

# Chemical Science

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## IN THIS ISSUE

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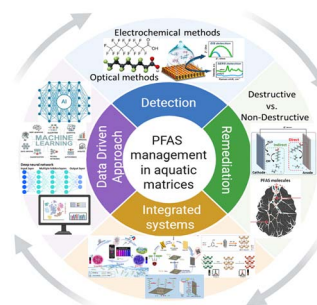
**Inside cover**  
See Julia M. Stauber *et al.*, pp. 13636–13645. Image reproduced by permission of Julia M. Stauber from *Chem. Sci.*, 2025, **16**, 13636.

## PERSPECTIVE

13564

### A perspective of emerging trends in integrated PFAS detection and remediation technologies with data driven approaches

Samaneh Yaghoobian, Manuel A. Ramirez-Ubillus, Lei Zhai\* and Jae-Hoon Hwang\*

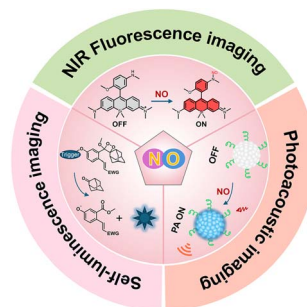


## REVIEWS

13574

### Organic probes for NO-activatable biomedical imaging: NIR fluorescence, self-luminescence, and photoacoustic imaging

Weihaio An, Zhongkun Wang, Qingqing Miao\* and Qing Li\*



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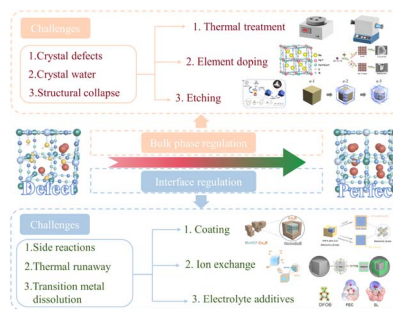


## REVIEWS

13594

**Bulk and interface engineering of Prussian blue analogue cathodes for high-performance sodium-ion batteries**

Boao Zhou, Yun Gao, Xihao Lin, Bin Yang, Ning Kang, Yun Qiao, Hang Zhang,\* Li Li\* and Shulei Chou\*

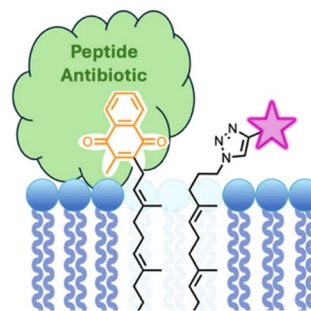


## EDGE ARTICLES

13629

**Chemical diversification of polyprenyl quinones for mechanistic studies on menaquinone-binding peptide antibiotics**

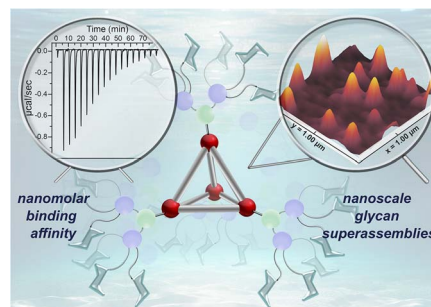
Eilidh J. Matheson, Roy A. M. van Beekveld, Paolo Innocenti, Nathaniel I. Martin, Markus Weingarth and Stephen A. Cochrane\*



13636

**Precision dendritic-supramolecular glycan assemblies for probing multivalent lectin interactions**

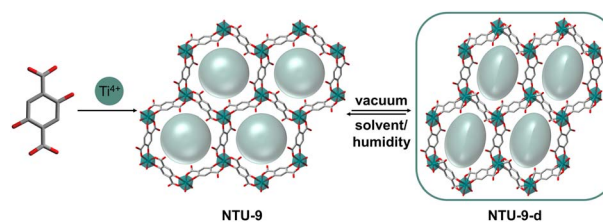
Tanvi M. Bhide, Garrett J. Musil, Wade Shipley, Emerson Hall, Alex J. Guseman, Andrea R. Tao and Julia M. Stauber\*



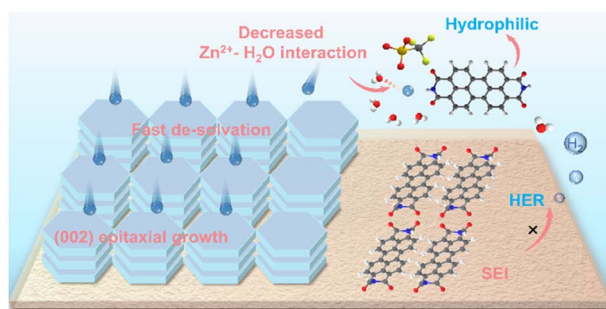
13646

**Dynamic breathing behaviour of the titanium-based metal-organic framework NTU-9 upon adsorption of water and organic solvents**

Julia E. Knapp, Borja Ortín-Rubio, Fabian Heck, Kristina Gjorgjevikj, Anastasia Sleptsova, Simon Krause, Sebastian Bette\* and Bettina V. Lotsch\*



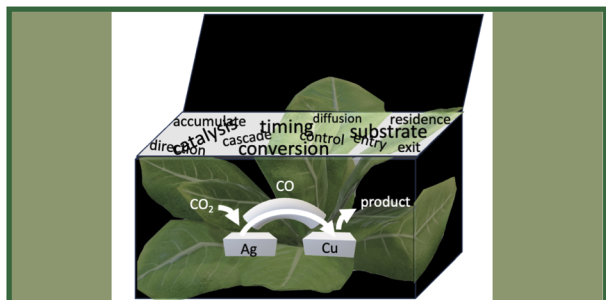
13655



### A dynamic amphiphilic additive with dual solubility modulates $Zn^{2+}$ solvation and *in situ* SEI for a dendrite-free zinc anode

Can-Fei Xiao, Yong-Xia Lu, Ming Lu, Dongxiang Luo, Kang Xiao,\* Yongke Wang and Zhao-Qing Liu\*

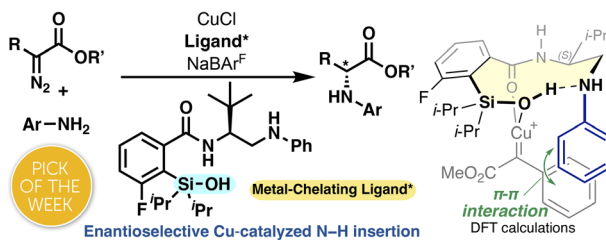
13667



### Insights from designing an artificial cascade catalysis system using principles from substrate channeling in enzymes

Frances A. Houle,\* Peter Agbo and Junko Yano

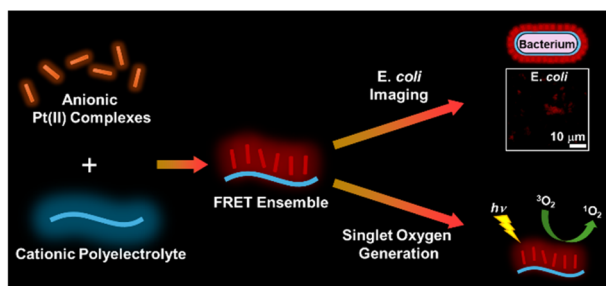
13678



### Multifunctional chiral silanol ligands for enantioselective catalysis

Yun-Pu Chang, Kevin Blanco-Herrero, Turki M. Alturaifi, James C. Fettinger, Peng Liu and Annaliese K. Franz\*

13684



### Ensembles of cationic conjugated polymer and anionic platinum(II) complexes: from FRET properties to application studies in *E. coli* imaging and singlet oxygen generation

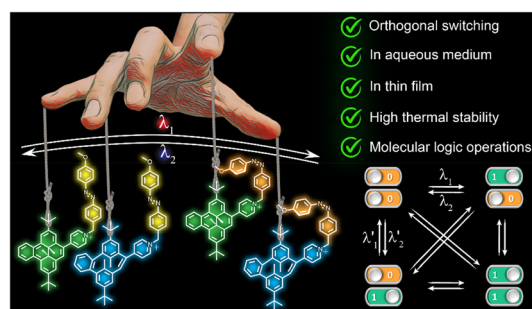
Angela Lok-Yin So, Jungu Guo, Huanxiang Yuan, Qi Shen, Eric Ka-Ho Wong, Shu Wang\* and Vivian Wing-Wah Yam\*



13694

### All-photonic switching of a benzo[e]-fused dimethyldihydropyrene–azobenzene dyad in the solid-state for logic operations

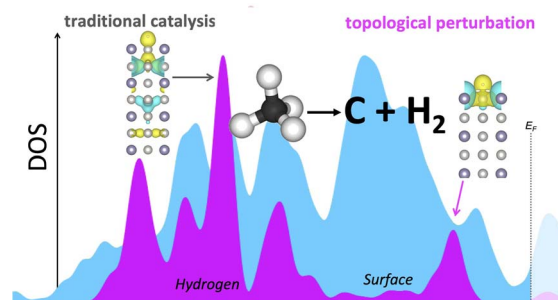
Sariful Molla, Jakir Ahmed and Subhajit Bandyopadhyay\*



13704

### Topological perturbation to a standard dehydrogenation catalyst, $\text{Pt}_3\text{Sn}$

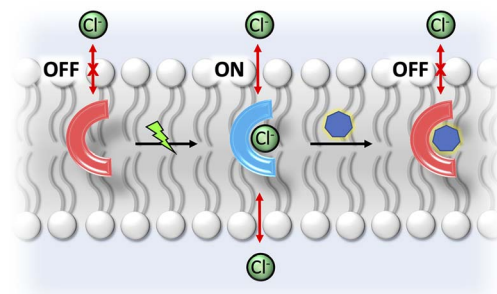
William T. Laderer, Xuance Jiang, Vojtech Vlcek, Harry W. T. Morgan and Anastassia N. Alexandrova\*



13715

### Responsive anion transport with a Hamilton receptor-based anionophore controlled by photo-activation and host–guest competitive inhibition

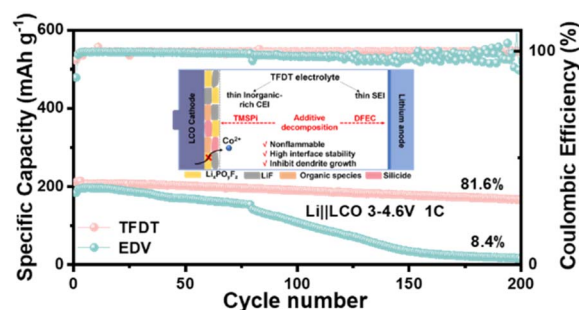
Manzoor Ahmad, Andrew Docker and Matthew J. Langton\*



13723

### Stabilizing the electrode–electrolyte interface for high-voltage $\text{Li}||\text{LiCoO}_2$ cells using dual electrolyte additives

Jiwei Ding, Chao Yang, Wenxi Hu, Xiaowei Liu, Anran Zhang, Deda Peng, Jin Han\* and Ya You\*



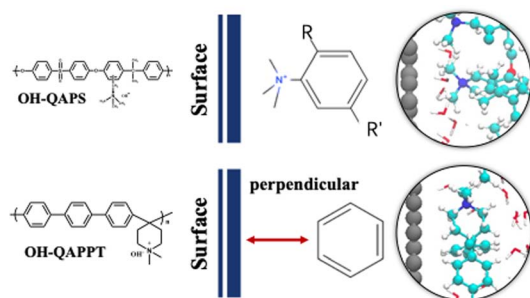
13731



### Photosalient effect and reversible photochromic photoluminescence driven by cascade [2 + 2] cycloaddition reaction and water adsorption in a 0D hybrid metal halide

Chudong Chen, Ziquan Li, Yonghong Xiao, Chenghao Ye, Jianwu Wei, Ruosheng Zeng, Qi Pang and Binbin Luo\*

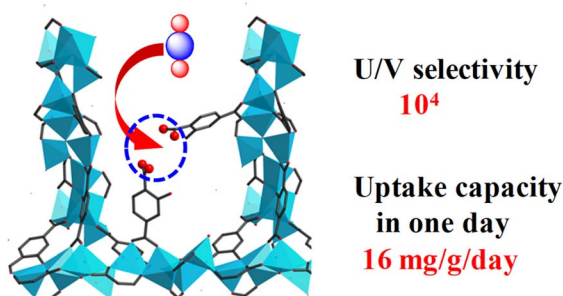
13741



### Decoding the influence of monomer structures on the electrical double layer of alkaline fuel cells

Xiao-Hui Yang, Lin Zhuang and Jun Cheng\*

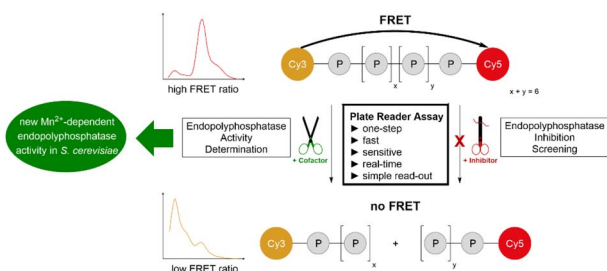
13749



### Robust biomimetic MOF featuring a negative pocket for precise recognition of uranyl, enabling ultrahigh U/V selectivity and rapid uranium extraction from seawater

Anni Ye, Yuxuan Liu, Lele Gong, Xianqing Xie and Feng Luo\*

13760



### A screening approach unveils an unknown Mn<sup>2+</sup>-dependent endopolyphosphatase activity in yeast

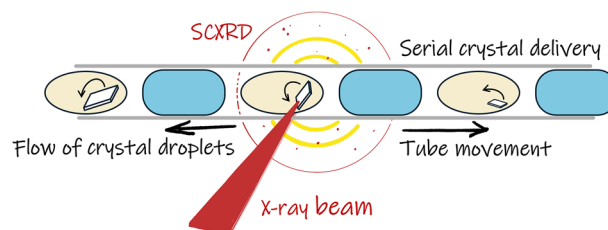
Sandra Moser, Gloria Hans, Anuj Shukla, Adolfo Saiardi, Samuel Bru, Asli Aras Taskin, Chris Meisinger and Henning J. Jessen\*



13769

### Segmented milli-fluidic crystallisation of paracetamol with *in situ* single-crystal X-ray diffraction

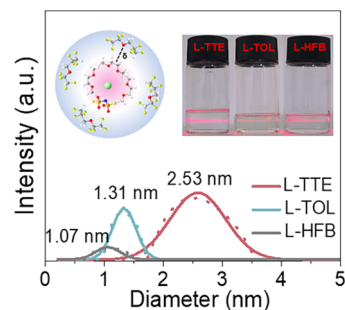
Lois E. Wayment, C. Daniel Scott, Lucy K. Saunders, Pollyanna Payne, Lauren E. Hatcher, Graeme Winter, Benjamin Williams, David R. Allan, Chick C. Wilson, Mark R. Warren\* and Karen Robertson\*



13774

### Solvation structure modulation *via* dipole–dipole interactions for high-rate lithium metal batteries exceeding 400 Wh kg<sup>-1</sup>

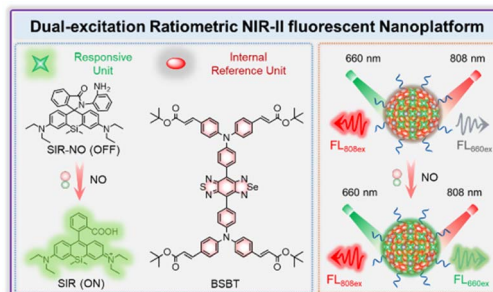
Liwen Zhang, Hongyu Liu, Tingting Wang, Hao Wang, Dong Yan, Min Li, Xiaodi Ren, Hong Li and Liping Wang\*



13784

### A dual-excitation ratiometric NIR-II fluorescent nanoplatform enables high contrast *in vivo* imaging

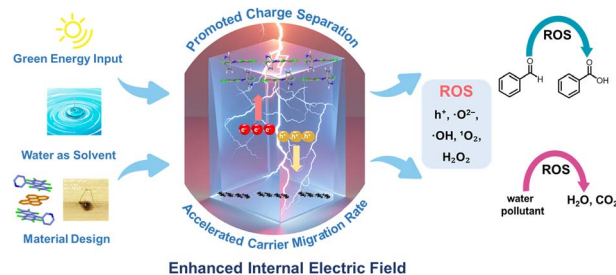
Yongchao Liu,\* Lili Teng, Bo Zhang, Xiao-Bing Zhang and Guosheng Song\*



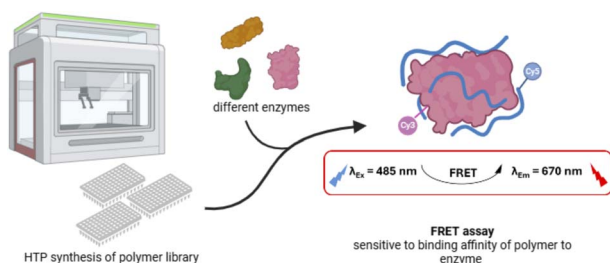
13794

### Perfluoroarene–arene interaction cocrystal of perfluorocarbazoles toward IEF-enhanced photocatalysis

Wenbo Hu, Heng Li and Bingxin Yuan\*



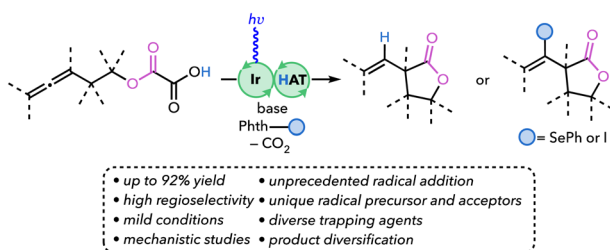
13807



### High throughput screening for the design of protein binding polymers

Carolyn Bapp, Ahmed Z. Mustafa, Cheng Cao, Erica J. Wanless, Martina H. Stenzel\* and Robert Chapman\*

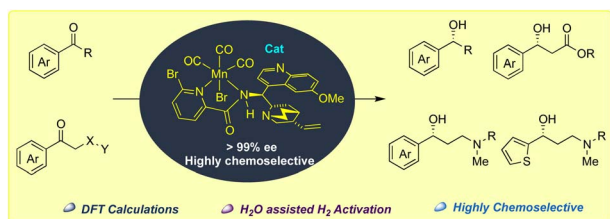
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### Photoredox-catalyzed regioselective allene alkoxy-carbonylations for the synthesis of $\alpha$ -allyl- $\gamma$ -lactones

Elijah T. Marris, Ashley L. Palecek, Federico Barbieri, Derek B. Hu, Ken S. Lee and Jennifer M. Schomaker\*

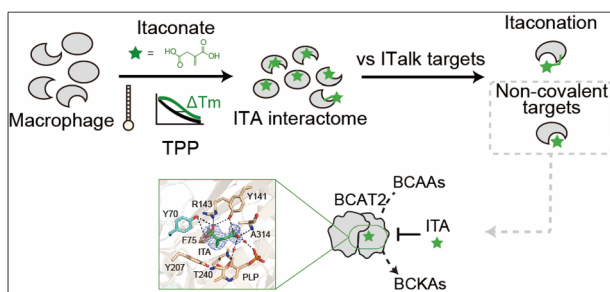
13826



### *A priori* Design of [Mn(I)-Cinchona] catalyst for Asymmetric Hydrogenation of Ketones and $\beta$ -Keto carbonyl Derivatives

Soumen Paira, Nupur Jain, Debarghee Adhikari, Raghavan B. Sunoj\* and Basker Sundararaju\*

13838



### Thermal proteome profiling of itaconate interactome in macrophages

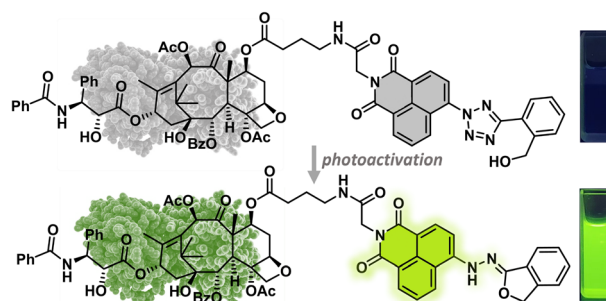
Yunzhu Meng, Tiantian Wei, Chenlin Zhang, Anqi Yu, Yuan Liu, Junyu Xiao and Chu Wang\*



13847

### Hydroxy-pendant tetrazole as the cage group for photoactivatable push–pull fluorophores

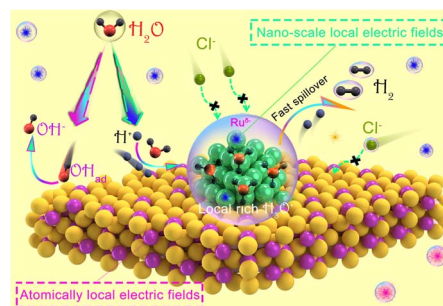
Meng Li, Maoting He and Peng An\*



13855

### Tailoring the local acid-like microenvironment with the synergism of nanoscale and atomically local electric fields for enhanced hydrogen spillover in alkaline seawater electrolysis

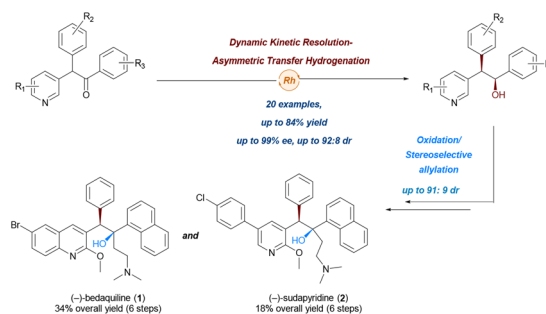
Lei Jin, Zhiyuan Wang, Hui Xu,\* Kun Wang, Xingyue Qian, Haiqun Chen\* and Guangyu He\*



13864

### Catalytic enantioselective total synthesis of antitubercular agents (–)-bedaquiline and (–)-sudapyridine enabled by dynamic kinetic resolution–asymmetric transfer hydrogenation

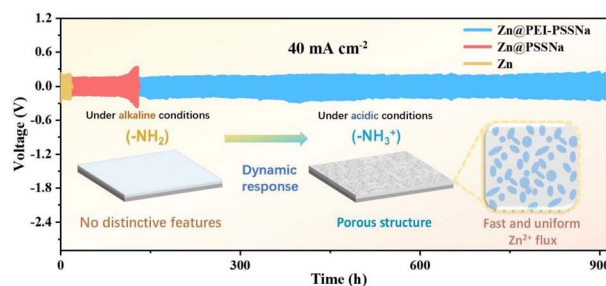
Jiyao Han, Dongliang Zhang, Yuan Tao, Pei Tang\* and Fen-er Chen\*



13873

### A weak acid-responsive porous polyelectrolyte membrane enables the high efficiency of a zinc anode interface

Wenbin Li, Changhao Wang, Wenxuan Hu, Yongkang Wang, Congcong Li, Xiao Liu, Linyan Su, Beibei Yang,\* Yunsong Li,\* Duan Bin\* and Hongbin Lu\*

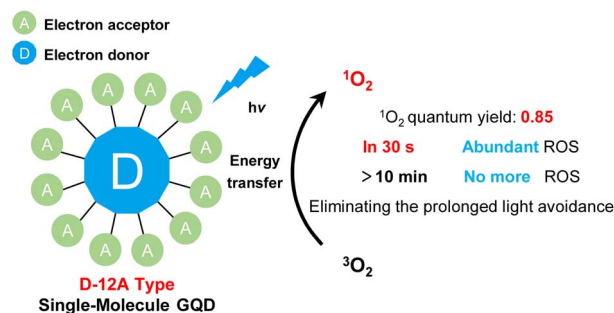




13923

### A single-molecule graphene quantum dot: a novel efficient photosensitizer for photodynamic cancer therapy

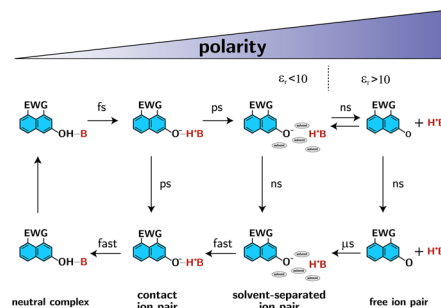
Jintao Chen, Shiru Yin, Futing Yang, Shengnan Guo, Jiaojiao Zhang, Zhenming Lu and Tian Gao\*



13935

### Dielectric stabilization controls excited-state proton transfer and ion pair dynamics in organic solvents

Amar Raj, Pragya Verma, Andrei Beliaev, Pasi Myllyperkiö and Tatu Kumpulainen\*



13944

### Promoting electrocatalytic CO<sub>2</sub> reduction to *n*-propanol over ethanol at Cu step sites

Yuanyuan Xue, Ximeng Lv, Chao Yang, Lu Song, Lijuan Zhang\* and Gengfeng Zheng\*

