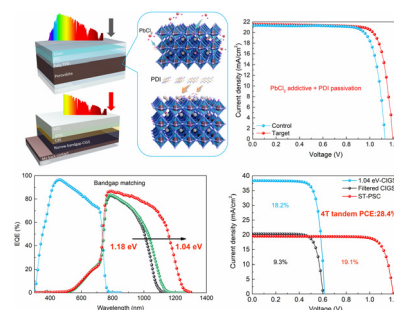
Hydrophobic & Crystalline carbon supports



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Over 28% efficiency perovskite/Cu(InGa)Se₂ tandem solar cells: highly efficient sub-cells and their bandgap matching

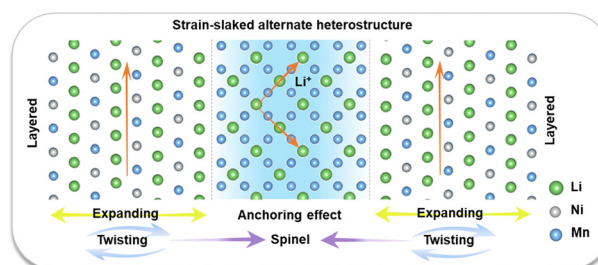
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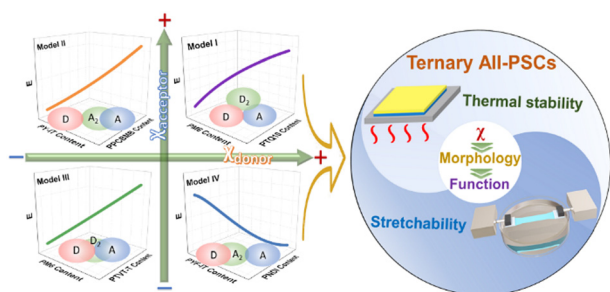
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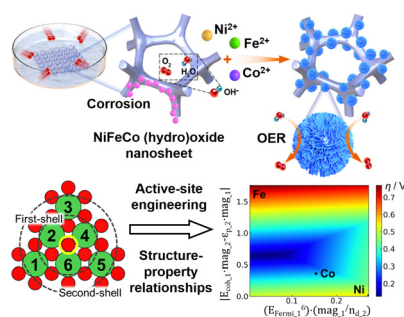
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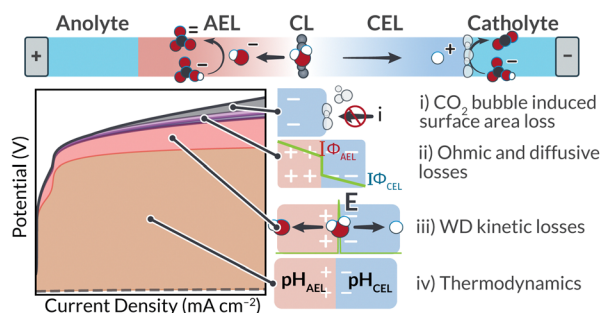
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Unlocking the performance of ternary metal (hydro)oxide amorphous catalysts via data-driven active-site engineering

Doudou Zhang, Haobo Li,* Haijiao Lu, Zongyou Yin, Zelio Fusco, Asim Riaz, Karsten Reuter, Kylie Catchpole and Siva Karuturi*

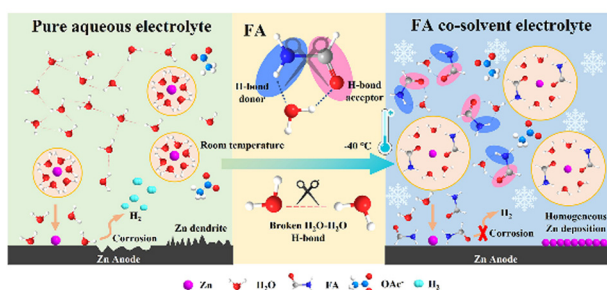
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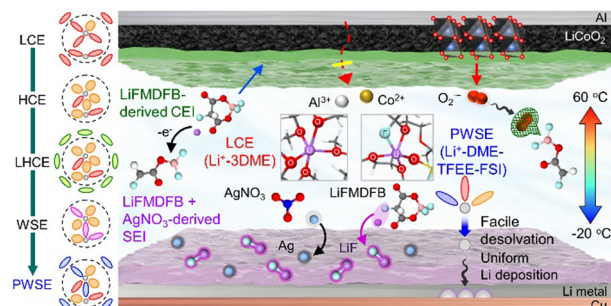
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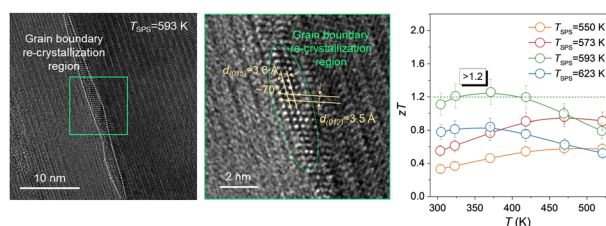
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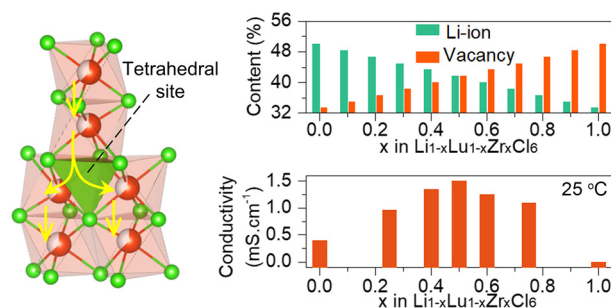
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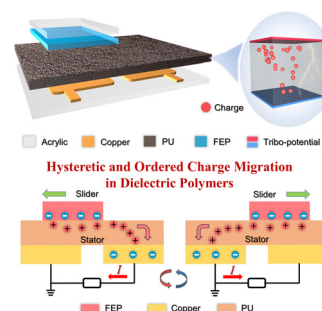
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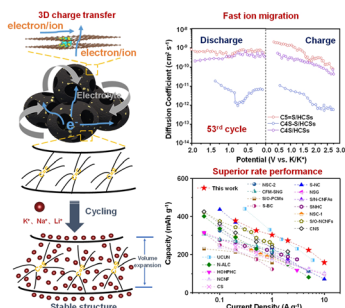
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A constant current triboelectric nanogenerator achieved by hysteretic and ordered charge migration in dielectric polymers

Huiyuan Wu, Jian Wang, Shaoke Fu, Chuncai Shan, Qionghua Zhao, Kaixian Li, Gui Li, Qianjin Mu, Xue Wang* and Chenguo Hu*



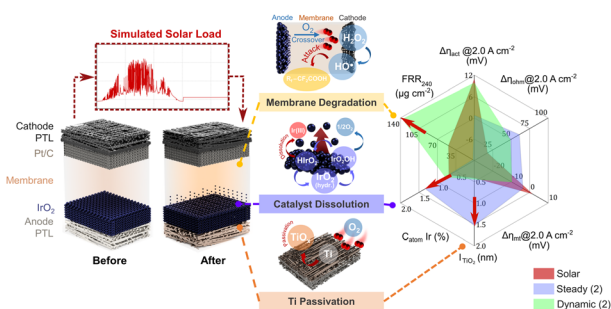
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Delocalized C=S decorates a 3D sp^2 -hybridized carbon skeleton for superior charge transfer kinetics of anodes

Fei Wang, Zhendong Liu, Zhijie Xiang, Chengzhi Zhang,*
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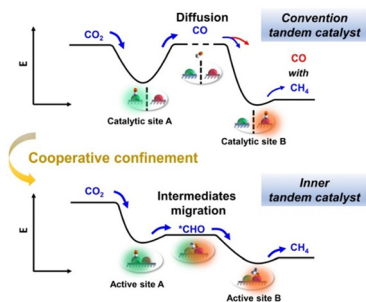
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Systematic degradation analysis in renewable energy-powered proton exchange membrane water electrolysis

Anastasiia Voronova, Sol Kim, Dongwon Kim,
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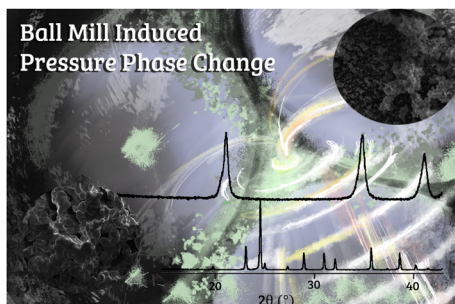
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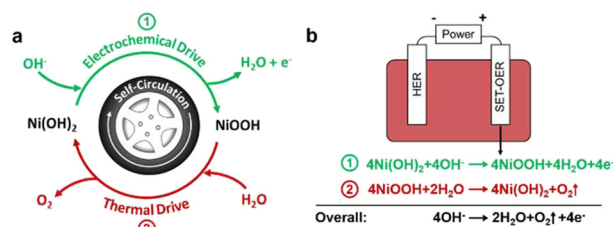
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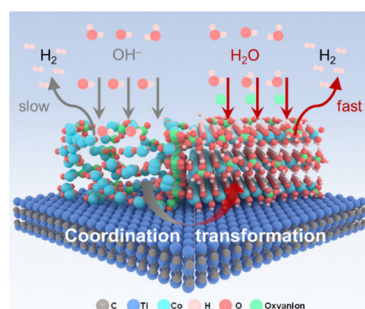
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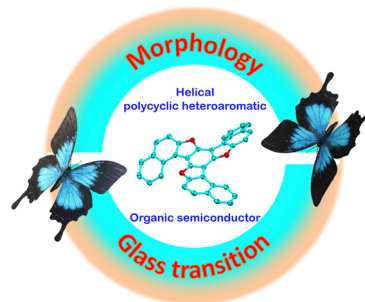
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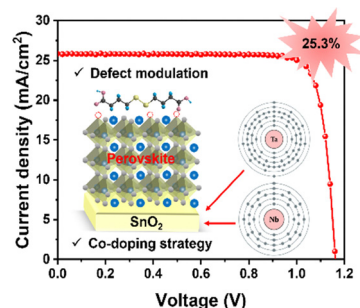
Lingyi Fang, Yuyan Zhang, Yaohang Cai, Jing Zhang, Yuefang Wei, Yi Yuan* and Peng Wang*



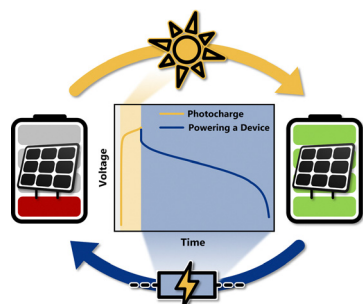
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Synergistic transition metal ion co-doping and multiple functional additive passivation for realizing 25.30% efficiency perovskite solar cells

Yuting Chen, Qi Wang, Yuqi Yao, Jiewei Yang, Weijian Tang, Wuke Qiu, Yihui Wu* and Qiang Peng*



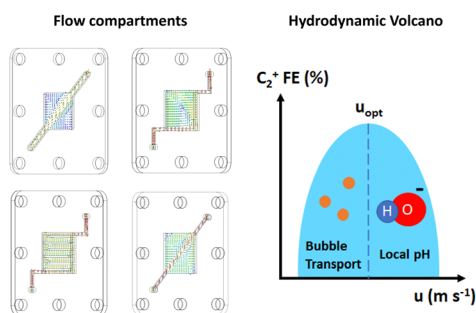
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Organic photo-battery with high operating voltage using a multi-junction organic solar cell and an organic redox-polymer-based battery

Rodrigo Delgado Andrés, Robin Wessling, Jan Büttner, Leonie Pap, Anna Fischer, Birgit Esser* and Uli Würfel*

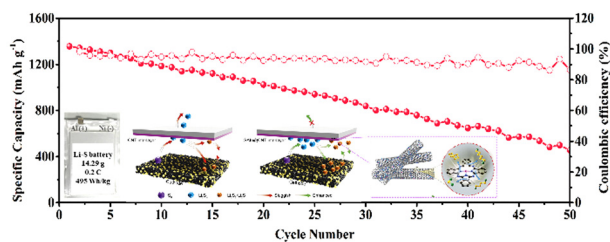
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Understanding the impact of catholyte flow compartment design on the efficiency of CO₂ electrolyzers

Michael Filippi, Tim Möller, Liang Liang and Peter Strasser*

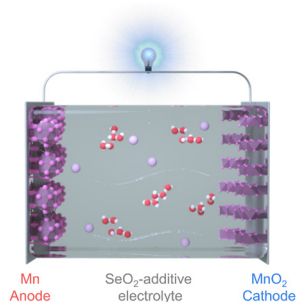
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Engineering a deficient-coordinated single-atom indium electrocatalyst for fast redox conversion in practical 500 W h kg⁻¹-level pouch lithium–sulfur batteries

Yang Guo, Zhaoqing Jin, Jianhao Lu, Lei Wei, Weikun Wang,* Yaqin Huang* and Anbang Wang*

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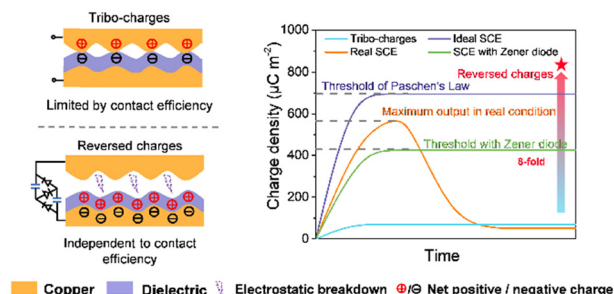
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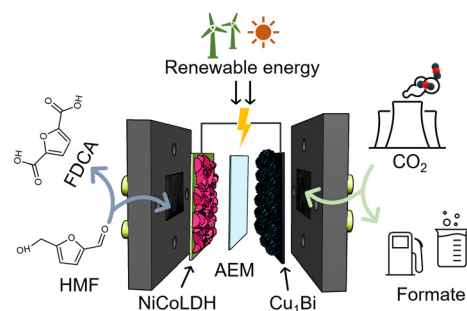
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A coupled electrocatalytic system with reduced energy input for CO₂ reduction and biomass valorization

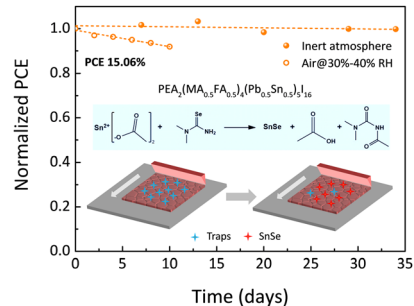
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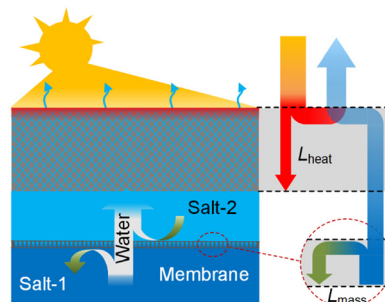
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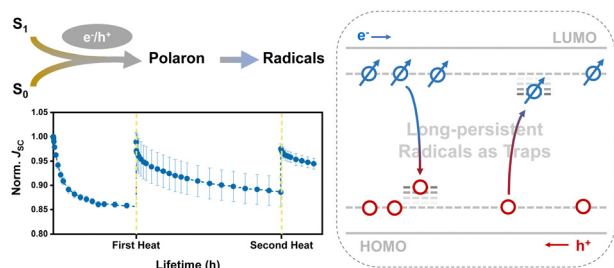
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Solar evaporation with solute replacement towards real-world applications

Zhenyuan Xu,* Jie Yu, He Shan, Jiebing Wang, Jintong Gao, Zhanyu Ye and Ruzhu Wang*



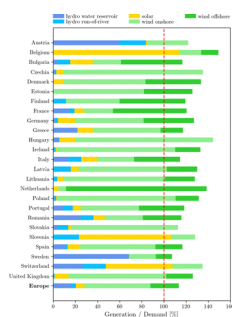
5339



Observation of reversible light degradation in organic photovoltaics induced by long-persistent radicals

Difei Zhang, Chao Liu, Kaicheng Zhang, Yanhua Jia, Wenkai Zhong, Weidong Qiu, Yuanfeng Li, Thomas Heumüller, Karen Forberich, Vincent M. Le Corre, Larry Lürer, Ning Li,* Fei Huang,* Christoph J. Brabec and Lei Ying*

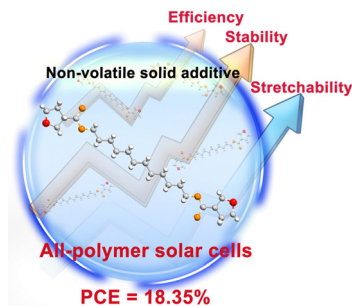
5350



The critical role of electricity storage for a clean and renewable European economy

Alessio Santecchia,* Rafael Castro-Amoedo, Tuong-Van Nguyen, Ivan Kantor, Paul Stadler and François Marechal

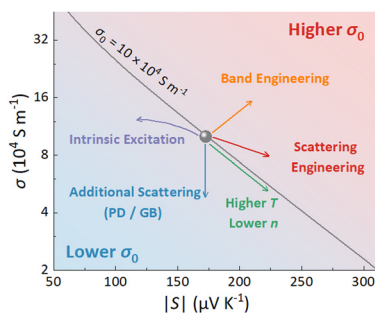
5371



Multifunctional solid additive enables all-polymer solar cells with improved efficiency, photostability and mechanical durability

Jiali Song, Linglong Ye,* Chunhui Liu, Yunhao Cai, Chen Zhang, GuiChu Yue, Yun Li, Min Hun Jee, Yong Zhao, Donghui Wei, Han Young Woo and Yanming Sun*

5381



Intrinsic conductivity as an indicator for better thermoelectrics

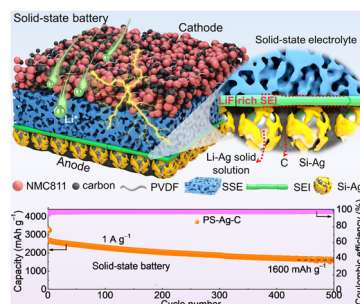
Chaoliang Hu, Ziheng Gao, Min Zhang, Shen Han, Chenguang Fu* and Tiejun Zhu*



5395

Manipulating charge-transfer kinetics and a flow-domain LiF-rich interphase to enable high-performance microsized silicon–silver–carbon composite anodes for solid-state batteries

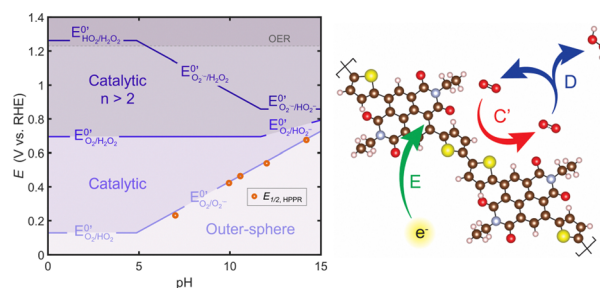
Xiang Han, Lanhui Gu, Zhefei Sun, Minfeng Chen, Yinggan Zhang, Linshan Luo, Min Xu, Songyan Chen, Haodong Liu, Jiayu Wan, Yan-Bing He, Jizhang Chen* and Qiaobao Zhang*



5409

Origins of hydrogen peroxide selectivity during oxygen reduction on organic mixed ionic–electronic conducting polymers

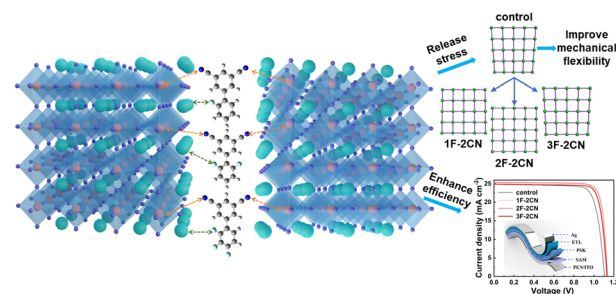
Ana De La Fuente Durán, Allen Yu-Lun Liang, Ilaria Denti, Hang Yu, Drew Pearce, Adam Marks, Emily Penn, Jeremy Treiber, Karrie Weaver, Lily Turaski, Iuliana P. Maria, Sophie Griggs, Xingxing Chen, Alberto Salleo, William C. Chueh, Jenny Nelson, Alexander Giovannitti* and J. Tyler Mefford*



5423

Molecular dipole engineering-assisted strain release for mechanically robust flexible perovskite solar cells

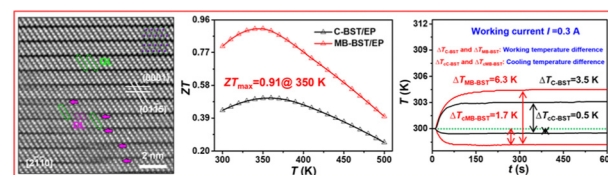
Lisha Xie, Songyu Du, Jun Li, Chang Liu, Zhenwei Pu, Xinyu Tong, Jian Liu, Yaohua Wang, Yuanyuan Meng, Mengjin Yang, Wei Li* and Ziyi Ge*



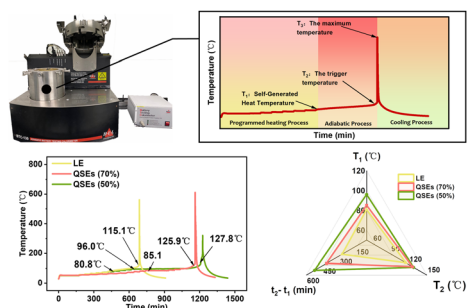
5434

Multi-beam spark plasma sintering and excellent performance of Bi_{0.5}Sb_{1.5}Te₃/epoxy thermoelectric films with insulating substrates

Shaoqiu Ke, Dong Liang, Xiaolei Nie,* Xiaoling Ai, Longzhou Li, Chengshan Liu, Wenjie Xu, Wenjun Cui, Xianfeng Ye, Tiantian Chen, Xiangyu Li, Kai Fu, Wanting Zhu, Ping Wei, Wenyu Zhao* and Qingjie Zhang



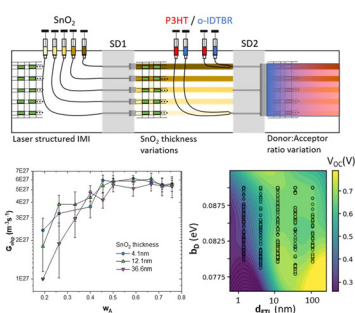
5444



Systematic safety evaluation of quasi-solid-state lithium batteries: a case study

Wei Li, Hang Li, Jiaxiang Liu, Shini Lin, Qichen Chen, Weijie Ji, Zheng He, Peng Zhang* and Jinbao Zhao*

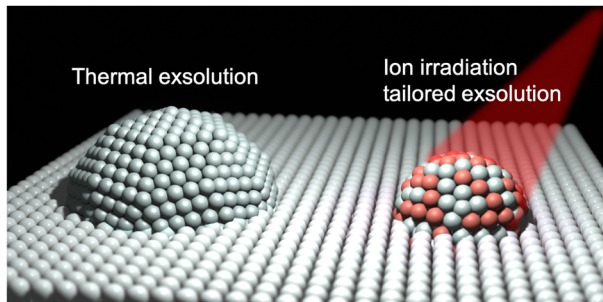
5454



Cutting "lab-to-fab" short: high throughput optimization and process assessment in roll-to-roll slot die coating of printed photovoltaics

Michael Wagner, Andreas Distler, Vincent M. Le Corre, Simon Zapf, Burak Baydar, Hans-Dieter Schmidt, Madeleine Heyder, Karen Forberich,* Larry Lürer, Christoph J. Brabec* and H.-J. Egelhaaf

5464



Ion irradiation to control size, composition and dispersion of metal nanoparticle exsolution

Jiayue Wang, Kevin B. Woller, Abinash Kumar, Zhan Zhang, Hua Zhou, Iradwikanari Waluyo, Adrian Hunt, James M. LeBeau and Bilge Yildiz*

5479



Mimicking ion and water management in poultry breeding for highly reversible zinc ion batteries

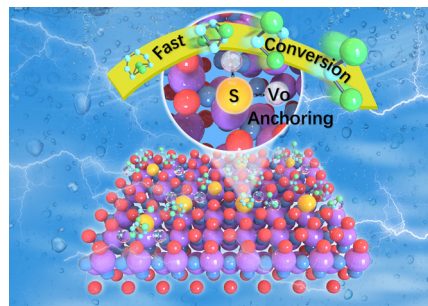
Shengli Zhai, Wanrong Song, Keren Jiang, Xuehai Tan, Wenyao Zhang, Yang Yang, Weifeng Chen, Ning Chen, Hongbo Zeng, Hui Li and Zhi Li*



5490

Highly active and stable oxygen vacancies via sulfur modification for efficient catalysis in lithium–sulfur batteries

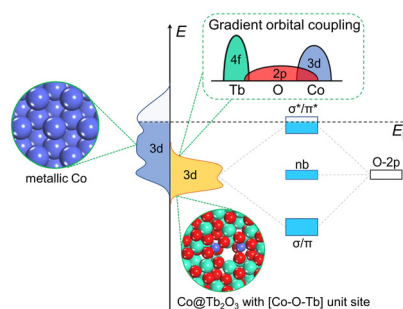
Chenghao Zhao, Bo Jiang, Yang Huang, Xun Sun, Ming Wang, Yu Zhang* and Naiqing Zhang*



5500

Terbium-induced cobalt valence-band narrowing boosts electrocatalytic oxygen reduction

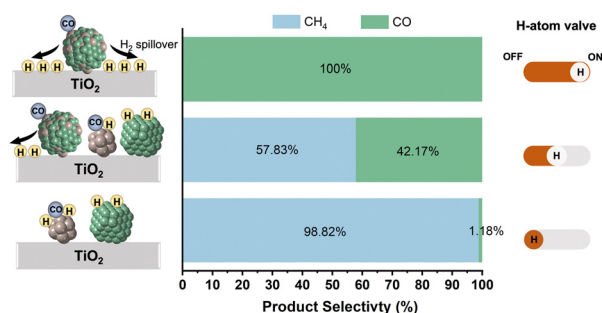
Xuan Wang, Juan Zhang, Pu Wang, Liangcheng Li, Huiyu Wang, Dongmei Sun, Yafei Li, Yawen Tang, Xue Feng Lu,* Yu Wang* and Gengtao Fu*



5513

Structure-performance correlation on bimetallic catalysts for selective CO₂ hydrogenation

Sibe Zou,* Lizhuo Wang, Hao Wang, Xingmo Zhang, Haoyue Sun, Xiaozhou Liao, Jun Huang* and Assaad R. Masri



5525

Redox mediators for oxygen reduction reactions in lithium–oxygen batteries: governing kinetics and its implications

Youngmin Ko, Kyoungoh Kim, Jaekyun Yoo, Giyun Kwon, Hyeokjun Park, Jihyeon Kim, Byungju Lee, Jun-Hyuk Song, Jinsoo Kim and Kisuk Kang*

