

# Sustainable Energy & Fuels

Interdisciplinary research for the development of sustainable energy technologies

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

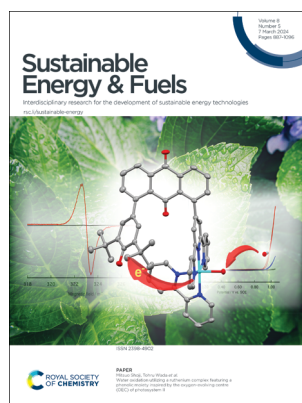
The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 2398-4902 CODEN SEFUA7 8(5) 887–1096 (2024)



**Cover**  
See Unho Jung, Ki Bong Lee, Kee Young Koo *et al.*, pp. 896–904. Image reproduced by permission of Younghee Lee.



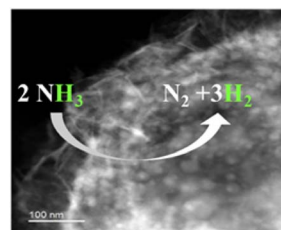
**Inside cover**  
See Mitsuo Shoji, Tohru Wada *et al.*, pp. 905–913. Image reproduced by permission of Tohru Wada from *Sustainable Energy Fuels*, 2024, **8**, 905.

## PAPERS

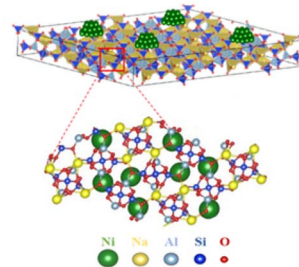
896

### Clean hydrogen production from ammonia decomposition over zeolite 13X-supported Ni catalysts

Jiyu Kim, Kyoung Deok Kim, Unho Jung,\* Yongha Park, Ki Bong Lee\* and Kee Young Koo\*



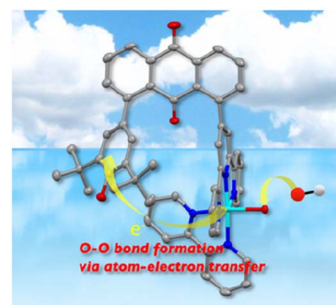
Ni/Zeolite 13X(DP)



905

### Water oxidation utilizing a ruthenium complex featuring a phenolic moiety inspired by the oxygen-evolving centre (OEC) of photosystem II

Yugo Kumagai, Risa Takabe, Takashi Nakazono, Mitsuo Shoji,\* Hiroshi Isobe, Kizashi Yamaguchi, Tomoyo Misawa-Suzuki, Hirotaka Nagao and Tohru Wada\*



# Environmental Science journals

One impactful portfolio for  
every exceptional mind

Harnessing the power of interdisciplinary  
science to preserve our environment

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

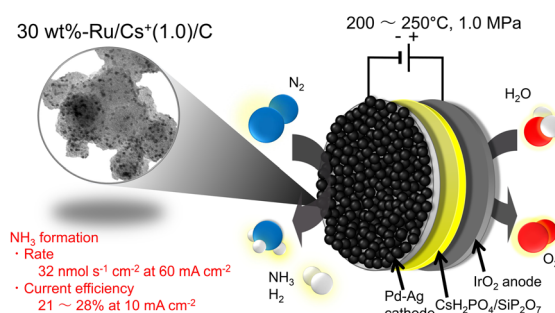
Fundamental questions  
Elemental answers



914

### Ammonia synthesis from nitrogen and steam using electrochemical cells with a hydrogen-permeable membrane and Ru/Cs<sup>+</sup>/C catalysts

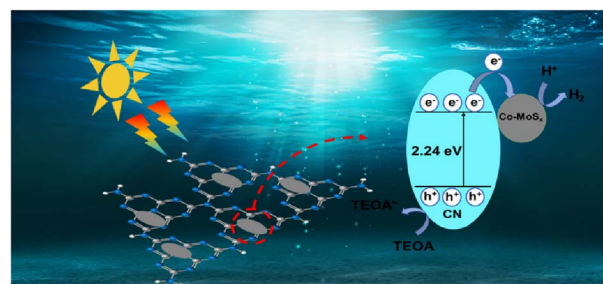
Shintaroh Nagaishi, Rika Hayashi, Aika Hirata, Raisei Sagara and Jun Kubota\*



927

### In situ photodeposition of loaded Co–MoS<sub>x</sub> for promoting visible-light g-C<sub>3</sub>N<sub>4</sub> photocatalytic hydrogen production performance

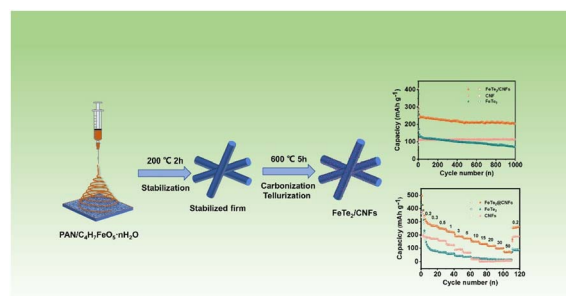
Yonggang Lei, Kim Hoong Ng, Chenyu Zou, Lejun Chen, Yuekun Lai\* and Jianying Huang\*



934

### Constructing FeTe<sub>2</sub> nanoparticles embedded in N-doped carbon nanofiber composites as a long-life and high-rate anode material for sodium-ion batteries

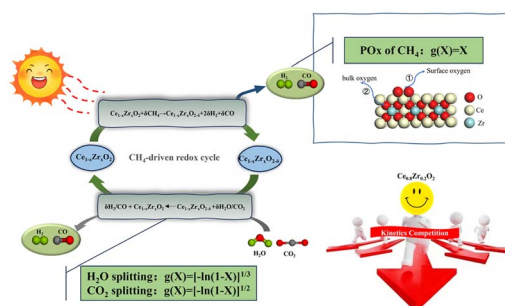
Zihua Lin, Haiyan Zhang,\* Changsheng Yang, Zhenjiang Liu, Daofeng Wen, Xiang Peng, Shengkai Li and Xia Wu



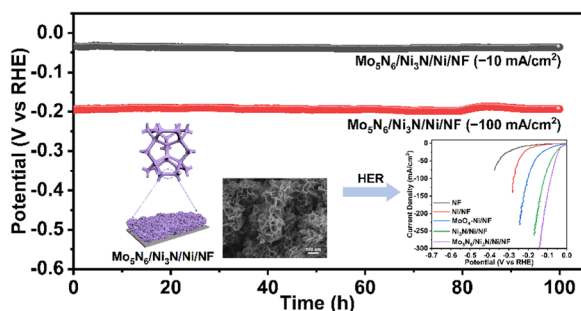
942

### Redox kinetics of ceria–zirconia (Ce<sub>1-x</sub>Zr<sub>x</sub>O<sub>2-δ</sub>) for thermochemical partial oxidation of methane and H<sub>2</sub>O/CO<sub>2</sub> splitting at moderate temperature

Yanxin Liu, Shuting Cen, Changsheng Bu,\* Daoyin Liu and Guilin Piao



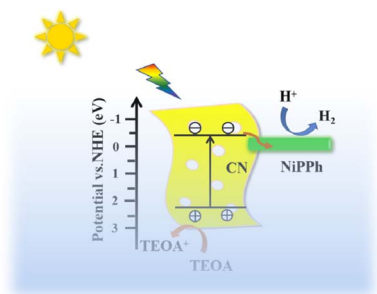
957



### Constructing interfacial structure of $\text{Mo}_5\text{N}_6/\text{Ni}_3\text{N}/\text{Ni}/\text{NF}$ for efficient and stable electrocatalytic hydrogen evolution under alkaline conditions

Yang Zhou, Jing Zhou, Muzaffar Ahmad Boda, Kunfeng Zhao, Haojie Ma, Chenhao Shi, Dingwang Yuan\* and Zhiguo Yi\*

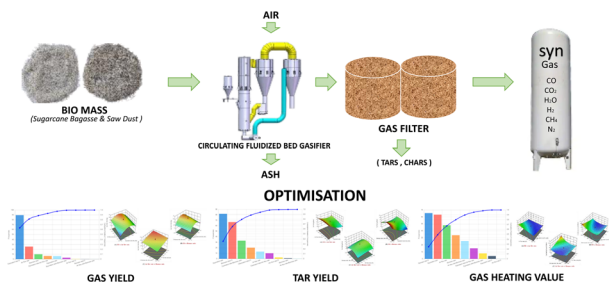
964



### Construction of novel 1D nickel phosphonate nanorod modified 2D g- $\text{C}_3\text{N}_4$ nanosheets for enhanced photocatalytic hydrogen evolution performance

Xin-Lian Song, Sixiang Zhai, Jin-Tao Ren, Lijiao Gao and Zhong-Yong Yuan\*

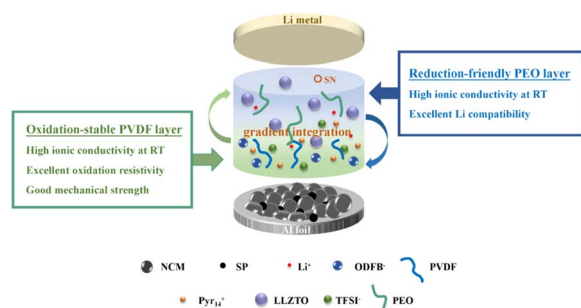
975



### An experimental and response-surface-based optimization approach towards production of producer gas in a circulating fluidized bed gasifier using blends of renewable fibre-based biomass mixtures

Chokkalingam Viswakethu,\* Ramanathan Pichappan, Prakash Perumal and Natrayan Lakshmaiya

987



### Gradient-integrated bilayer solid polymer electrolyte enabling enhanced room-temperature cyclability for rechargeable lithium metal batteries

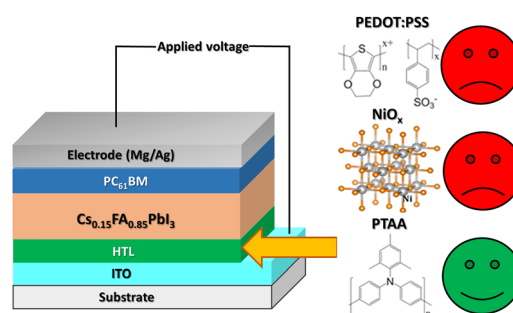
Yan Yuan,\* Xuyi Liu, Kesi Xue, Yaxin Kong, Bin Wang, Huan Liu, Cong Li, Zeyu Li, Yitian Ma and Hai Lu\*



997

## Impact of hole-transport layer materials on the field-induced degradation of p-i-n perovskite solar cells

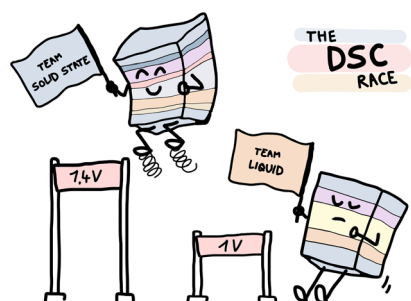
Victoria V. Ozerova, Nikita A. Emelianov,\* Lyubov A. Frolova, Yuri S. Fedotov, Sergey I. Bredikhin, Sergey M. Aldoshin and Pavel A. Troshin



1004

## A solid-state p-n tandem dye-sensitized solar cell

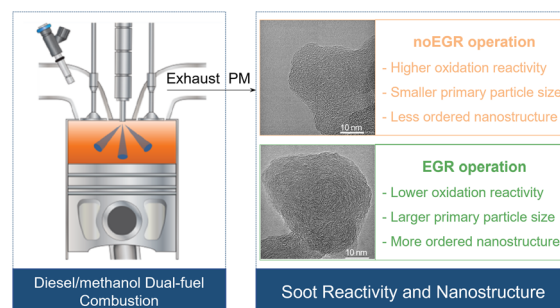
Sina Wrede, Bin Cai, Fangwen Cheng, Malin B. Johansson, Tomas Kubart, Carl Hägglund and Haining Tian\*



1012

## Investigation of the nanostructure and reactivity of soot particulates from diesel/methanol dual-fuel combustion with and without EGR

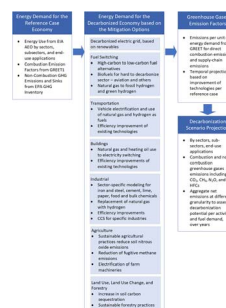
Hao Chen, Zhenhua Ji, Xiaochen Wang,\* Mingzhang Pan, Chengshan Yi and Peng Zhang



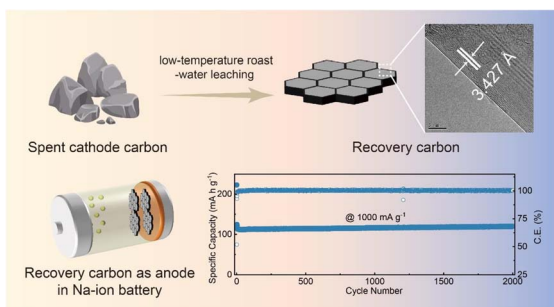
1024

## A deep decarbonization framework for the United States economy – a sector, sub-sector, and end-use based approach

Saurajyoti Kar, Troy R. Hawkins,\* George G. Zaimes, Doris Oke, Udayan Singh, Xinyi Wu, Hoyoung Kwon, Shannon Zhang, Guiyan Zang, Yan Zhou, Amgad Elgowainy, Michael Wang and Ookie Ma



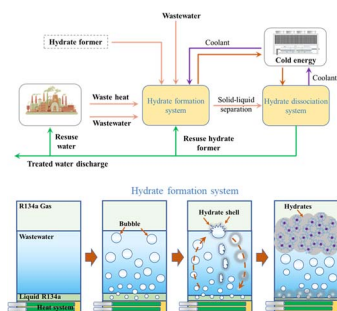
1040



### Stable and fast Na-ion storage of recovered carbon from the spent carbon cathode of aluminum electrolysis

Yao Lu, Zhifan Hua, Chao Chen, Zibo Chen, Xinyi Li, Hailin Yu, Ke Peng\* and Zhongliang Tian\*

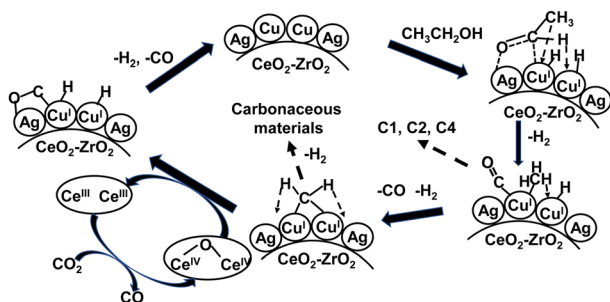
1048



### Low-grade waste heat recovery for wastewater treatment using clathrate hydrate based technology

Lingjie Sun, Aliakbar Hassanpouryouzband,\* Tian Wang, Fan Wang, Lunxiang Zhang,\* Chuanxiao Cheng, Jiafei Zhao and Yongchen Song\*

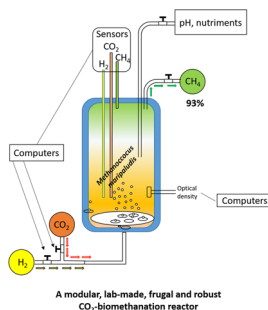
1057



### Reforming of ethanol with carbon dioxide catalysed by silver-promoted copper-ceria-zirconia composites

Naoya Inoue, Yuuki Hatooka, Chihiro Okada, Shiori Shimidzu, Tadanori Hashimoto and Atsushi Ishihara\*

1068



### Development of a CO<sub>2</sub>-biomethanation reactor for producing methane from green H<sub>2</sub>

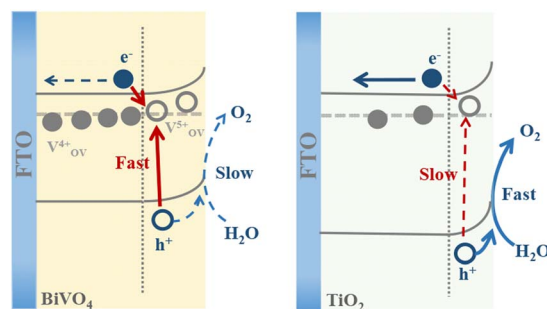
Grégory Cwicklinski,\* Roger Miras, Julien Pérard, Clara Rinaldi, Elisabeth Darrouzet and Christine Cavazza\*



1077

## Charge carrier dynamics of surface back electron/hole recombination in BiVO<sub>4</sub> and TiO<sub>2</sub> photoanodes

Wenjun Zhu, Yuling Yuan and Yimeng Ma\*



1085

## High performance alkyl dialkoxyalkanoate bioderived transportation fuels accessed using a mild and scalable synthetic protocol

Nicholas R. Myllenbeck,\* Eric Monroe, Mysha Sarwar, Teresa Alleman, Cameron Hays, Jon Luecke, Junqing Zhu, Charles McEnally, Lisa Pfefferle, Anthe George and Ryan W. Davis

