

# Sustainable Energy & Fuels

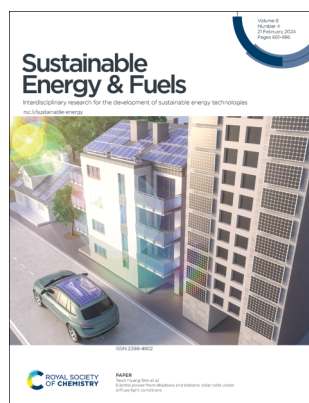
Interdisciplinary research for the development of sustainable energy technologies

[rsc.li/sustainable-energy](https://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(4) 661–886 (2024)



### Cover

See Yeon Hyang Sim *et al.*, pp. 700–716. Image reproduced by permission of Seung I. Cha from *Sustainable Energy Fuels*, 2024, **8**, 700.



### Inside cover

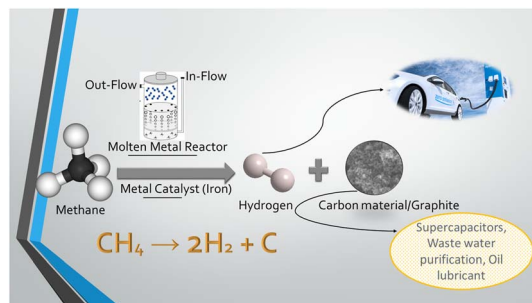
See Yuepeng Guan, Baoning Zhu, Yaqin Huang *et al.*, pp. 717–728. Image reproduced by permission of Yuepeng Guan, Baoning Zhu and Yaqin Huang from *Sustainable Energy Fuels*, 2024, **8**, 717.

## REVIEW

670

### Methane conversion for hydrogen production: technologies for a sustainable future

Safia Hameed and Elisabetta Comini\*

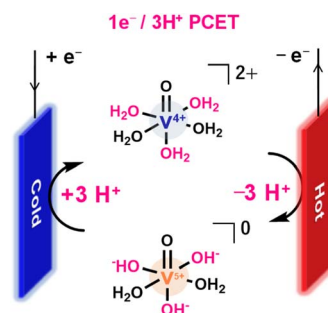


## COMMUNICATIONS

684

### An aqueous vanadium complex for the superior electrolyte of a thermo-electrochemical cell

Teppei Yamada,\* Takashi Kobayashi, Yusuke Wakayama, Fumitoshi Matoba, Koichi Yatsuzuka, Nobuo Kimizuka and Hongyao Zhou



# RSC Sustainability

GOLD  
OPEN  
ACCESS

Dedicated to sustainable  
chemistry and new solutions

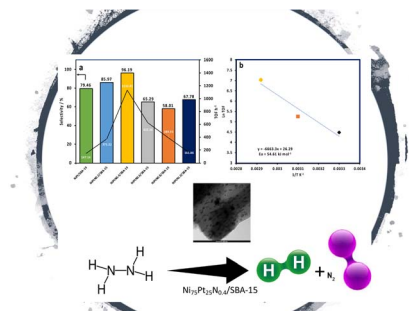
For an open, green and inclusive future

[rsc.li/RSCSus](https://rsc.li/RSCSus)

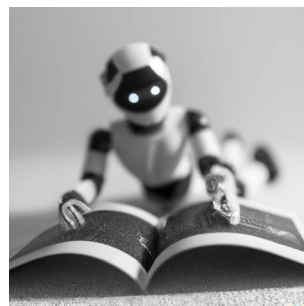
Fundamental questions  
Elemental answers

## COMMUNICATIONS

689

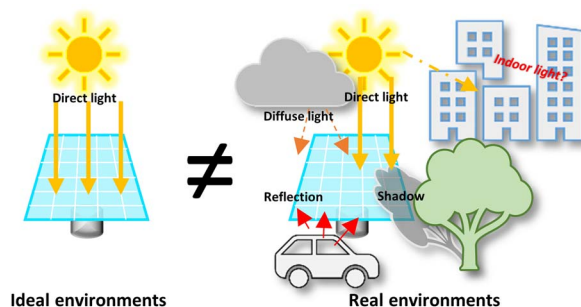
**Synthesis of an SBA-15 supported NiPtN catalyst for dehydrogenation of hydrazine hydrate**Muhammad Ridwan,<sup>\*</sup> Risda Maulida Afifah, Indri Yati and Rika Tri Yunarti

697

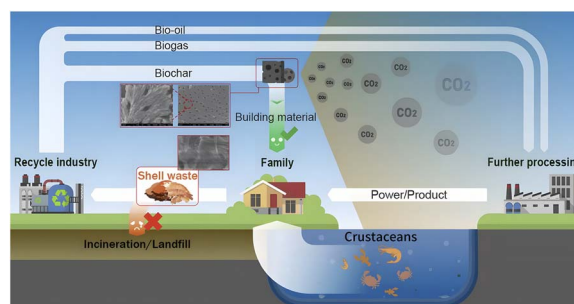
**ChatGPT integration in perovskite research: unveiling pros and cons of AI integration for scientific advancements**Luigi Angelo Castriotta<sup>\*</sup>

## PAPERS

700

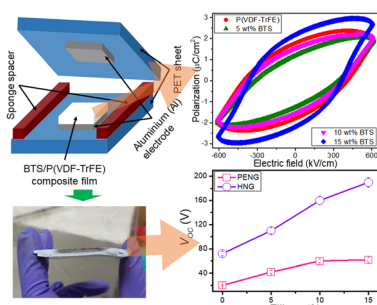
**Electric power from shadows and indoors: solar cells under diffuse light conditions**Yeon Hyang Sim, Min Ju Yun, Luthfan Fauzan, Hyekyoung Choi, Dong Yoon Lee and Seung I. Cha<sup>\*</sup>

717

**Management of waste crustacean shells for the construction of a carbon-negative circulation model**Xiaogang Sun, Zhen Du, Yimeng Wang, Yuepeng Guan,<sup>\*</sup> Baoning Zhu<sup>\*</sup> and Yaqin Huang<sup>\*</sup>



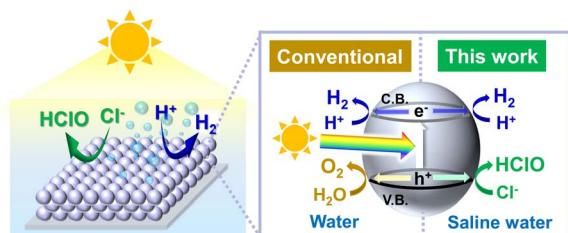
729



### Morphotropic phase boundary-based BaTi<sub>0.89</sub>Sn<sub>0.11</sub>O<sub>3</sub> filler induced polarization tuned P(VDF-TrFE) composites as efficient piezo-tribo hybrid nanogenerators

Payel Maiti,<sup>\*</sup> Abhishek Sasmal, A. Arockiarajan and Rahul Mitra

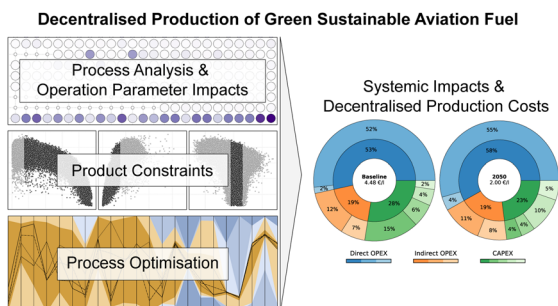
745



### Solar-driven simultaneous production of hypochlorous acid and hydrogen from saline water over RhCrO<sub>x</sub>-loaded SrTiO<sub>3</sub> photocatalyst systems

Sayuri Okunaka,<sup>\*</sup> Toshio Nakamura, Takeshi Ikeda, Kohei Tsuruda and Hiromasa Tokudome<sup>\*</sup>

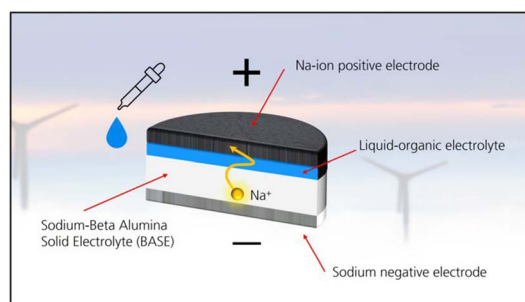
752



### Decentralised production of e-fuels for aviation: implications and trade-offs of a targeted small-scale production of sustainable aviation fuel based on Fischer–Tropsch synthesis

Andreas Meurer,<sup>\*</sup> Patrick Jochem and Jürgen Kern

766



### Modulating the cathode interface in sodium-beta alumina-based semi-solid-state sodium cells using liquid-organic electrolytes

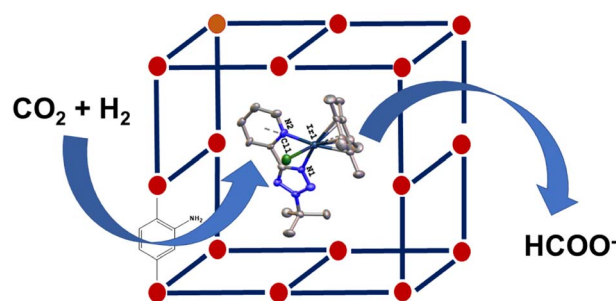
Micha P. Fertig,<sup>\*</sup> Christof Neumann, Matthias Schulz, Andrey Turchanin and Michael Stelter



777

### A single site catalyst supported in mesoporous UiO-66 for catalytic conversion of carbon dioxide to formate

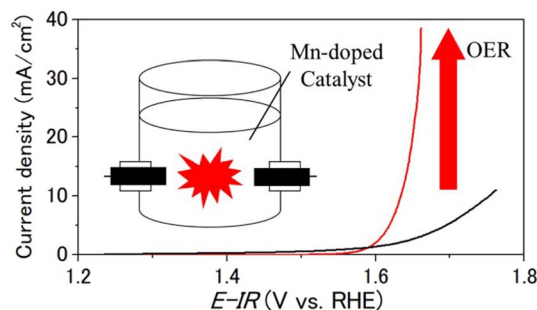
Maureen Gumbo, Edward Ocansey, Banothile C. E. Makhubela, Francoise M. Amombo Noa, Lars Öhrström, Obieda S. Mudraj and Gift Mehlana\*



789

### Solution plasma assisted Mn-doping: a novel strategy for developing highly durable and active oxygen evolution catalysts

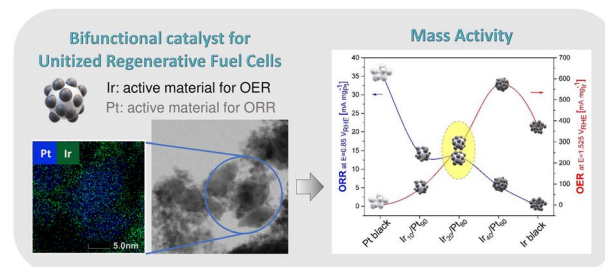
Hao He, Takeshi Matsuda, Akira Miura, Masanori Nagao, Jeevan Kumar Padarti, Tomoya Ohno and Shigeto Hirai\*



797

### Bifunctional Pt–Ir nanoparticle catalysts for oxygen reduction and evolution reactions: investigating the influence of surface composition on the catalytic properties

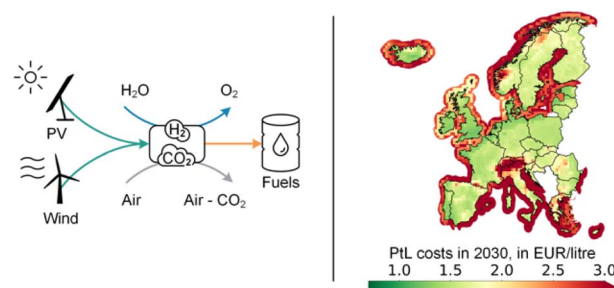
Lucinda Blanco-Redondo, Yevheniia Lobko,\* Kateřina Veltruská, Jaroslava Nováková, Michal Mazur, Alina Madalina Darabut, Tomáš Hrbek, Milan Dopita, Jakub Hraníček, Yuriy Yakovlev, Iva Matolinová and Vladimír Matolín



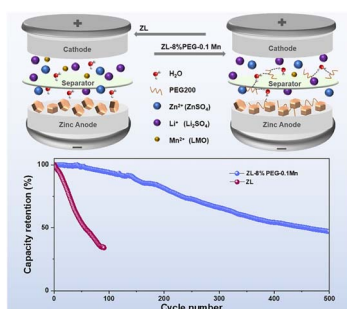
811

### Future costs of power-to-liquid sustainable aviation fuels produced from hybrid solar PV-wind plants in Europe

Kyle Seymour,\* Maximilian Held, Boris Stolz, Gil Georges and Konstantinos Boulouchos



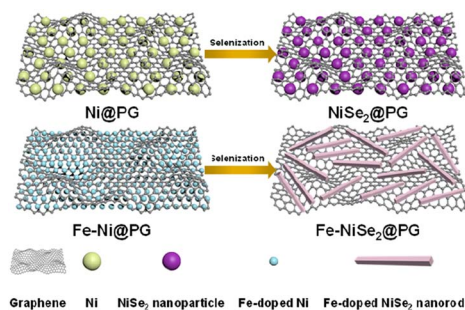
826



### Highly improved aqueous Zn||LiMn<sub>2</sub>O<sub>4</sub> hybrid-ion batteries using poly(ethylene glycol) and manganese sulfate as electrolyte additives

Jingyi Kong, Hanling Guo, Yuan Li, Min Gong, Xiang Lin, Liang Zhang and Dongrui Wang\*

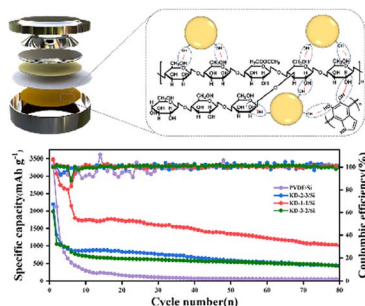
837



### Flexible electrode of Fe-doped NiSe<sub>2</sub>@porous graphene as binder-free anode for lithium-ion batteries

Caiyun Guo, Bo Zhang, Mengru Xiao, Mingming Hao, Liting Zhao, Xiaoting Zhang,\* Hongyan Zhang\* and Rui Wang\*

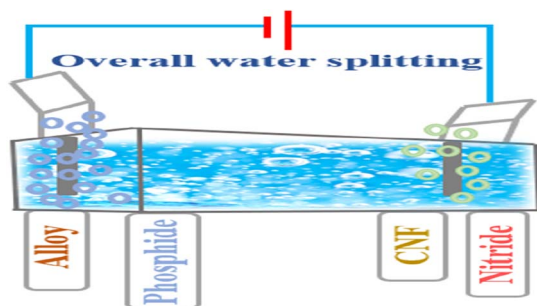
843



### Nanoarchitectonics of 3D-networked bio-based binders for silicon anodes in lithium-ion batteries based on dynamic hydrogen bonding

Liang Yu, Meng Chang, Miaolan Zhang, Yuting Yang, Ken Chen, Tao Jiang, Dean Shi, Qunchao Zhang\* and Jou You\*

852



### Electrospinning construction of a Fe–Ni-based multicomponent hybrid as synergistic electrocatalyst for water electrolysis

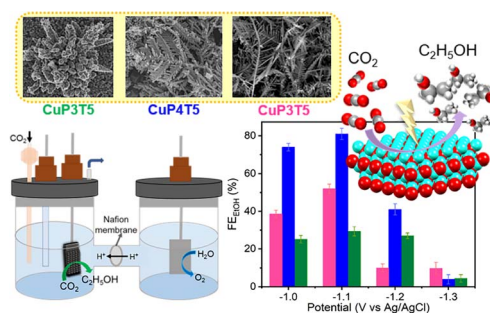
Jinping Wang, Xiaochao Ji, Lili Bo,\* Liucheng Xia, Jiayao Fang, Xiaolin Guan, Haidong Yang and Jinhui Tong\*



863

## Fractal growth of a fern-like nanostructured $\text{Cu}_2\text{O}$ film electrode for electrochemical reduction of $\text{CO}_2$ to ethanol

Deep Lata Singh, Ramasamy Shanmugam, Vineet Mishra and G. Ranga Rao\*



873

## Boosting sugarcane trash decomposition: synergistic action and proximity effect of xylanase and feruloyl esterase co-displayed on the cell surface of *Pichia pastoris* (*Komagataella phaffii*)

Apisarn Phienluphon, Keiko Kondo, Hiroyuki Okano, Takashi Watanabe, Takashi Nagata\* and Masato Katahira\*

