

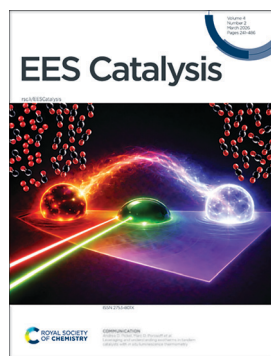
# EES Catalysis

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.

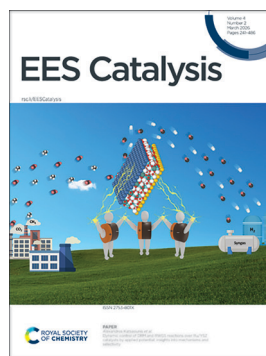
## IN THIS ISSUE

eISSN 2753–801X CODEN ECEACE 4(2) 241–486 (2026)



### Cover

See Andrea D. Pickel, Marc D. Porosoff *et al.*, pp. 333–340. Image reproduced by permission of Marc D. Porosoff from *EES Catal.*, 2026, 4, 333.



### Inside cover

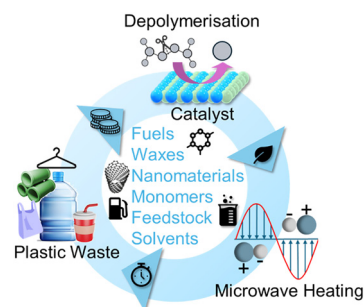
See Alexandros Katsaounis *et al.*, pp. 341–355. Image reproduced by permission of Alexandros Katsaounis from *EES Catal.*, 2026, 4, 341.

## REVIEWS

249

### Recent advances in chemical upcycling of plastic waste: microwave-assisted heating and heterogeneous catalysis

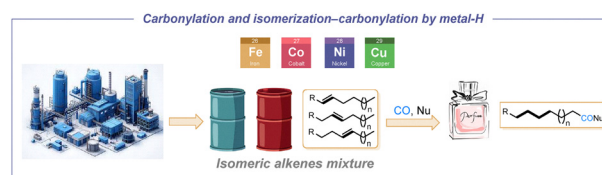
Rachel Breen, Justin D. Holmes and Gillian Collins\*



270

### Carbonylation with 3d metal hydrides: expanding the potential for industrial applications

Zhi-Peng Bao, Le-Cheng Wang and Xiao-Feng Wu\*



**GOLD  
OPEN  
ACCESS**

# EES Batteries

**Exceptional research on  
batteries and energy storage**

 Part of the EES family

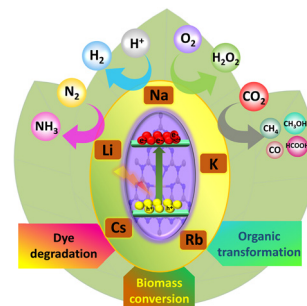
**Join  
in** | Publish with us  
[rsc.li/EESBatteries](https://rsc.li/EESBatteries)

## REVIEWS

286

### Alkali metal-doped g-C<sub>3</sub>N<sub>4</sub>: a multifunctional photocatalytic platform for solar-induced energy conversion and environmental restoration

Pratikshya Dash, Sulagna Patnaik, Sonali Panda, Bhagyashree Priyadarshini Mishra and Kulamani Parida\*

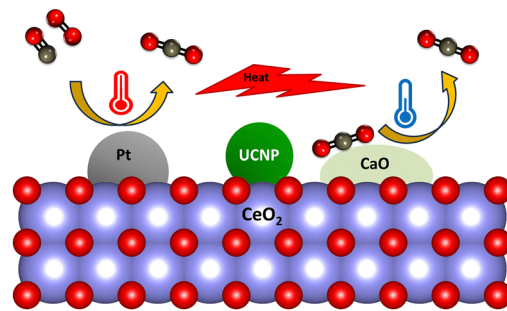


## COMMUNICATION

333

### Leveraging and understanding exotherms in tandem catalysts with *in situ* luminescence thermometry

Sinhara M. H. D. Perera, Benjamin Harrington, Adel Fadhul, Andrea D. Pickel\* and Marc D. Porosoff\*

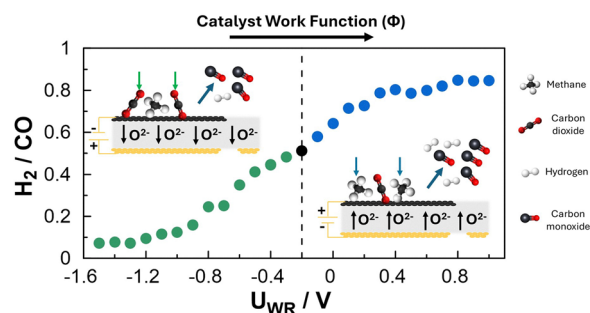


## PAPERS

341

### Dynamic control of DRM and RWGS reactions over Ru/YSZ catalysts by applied potential: insights into mechanisms and selectivity

Andriana Lymperi, Alexandros K. Bikogiannakis, Georgios Kyriakou and Alexandros Katsaounis\*

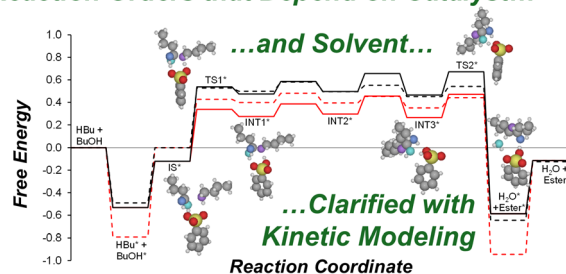


356

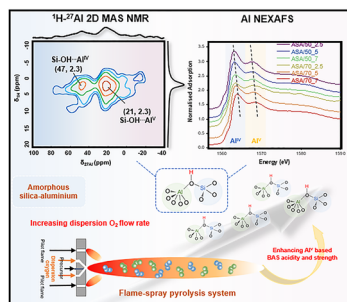
### Solvation effects in liquid-phase esterification reactions catalyzed by hydrogen-form ion exchange resins

Mackenzie R. Todd, Jaeryul Park, Mara Kuenen, Griffin Drake, Mohammed Al-Gharrawi, Luke T. Roling and Thomas J. Schwartz\*

### Reaction Orders that Depend on Catalyst...



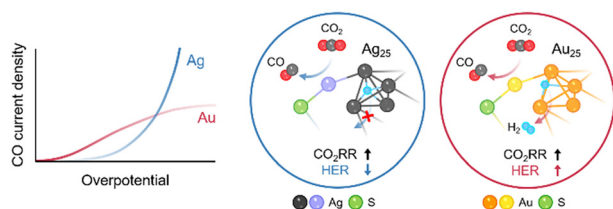
367



### Tailoring penta-coordinated aluminium species on silica–alumina *via* flame spray pyrolysis for enhanced arene benzylation

Xingxu Liu, Wenjie Yang, Luke A. O'Dell, Haipeng Li, Qinfen Gu, Suman Pokhrel,\* Lutz Mädler\* and Jun Huang\*

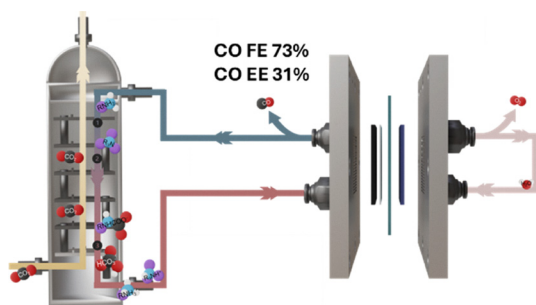
377



### Understanding CO<sub>2</sub> reduction selectivity in silver and gold electrocatalysts using atomically precise nanoclusters

Hoeun Seong, Fang Sun, Qing Tang\* and Dongil Lee\*

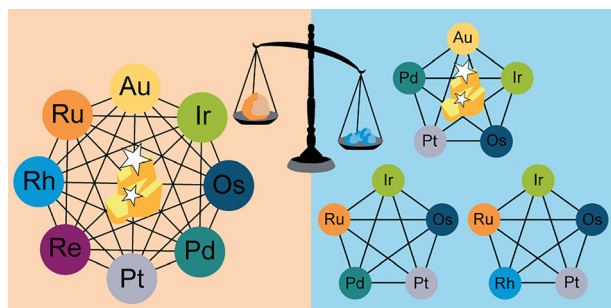
387



### Industrial amine blends enable efficient CO electrosynthesis in reactive capture

Siyu Sonia Sun, Yurou Celine Xiao, Feng Li, Jinhong Wu, Yuxuan Che, Yong Wang, Min Liu, Yaohao Guo, Mengyang Fan, Kai Han, Paul-Emmanuel Just, Paul J. Corbett, Rui Kai Miao\* and David Sinton\*

397



### Learning in higher dimensions: a strategy for alloy electrocatalyst discovery

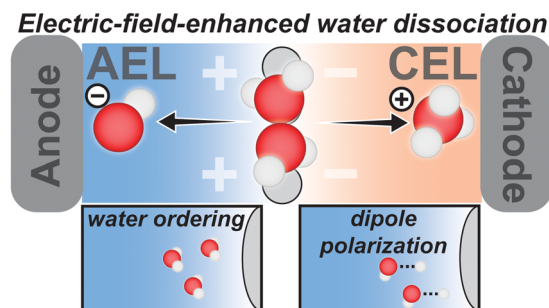
Vladislav A. Mints, Jack K. Pedersen, Gustav K. H. Wiberg, Jens Edolvang-Pejrup, Divyansh Gautam, Kirsten M. Ø. Jensen, Jan Rossmeisl\* and Matthias Arenz\*



407

### Electric-field enhanced water-dissociation catalysis on oxide surfaces

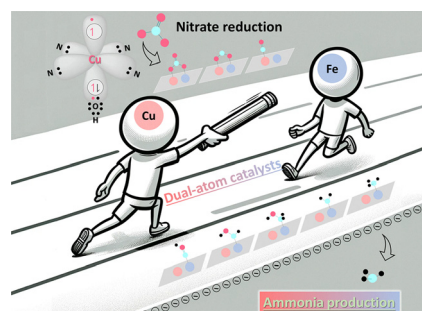
T. Nathan Stovall, Justin C. Bui, Yifan Wu, Shujin Hou, Shannon W. Boettcher\* and Adam Z. Weber\*



421

### Cooperative relay catalysis over Cu–Fe dual sites via N-intermediate and hydrogen radical pathways for ammonia production

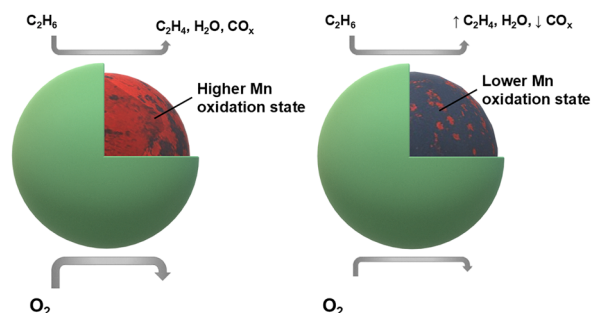
Ming Zhang, Zhiguo Li, Zhipeng Ma,\* Constantine Tsounis, Chen Han, Shujie Zhou, Wenyu Zhong, Jitraporn Vongsvivut, Jimmy Yun, Zhe Weng, Jian Pan\* and Rose Amal



434

### Unveiling the role of oxygen species in surface promoted Fe–Mn oxides for chemical looping oxidative dehydrogenation of ethane

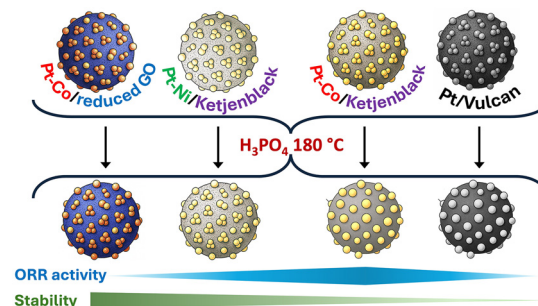
Dennis Chacko, Luke M. Neal, Andrew Pedersen and Fanxing Li\*



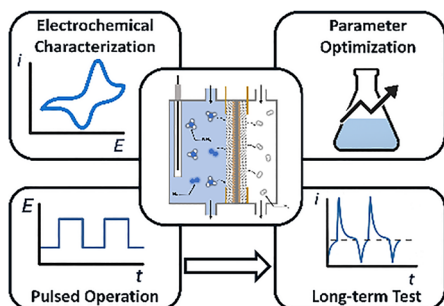
449

### Activity and degradation of Pt–Co and Pt–Ni alloy catalysts for application in high-temperature PEM fuel cells

Jan Dismas Buriánek, Martin Prokop, Tomas Bystron,\* Martin Veselý, Lukáš Koláčný, Bruna Ferreira Gomes, Carlos Manuel Silva Lobo, Matija Gatalo, Luka Pavko, Nejc Hodnik, Martin Paidar, Christina Roth, Miran Gaberscek and Karel Bouzek



465



### Alkaline ammonia electrolysis in a membrane electrode assembly cell: parameter optimization and dynamic operation

Haowei Long, Chun Yat Sit, Akhil Paliwal, Tianhang Cheng, Jitendra K. Gupta, Michael A. Reynolds, Yoon Jun Son, Kun Zhang, Andrew A. Gewirth and Paul J. A. Kenis\*

## CORRECTION

483

### Correction: Phosphate modification of Pd/Al<sub>2</sub>O<sub>3</sub> enhances activity and stability in aromatic hydrogenation under CO-contaminated hydrogen

Adrian Seitz, Yaoci Sheng, Ian Backes, Phillip Nathrath, Dennis Weber, Tanja Franken, Roberto Félix, Angelo Rillera, Johannes Frisch, Marcus Bär, Tanja Retzer and Patrick Schühle\*

