

# Sustainable Energy & Fuels

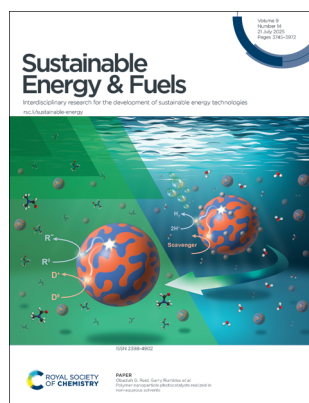
Interdisciplinary research for the development of sustainable energy technologies

[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 9(14) 3745–3972 (2025)



### Cover

See Obadiah G. Reid, Garry Rumbles *et al.*, pp. 3796–3807.

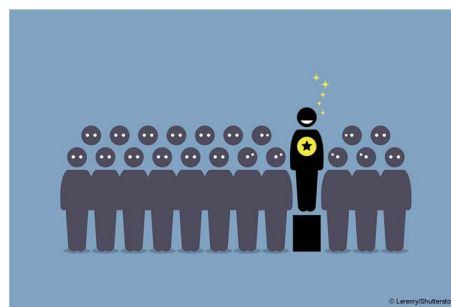
Image reproduced by permission of Mary “Max” M. O’Connor from *Sustainable Energy Fuels*, 2025, 9, 3796.

Molecules by Ben Mills via Wikimedia Commons.

## EDITORIAL

3753

### Outstanding Reviewers for *Sustainable Energy & Fuels* in 2024

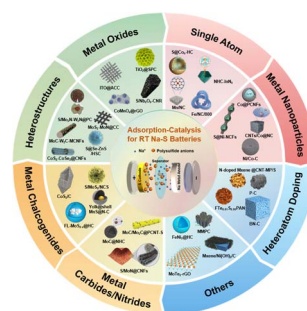


## REVIEW

3754

### Integrated adsorption–catalysis design enabling high-performance sodium–sulfur batteries

Xinghao Zhang, Wanjie Gao, Yufan Chen, Yi Peng, Xi Liu, Xiaohu Yang, Xiaosong Xiong, Jie Wang, Yang Liu, Ao Jia, Yinxu Lu, Yuping Wu and Jiarui He\*



# EES Catalysis

GOLD  
OPEN  
ACCESS

Exceptional research on energy  
and environmental catalysis

Open to everyone. Impactful for all

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

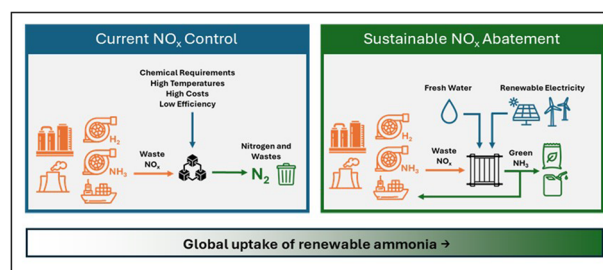
Fundamental questions  
Elemental answers

## PERSPECTIVE

3780

### Navigating the challenges of global $\text{NO}_x$ emissions throughout the energy transition: state of play and outlook

Josh Leverett, William Hadinata Lie, Muhammad Haider Ali Khan, Zhipeng Ma, Rahman Daiyan\* and Rose Amal\*

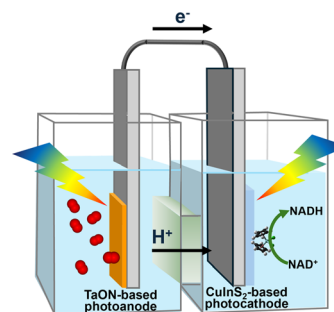


## COMMUNICATION

3791

### Unassisted visible-light-driven NADH regeneration based on a dual-photoelectrode system

Koya Kano, Masanobu Higashi\* and Yutaka Amao\*

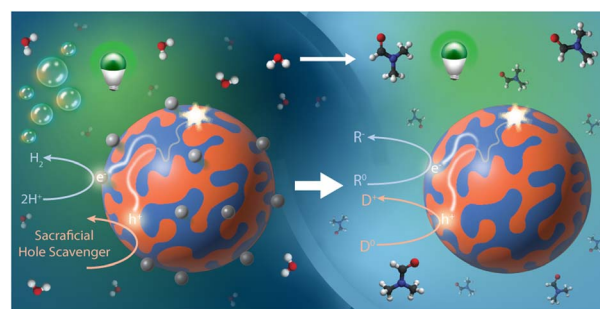


## PAPERS

3796

### Polymer nanoparticle photocatalysts realized in non-aqueous solvents

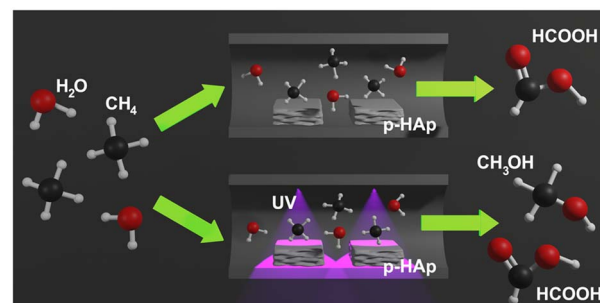
Max M. O'Connor, Steven C. Hayden, Melissa K. Gish, Justin L. Ratkovec, Lily H. Harmon, Yadong Zhang, Stephen Barlow, Seth R. Marder, Obadiah G. Reid\* and Garry Rumbles\*



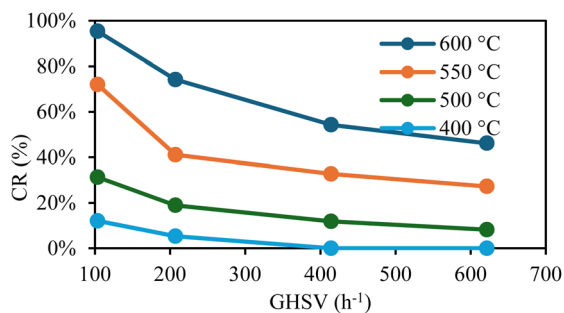
3808

### Sustainable oxidation of methane into formic acid using a polarized bioceramic under mild reaction conditions

Marc Arnau, Jordi Sans,\* Pau Turon\* and Carlos Alemán\*



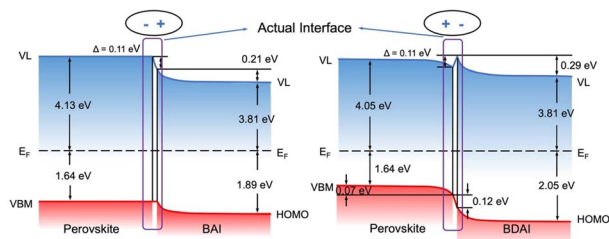
3820



### Experimental study on hydrogen-rich fuel generation *via* ammonia decomposition using a structured catalytic reactor

Payam Shafie,<sup>\*</sup> Marie Mottoul, Alain DeChamplain and Julien Lepine

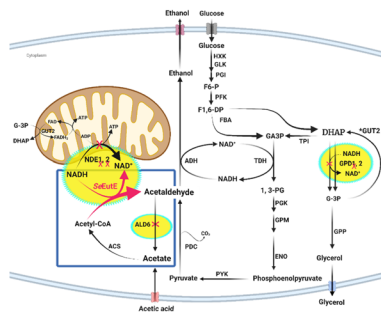
3831



### Dipole orientation-induced interfacial energy level alignment difference in 2D perovskite passivated 3D perovskite by *in situ* investigation

Ruifeng Zheng, Jielei Li, Shengwen Li,<sup>\*</sup> Bingchen He and Shi Chen<sup>\*</sup>

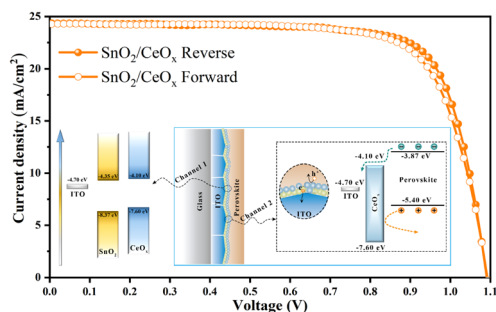
3838



### Engineering a hypoxia-tolerant *Saccharomyces cerevisiae* for rapid ethanol production *via* co-utilization of glucose and acetic acid and redox-enhanced flocculation

Sadat Mohamed Rezk Khattab,<sup>\*</sup> Mohammed Oksh Mohammed Mousa, Takashi Nagata, Takashi Watanabe and Masato Katahira<sup>\*</sup>

3853



### Optimization of a SnO<sub>2</sub>-based electron transport layer using cerium oxide for efficient and stable perovskite solar cells

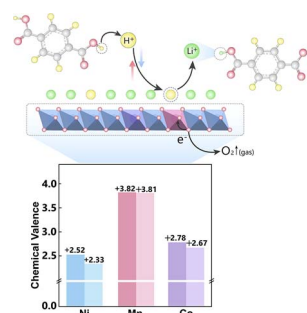
Zhipeng Liu, Zhiwei Gu, Yang Lv, Zhiqin Su, Jian Sun, Linlin Qiu<sup>\*</sup> and Pingfan Du<sup>\*</sup>



3862

### Ultra-high efficient lithium recovery via terephthalic acid from spent lithium-ion batteries

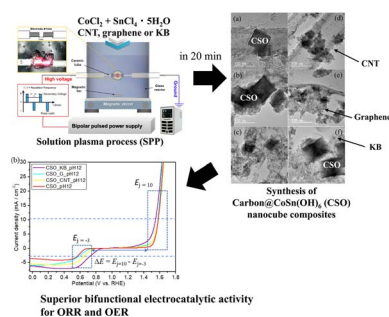
Jiahui Hou, Zexin Wang, Zifei Meng, Jinzhao Fu, Zeyi Yao, Wenting Jin, Xiaotu Ma, Zhenzhen Yang and Yan Wang\*



3875

### Single-step solution plasma synthesis of bifunctional CoSn(OH)<sub>6</sub>-carbon composite electrocatalysts for oxygen evolution and oxygen reduction reactions

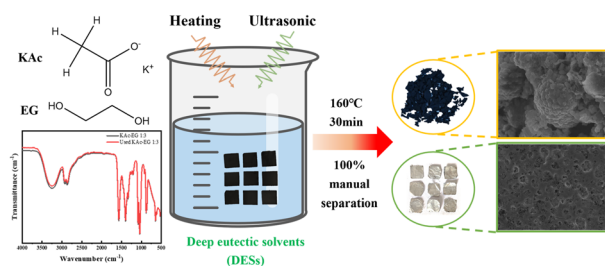
Sangwoo Chae, Akihito Shio, Taketo Imamura, Kouki Yamamoto, Yuna Fujiwara, Gasidit Panomsuwan and Takahiro Ishizaki\*



3889

### Characterization of thermal mass transfer in the separation process of electrode materials from spent lithium-ion batteries using deep eutectic solvents

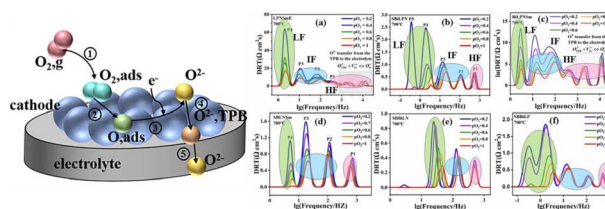
Xiaoxia Wang, Mengmeng Sun, Yu Qiao\* and Zhonghao Rao\*



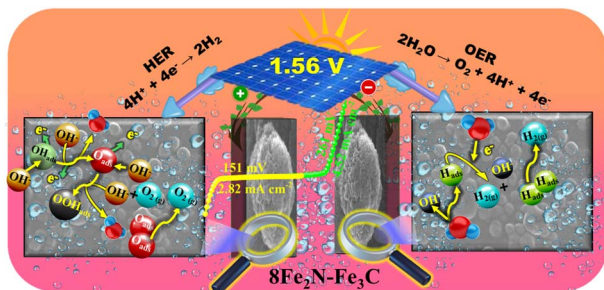
3900

### A-site composition engineering in high-entropy AFeO<sub>3</sub> perovskite SOFC cathodes and unraveling oxygen reduction mechanisms

Zepeng Li,\* Yanfeng Ge, Weilin Jia, Mingrun Du, Xueting Yi, Yu Ma, Jingya Wang, Bo Liu, Yuan Li and Huanbin Li



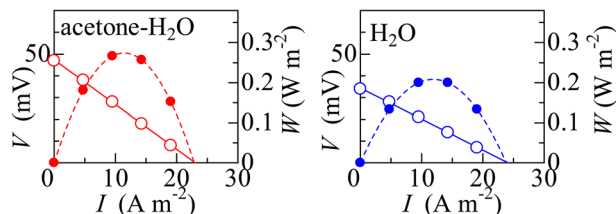
3911



### Exceptional intrinsic bifunctional performance of $\text{Fe}_2\text{N}-\text{Fe}_3\text{C}$ heterostructure and STH efficiency

Mayakrishnan Raj kumar, Dhanasingh Thiruvengadam, Kaliyamoorthy Santhosh kumar, Kuppusamy Rajan, Jayaraman Jayabharathi\* and Manoharan Padmavathy

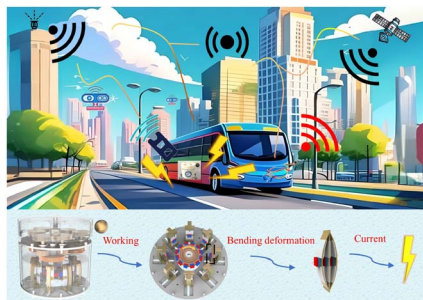
3927



### A liquid thermoelectric converter composed of acetone–water mixed solution with reduced solution resistance

Haruka Yamada, Touya Aiba and Yutaka Moritomo\*

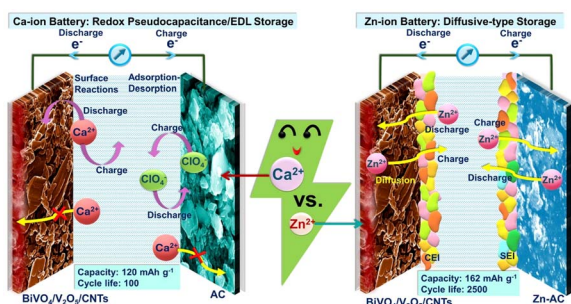
3935



### Design and investigation of a magnetic coupling piezoelectric inertial energy harvesting system for low-power wireless sensors in intercity buses

Zhen Zhao, Xiaohui Zhang, Baifu Zhang,\* Haichuan Cui, Xinjun Li and Enyu He

3954



### $\text{BiVO}_4/\text{V}_2\text{O}_5$ heterostructures for durable and highly reversible calcium- and zinc-ion batteries

Danish Wazir, Souvik Naskar, Priya R. Sharmesh, Partha Ghosal and Melepurath Deepa\*

