

# ChemComm

Chemical Communications

rsc.li/chemcomm

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

ISSN 1359-7345 CODEN CHCOFS 60(80) 11179-11372 (2024)



### Cover

See Naoyuki Shimada *et al.*, pp. 11202–11222. Image reproduced by permission of Naoyuki Shimada from *Chem. Commun.*, 2024, 60, 11202.



### Inside cover

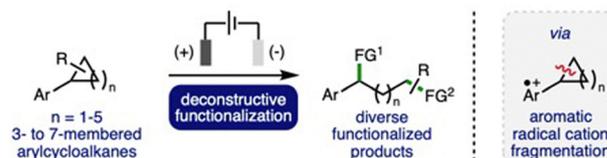
See Jianhui Wang *et al.*, pp. 11275–11278. Image reproduced by permission of Jianhui Wang from *Chem. Commun.*, 2024, 60, 11275.

## HIGHLIGHT

11190

### Electrochemical deconstructive functionalization of arylcycloalkanes *via* fragmentation of anodically generated aromatic radical cations

Hussain A. Maashi, Abdulrahman H. Husayni, James Harnedy and Louis C. Morrill\*

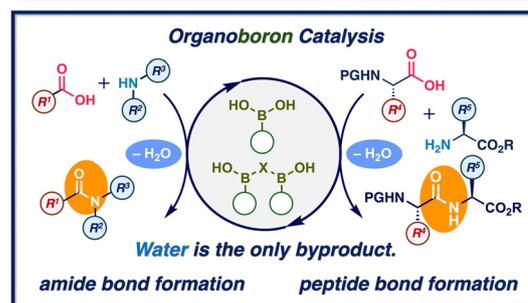


## FEATURE ARTICLES

11202

### Organoboron catalysis for direct amide/peptide bond formation

Masayoshi Koshizuka, Naoya Takahashi and Naoyuki Shimada\*



# ChemComm

Uncover new possibilities  
with outstanding  
preliminary research

Original discoveries, fuelling  
every step of scientific progress



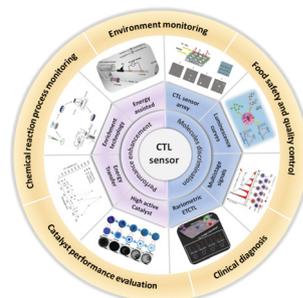
[rsc.li/chemcomm](http://rsc.li/chemcomm)

Fundamental questions  
Elemental answers

11223

## Recent progress of cataluminescence sensing based on gas–solid interfaces

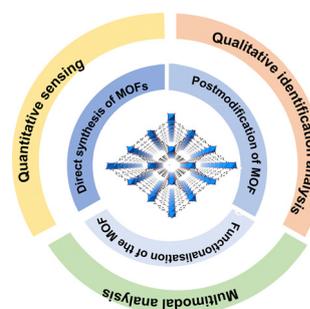
Jiayi Hu, Hongjie Song, Lichun Zhang and Yi Lv\*



11237

## The design, synthesis and application of metal–organic framework-based fluorescence sensors

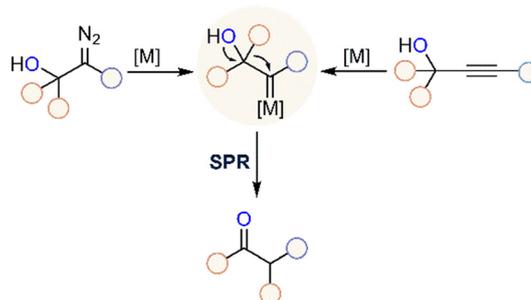
Juan He, Guijiao Wen, Qianqian Peng and Xiandeng Hou\*



11253

## Recent advances in metal carbene-induced semipinacol rearrangements

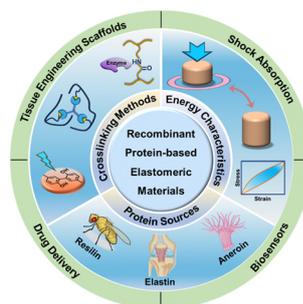
Yang Chen and Shifa Zhu\*



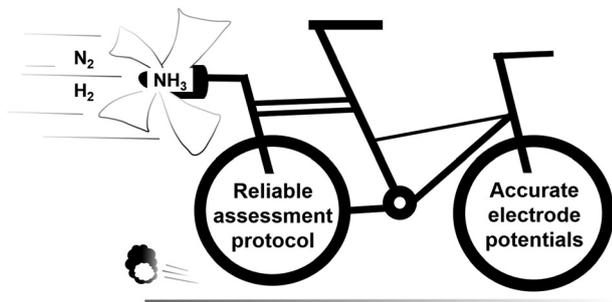
11267

## Engineered protein elastomeric materials

Zhongcheng Liu, Haopeng Li, Jingjing Li,\*  
Jing Yu\* and Kai Liu\*



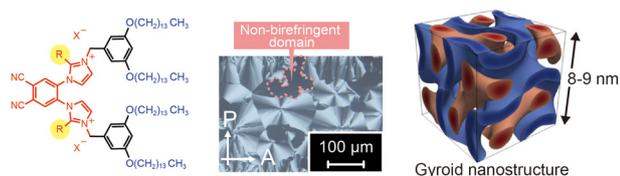
11275



### Improvements in the evaluation of electrocatalytic ammonia oxidation reactions

Ting Zhang, Yongzhen Jin, Yang Liu, Runze Chen and Jianhui Wang\*

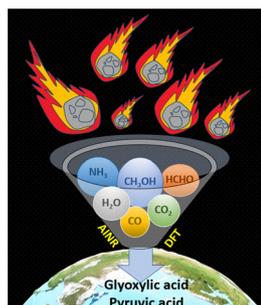
11279



### Design of V-shaped ionic liquid crystals: atropisomerisation ability and formation of double-gyroid molecular assemblies

Takahiro Ichikawa,\* Soki Obara, Saori Yamaguchi, Yumin Tang, Toshiyo Kato and Xiangbing Zeng

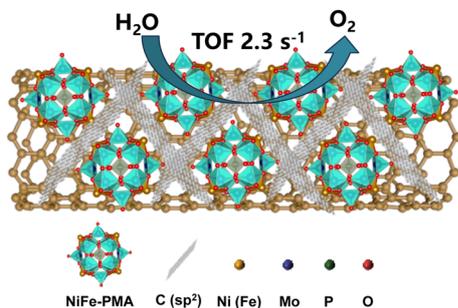
11283



### Unravelling the prebiotic origins of the simplest $\alpha$ -ketoacids in cometary ices: a computational investigation

Soumya Ranjan Dash, Rinu Pandya, Geetika Singh, Himanshu Sharma, Tamal Das, Hritwik Haldar, Srinivas Hotha\* and Kumar Vanka\*

11287



### Polyoxometalate-incorporated NiFe-based oxyhydroxides for enhanced oxygen evolution reaction in alkaline media

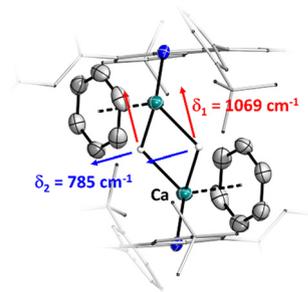
Yuyan Qiao, Yanqiu Pan, Wenjun Fan,\* Guifa Long\* and Fuxiang Zhang\*



11291

### CO reduction by calcium and ytterbium hydride complexes with a bulky monodentate carbazolyl ligand

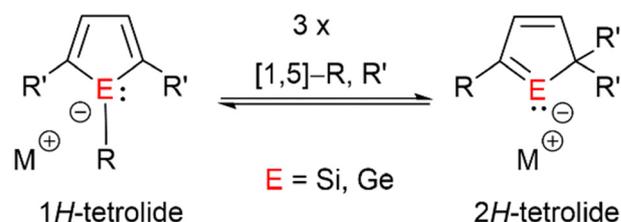
Alexander Hinz,\* Lucas Winkler and Xiaofei Sun



11295

### Metal ion-driven formation of 2*H*-silolides and -germolides

Chenghuan Liu, Marc Schmidtman and Thomas Müller\*



11299

### Unsaturated chiral-only-at-metal rhodium(III) complexes bearing SiN-type ligands

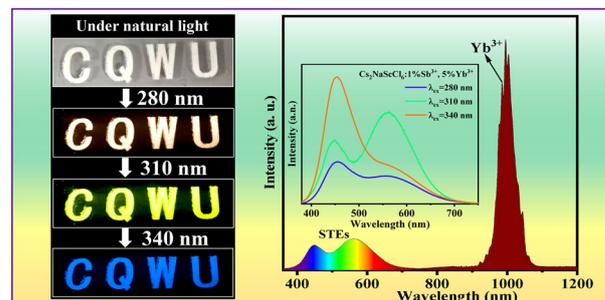
Unai Prieto-Pascual, Itxaso Bustos, Pablo Salcedo-Abraira, Iñigo J. Vitorica-Yrezabal, Aitor Landa, Zoraida Freixa\* and Miguel A. Huertos\*



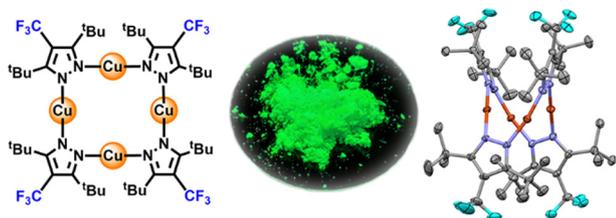
11303

### Excitation-dependent emission and highly efficient near-infrared luminescence in Cs<sub>2</sub>NaScCl<sub>6</sub> double perovskite via Sb<sup>3+</sup>–Yb<sup>3+</sup> alloying for multifunctional photoelectric applications

Mingsheng Cai, Junyang Chen, Tianchun Lang,\* Xiaolong Jing, Gaoxunyu Guan, Jun Wang, Qinpeng Qiang, Wenbo Chen, Tao Han and Bitao Liu\*



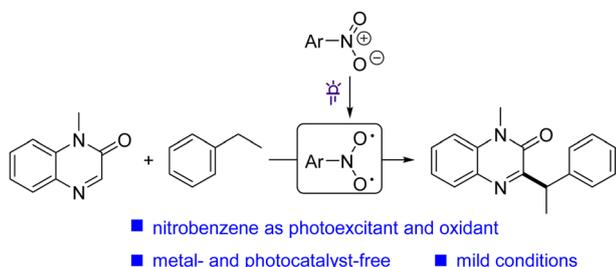
11307



### Rigidochromism of tetranuclear Cu(I)-pyrazolate macrocycles: steric crowding with trifluoromethyl groups

Shinaj K. Rajagopal, Matthias Zeller, Sergei Savikhin, Lyudmila V. Slipchenko and Alexander Wei\*

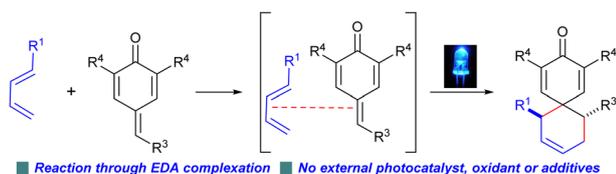
11311



### Photoexcited nitroarenes for alkylation of quinoxalin-2(1H)-ones

Lingang Wu,\* Zhaoxue Wang, Yanling Qiao, Lei Xie\* and Qingmin Wang\*

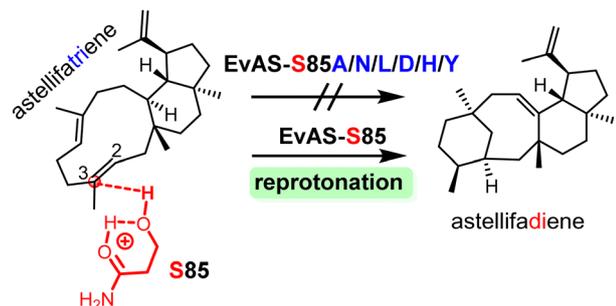
11315



### Photoinduced [4+2] cycloaddition of dienes and quinonemethides

Jobsy Jose, Arun Yadav and Chandra Bhushan Tripathi\*

11319



### Serine 85 functions as a catalytic acid in the reprotonation process during EvAS-catalyzed astellifadiene biosynthesis

Weiyang Zhang, Kaitong Peng, Keying Lan, Kangwei Xu, Ruibo Wu, Tom Hsiang, Shaoping Nie, Lixin Zhang, Xinye Wang\* and Xueting Liu\*

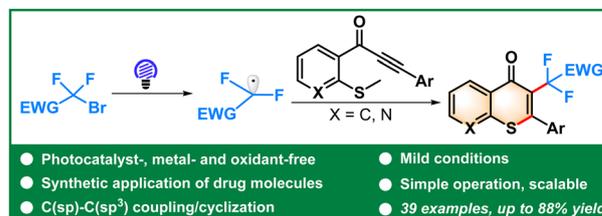


## COMMUNICATIONS

11323

### Photo-induced difluoroalkylation/cyclization of alkyne ketones: a novel strategy to access difluoroalkyl thiofavones

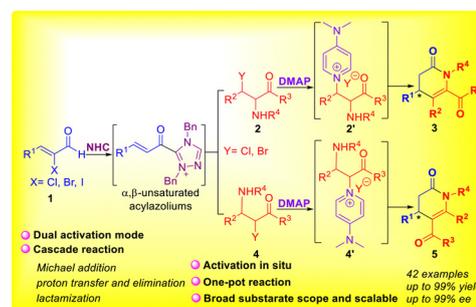
Shengjie Song, Can Luo, Guan Wang, Jingjing Guo, Zhi Chen and Jianjun Li\*



11327

### One-pot synthesis of functionalized dihydropyridin-2-ones via carbene-catalyzed base-controlled [3+3] annulation reaction

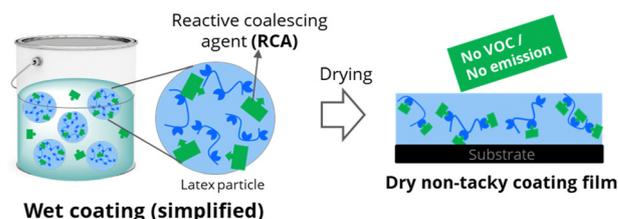
Zhan-Yong Wang, Guoyang Ma, Yaoyao Xu, Qingqing Wang, Mengru Zhang, Xueji Ma, Chenyang Ma, Aili Sun, Ran Xia\* and Hongxin Liu\*



11331

### Amine functional reactive coalescing agents (RCA) for emission-free waterborne paints and coatings

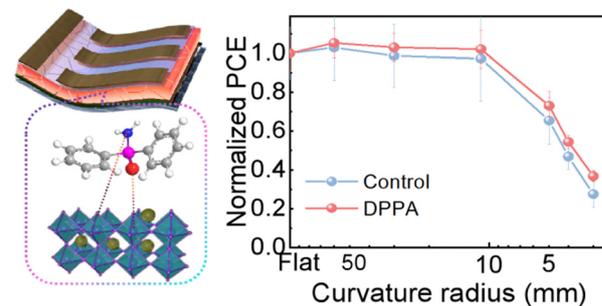
Ranganathan Krishnan, Jagjit Kaur, Balamurugan Ramalingam\* and Satyasankar Jana\*



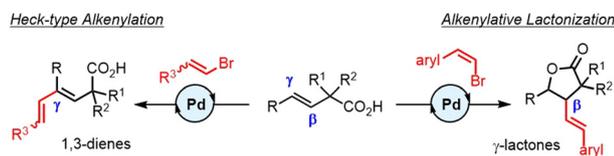
11335

### A multifunctional phenylphosphinamide additive for stable flexible inverted perovskite solar cells

Feihu Liu, Jidong Geng, Wei Zhang, Jie Dou,\* Qiyao Guo, Jialong Duan and Qunwei Tang\*



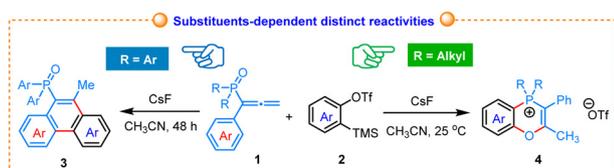
11339



### Substrate-directed regioselective alkene functionalizations of (*E*)- $\beta,\gamma$ -unsaturated carboxylic acids

Chi-Hao Chang, Chao-Ting Yen, Théo P. Goncalves, Yu-Sheng Lin, Yu-Chun Wang, R. Sidick Basha, Bo-Yan Chen, Cheng-Hao Fu, Liang-Wei Chen, Meng-Li Jhou, Kuo-Wei Huang and Chih-Ming Chou\*

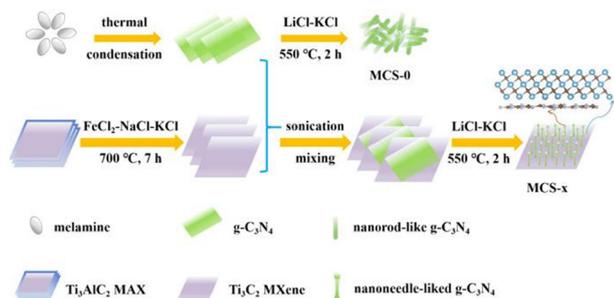
11343



### Substituent-dependent [4+2] or [2+2] cycloadditions of phenylallenyl phosphine oxides with arynes

Yunlong Qin, Jianing Zhang, Congcong Zhang and Qilin Wang\*

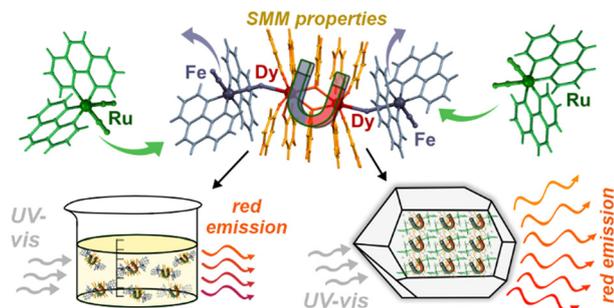
11347



### The synthesis of 3D organic-inorganic hybrid heterojunctions of g-C<sub>3</sub>N<sub>4</sub> nanoneedles@Ti<sub>3</sub>C<sub>2</sub> MXene with superior photocatalytic H<sub>2</sub> evolution

Fang He,\* Yuying Mao, Yan Hu, Jingyang Wu, Enqi Xie, Zhenxing Wang and Yuexiang Li\*

11351



### Making soluble Dy<sub>2</sub> single-molecule magnets red emissive through their functionalization by ruthenium-cyanido luminophores

Michal Liberka and Szymon Chorazy\*



## COMMUNICATIONS

11355

From  $\text{Li}_2\text{NiO}_3$  to high-performance  $\text{LiNiO}_2$  cathodes for application in Li-ion and all-solid-state batteries

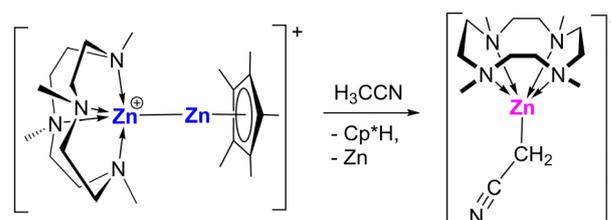
Leonhard Karger, Philip Henkel, Saravanakumar Murugan, Ruizhuo Zhang, Aleksandr Kondrakov\* and Torsten Brezesinski\*



11359

Hypervalent zinc(i) complexes with an *NNNN*-macrocyclic: C–H bond activation across the zinc(i)–zinc(i) bond

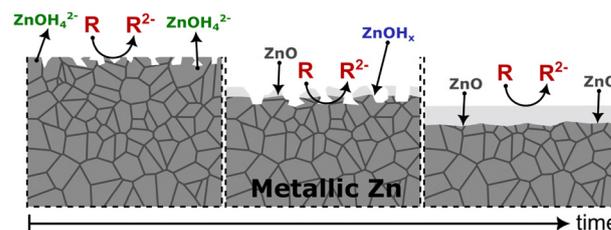
Pritam Mahawar, Thayalan Rajeshkumar, Thomas P. Spaniol, Laurent Maron and Jun Okuda\*



11363

## Phenomenological observations of quinone-mediated zinc oxidation in an alkaline environment

Christopher T. Mallia and Fikile R. Brushett\*



11367

## Silane-mediated, facile C–H and N–H methylation using formaldehyde

Jabir Khan, Neha Taneja, Naveen Yadav and Chinmoy Kumar Hazra\*

