

# Sustainable Energy & Fuels

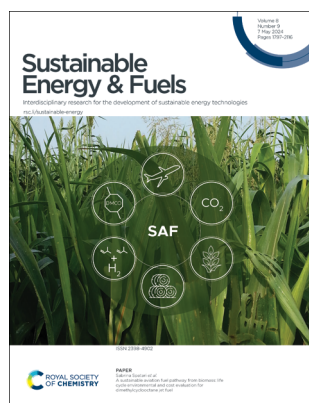
Interdisciplinary research for the development of sustainable energy technologies

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## IN THIS ISSUE

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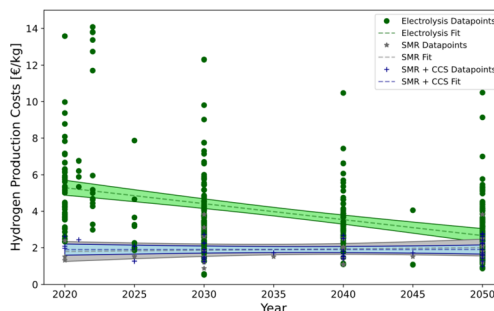
**Cover**  
See Sabrina Spatari *et al.*, pp. 1924–1935. Image reproduced by permission of Sabrina Spatari from *Sustainable Energy Fuels*, 2024, 8, 1924.

## REVIEWS

1806

### Future costs of hydrogen: a quantitative review

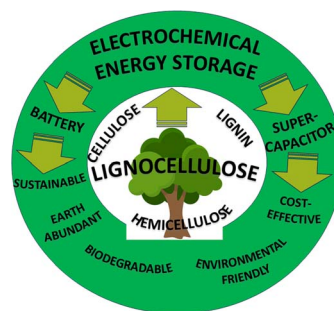
Florian Frieden\* and Jens Leker



1823

### Lignocellulosic biomass-based materials: a promising resource for viable energy storage

Md. Merajul Islam



# RSC Sustainability

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Fundamental questions  
Elemental answers

## REVIEWS

1872

### Design and development of nanostructured photocatalysts for large-scale solar green hydrogen generation

Pratyush Kumar Sahu, Aslisha Champati, Abanti Pradhan\* and Brundabana Naik\*

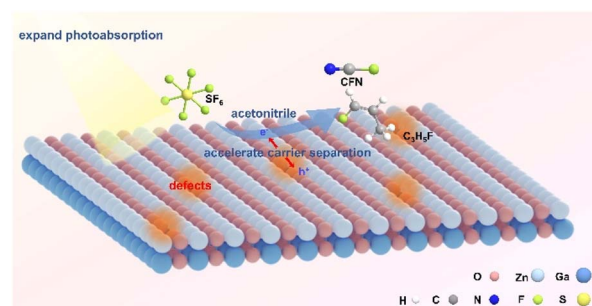


## COMMUNICATION

1918

### Boosted photoconversion of SF<sub>6</sub> over defective ZnGa<sub>2</sub>O<sub>4</sub> nanosheets under mild conditions

Shan Zhu, Yue Zhao, Fengxiang Ma, Yue Yin, Weijia Shi, Feng Zhu, Wenya Fan, Peijin Du\* and Jinyu Ding\*

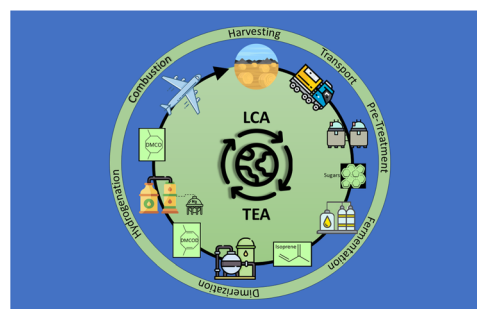


## PAPERS

1924

### A sustainable aviation fuel pathway from biomass: life cycle environmental and cost evaluation for dimethylcyclooctane jet fuel

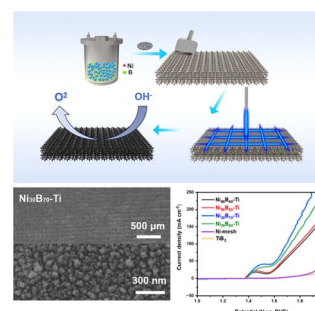
Rahamim Batten, Mukund Karanjikar and Sabrina Spatari\*



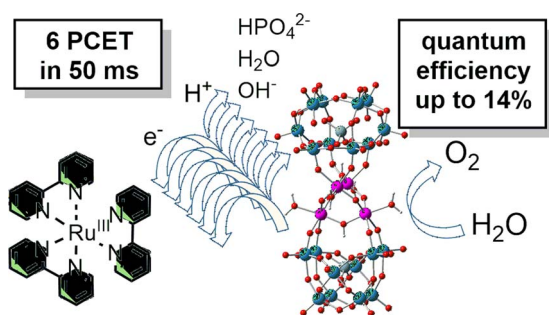
1936

### A facile strategy of "laser-direct-writing" to develop self-supported Ni<sub>30</sub>B<sub>70</sub>-Ti catalysts for boosted and durable alkaline oxygen evolution

Yiming Gao, Shengli Zhu, Zhenduo Cui, Zhaoyang Li, Shuilin Wu, Zhonghui Gao, Wence Xu, Meiqing Guo, Yanqin Liang\* and Hui Jiang\*



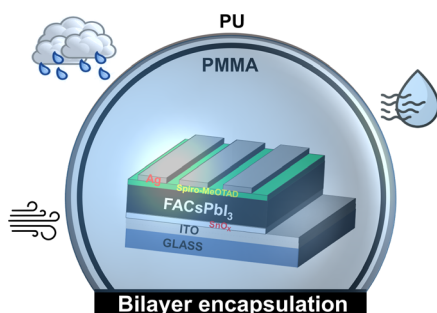
1944



### Sequential proton coupled electron transfer events from a tetraruthenium polyoxometalate in photochemical water oxidation

Elena Rossin, Marcella Bonchio, Mirco Natali\* and Andrea Sartorel\*

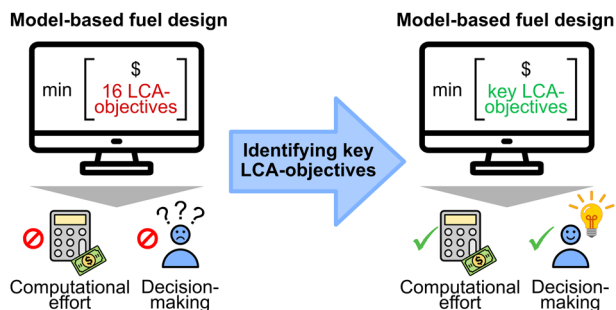
1953



### Facile and scalable bilayer polymer encapsulation to achieve long-term stability of perovskite solar cells under harsh humidity conditions

Rohith Kumar Raman, Saraswathi Ganesan, Ananthan Alagumalai, Vidya Sudhakaran Menon, Suresh Krishnan, Senthil A. Gurusamy Thangavelu and Ananthanarayanan Krishnamoorthy\*

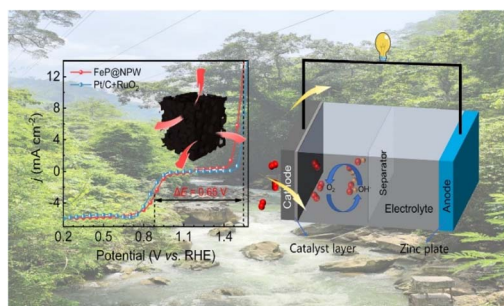
1966



### Identifying key environmental objectives for integrated process and fuel design

Simon Voelker, Philipp Ackermann, Marcel Granderrath, Clemens Kortmann, Joern Viell, Alexander Mitsos and Niklas von der Assen\*

1983



### Chemical fabrication and synergistic mechanism of N-doped carbon modified with FeP as catalysts for flexible rechargeable Zn-air batteries

Xianli Wu, Ting Zhou, Guosheng Han, Shuling Liu, Mengmeng Cao, Shuqi Li, Jiawen Wang, Yanyan Liu,\* Jianchun Jiang, Yongfeng Wang and Baojun Li



1992

## Multi-period optimization of hydrogen refueling station layouts considering refueling satisfaction and hydrogen fuel cell vehicle market diffusion

Yan Zhou, Xunpeng Qin\* and Wenlong Yang

Upper-level Planning: Multi-period HRS Location Optimization by the Decision-Maker

Objective:  $\max\{\text{Vehicle flow intercepted by the HRS}\}$   
 Decisions: (1) Number of HRSs constructed per period  
 (2) Location of HRSs  
 (3) Capacity of HRSs

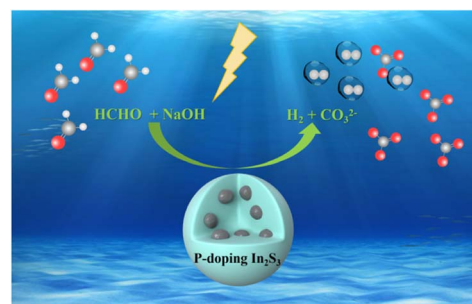
Lower-level Planning: Hydrogen Refueling Strategy

Objective:  $\max\{\text{HFCV refueling satisfaction on all paths}\}$   
 Decisions: (1) Hydrogen Refueling Strategy  
 (2) Hydrogen Refueling Amount

2010

## Phosphorus-doped $\text{In}_2\text{S}_3$ with rich sulfur vacancies toward efficient photocatalytic hydrogen production from formaldehyde solution

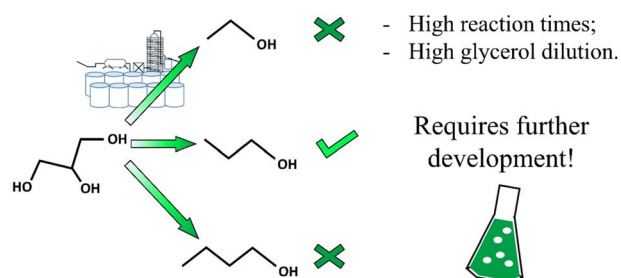
Jing Sui, Zhengxin Peng, Nan Lu, KaiCheng Qian, Xiaofan Zhang, Tong Wei, Renhong Li and Xiaoqing Yan\*



2019

## Biochemical production of short-chain alcohols from glycerol: process simulation and economic evaluation

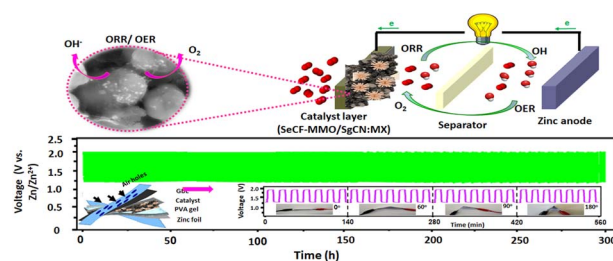
Lia G. M. Albuquerque, Raquel M. Cavalcante and André F. Young\*



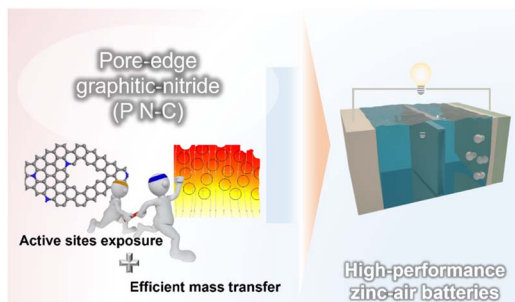
2038

## Selenium-doped mixed metal oxide nanoparticles decorated on $\text{g-C}_3\text{N}_4$ and MXene sheets as promising bifunctional oxygen electrocatalysts for rechargeable Zn-air batteries

Mohadese Rastgoo-Deylami, Ali Esfandiar\* and Valeri P. Tolstoy



2050

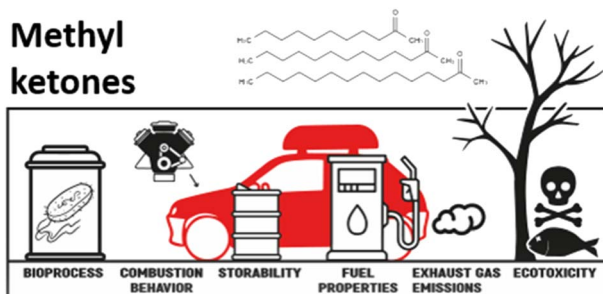


### Pore-edge graphitic nitride-dominant hierarchically porous carbons for boosting oxygen reduction catalysis

Lilai Liu, Youzheng Wu, Hui Wang, Xueying Yang, Weirun Zhu, Shuanshan Ma, Xiangyu Lu, Yaqiang Li, Penghui Ren,\* Peixia Yang\* and Ruopeng Li\*

2059

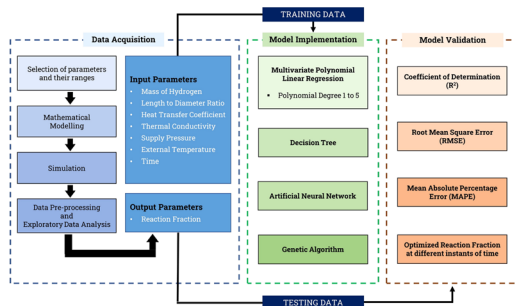
### Methyl ketones



### Methyl ketones: a comprehensive study of a novel biofuel

Carolin Grütering, Christian Honecker, Marius Hofmeister, Marcel Neumann, Lukas Raßpe-Lange, Miaomiao Du, Bastian Lehrheuer, Maximilian von Campenhausen, Franziska Schuster, Maximilian Surger, Birgitta E. Ebert, Andreas Jupke, Till Tiso, Kai Leonhard, Katharina Schmitz, Stefan Pischinger and Lars M. Blank\*

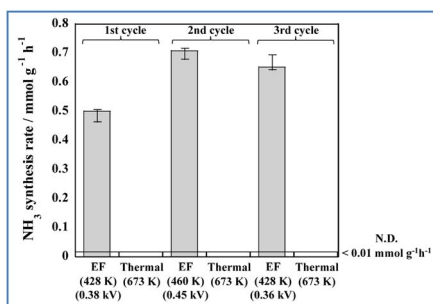
2073



### Machine learning modelling and optimization for metal hydride hydrogen storage systems

Abhijit Kumar, Saurabh Tiwari,\* Nandlal Gupta and Pratibha Sharma

2087



### Air-stable iron phosphide catalysts for electric field-assisted low-temperature ammonia synthesis

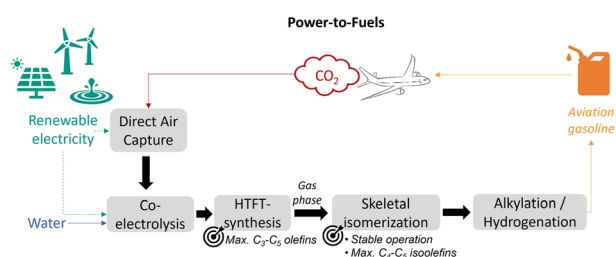
Ryuku Maeda, Hiroshi Sampei, Tomohiro Tsuda, Hiromu Akiyama, Yuta Mizutani, Takuma Higo, Hideaki Tsuneki, Takato Mitsudome\* and Yasushi Sekine\*



2094

## Coupling the high-temperature Fischer–Tropsch synthesis and the skeletal isomerization reaction at optimal operation conditions in the Power-to-Fuels process route for the production of sustainable aviation gasoline

Dorela Dhamo,\* Jannis Kühn, Simon Lüttin, Michael Rubin and Roland Dittmeyer



2104

## Influence of Ru-substitution on the performance of pyrochlore catalysts in oxidative steam reforming of ethanol

Yu-Hsuan Huang, Ho-Chen Hsieh, Yun-Hsin Wang, Sheng-Feng Weng and Chi-Shen Lee\*

