

# Chemical Science

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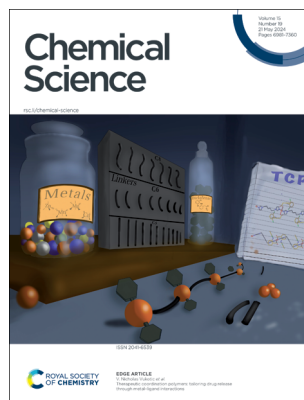
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## IN THIS ISSUE

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**Cover**  
See Takahiro Ichikawa, Takeshi Yamada *et al.*, pp. 7034–7040. Image reproduced by permission of Takahiro Ichikawa from *Chem. Sci.*, 2024, 15, 7034.



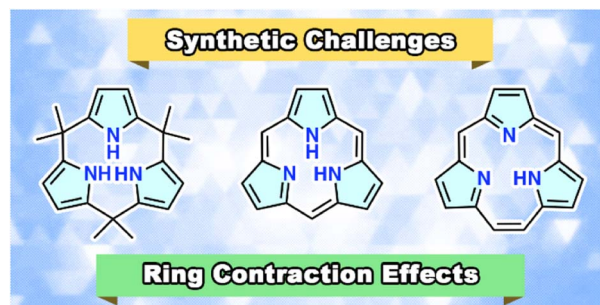
**Inside cover**  
See V. Nicholas Vukotic *et al.*, pp. 7041–7050. Image reproduced by permission of V. Nicholas Vukotic from *Chem. Sci.*, 2024, 15, 7041. Artwork by Ethan T. Douglas.

## PERSPECTIVE

6994

### Contracted porphyrins and calixpyrroles: synthetic challenges and ring-contraction effects

Keita Watanabe, Narendra Nath Pati and Yasuhide Inokuma\*

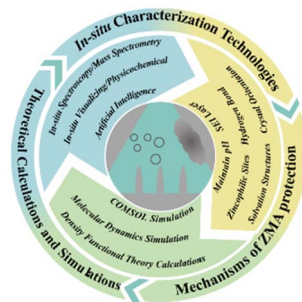


## REVIEW

7010

### Rescuing zinc anode–electrolyte interface: mechanisms, theoretical simulations and *in situ* characterizations

Zhenjie Liu, Xiaofeng Zhang, Zhiming Liu, Yue Jiang, Dianlun Wu, Yang Huang\* and Zhe Hu\*



# RSC Applied Polymers

GOLD  
OPEN  
ACCESS

The application of polymers,  
both natural and synthetic

Interdisciplinary and open access

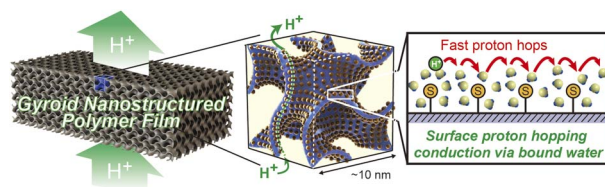
[rsc.li/RSCApplPolym](https://rsc.li/RSCApplPolym)

Fundamental questions  
Elemental answers

7034

### Surface proton hopping conduction mechanism dominant polymer electrolytes created by self-assembly of bicontinuous cubic liquid crystals

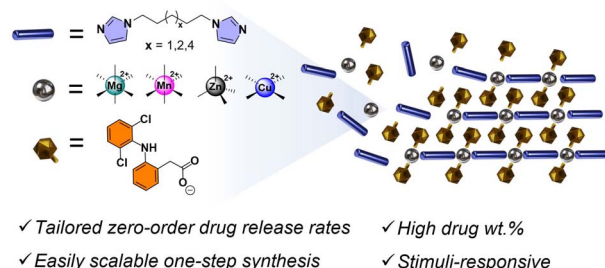
Takahiro Ichikawa,\* Takeshi Yamada,\* Nanami Aoki, Yuki Maehara, Kaori Suda and Tsubasa Kobayashi



7041

### Therapeutic coordination polymers: tailoring drug release through metal–ligand interactions

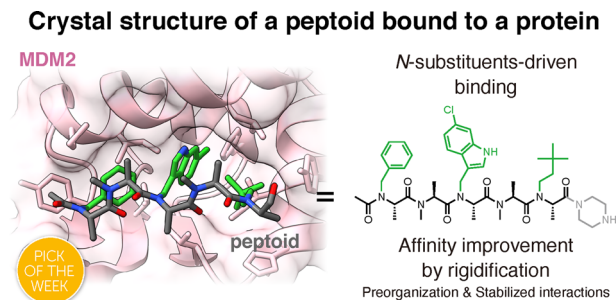
Jennifer N. Murphy, Joy-Lynn Kobti, Michelle Dao, Darcy Wear, Michael Okoko, Siyaram Pandey and V. Nicholas Vukotic\*



7051

### A high-resolution structural characterization and physicochemical study of how a peptoid binds to an oncoprotein MDM2

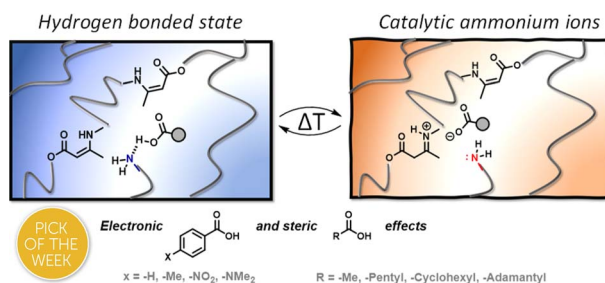
Marin Yokomine, Jumpei Morimoto,\* Yasuhiro Fukuda, Takumi Ueda, Koh Takeuchi, Koji Umezawa, Hideo Ago, Hiroaki Matsuura, Go Ueno, Akinobu Senoo, Satoru Nagatoishi, Kouhei Tsumoto and Shinsuke Sando\*



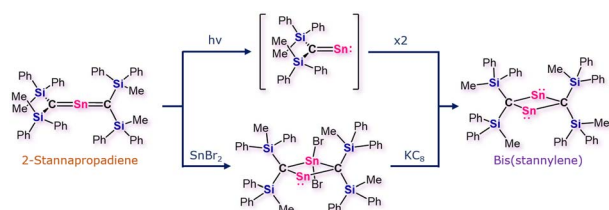
7061

### Thermoswitchable catalysis to inhibit and promote plastic flow in vitrimers

Filip Van Lijsebetten, Stephan Maes, Johan M. Winne\* and Filip E. Du Prez\*



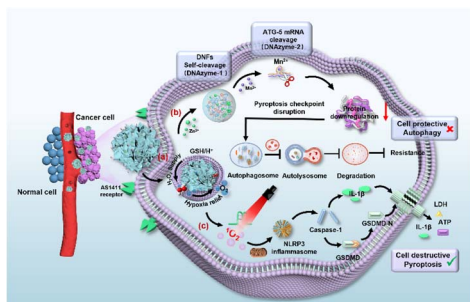
7072



### A tin analogue of propadiene with cumulated C=Sn double bonds

Koh Sugamata,\* Teppei Asakawa and Mao Minoura

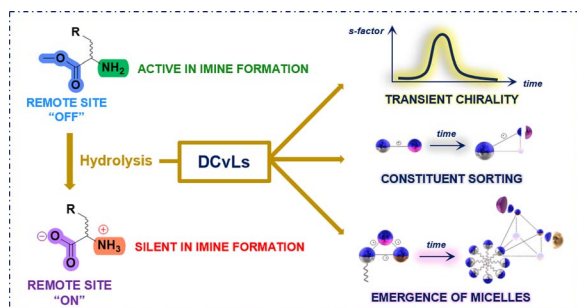
7079



### A dynamic cascade DNA nanocomplex to synergistically disrupt the pyroptosis checkpoint and relieve tumor hypoxia for efficient pyroptosis cancer therapy

Xiaoni Wang, Xiyang Ge, Min Zhang, Jianghui Sun, Jin Ouyang and Na Na\*

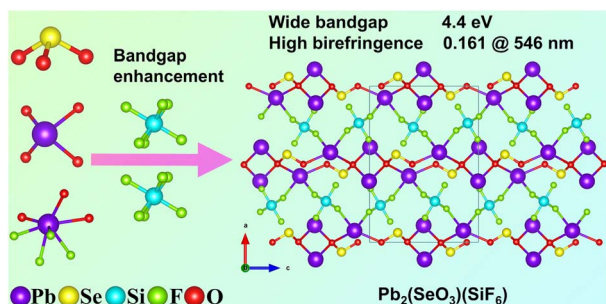
7092



### Constitutional adaptation to $pK_a$ modulation by remote ester hydrolysis

Ferran Esteve,\* Tanguy Rieu and Jean-Marie Lehn\*

7104



### $Pb_2(SeO_3)(SiF_6)$ : the first selenite fluorosilicate with a wide bandgap and large birefringence achieved through perfluorinated group modification

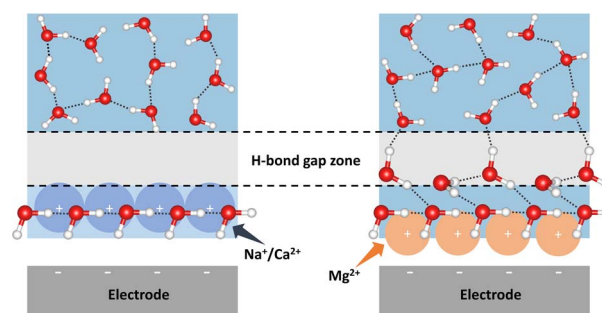
Peng-Fei Li, Chun-Li Hu, Jiang-Gao Mao and Fang Kong\*



7111

### Tuning hydrogen bond network connectivity in the electric double layer with cations

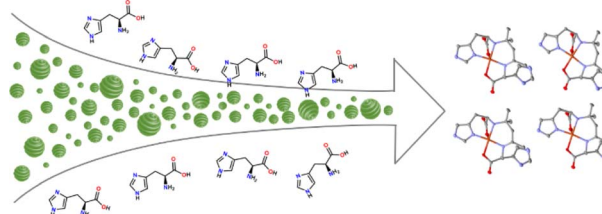
Bo Tang, Yeguang Fang, Shuang Zhu, Qi Bai, Xiaojiao Li, Laiyang Wei, Zhenyu Li\* and Chongqin Zhu\*



7121

### Engineering copper plasmonic chirality via ligand-induced dissolution for enantioselective recognition of amino acids

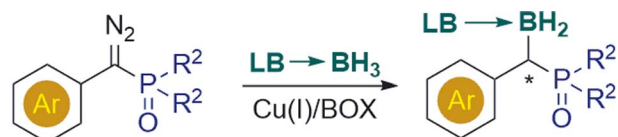
Sonia Maniappan, Camelia Dutta, Arunima Cheran, Diego M. Solís and Jatish Kumar\*



7130

### Enantioselective copper-catalyzed B–H bond insertion reaction of $\alpha$ -diazo phosphonates to access chiral $\alpha$ -boryl phosphonates

Longlong Li, Kui Yu, Hejun An, Xiping Cai and Qiuling Song\*

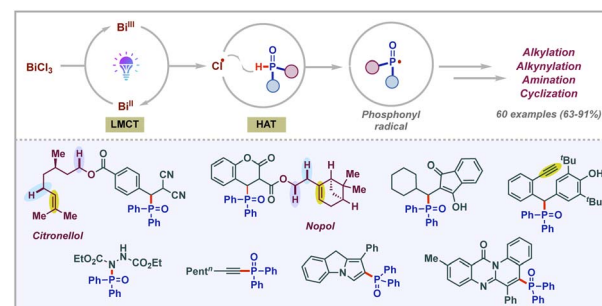


- Accessible copper catalysis up to 97% yield
- Broad substrate scope up to 98% ee
- Novel chiral gem-phosphorylboranes 40 examples

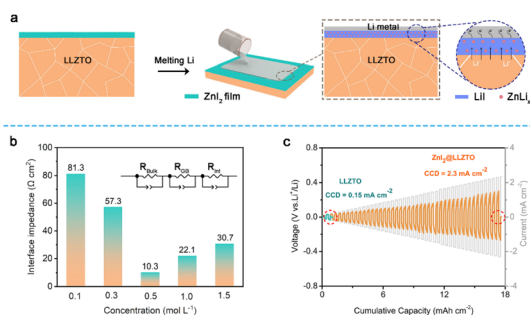
7136

### Expedient radical phosphonylations via ligand to metal charge transfer on bismuth

Jatin Patra, Akshay M. Nair and Chandra M. R. Volla\*



7144



### Interface engineering of Li<sub>6.75</sub>La<sub>3</sub>Zr<sub>1.75</sub>Ta<sub>0.25</sub>O<sub>12</sub> via *in situ* built LiI/ZnLi<sub>x</sub> mixed buffer layer for solid-state lithium metal batteries

Lei Zhai, Jinhuan Wang, Xiaoyu Zhang, Xunzhu Zhou, Fuyi Jiang, Lin Li\* and Jianchao Sun\*

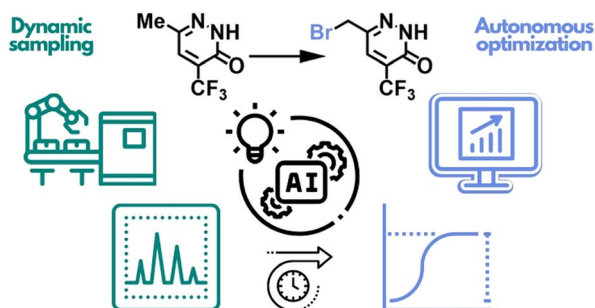
7150



### Visible-light TiO<sub>2</sub>-catalyzed synthesis of dihydrobenzofurans by oxidative [3 + 2] annulation of phenols with alkenyl phenols

Jingze Wu, Yanning Liu and Marisa C. Kozlowski\*

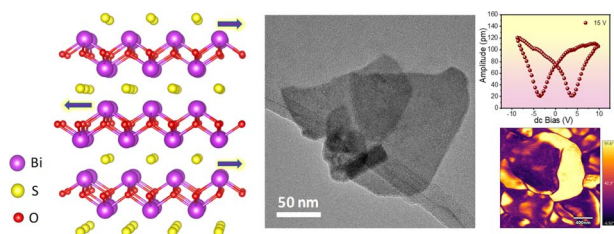
7160



### Dynamic sampling in autonomous process optimization

Melodie Christensen,\* Yuting Xu, Eugene E. Kwan, Michael J. Di Maso, Yining Ji, Mikhail Reibarkh, Alexandra C. Sun, Andy Liaw, Patrick S. Fier, Shane Grosser and Jason E. Hein\*

7170



### Mild chemistry synthesis of ultrathin Bi<sub>2</sub>O<sub>2</sub>S nanosheets exhibiting 2D-ferroelectricity at room temperature

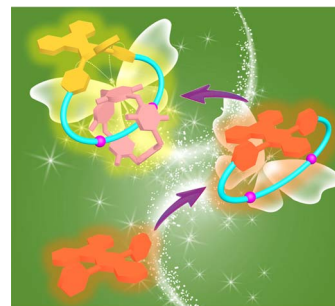
Riddhimoy Pathak, Prabir Dutta, Kapildeb Dolui, Aastha Vasdev, Adrija Ghosh, Raj Sekhar Roy, Ujjal K. Gautam, Tapas Kumar Maji, Goutam Sheet and Kanishka Biswas\*



7178

### Tuning vibration-induced emission through macrocyclization and catenation

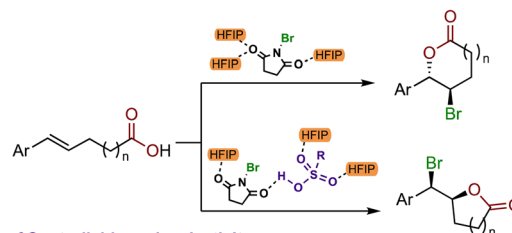
Wei-Tao Xu, Zhiyong Peng, Peicong Wu, Yefei Jiang, Wei-Jian Li, Xu-Qing Wang, Jinquan Chen, Hai-Bo Yang and Wei Wang\*



7187

### Controlling the regioselectivity of the bromolactonization reaction in HFIP

Tuong Anh To, Nhu T. A. Phan, Binh Khanh Mai\* and Thanh Vinh Nguyen\*

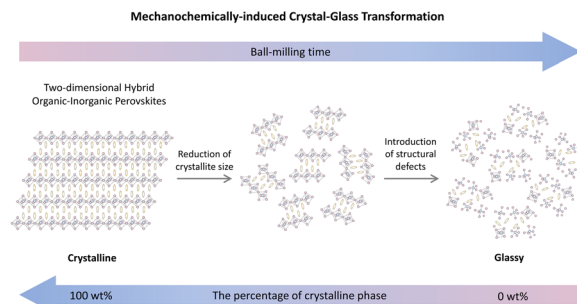


- ✓ Controllable regioselectivity
- ✓ High diastereoselectivity
- ✓ Rapid access to two analogues of lactone from readily available materials
- ✓ HFIP role confirmed by both experiments and DFT calculations

7198

### Mechanochemically-induced glass formation from two-dimensional hybrid organic–inorganic perovskites

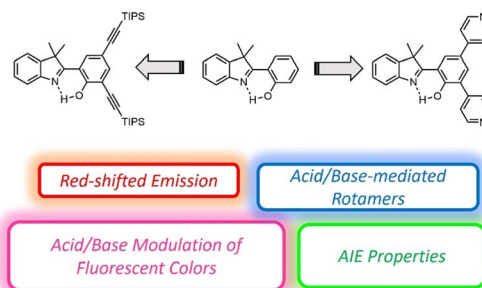
Chumei Ye, Giulio I. Lampronti, Lauren N. McHugh, Celia Castillo-Blas, Ayano Kono, Celia Chen, Georgina P. Robertson, Liam A. V. Nagle-Cocco, Weidong Xu, Samuel D. Stranks, Valentina Martinez, Ivana Brekalo, Bahar Karadeniz, Krunoslav Užarevič, Wenlong Xue, Pascal Kolodzeiski, Chinmoy Das, Philip Chater, David A. Keen, Siân E. Dutton and Thomas D. Bennett\*



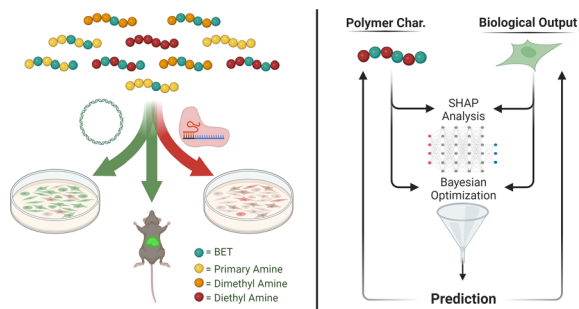
7206

### Experimental and theoretical comprehension of ESIPT fluorophores based on a 2-(2'-hydroxyphenyl)-3,3'-dimethylindole (HDMI) scaffold

Timothee Stoerkler, Gilles Ulrich, Pascal Retailleau, Adèle D. Laurent, Denis Jacquemin\* and Julien Massue\*



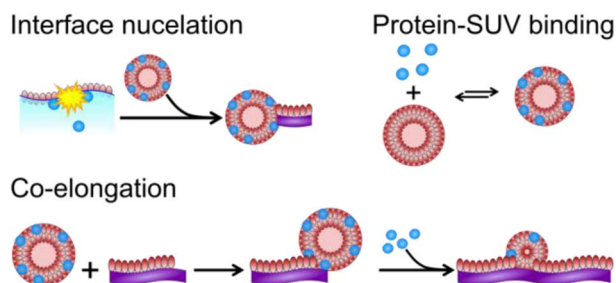
7219



### Polymer design via SHAP and Bayesian machine learning optimizes pDNA and CRISPR ribonucleoprotein delivery

Rishad J. Dalal, Felipe Oviedo, Michael C. Leyden and Theresa M. Reineke\*

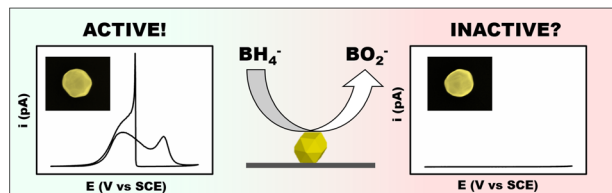
7229



### Molecular mechanism of $\alpha$ -synuclein aggregation on lipid membranes revealed

Alexander J. Dear, Xiangyu Teng, Sarah R. Ball, Joshua Lewin, Robert I. Horne, Daniel Clow, Alisdair Stevenson, Natasha Harper, Kim Yahya, Xiaoting Yang, Suzanne C. Brewerton, John Thomson, Thomas C. T. Michaels, Sara Linse, Tuomas P. J. Knowles, Johnny Habchi\* and Georg Meisl\*

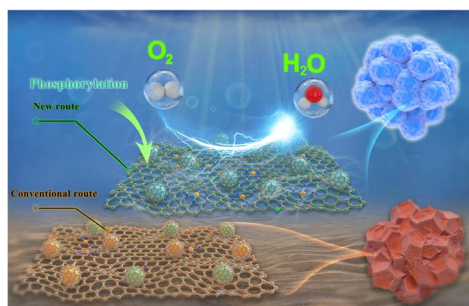
7243



### Drop-cast gold nanoparticles are not always electrocatalytically active for the borohydride oxidation reaction

Lachlan F. Gaudin, Alison M. Funston and Cameron L. Bentley\*

7259



### Sharply expanding single-atomically dispersed Fe–N active sites through bidirectional coordination for oxygen reduction

Huihui Jin, Ruohan Yu, Pengxia Ji, Weihao Zeng, Zhengying Li,\* Daping He\* and Shichun Mu\*

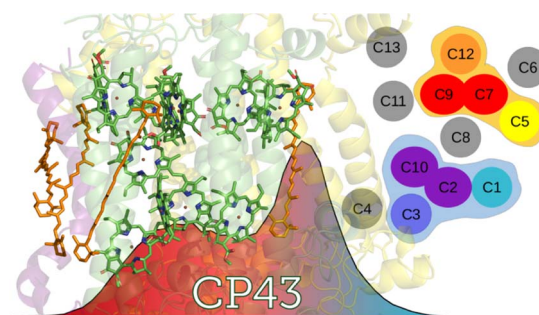




7269

### Excitation landscape of the CP43 photosynthetic antenna complex from multiscale simulations

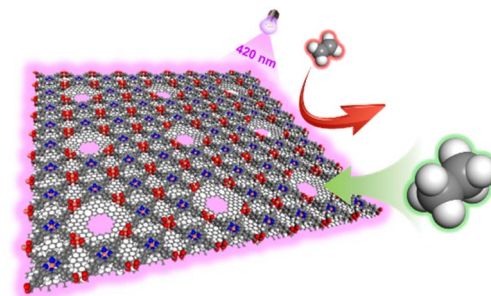
Sinjini Bhattacharjee, Srilatha Arra, Isabella Daidone\* and Dimitrios A. Pantazis\*



7285

### Excitation generated preferential binding sites for ethane on porous carbon–copper porphyrin sorbents: ethane/ethylene adsorptive separation improved by light

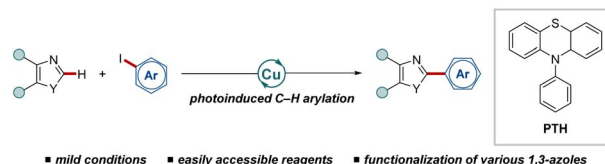
Shi-Chao Qi, Yun-Jie Zhao, Xiao-Jie Lu, Yong-Lan Liu, Zhen Sun, Xiao-Qin Liu and Lin-Bing Sun\*



7293

### Photoinduced C–H arylation of 1,3-azoles via copper/photoredox dual catalysis

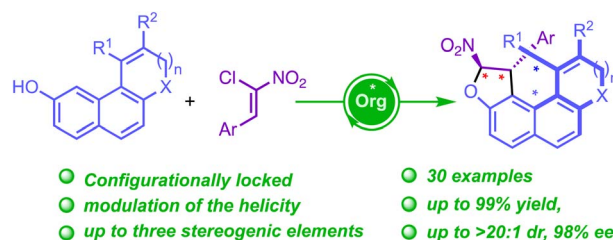
Sven Trienes, Jiawei Xu and Lutz Ackermann\*



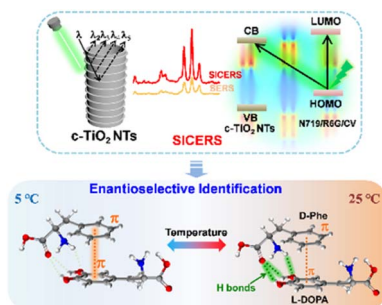
7300

### Padlocking dihydrofurannulation for the control of small degree of helicity built on a fused-tetracyclic core

Arthur Gaucherand, Expédite Yen-Pon, Diego García-López, Jean-Valère Naubron, Sara Chentouf, Michel Giorgi, Stéphane Humbel, Marion Jean, Jean Rodriguez and Damien Bonne\*



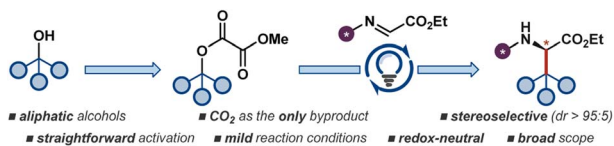
7308



### Structure-regulated enhanced Raman scattering on a semiconductor to study temperature-influenced enantioselective identification

Jing Xu, Junhan Li, Xiao Liu, Xu Hu, Hairihan Zhou, Zhida Gao, Jingwen Xu\* and Yan-Yan Song\*

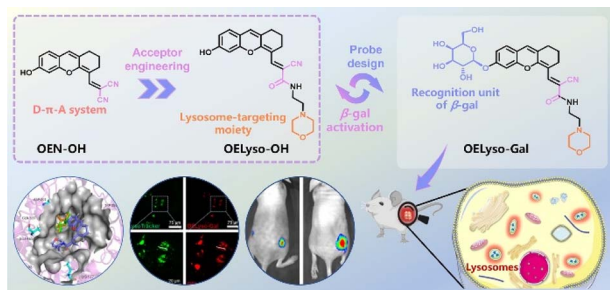
7316



### Asymmetric synthesis of unnatural $\alpha$ -amino acids through photoredox-mediated C–O bond activation of aliphatic alcohols

Gregory R. Alvey, Elena V. Stepanova, Andrey Shatskiy, Josefin Lantz, Rachel Willemsen, Alix Munoz, Peter Dinér and Markus D. Kärkäs\*

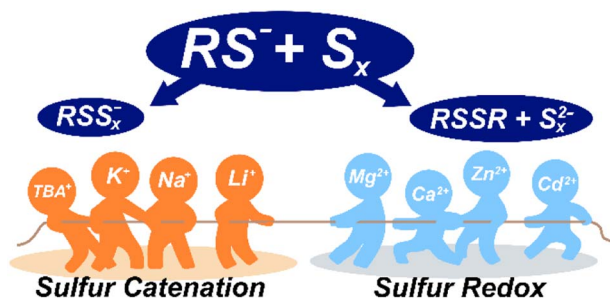
7324



### High-fidelity imaging of a tumour-associated lysosomal enzyme with an acceptor engineering-boosted near-infrared fluorescent probe

Bin Feng, Feiyi Chu, Yanpeng Fang, Min Liu, Xueping Feng, Jie Dong, Fei Chen and Wenbin Zeng\*

7332



### Metal-cation-induced shifts in thiolate redox and reduced sulfur speciation

W. T. Michael Seo, Madeline N. Riffel, Allen G. Oliver and Emily Y. Tsui\*



7342

## Evolving better solvate electrolytes for lithium secondary batteries

Frederik Philippi,\* Maleen Middendorf, Keisuke Shigenobu, Yuna Matsuyama, Oriele Palumbo, David Pugh, Taku Sudoh, Kaoru Dokko, Masayoshi Watanabe, Monika Schönhoff, Wataru Shinoda and Kazuhide Ueno

