

# 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(4) 877–1028 (2024)



### Cover

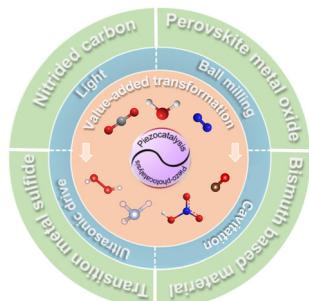
See Jan Rossmeisl,  
María Escudero-Escribano  
*et al.*, pp. 941–952.  
Image reproduced  
by permission of  
Jack Kirk Pedersen  
from *EES Catal.*,  
2024, 2, 941.

## REVIEW

884

### Advancements and opportunities in piezo-(photo)catalytic synthesis of value-added chemicals

Weiliang Qi, Yaping Fu, Enbo Liu, Zhixing Cheng,  
Yuxiu Sun, Siqi Liu and Minghui Yang\*



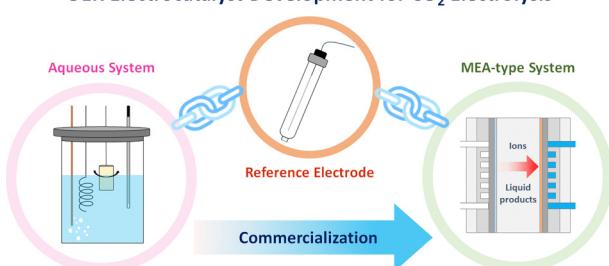
## PERSPECTIVE

911

### Direction of oxygen evolution reaction electrocatalyst evaluation for an anion exchange membrane $\text{CO}_2$ electrolyzer

Seontaek Kwon, Tae-Hoon Kong, Namgyoo Park,  
Pandiarajan Thangavel, Hojeong Lee, Seokmin Shin,  
Jihoo Cha and Youngkook Kwon\*

### OER Electrocatalyst Development for $\text{CO}_2$ Electrolysis



# ChemComm

Uncover new possibilities  
with outstanding  
preliminary research

Original discoveries, fuelling  
every step of scientific progress

[rsc.li/chemcomm](http://rsc.li/chemcomm)

Fundamental questions  
Elemental answers

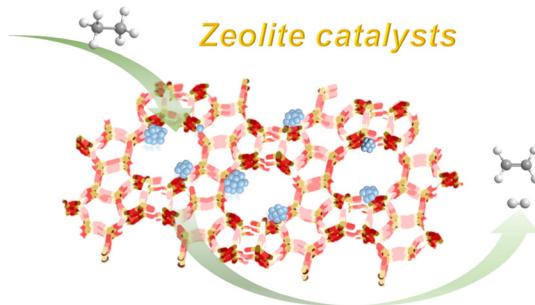
Published on 27/5/2025 at 14:44 PM under a Creative Commons Attribution 3.0 Unported Licence.

## MINIREVIEW

923

**Zeolite catalysts for non-oxidative ethane dehydrogenation to ethylene**

Lu Liu, Liang Wang\* and Feng-Shou Xiao\*

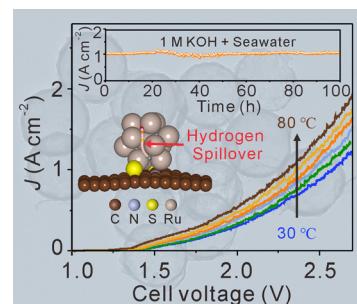


## COMMUNICATION

932

**Sulfur-regulated metal–support interaction boosting the hydrogen evolution performance of Ru clusters in seawater at industrial current densities**

Ranran Tang, Ping Yan, Yitong Zhou\* and Xin-Yao Yu\*

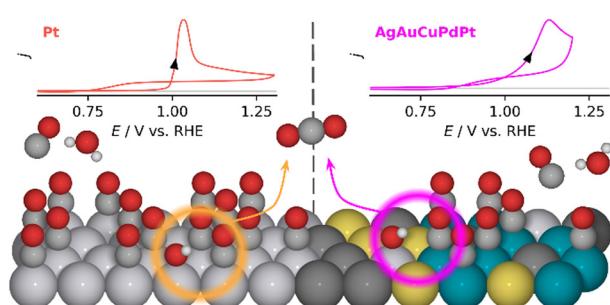


## PAPERS

941

**Toward understanding CO oxidation on high-entropy alloy electrocatalysts**

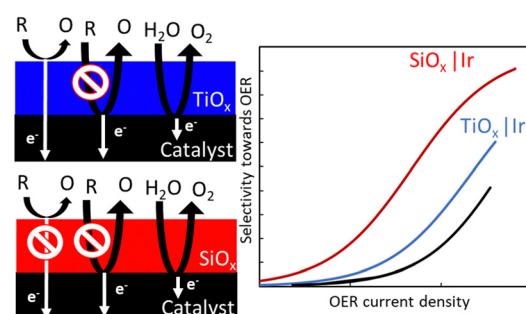
María Paula Salinas-Quzada, Jack K. Pedersen, Paula Sebastián-Pascual, Ib Chorkendorff, Krishanu Biswas, Jan Rossmeisl\* and María Escudero-Escribano\*



953

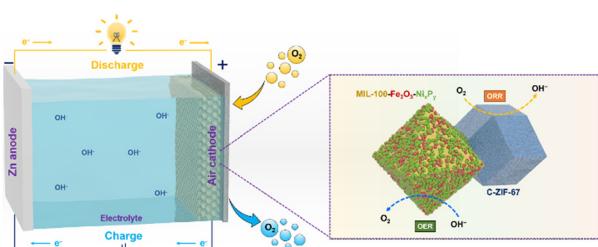
**Probing the active sites of oxide encapsulated electrocatalysts with controllable oxygen evolution selectivity**

William D. H. Stinson, Robert S. Stinson, Jingjing Jin, Zegie Chen, Mingjie Xu, Fikret Aydin, Yinxian Wang, Marcos F. Calegari Andrade, Xiaoqing Pan, Tuan Anh Pham, Katherine E. Hurst, Tadashi Ogitsu, Shane Ardo and Daniel V. Espesito\*



## PAPERS

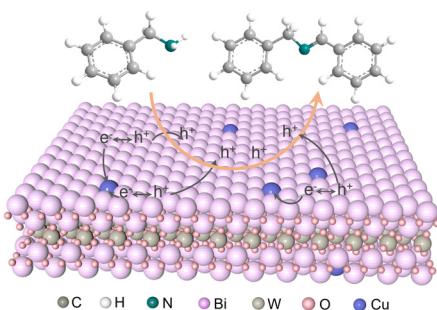
968



**A bi-functional air electrode developed from a dual-MOF strategy for high-performance zinc–air batteries**

Yasir Arafat, Muhammad Rizwan Azhar, Yijun Zhong, Xiaomin Xu, Moses O. Tadé and Zongping Shao\*

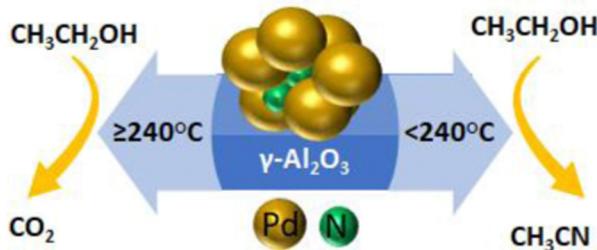
980



**Variable-valence element doping mediated photogenerated electron trapping for selective oxidation reactions**

Xia Zhong, Yan Zhao, Lei Li, Xin He, Hui Wang,\* Xiaodong Zhang\* and Yi Xie\*

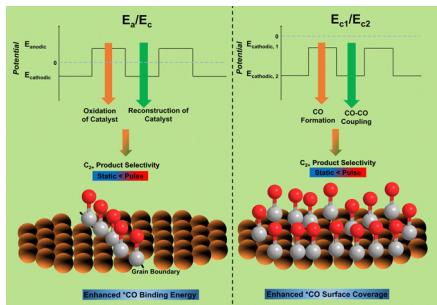
987



**Structural selectivity of supported Pd nanoparticles: selective ethanol ammoxidation to acetonitrile**

Khaled Mohammed, Reza Vakili, Donato Decarolis, Shaojun Xu, Luke Keenan, Apostolos Kordatos, Nikolay Zhelev, Chris K. Skylaris, Marina Carravetta, Emma K. Gibson, Haresh Manyar, Alexandre Goguet and Peter P. Wells\*

997



**Operational strategies of pulsed electrolysis to enhance multi-carbon product formation in electrocatalytic CO2 reduction**

Takashi Ito, Jithu Raj, Tianyu Zhang, Soumyabrata Roy and Jingjie Wu\*

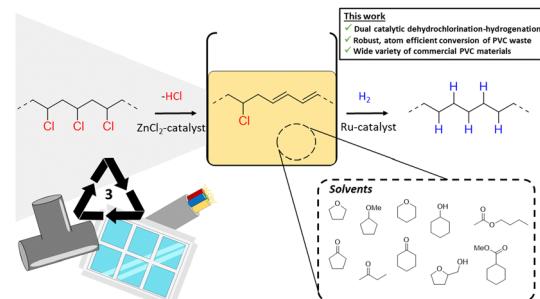


## PAPERS

1006

## Conversion of diverse post-consumer PVC waste materials to PE via dual catalytic tandem dehydrochlorination–hydrogenation

Galahad O'Rourke, Alina Skorynina, Igor Beckers, Sam Van Minnebruggen, Christel Colemonts, Philippe Gabriels, Peter Van der Veken and Dirk De Vos\*



1019

## Understanding the charge transfer dynamics in 3D–1D nanocomposites over solar driven synergistic selective valorization of lignocellulosic biomass: a new sustainable approach

Arpna Jaryal, Ajit Kumar Singh, Shivali Dhingra, Himanshu Bhatt, Manvi Sachdeva, Harendra N. Ghosh,\* Arindam Indra\* and Kamalakannan Kailasam\*

