

Sustainable Energy & Fuels

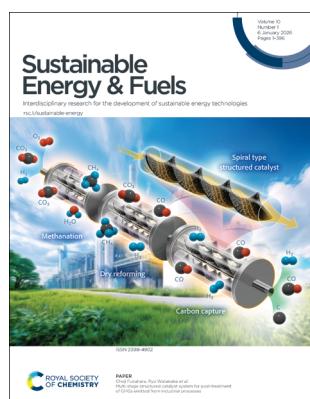
Interdisciplinary research for the development of sustainable energy technologies

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 10(1) 1–396 (2026)



Cover

See Choji Fukuhara, Ryo Watanabe *et al.*, pp. 211–226.
Image reproduced by permission of Choji Fukuhara and Ryo Watanabe from *Sustainable Energy Fuels*, 2026, 10, 211.

EDITORIAL

12

A new chapter for *Sustainable Energy & Fuels*

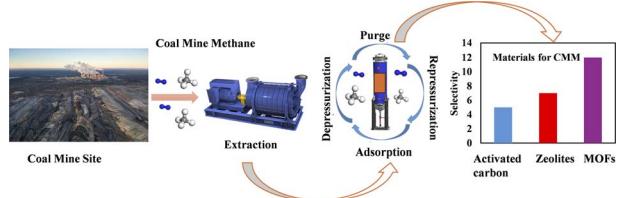


REVIEWS

14

Emerging technologies for coal mine methane mitigation with different integration strategies for effective recovery of CH₄

Salman Qadir,* Muhammad Kamran, Muhammad Sajjad, Sivadasan Dharani, Ahmad Naquash, Muhammad Islam, Wang Sheng* and Shao-Tao Bai*





RSC Applied Polymers

The application of polymers,
both natural and synthetic

Interdisciplinary and open access

rsc.li/RSCApplPolym

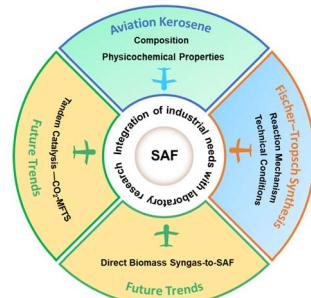
Fundamental questions
Elemental answers

REVIEWS

42

Research advances and future perspectives in Fischer–Tropsch synthesis for sustainable aviation fuel

Ang Li,* Junhui Zheng, Ziqi Wang and Zongwei Zhang*



56

Translational potential of CuSe nanostructures as advanced energy materials: fundamental insights and emerging multifunctional solar energy conversion applications

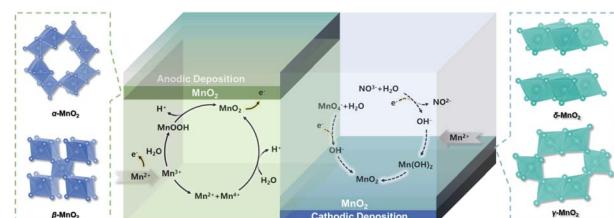
Vikas Kumar, Sahil Thakur, Jai Prakash,* Sushil Kumar Kansal, Hendrik Christoffel Swart, Mikhael Bechelany and Awnish Kumar Tripathi*



99

Electrodeposited MnO_2 films for energy storage and catalysis: a review

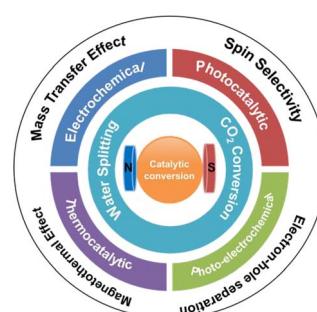
Jiajun Lin, Ze Zhang, Mengwei Guo, Hangrui Zhang, Mingyuan Gao, Rongrong Deng, Cunying Xu and Qibo Zhang*



119

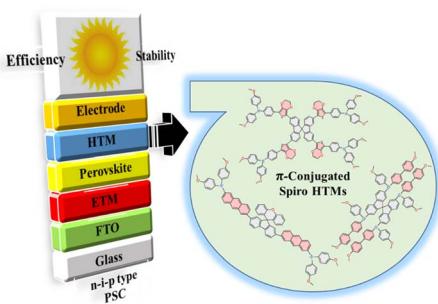
Perspective of an external magnetic field-assisted catalytic process for green H_2 generation and CO_2 conversion

Sudeshna Das Chakraborty,* Samik Nag and Trilochan Mishra*



REVIEWS

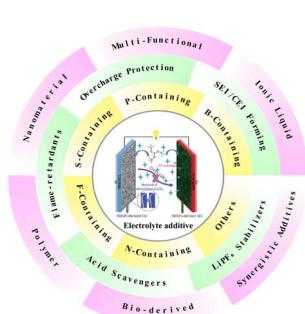
137



Optimizing π -conjugated system of spiro-based HTMs; structures and concept towards boosting efficiency of PSCs

Zanira Mushtaq, Abdul Ahad, Sabahat Asghar, Muhammad Sajid Abbas, Ayesha Zafar, Adnan Majeed, Muhammad Adnan Iqbal,* Muhammad Nadeem, Shahzaib Ali and Sana Ejaz

150

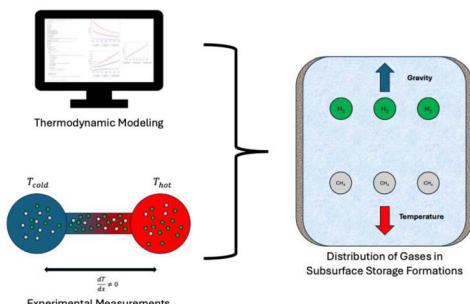


Electrolyte additives in Li-ion batteries: from mechanisms to application

Runze Zhang, Yinglei Wu,* Guangfu Ge, Jinxuan Liu, Jihu Wang, Sirui Wang and Zhongyi He

PERSPECTIVE

191



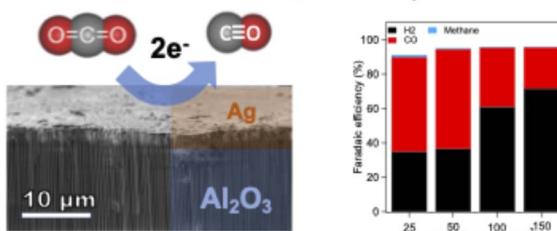
Thermal diffusion of hydrogen-containing gas mixtures: applications to underground hydrogen storage

Jimin D. Zhou,* Kristian Jessen and Anthony R. Kovscek

COMMUNICATION

206

Nanoporous alumina-based gas diffusion layers for the electroreduction of CO₂ at industry-relevant rates



Nanoporous anodic alumina-based gas diffusion layers for the electroreduction of CO₂

María Pilar Montero-Rama, Domenico Grammatico, Janine Lichtenberger, Virginie Pellerin, Emilio Palomares, Laurent Billon, Lluis F. Marsal* and Aurelien Viterisi*

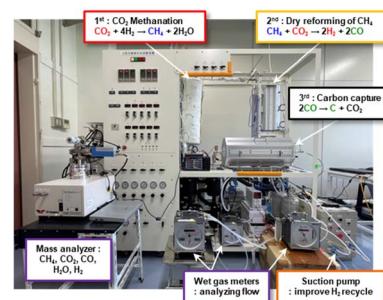


PAPERS

211

Multi-stage structured catalyst system for post-treatment of GHGs emitted from industrial processes

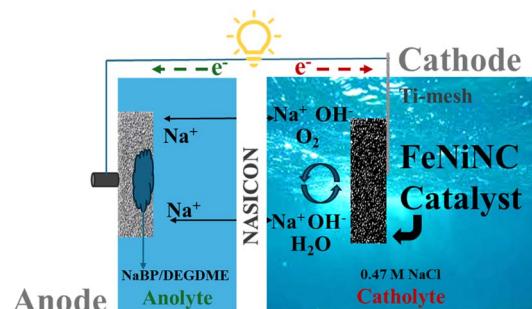
Choji Fukuhara,* Hiroto Naiki, Hiroshi Akama, Yuki Yamada, Priyanka Verma and Ryo Watanabe*



227

Bifunctional PGM-free electrocatalysts for seawater batteries

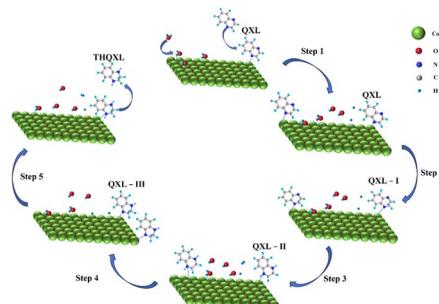
Pedro Pablo Machado Pico, Jorge Montero, Akiko Tsurumaki,* Stefano Passerini and Maria Assunta Navarra*



236

Electrocatalytic hydrogenation of quinoxaline using CoO/NF in organic molecular redox flow batteries

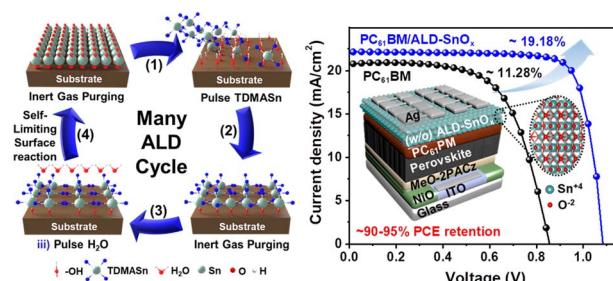
Xin Zheng, Bowen Chen, Hanyu Li, Fangcheng Qiu, Xue Han, Shaowen Tan, Siyi Chen and Shengping Wang*



245

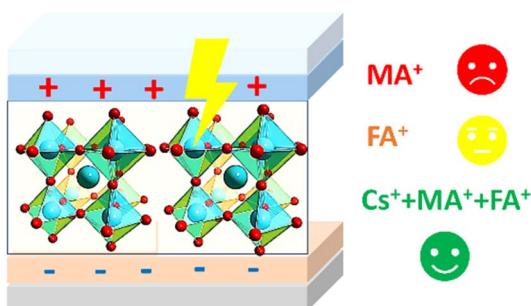
Low-temperature ALD-grown SnO_x interlayer for scalable and stable p-i-n perovskite solar cells and modules

Asmaa Mohamed, Hock Beng Lee, Vinayak Vitthal Satale, Keum-Jin Ko, Barkha Tyagi, Do-Hyung Kim and Jae-Wook Kang*



PAPERS

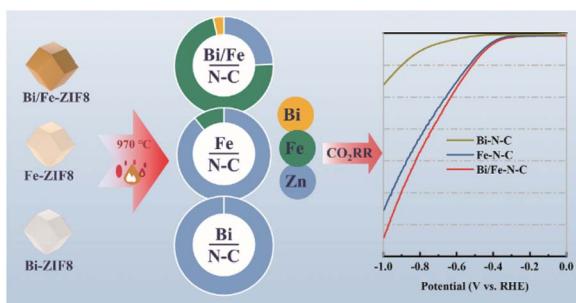
258



Synergistic stabilization of lead halide perovskites by univalent cations under electric field stress

Nikita A. Emelianov,* Victoria V. Ozerova, Yuri S. Fedotov, Mikhail V. Zhidkov, Lavrenty G. Gutsev, Eugeniy V. Golosov, Rasim R. Saifutyarov, Lyubov A. Frolova and Pavel A. Troshin

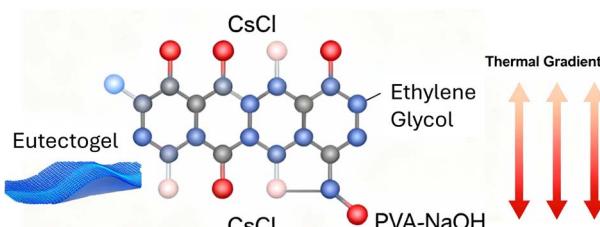
267



Synthesis of Bi/Fe-N-C catalysts for efficient electrochemical CO₂-to-CO reduction

Yongheng Xiong, Yang Yu, Huangang Shi, Jifa Qu and Wenyi Tan*

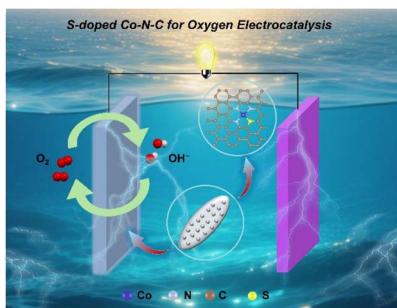
276



Biomimetic CsCl:EG/PVA-NaOH eutectogels for high-performance ionic thermoelectrics and sustainable low-grade heat harvesting

Moustafa I. M. Abdelaziz, Shadi A. S. Eldib, Ghada E. Khedr and Nageh K. Allam*

285



Sulfur-doped cobalt–nitrogen–carbon materials for efficient oxygen electrocatalysis

Sitong Qu, Yiwen Cao, Jieling Zhang, Peijie Ma, Zuozhong Liang* and Rui Cao*

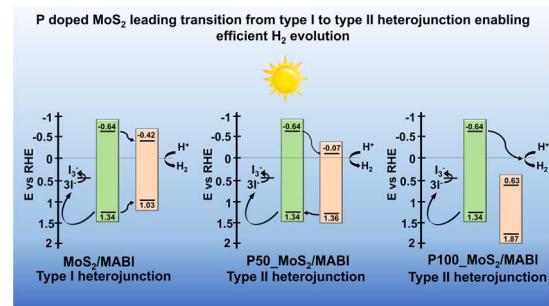


PAPERS

294

Unravelling the transformation from a type-I to type-II $\text{MA}_3\text{Bi}_2\text{I}_9$ -based heterostructure photocatalyst *via* energy band engineering

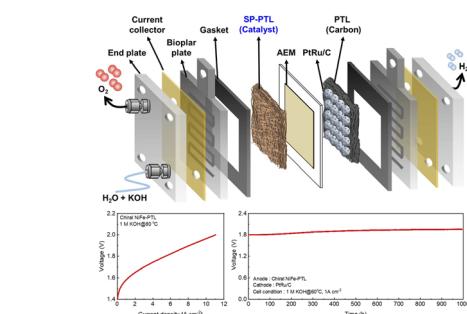
Tamal Pal, Soumalya Bhowmik, Sushant Sharma, Ameer Suhail, Nageswara Rao Peela, Chivukula V. Sastri* and Parameswar Krishnan Iyer*



304

A spin polarization porous transport layer for anion exchange membrane water electrolyzers with a current density of 11.5 A cm^{-2}

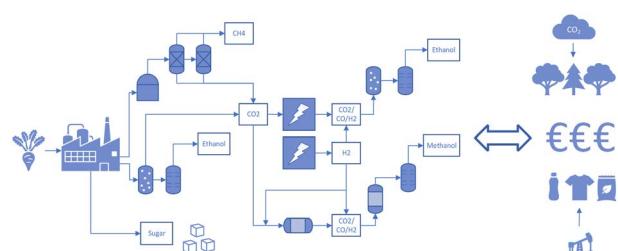
Tae Hyung Kim, Chuan Hu, Hyeon Keun Cho, Seung Hyun Jae, Sujin Lee, Bongjun Yeom, Young Moo Lee* and Young-Hoon Kim*



311

Feasibility study and reflection on agro-industrial CO_2 point sources as feedstock for chemicals and materials

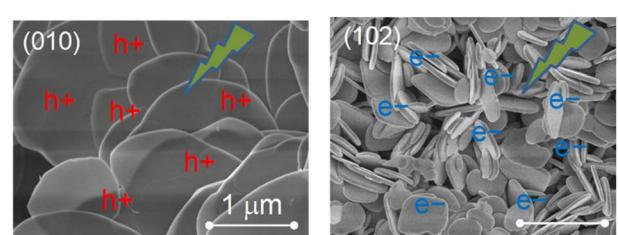
K. P. H. Meesters,* M. P. Lanting, J. A. Voogt and H. L. Bos



322

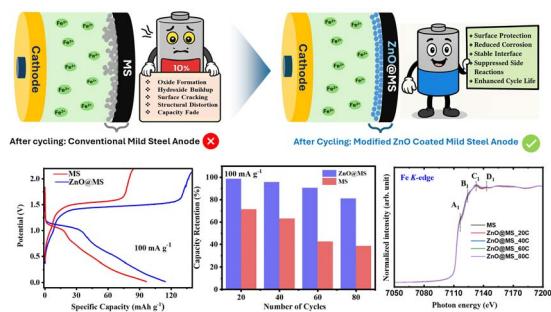
Facet-dependent photocatalytic activities of BiOBr explored through pattern illumination time-resolved phase microscopy

Yuta Egawa, Yuanyuan Jiang, Zhenhua Pan, Sheng Ye and Kenji Katayama*



PAPERS

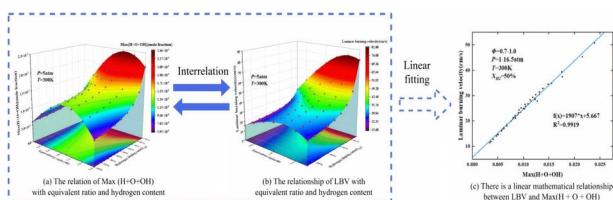
334



Insights into the mechanism of electrode degradation and performance enhancing strategies for iron-ion batteries using X-ray absorption spectroscopy

Jitendra Kumar Yadav, Subhajit Nandy, Keun Hwa Chae, Jitendra Pal Singh and Ambesh Dixit*

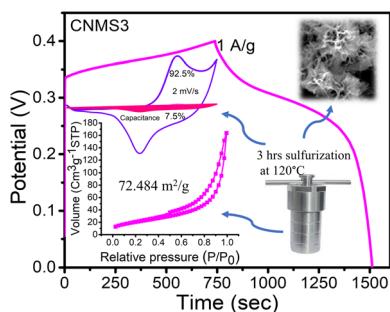
349



Study on the influence of hydrogen addition on ethane/air laminar burning velocity, key species production, and implied physicochemical effects

Yanfei Zhang, Zewen Yu, Yujie Xu, Wenlong Wang, Mingming Huang,* Lingbo Kong, Zhiyong Zhao and Xiao Zhang

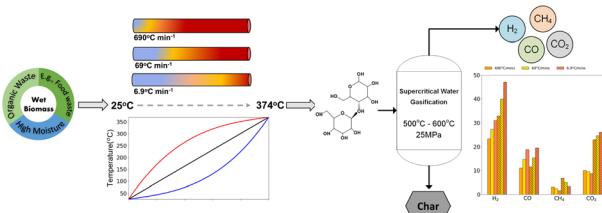
364



Tailoring supercapacitor performance via sulfur engineering in ternary CoNiMoS electrodes

Trupti Tanaya Mishra, Manisha Sadangi, J. N. Behera,* Mohua Chakraborty* and Dhrubojoyti Roy*

375



Optimising supercritical water gasification of biomass: exploring heating strategy through a quantitative kinetic modelling approach

Robert Sait-Stewart, Leo Lue and Jun Li*



PAPERS

386

Hollow Sb nanocrystals confined in N, S Co-doped carbon nanofibers boosting sodium-ion transport for high-performance sodium-ion batteries

Qiushi Huang, Yejian Yu, Rujia Zou,* Jinqi Zhu* and Huifang Chen*

