

# 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(14) 2993–3194 (2024)



### Cover

See Emmanuel Canales *et al.*, pp. 3036–3047. Image reproduced by permission of George Huber from *Sustainable Energy Fuels*, 2024, 8, 3036. Cover art was created by Xin Zou.



### Inside cover

See Mrigendra Dubey *et al.*, pp. 3015–3019. Image reproduced by permission of Mrigendra Dubey from *Sustainable Energy Fuels*, 2024, 8, 3015.

## PERSPECTIVE

3001

### Future perspectives in green hydrogen production by catalyzed sono-photolysis of water

Piergiorgio Domenighini,\* Ferdinando Costantino, Pier Luigi Gentili, Anna Donnadio, Morena Nocchetti, Alceo Macchioni, Federico Rossi and Franco Cotana

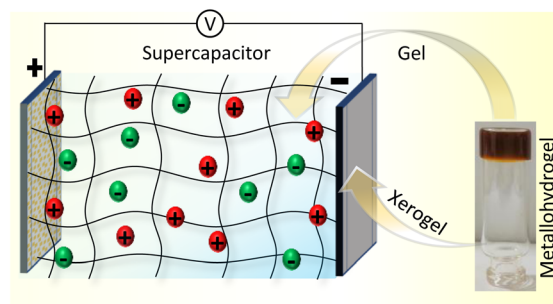


## COMMUNICATIONS

3015

### Electrochemical performance of a Li<sup>+</sup>-enriched metallohydrogel as an electrolyte and electrode material for supercapacitors

Yeeshu Kumar, Moupia Mukherjee, Manish Kumar Dixit, Abul Kalam and Mrigendra Dubey\*



# Environmental Science: Atmospheres

GOLD  
OPEN  
ACCESS

Connecting communities  
and inspiring new ideas

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

Fundamental questions  
Elemental answers



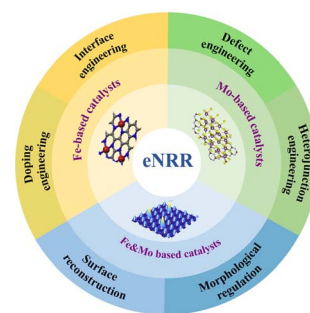


## COMMUNICATIONS

3020

**Recent advances in Fe, Mo-based electrocatalysts for nitrogen reduction under ambient conditions**

Xiaoyu Li, Yutong Yang, Qin Ding and Yin Wang\*

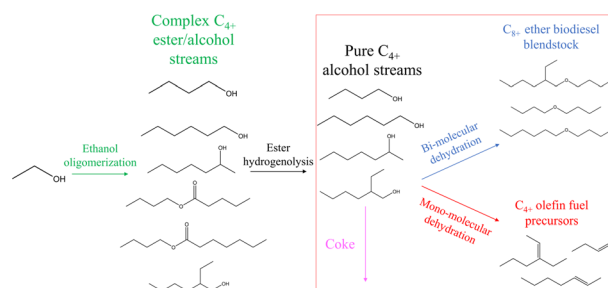


## PAPERS

3036

**Production of drop-in biodiesel blendstocks via competitive acid-catalyzed dehydration reactions using ethanol oligomerization products**

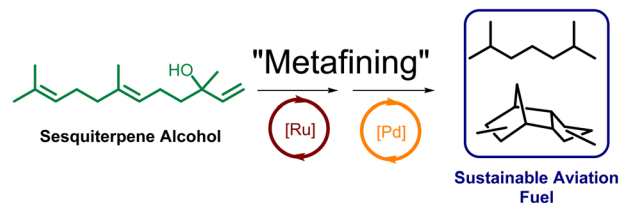
Emmanuel Canales, Samuel C. Hower, Daniel Paul Li, Aditya Tambe, David Rothamer and George W. Huber



3048

**"Metafining" of nerolidol with a Grubbs-Hoveyda catalyst to generate high-performance sustainable aviation fuels**

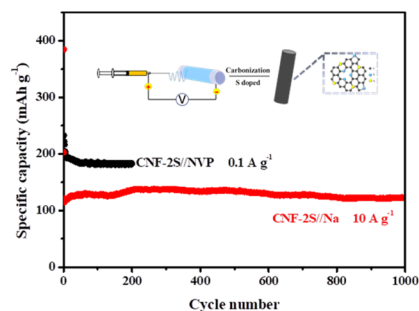
C. Luke Keller, Christopher J. Walkling, Derek D. Zhang and Benjamin G. Harvey\*



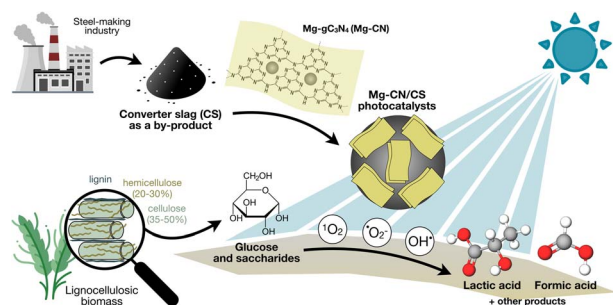
3056

**Sulfur-doped carbon nanofibers as stable and high performance anode materials for sodium-ion batteries**

Mengwei Lu, Ying Huang,\* Xianping Du and Xitong Sheng



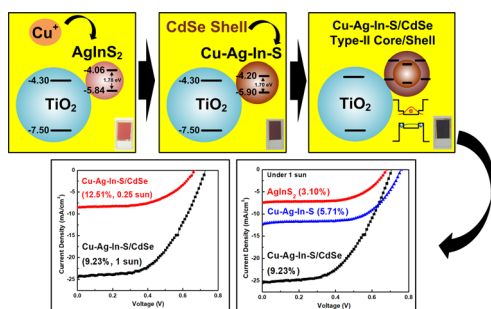
3065



### Mg-modified graphitic carbon nitride/converter slag composites as an efficient photocatalyst for sugar conversion

Assadawoot Srikhaow, Chitiphon Chuaicham, Jirawat Trakulmututa, Kaiqian Shu and Keiko Sasaki\*

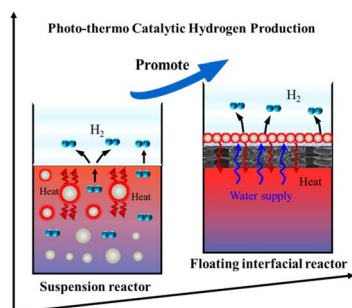
3077



### Cu-mediated broadening of the absorption band of quaternary Cu-Ag-In-S/CdSe type-II core/shell quantum dot-sensitized solar cells with an efficiency of 12.51% under 0.25 sun

Siti Utari Rahayu, Andy Candra, Jen-Bin Shi and Ming-Way Lee\*

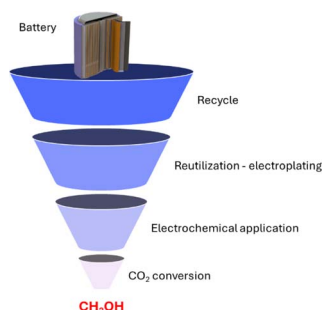
3092



### Photo-thermo-catalytic hydrogen production by an interfacial reactor with potassium-doped polymeric carbon nitride/titanium nitride

Dechao Wang, Hang Zhao, Jianglin Tu, Xun Zhu, Dingding Ye, Yang Yang, Hong Wang, Rong Chen\* and Qiang Liao

3104



### Recycling spent batteries to green innovation: a CuCo-based composite as an electrocatalyst for CO<sub>2</sub> reduction

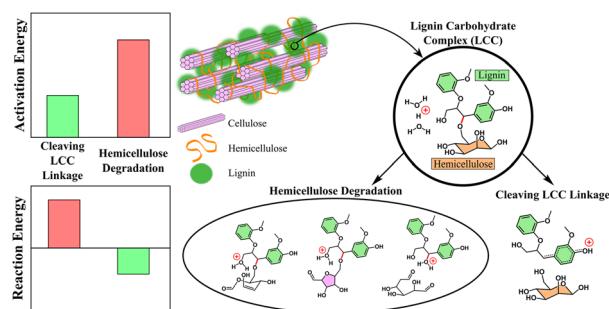
Jean C. da Cruz, Ricardo M. e Silva, Gelson T. S. T. da Silva, Lucia H. Mascaro and Caue Ribeiro\*



3113

## Reaction pathways and energetics of the deconstruction of lignin carbohydrate complexes (LCCs) in lignocellulosic biomass

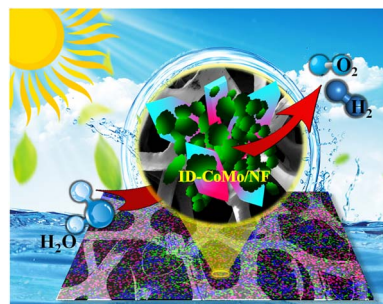
Seth Beck and Samir H. Mushrif\*



3124

## Design strategy of encapsulated nanoplates and nanorods (ID-CoMo): enhanced catalytic activity and sustainability for overall & solar cell water splitting

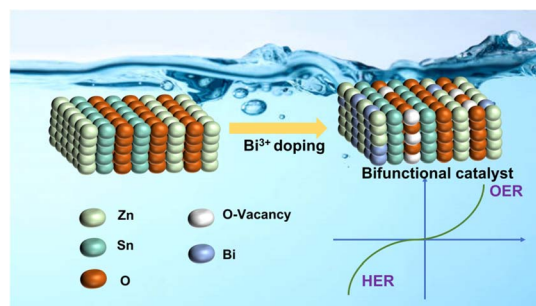
Muthukumaran Sangamithirai, Murugan Vijayarangan, Arunagiri Gayathri, Murugan Muthamildevi and Jayaraman Jayabharathi\*



3136

## Enhanced electrocatalytic performance of bismuth-doped zinc stannate towards OER and HER through oxygen vacancies: p-block metal ion doping empowering d-block

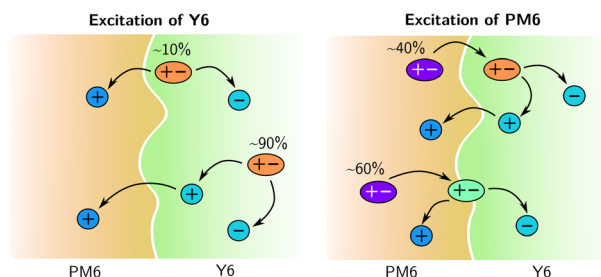
Reshmi T. Parayil, Santosh K. Gupta,\* Kalpana Garg, Sangeeta Jangra, Soumen Samanta, K. Sudarshan, M. Mohapatra and Tharamani C. Nagaiah\*



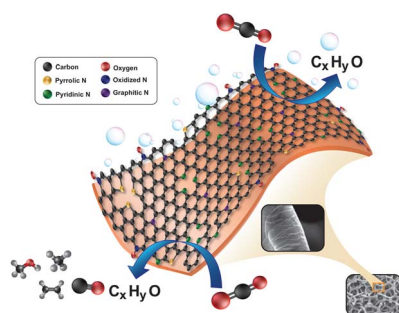
3145

## From light to hydrogen: the complete life cycle of free charges in photocatalytic nanoparticles

Jessica M. de la Perrelle, Rohan J. Hudson, Andrew Dolan, Sanjib Jana, Xun Pan, Mats R. Andersson, Howe-Siang Tan, Zuhur H. Alotaibi, Gunther G. Andersson, Trevor A. Smith, David M. Huang and Tak W. Kee\*



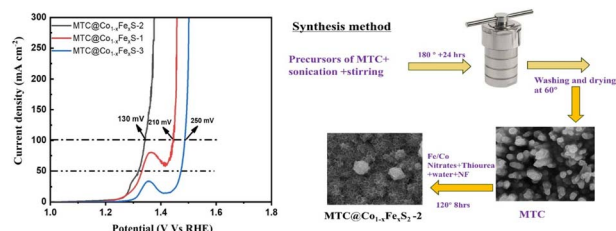
3164



### Selective conversion of carbon dioxide to formate using few-layer nitrogen-doped graphene on copper foam with enhanced suppression of the hydrogen evolution reaction

Thanthita Sasipatworakarn, Daranphop Pikulrat, Kan Homlamai, Salatan Duangdangchote and Montree Sawangphruk\*

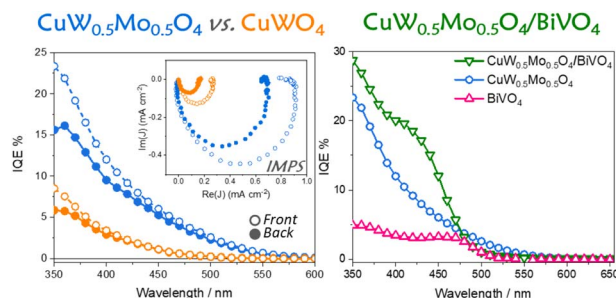
3174



### Boosting oxygen evolution with electrodes composed of metal sulfides and hydrogen bonded organic frameworks

Hina Naz, Rai Nauman Ali, Waqar Ahmad Qureshi, Amjad Ali, Nyaaba Akeno Albert and Guoxing Zhu\*

3182



### Improving the photoelectrocatalytic efficiency of $\text{CuWO}_4$ through molybdenum for tungsten substitution and coupling with $\text{BiVO}_4$

Annalisa Polo, Maria Vittoria Dozzi,\* Gianluigi Marra, Kevin Sivula and Elena Selli

