

## IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 16(13) 5313–5756 (2025)



### Cover

See Seyed Mohamad Moosavi *et al.*, pp. 5464–5474. Image reproduced by permission of Mahyar Rajabi Kochi and Seyed Mohamad Moosavi from *Chem. Sci.*, 2025, **16**, 5464. Image partly generated using Google Gemini.



### Inside cover

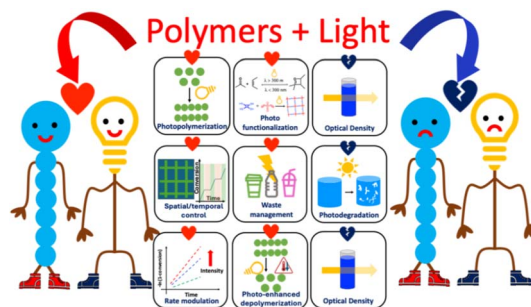
See Felipe A. Garcés-Pineda, J. R. Galán-Mascarós *et al.*, pp. 5475–5482. Image reproduced by permission of Felipe Andrés Garcés-Pineda from *Chem. Sci.*, 2025, **16**, 5475.

## PERSPECTIVE

5326

### Polymers and light: a love–hate relationship

M. A. Sachini N. Weerasinghe, Tochukwu Nwoko and Dominik Konkolewicz\*

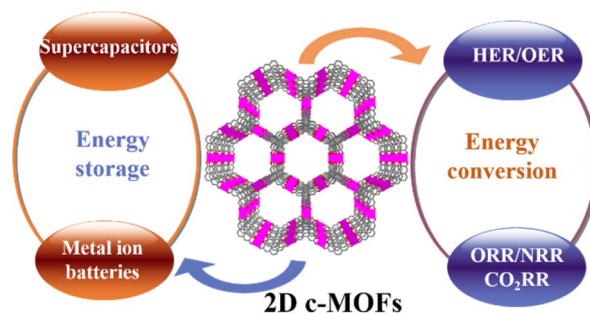


## REVIEWS

5353

### Two-dimensional conjugated metal–organic frameworks for electrochemical energy conversion and storage

Xiao Li, Xi Su, Tan Su,\* Long Chen\* and Zhongmin Su\*



# RSC Advances

At the heart of open access for  
the global chemistry community

## Editor-in-chief

Russell J Cox

Leibniz Universität Hannover, Germany

## We stand for:



**Breadth** We publish work in all areas of chemistry and reach a global readership



**Affordability** Low APCs, discounts and waivers make publishing open access achievable and sustainable



**Quality** Research to advance the chemical sciences undergoes rigorous peer review for a trusted, society-run journal



**Community** Led by active researchers, we publish quality work from scientists at every career stage, and all countries

Submit your work now

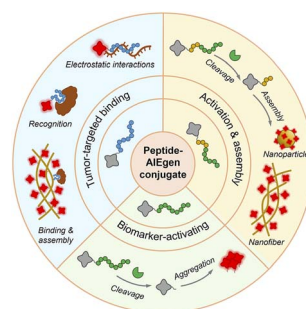
[rsc.li/rsc-advances](https://rsc.li/rsc-advances)

@RSC\_Adv

5369

## Activatable peptide–AIEgen conjugates for cancer imaging

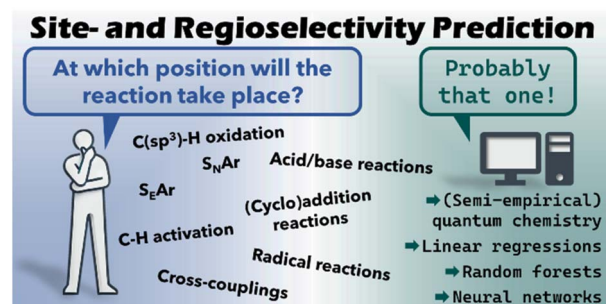
Sisi Zhou, Xianbao Sun\* and Gaolin Liang\*



5383

## Computational tools for the prediction of site- and regioselectivity of organic reactions

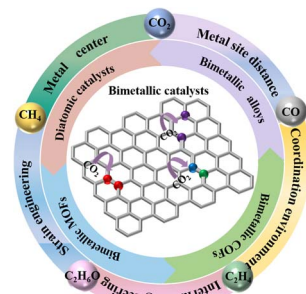
Lukas M. Sigmund,\* Michele Assante, Magnus J. Johansson, Per-Ola Norrby, Kjell Jorner\* and Mikhail Kabeshov\*



5413

## Bimetallic effects in carbon dioxide electroreduction

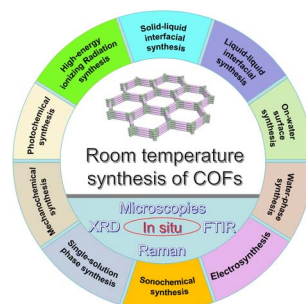
Anaer Husile, Zhenlu Wang\* and Jingqi Guan\*



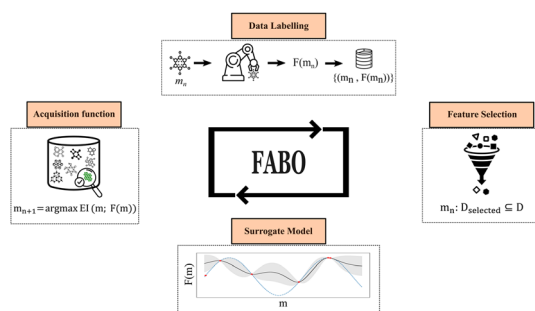
5447

## Recent advances in room-temperature synthesis of covalent organic frameworks

Dongchuang Wu,\* Ning Gu, Junru Yao, Yang Cao, Lun Wang, Imran Shakir, Youyi Sun\* and Yuxi Xu\*



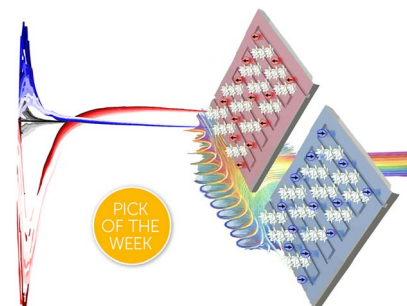
5464



### Adaptive representation of molecules and materials in Bayesian optimization

Mahyar Rajabi-Kochi, Negareh Mahboubi, Aseem Partap Singh Gill and Seyed Mohamad Moosavi\*

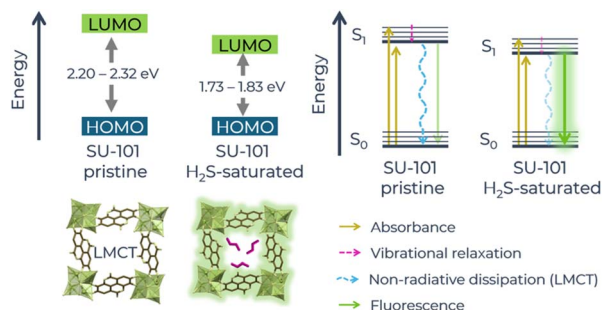
5475



### Operando evidence on the chirality-enhanced oxygen evolution reaction in intrinsically chiral electrocatalysts

Felipe A. Garcés-Pineda,\* Jiahao Yu, Camilo A. Mesa, Sergi Plana-Ruiz, Daniel Ruano, Yunchang Liang, Magalí Lingenfelder, Sixto Giménez and J. R. Galán-Mascarós\*

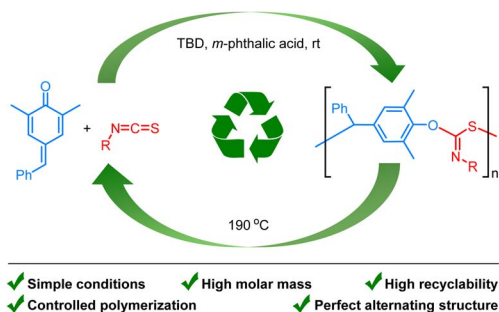
5483



### Formation of polysulfides as a smart strategy to selectively detect H<sub>2</sub>S in a Bi(III)-based MOF material

Valeria B. López-Cervantes, Juan L. Obeso, J. Gabriel Flores, Aída Gutiérrez-Alejandre, Raul A. Marquez, José Antonio de los Reyes, Catalina V. Flores, N. S. Portillo-Vélez, Pablo Marín-Rosas, Christian A. Celaya, Eduardo González-Zamora, Diego Solís-Ibarra,\* Ricardo A. Peralta\* and Ilich A. Ibarra\*

5493



### Facile synthesis of recyclable polythioimidocarbonates via aromatization-driven alternating copolymerization of *para*-quinone methide and isothiocyanates

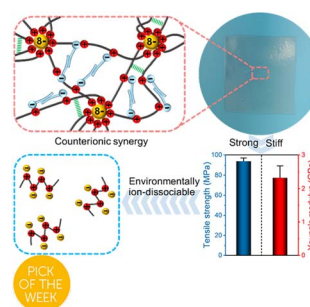
Wen-Dao Chu,\* Si-Yu Dan, Jie Zhan, Bo Chen, Ji Xian, Chun-Mei Wang, Quan-Zhong Liu, Jincai Wu\* and Chun-An Fan\*



5503

## Environmentally ion-dissociable high-performance supramolecular polyelectrolyte plastics

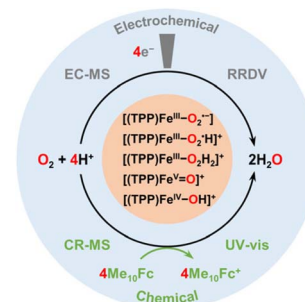
Zhi Dong, Jiang Wu, Anhong Liu, Zan Hua\* and Guangming Liu\*



5512

## In situ uncovering the catalytic cycle of electrochemical and chemical oxygen reduction mediated by an iron porphyrin

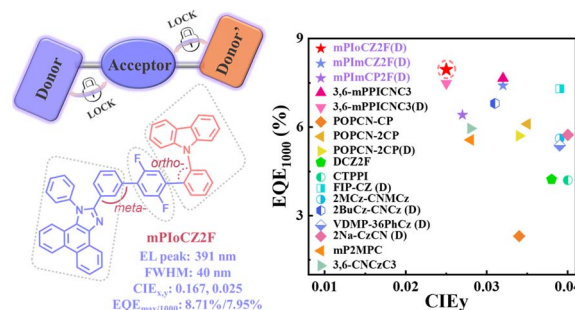
Xianhao Zhang, Jirui Zhan, Haonan Qin, Jintao Deng, Junjie Liu, Meixian Li, Rui Cao\* and Yuanhua Shao\*



5518

## Intramolecular-locking modification enables efficient asymmetric donor-acceptor-donor' type ultraviolet emitters for high-performance OLEDs with reduced efficiency roll-off and high color purity

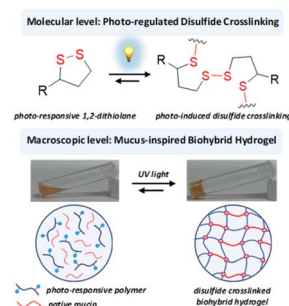
Shengnan Wang, Rui Zhang, Runjie Ding, Hao Huang, Haoyuan Qi, Yuchao Liu, Shian Ying,\* Dongge Ma\* and Shouke Yan\*



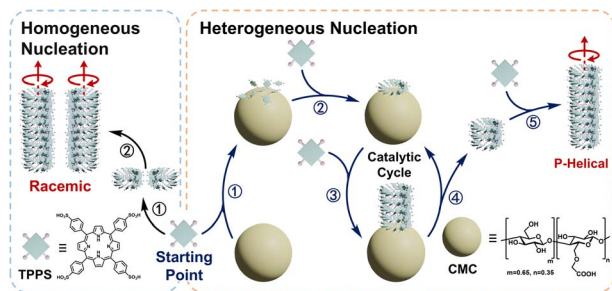
5528

## Photo-regulated disulfide crosslinking: a versatile approach to construct mucus-inspired hydrogels

Rui Chen,\* Krishnendu Das, Jun Feng, Boonya Thongrom and Rainer Haag\*



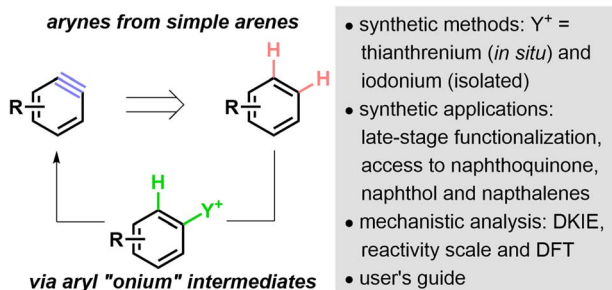
5538



### Heterogeneously catalyzed supramolecular polymerization: essential roles of nucleation and fragmentation-induced autocatalysis in chiral transfer

Peichen Shi, Ganyu Chen,\* Qiang Chen, Huiting Wu, Suixu Li, Xiaoyu Cao,\* Liulin Yang\* and Zhongqun Tian\*

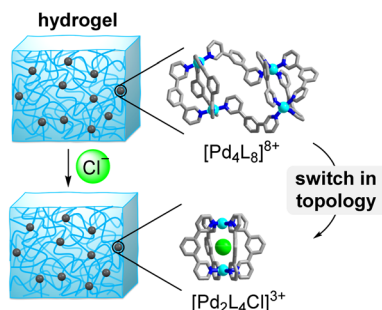
5547



### Access to arynes from arenes via net dehydrogenation: scope, synthetic applications and mechanistic analysis

Riley A. Roberts, Bryan E. Metzger, Nicole Javalay, Theresa M. McCormick\* and David R. Stuart\*

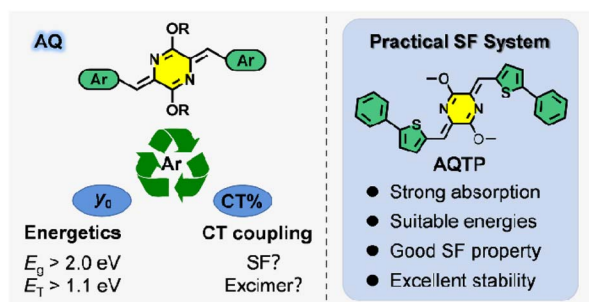
5559



### Palladium-based coordination cages as dynamic crosslinks in acrylamide hydrogels

Chaolei Hu, Damien W. Chen, Sylvain Sudan and Kay Severin\*

5565



### Multiple effects of aromatic substituents on excited-state properties and singlet fission process in azaquinodimethane systems

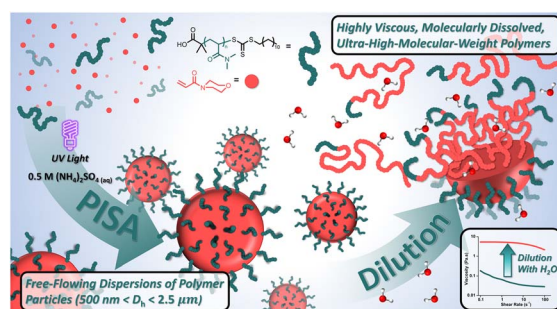
Zhenxiang Zhao, Senhao Wang, Xiaomei Shi, Hongbing Fu and Long Wang\*



5573

### Ultra-high molecular weight polymer synthesis via aqueous dispersion polymerization

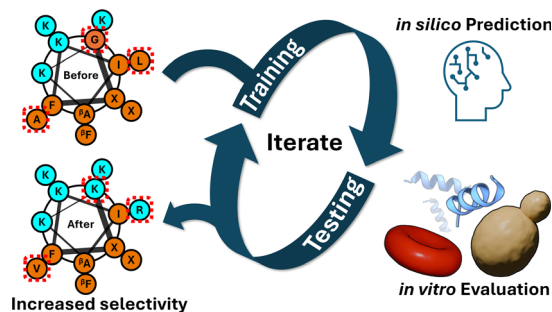
Cabell B. Eades, Kaden C. Stevens, Danyella E. Cabrera, Micayla K. Vereb, Megan E. Lott, Jared I. Bowman and Brent S. Sumerlin\*



5579

### Machine learning-driven discovery of highly selective antifungal peptides containing non-canonical β-amino acids

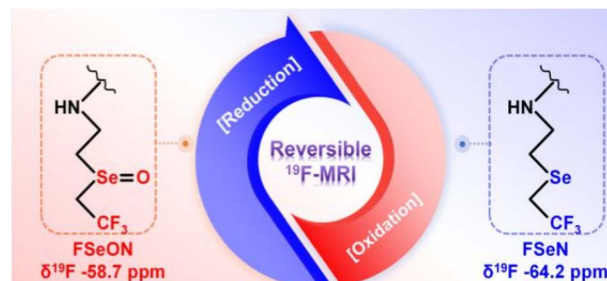
Douglas H. Chang, Joshua D. Richardson, Myung-Ryul Lee, David M. Lynn,\* Sean P. Palecek\* and Reid C. Van Lehn\*



5595

### Reversible redox <sup>19</sup>F magnetic resonance imaging nanoprobes for monitoring the redox state *in vivo*

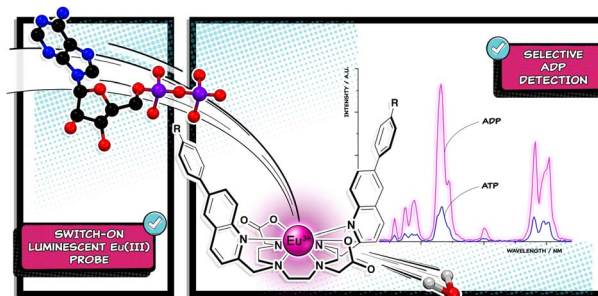
Xiaoyao Xiong, Sijia Li, Yumin Li, Suying Xu, Chang Guo\* and Leyu Wang\*



5602

### A switch-on luminescent europium(III) probe for selective and time-resolved detection of adenosine diphosphate (ADP)

Samantha E. Bodman, Patrycja Stachelek, Umatur Rehman, Felix Plasser, Robert Pal and Stephen J. Butler\*



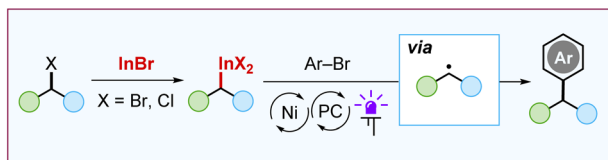
5613



### Effect of size, charge, and spin state on Hückel and Baird aromaticity in [N]annulenes

Louis Van Nyvel, Mercedes Alonso\* and Miquel Solà\*

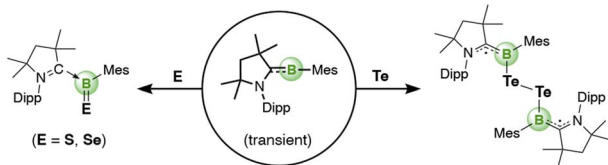
5623



### Unlocking the reactivity of the C–In bond: alkyl indium reagents as a source of radicals under photocatalytic conditions

Anton A. Gladkov, Vitalij V. Levin, Demian Y. Chebokarov and Alexander D. Dilman\*

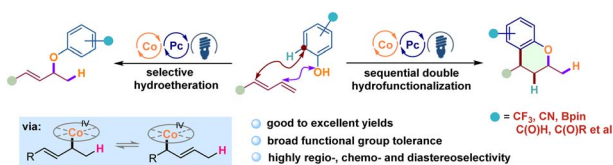
5632



### Harnessing transient CAAC-stabilized mesitylborylenes for chalcogen activation

Maximilian Michel, Lukas Endres, Felipe Fantuzzi, Ivo Krummenacher and Holger Braunschweig\*

5640



### A photo- and cobalt-catalyzed highly selective and divergent hydrofunctionalization of 1,3-dienes with phenols

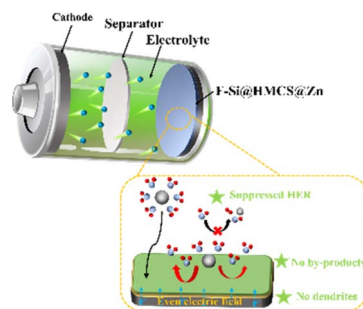
Yue Wang, Junhao Miao, Honglin Dong, Dongliang Zhang, Bei Chen, Meihui Guan, Ge Zhang\* and Qian Zhang



5651

### Innovative synergistic control of electric fields and $Zn^{2+}$ dynamics for revolutionizing zinc metal battery stability

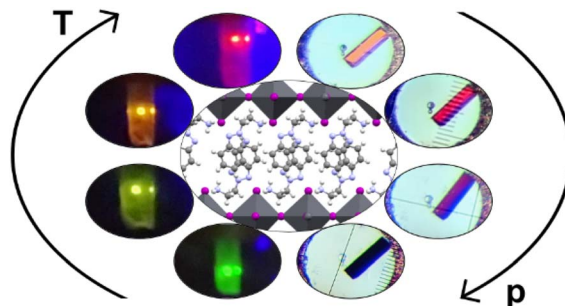
Shengqiang Zhang, Chengxin Liu, Yangyang Wang, Ao Xu, Chunxia Chen and Xiaojie Liu\*



5662

### Structural rigidity, thermochromism and piezochromism of layered hybrid perovskites containing an interdigitated organic bilayer

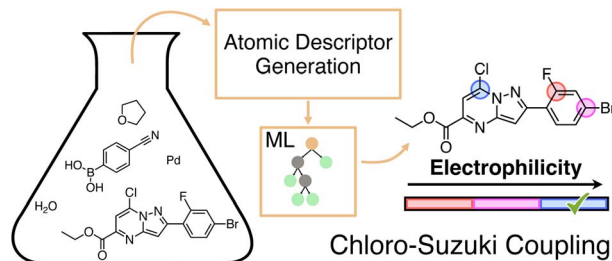
Arthur Maufort, Melissa Van Landeghem, Maxime Deutsch, Peter Banks, Paola La Magna, Kristof Van Hecke, Jesús Cerdá, Laurence Lutsen, Dirk Vanderzande, Claudio Quarti, David Beljonne, Sébastien Pillet, Koen Vandewal and Wouter T. M. Van Gompel\*



5676

### Atom-based machine learning for estimating nucleophilicity and electrophilicity with applications to retrosynthesis and chemical stability

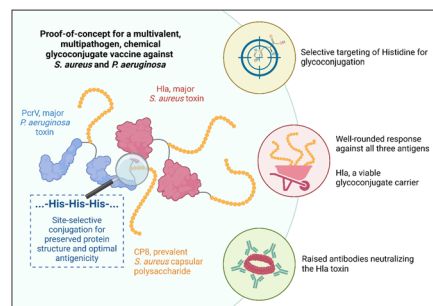
Nicolai Ree, Jan M. Wollschläger, Andreas H. Göller\* and Jan H. Jensen\*



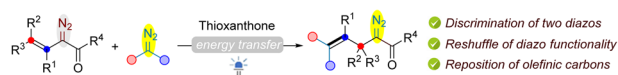
5688

### Multimeric, multivalent fusion carrier proteins for site-selective glycoconjugate vaccines simultaneously targeting *Staphylococcus aureus* and *Pseudomonas aeruginosa*

Charlotte Sorieul, Bartal Mikladal, Dung-Yeh Wu, Barbara Brogioni, Cinzia Giovani, Giusy Adamo, Giacomo Romagnoli, Immaculada Margarit Y Ros, Jeroen Codée, Maria R. Romano, Filippo Carboni\* and Roberto Adamo\*



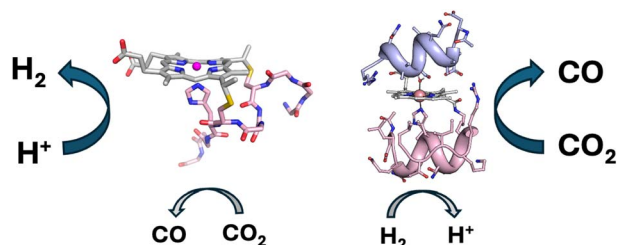
5701



### Blue light-induced diazo cross-coupling: synthesis of allyldiazo compounds through reshuffling of functionalities

Jiabao Tian, Jiahao Ling, Yanan Wang and Lei Zhou\*

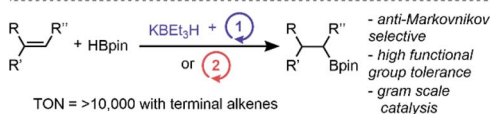
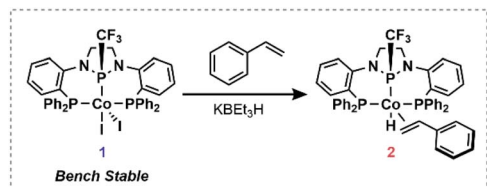
5707



### Electrocatalytic CO<sub>2</sub> reduction by a cobalt porphyrin mini-enzyme

Alison A. Salamatian, Jose L. Alvarez-Hernandez, Karishma B. Ramesh, Linda Leone, Angela Lombardi and Kara L. Bren\*

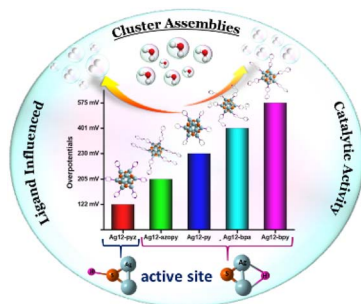
5717



### Efficient and selective hydroboration of alkenes catalyzed by an air-stable (PP<sup>CF<sub>3</sub></sup>P)CoI<sub>2</sub> precatalyst

Matthew C. Fitzsimmons, Maria C. Seith, Curtis E. Moore and Christine M. Thomas\*

5726



### Linker driven site-specific catalysis in atomically precise silver cluster assemblies

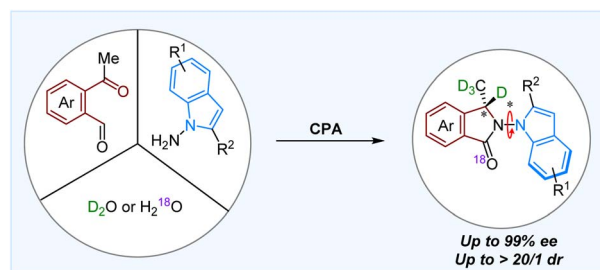
Priyanka Chandrashekar, Arun Karmakar, Ravari Kandy Aparna, Laddi Singh, Pradip Kumar Mondal, Subrata Kundu,\* Kalishankar Bhattacharyya\* and Sukhendu Mandal\*



5735

### Atroposelective [4+1] annulation for the synthesis of isotopic isoindolinones bearing both central and axial chirality

Jun Gu, Li-Hong Zhang, Hong-Feng Zhuang and Ying He\*



5745

### Bipyridine covalent organic framework aerogel for highly selective recovery of palladium in wastewater

Yang Liu, Weikang Guo, Jiale Liu, Haijuan Tao, Juan Yang, Qin Shuai, Yusuke Yamauchi, Brian Yuliarto, Yusuke Asakura\* and Lijin Huang\*

