

Sustainable Energy & Fuels

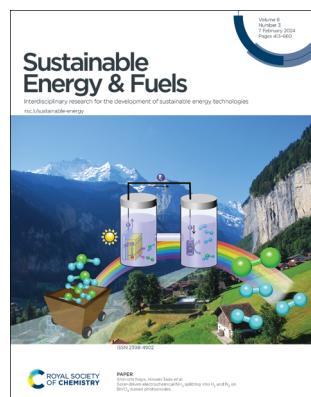
Interdisciplinary research for the development of sustainable energy technologies

rsc.li/sustainable-energy

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

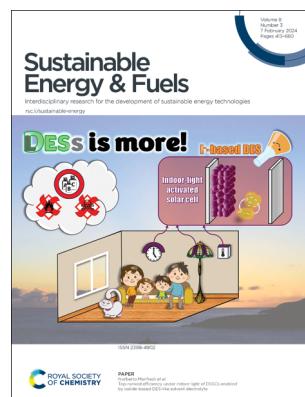
IN THIS ISSUE

ISSN 2398-4902 CODEN SEFUA7 8(3) 413–660 (2024)



Cover

See Shin-ichi Naya, Hiroaki Tada *et al.*, pp. 496–503. Image reproduced by permission of Shin-ichi Naya from *Sustainable Energy Fuels*, 2024, 8, 496. Photo of U-shaped valley in Lauterbrunnen by BUCCH_astoria via photo-ac.com.



Inside cover

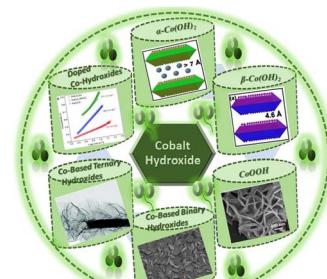
See Norberto Manfredi *et al.*, pp. 504–515. Image reproduced by permission of Norberto Manfredi from *Sustainable Energy Fuels*, 2024, 8, 504.

REVIEWS

422

Exploring the potential of cobalt hydroxide and its derivatives as a cost-effective and abundant alternative to noble metal electrocatalysts in oxygen evolution reactions: a review

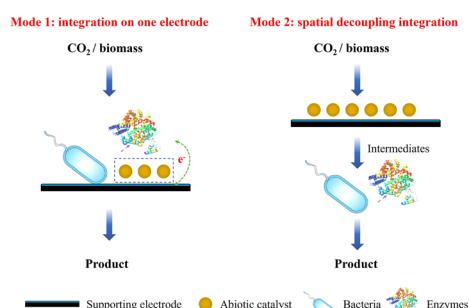
Umair Shamraiz,* Abdul Majeed, Bareera Raza, Noor ul Ain and Amin Badshah



460

Integrative electrochemical and biological catalysis for the mild and efficient utilization of renewable electricity and carbon resources

Licheng Liu* and Deepak Pant*





GOLD
OPEN
ACCESS

RSC Sustainability

Dedicated to sustainable
chemistry and new solutions

For an open, green and inclusive future

rsc.li/RSCSus

Fundamental questions
Elemental answers

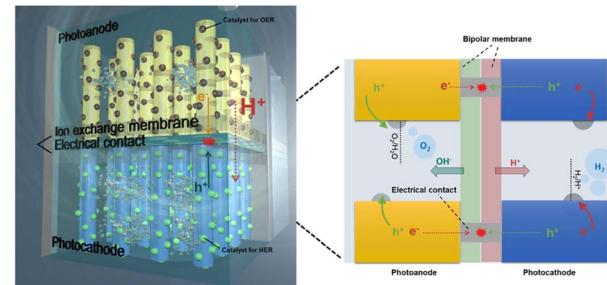
Registered charity number: 207890

PERSPECTIVE

481

Designing idealised devices for bias-free solar water splitting

Jaemin Park, Kwang Ho Kim, Dukjoon Kim, Jung Kyu Kim and Wooseok Yang*

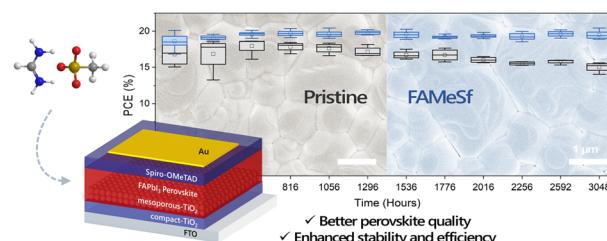


COMMUNICATION

491

Enhancing FAPbI_3 perovskite solar cell performance with a methanesulfonate-based additive

Japheth Joseph Yeow Wan Foong, Herlina Arianita Dewi, Ayan A. Zhumekenov, Benny Febriansyah, Annalisa Bruno, Teddy Salim, Darrell Jun Jie Tay, Hesham R. Abuzeid, Teck Ming Koh, Subodh G. Mhaisalkar and Nripan Mathews*

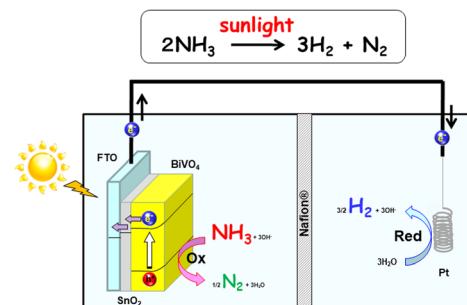


PAPERS

496

Solar-driven electrochemical NH_3 splitting into H_2 and N_2 on BiVO_4 -based photoanodes

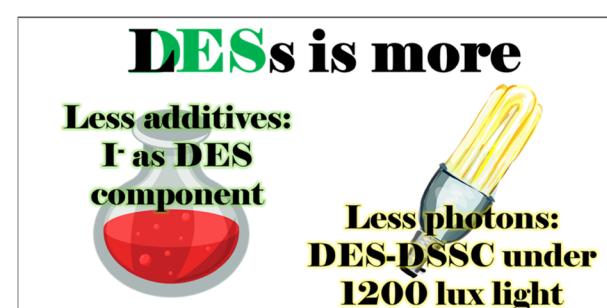
Miwako Teranishi, Shin-ichi Naya* and Hiroaki Tada*



504

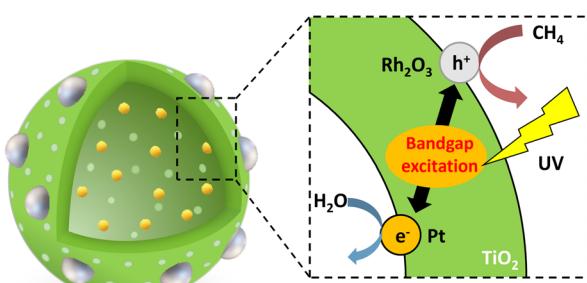
Top-ranked efficiency under indoor light of DSSCs enabled by iodide-based DES-like solvent electrolyte

Chiara Liliana Boldrini, Andrea Francesca Quivelli, Filippo Maria Perna, Paolo Biagini, Vito Capriati, Alessandro Abbotto and Norberto Manfredi*



PAPERS

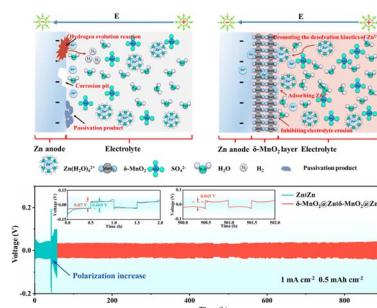
516



Steam reforming of methane by titanium oxide photocatalysts with hollow spheres

Akira Yamaguchi,* Tomoki Kujirai, Takeshi Fujita, Hideki Abe and Masahiro Miyauchi*

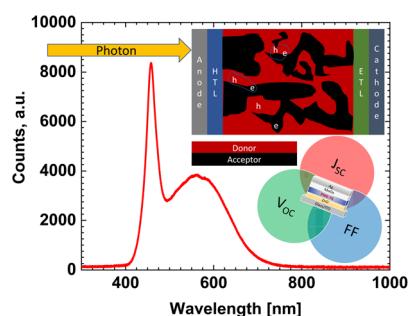
524



Dendrite-free deposition and side-reaction suppression of zinc anodes achieved via constructing synergistic interface buffer layers

Ting Li, Bo Zhou, Zhongfu Yan, Anjun Hu,* Mengjiao Liu, Xinyu Liu, Liang Liu,* Miao He, Jiahao Chen and Jianping Long*

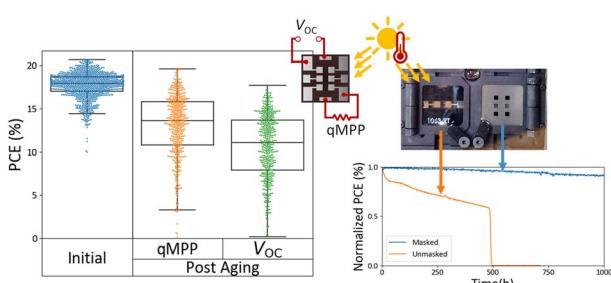
535



Aging of quinoxaline-based polymer solar cells under UV-free white light

Shahidul Alam,* Md Moidul Islam, Rico Meitzner, Martin Hager, Ulrich S. Schubert, Frédéric Laquai, Harald Hoppe and Yingping Zou

546



Measuring metal halide perovskite single cell degradation consistent with module-based conditions

Robert Tirawat,* Amy E. Louks, Mengjin Yang, Severin N. Habisreutinger, Jao van de Lagemaat, Soňa Uličná, Ross A. Kerner, Kai Zhu, Laura T. Schelhas, Axel F. Palmstrom and Joseph J. Berry*

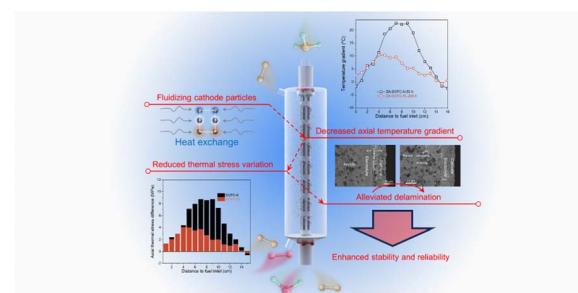


PAPERS

554

Temperature gradient reduction in a tubular direct ammonia solid oxide fuel cell by fluidizing the cathode particles

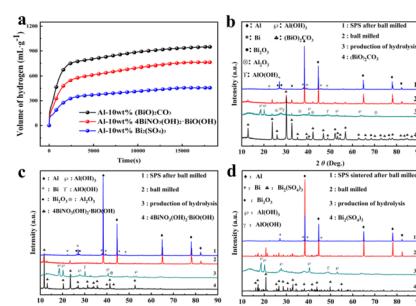
Yu Qiu, Yanxin Yang, Enkang Fu and Rui Xiao*



564

Novel porous Al-based composites for improved Al–water reaction performances by spark plasma sintering

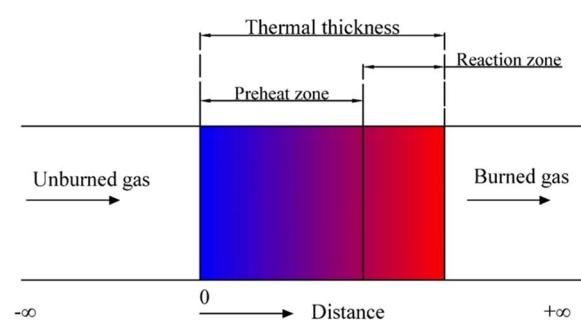
Jinfan Wu, Tao Wang, Fen Xu,* Lixian Sun,* Lumin Liao, Yuan Gao, Yanxun Guan, Hehui Wang, Guorong Zhang, Zhong Cao and Julian Zeng



573

Numerical study of the effect of NH₃ addition on CH₄/air combustion characteristics under gas turbine operating conditions

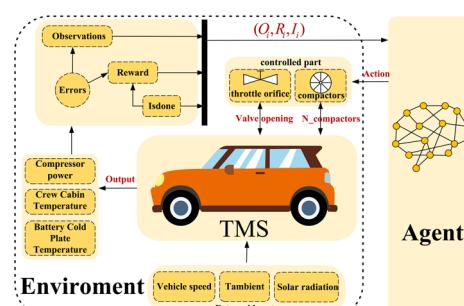
Dianlin Liu, Yanfei Zhang, Qin Li, Mingming Huang,* Zhenxian Liu and Haipeng Zhang



588

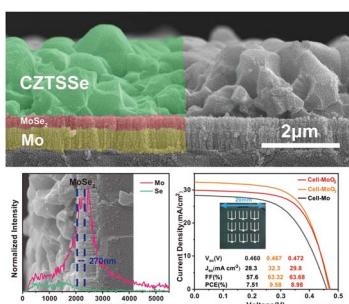
Reinforcement learning-based control for the thermal management of the battery and occupant compartments of electric vehicles

Yan Zhang, Jianglu Huang, Liange He,* Donggang Zhao and Yu Zhao



PAPERS

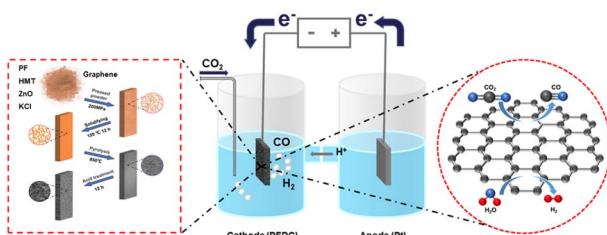
604



Differential effects of MoO_3 and MoO_2 sacrificial layers on the J – V performance of $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ solar cells

Jinhui Zhang, Chuanhe Ma, Haixuan Gao, Jinchun Jiang and Hailong Wang*

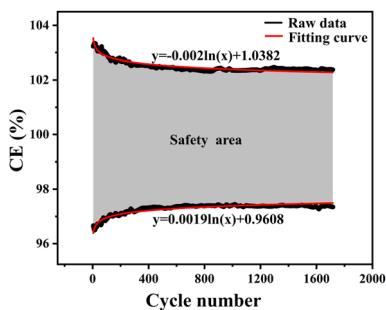
610



Effects of pore structures on a phenolic resin-derived self-supported electrode for highly efficient electroreduction of CO_2 to syngas

Haowen Chen, Junwei Zhang, Kang Wang* and Xitao Wang*

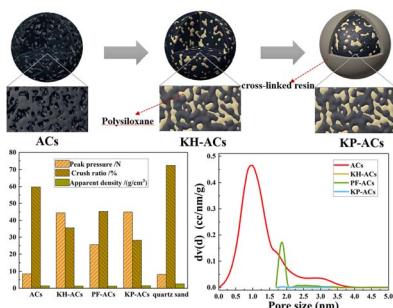
621



Lifespan prediction of Li-ion batteries in electrical vehicles by applying coulombic efficiency: from anode material to battery cell to vehicle application

Xianjun Liu, Yanfei Li, Xiaohua Jiang and Kw Xu*

631



Constructing low-cost and high-strength ultra-low-density proppants based on the modification of activated carbon framework with *in situ* hydrolyzed silane

Zhen Zeng, Shiqiang Wang, Ermei Liu, Wei Qin, Yang Zhou, Zhenyong Li, Yu Song, Min Xu, Fuli Bian* and Xianyan Ren*



PAPERS

641

Synthesis of hierarchical MFI zeolite by interzeolite conversion of spent FAU zeolite for the methanol-to-olefins reaction

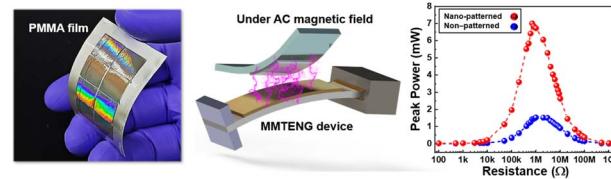
Yan Sun, Chao Yang, Zhenhao Wen, Zhenbao Zhang, Pifeng Wei, Xiaobo Wang and Qiang Li*



649

A nanoscale surface engineered magneto-mechano-triboelectric nanogenerator enabled by reliable pattern replication for self-powered IoT devices

Srinivas Pattipaka, Tae Wan Park, Young Min Bae, Yujin Na, Kyeongwoon Chung, Kwi-Il Park, Jungho Ryu, Woon Ik Park* and Geon-Tae Hwang*



CORRECTION

657

Correction: Rational design and recent advancements of additives engineering in ASnI_3 tin-based perovskite solar cells: insights from experiments and computational

Maria Ulfa,* Fitri Aulia Permatasari, Yahdi Bin Rus, Novrita Idayanti and Ferry Iskandar