

# Sustainable Energy & Fuels

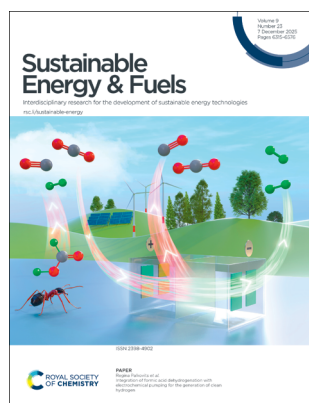
Interdisciplinary research for the development of sustainable energy technologies

[rsc.li/sustainable-energy](https://rsc.li/sustainable-energy)

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**Cover**  
See Regina Palkovits *et al.*, pp. 6439–6446. Image reproduced by permission of RWTH Aachen University from *Sustainable Energy Fuels*, 2025, 9, 6439.



**Inside cover**  
See Angappan Jayanthi and Subramaniam Jayabal, pp. 6324–6353. Image reproduced by permission of Subramaniam Jayabal from *Sustainable Energy Fuels*, 2025, 9, 6324.

## EDITORIAL

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### Introduction to next-generation battery technologies beyond lithium

Chunmei Ban,\* Guillermo A. Ferrero,\* Marta Sevilla\* and Feixiang Wu\*

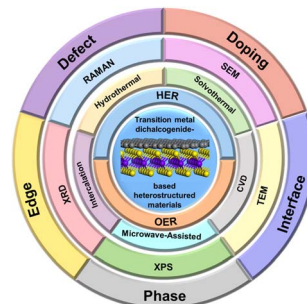


## REVIEWS

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### Recent advances in transition metal dichalcogenide-based heterostructured materials for electrochemical water splitting applications

Angappan Jayanthi and Subramaniam Jayabal\*



# Environmental Science: Atmospheres

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Fundamental questions  
Elemental answers

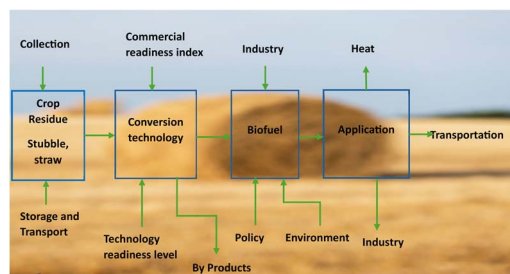


## REVIEWS

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**Feasibility of biofuel production from crop stubble/ straw in Australia: challenges and opportunities**

M. A. Sattar,\* M. A. Hosen and M. Johnstone

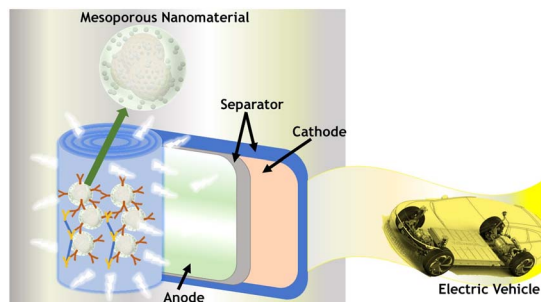


Crop residue to biofuel in Australia

6380

**Recent advances in mesoporous nanostructured materials and nanohybrids for supercapacitor applications: a review**

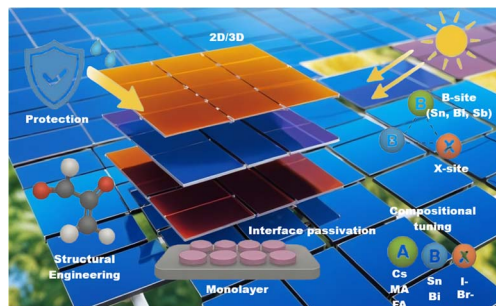
Mayank Pandey,\* Kalim Deshmukh,\* Preetinder Kaur, Ammar Zidan, Süleyman Aşır, Surinder Singh,\* Naveen Kumar, Prasanta Kumar Sahoo, Suresh Sundaramurthy, S. K. Mehta, Deniz Türkmen and Niraj Kumar



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**The role of perovskite composition, dimensionality, and additives in lead-free perovskite solar cell longevity: a review**

Lina Jaya Diguna, Alice Lim, Yuliar Firdaus, Livia Janice Widiapradja, David Hadid Sidiq, Anna Magdalena Melnychenko, Setiyadi Tri Utomo, Arramel Arramel\* and Muhammad Danang Birowosuto\*

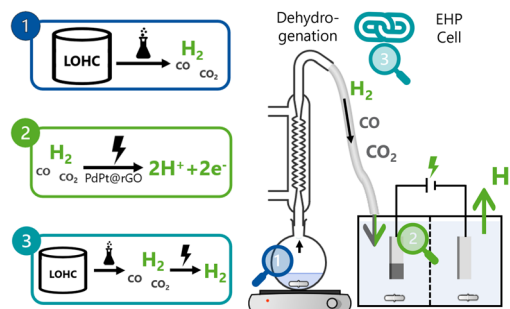


## PAPERS

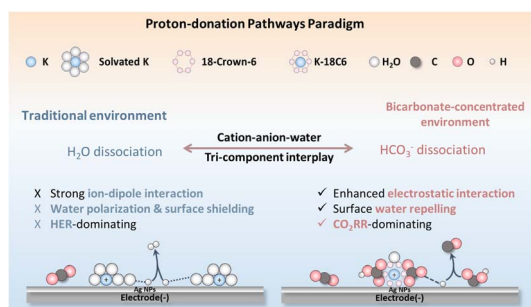
6439

**Integration of formic acid dehydrogenation with electrochemical pumping for the generation of clean hydrogen**

Fabian Ketter, Shwetambara Jha, Sonja D. Mürtz and Regina Palkovits\*



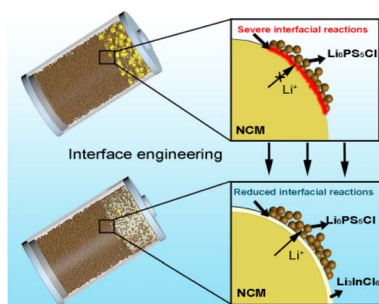
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## Cation solvation engineering for enhanced $\text{CO}_2$ electroreduction

Haoran Zhang, Tianxiang Yan, Akhmat Fauzi, Jianlong Lin, Yaxin Jin, Yihan Xu, Zhanpeng Liang, Tribidasari A. Ivandini and Sheng Zhang\*

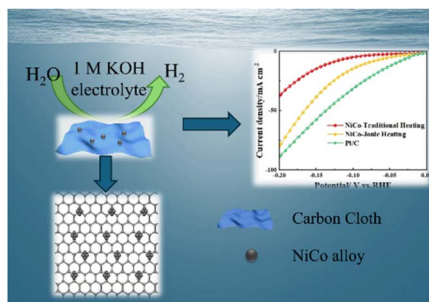
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## Constructing stable cathode interfaces with halide-sulfide dual electrolytes for all-solid-state lithium batteries with enhanced electrochemical performance

Wenzhuang Liu, Jiahao Li, Jinghua Wu\* and Xiayin Yao\*

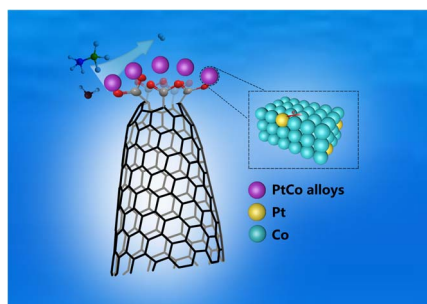
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## Ultrafast synthesis of NiCo alloy catalysts by Joule heating for the electrocatalytic hydrogen evolution reaction

Wence Ma, Zhiyuan Niu, Haidong Wang, Jinlong Li, Kaixin Zhu, Weiguang Ma and Xu Zong\*

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## Dual engineering of electronic structure and nanoconfinement for high-efficiency ammonia borane hydrolysis over PtCo-oxCNH catalysts

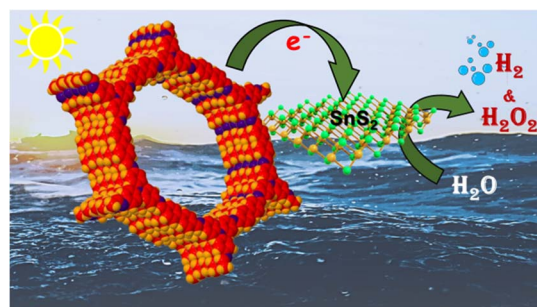
Weixia Li, Wenjing Yi, Runzi Liao, Houfa Chen and Xinzheng Yue\*



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### Visible-light-driven green hydrogen and hydrogen peroxide production using a 2D porous organic polymer engineered with 2D SnS<sub>2</sub>

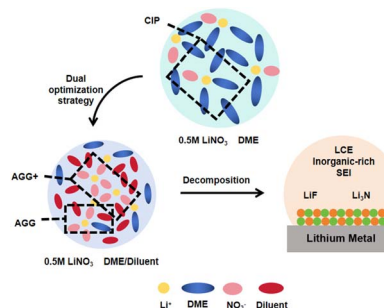
Mainak Sarkar, Pekham Chakraborty, R. V. Singh, Mrinal R. Pai, Mahboob Alam, Sk. Manirul Islam\* and Ahmed Mohamed Tawfeek



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### Low-concentration electrolyte with lithium nitrate as the sole salt for constructing a LiF/Li<sub>3</sub>N inorganic composite SEI and enabling stable lithium metal battery cycling

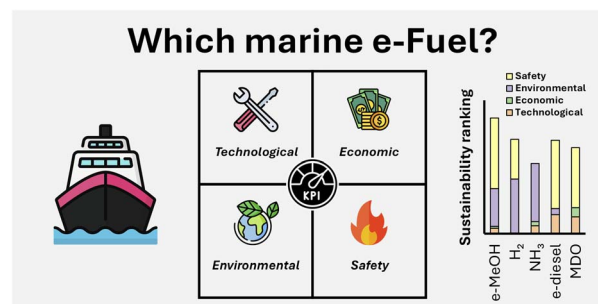
Xuanzhong Wen, Qiu Chen, Pan Luo, Mingshan Wang,\* Li Liao, Yin Shen, Xiaoshuang Luo, Jialin Song, Michael Zaiser\* and Xing Li\*



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### Quantitative sustainability assessment of e-fuels for maritime transport

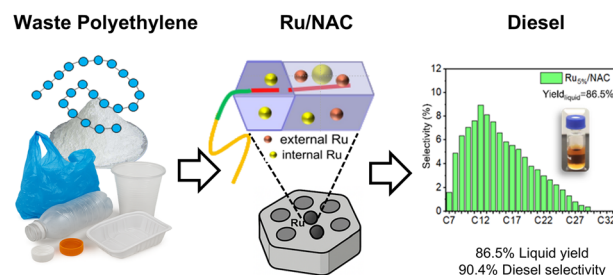
Francesco Zanobetti, Andrea Bernardi, Gianmaria Pio, Diego Freire Ordóñez, David Danaci, Benoît Chachuat,\* Valerio Cozzani and Nilay Shah



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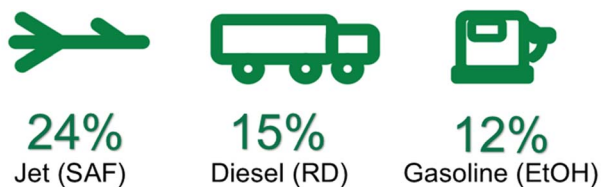
### Upcycling polyethylene into diesel-range hydrocarbons over Ru catalysts confined in thermally stable mesoporous N-doped carbon

Shitong Yu, Zhenghang Ren, Kaige Wang, Rui Xiao, Zhicheng Luo\* and Huiyan Zhang\*



## PAPERS

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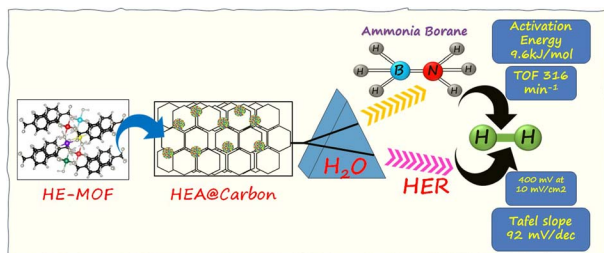
Facility build-out + GREET/LCFS CIs

2035: 3.8 EJ biofuels | -179 MtCO<sub>2</sub>e

### Life cycle greenhouse gas emissions and carbon intensity of U.S. fuel use and projection for the next 10 years-based on built capacity and expansion plans

Tai-Yuan Huang, Doris Oke\* and Troy R. Hawkins

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Unveiling the Multifaceted Potential of HEA@Carbon

### Magnetically recoverable high-entropy alloy catalyst in carbon matrix for ammonia borane-driven hydrogen evolution and electrocatalytic hydrogen production

Manish Ramesh Shingole, Siddhartha Kolay, Asheesh Kumar, P. Ruz, V. Sudarsan and Seemita Banerjee\*

## CORRECTION

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### Correction: Advances and strategies in scalable coating techniques for flexible perovskite solar cells

Hou-Chin Cha, Shih-Han Huang, Chia-Feng Li, Feng-Yu Tsai, Wei-Fang Su\* and Yu-Ching Huang\*

