

# EES Catalysis

rsc.li/eescatalysis

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

eISSN 2753–801X CODEN ECEACE 2(5) 1029–1178 (2024)



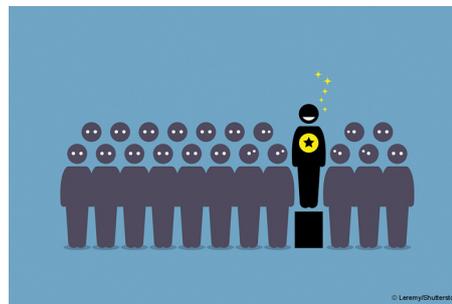
### Cover

See Calvin Mukarakate *et al.*, pp. 1059–1071. Image reproduced by permission of Alliance for Sustainable Energy, LLC from *EES Catal.*, 2024, 2, 1059.

## EDITORIAL

1036

### Outstanding Reviewers for *EES Catalysis* in 2023

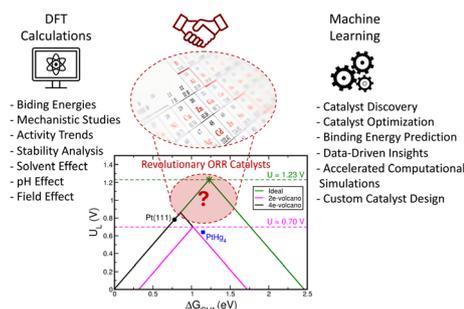


## REVIEW

1037

### Revolutionizing ORR catalyst design through computational methodologies and materials informatics

Lanna E. B. Lucchetti, James M. de Almeida and Samira Siahrostami\*



# 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

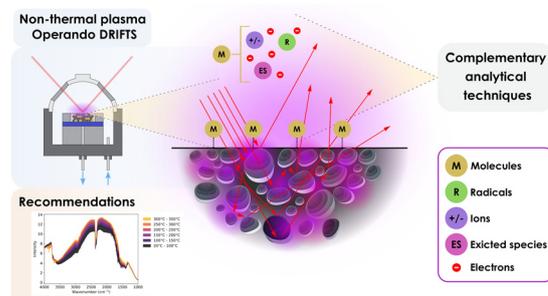


## PERSPECTIVES

1059

Exploring opportunities in *operando* DRIFTS and complementary techniques for advancing plasma catalysis

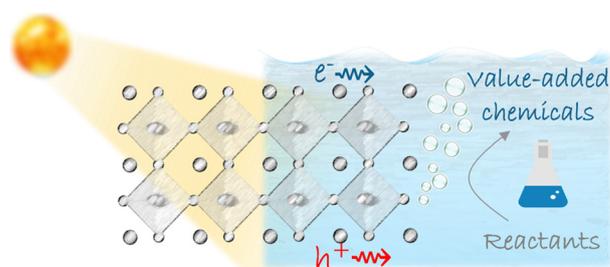
Stefano Dell'Orco, Noemi Leick, Jeffrey L. Alleman, Susan E. Habas and Calvin Mukarakate\*



1072

## Shining light on hybrid perovskites for photoelectrochemical solar to fuel conversion

Sudhanshu Shukla,\* Vishal Jose and Nripan Mathews\*

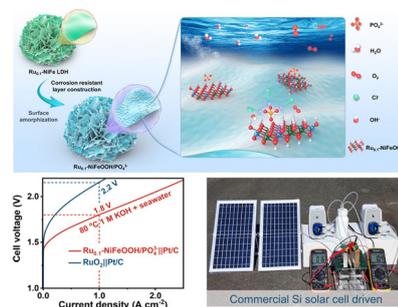


## COMMUNICATION

1092

## Surface amorphization and functionalization of a NiFeOOH electrocatalyst for a robust seawater electrolyzer

Hao Wang, Nannan Jiang, Bing Huang, Qiangmin Yu\* and Lunhui Guan\*

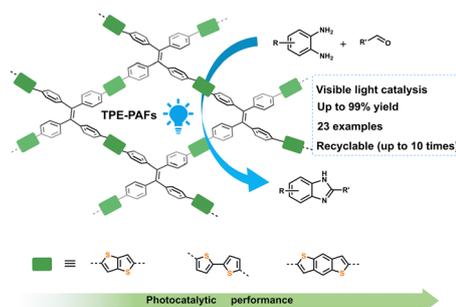


## PAPERS

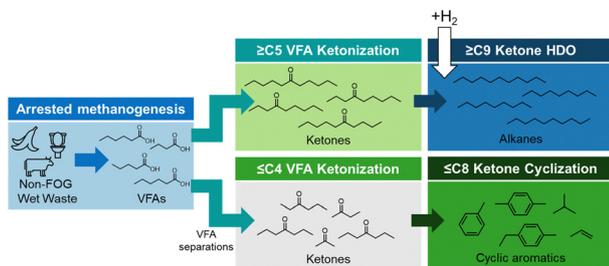
1100

## Enhanced photocatalytic performance of tetraphenylethylene-based porous aromatic frameworks by bandgap adjustment for the synthesis of benzimidazoles

He Wang, Xinmeng Xu, Linzhu Cao, Zhenwei Zhang, Jiali Li, Xiaoming Liu, Xin Tao\* and Guangshan Zhu



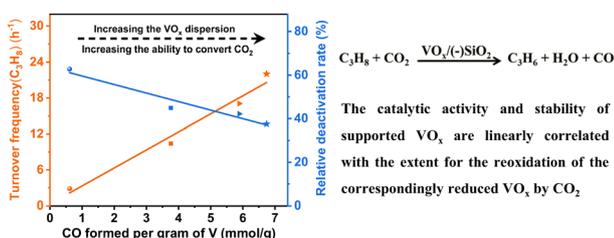
1111



### Catalytic upgrading of wet waste-derived carboxylic acids to sustainable aviation fuel and chemical feedstocks

Jacob H. Miller,\* Mayadhin Al Abri, Jim Stunkel, Andrew J. Koehler, Matthew R. Wiatrowski, Robert L. McCormick, Gina Fioroni, Jon Luecke, Cheyenne Paeper and Martha Arellano-Treviño

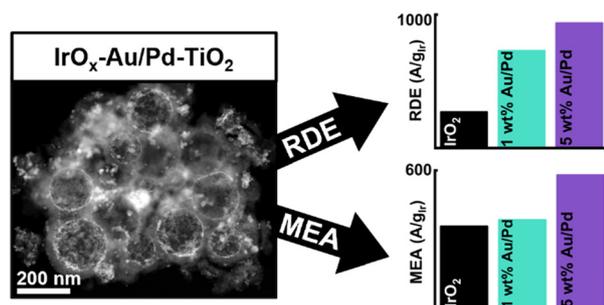
1126



### Bridging the structural gap of supported vanadium oxides for oxidative dehydrogenation of propane with carbon dioxide

Li Wang, Heng-Bo Zhang, Rongrong Hu, Han-Qing Ge, Yong-Hong Song, Guo-Qing Yang,\* Yuefeng Li, Zhao-Tie Liu and Zhong-Wen Liu\*

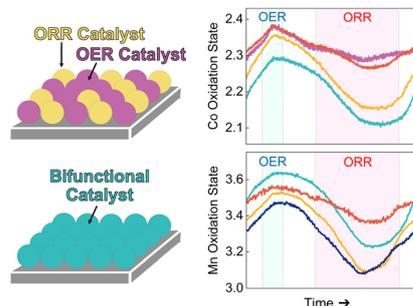
1139



### Active and highly durable supported catalysts for proton exchange membrane electrolyzers

Debora Belami, Matthew Lindley, Umesh S. Jonnalagadda, Annie Mae Goncalves Bullock, Qianwenhao Fan, Wen Liu, Sarah J. Haigh, James Kwan, Yagya N. Regmi\* and Laurie A. King\*

1152



### Designing bifunctional perovskite catalysts for the oxygen reduction and evolution reactions

Casey E. Beall, Emiliana Fabbri,\* Adam H. Clark, Vivian Meier, Nur Sena Yüzbası, Thomas Graule, Sayaka Takahashi, Yuto Shirase, Makoto Uchida and Thomas J. Schmidt



1164

## High photocatalytic yield in the non-oxidative coupling of methane using a Pd–TiO<sub>2</sub> nanomembrane gas flow-through reactor

Victor Longo, Luana De Pasquale, Francesco Tavella, Mariam Barawi, Miguel Gomez-Mendoza, Víctor de la Peña O'Shea, Claudio Ampelli, Siglinda Perathoner, Gabriele Centi and Chiara Genovese\*

