

## IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 15(44) 18209–18660 (2024)



**Cover**  
See Laura Abad Galán, Guillem Aromí *et al.*, pp. 18295–18302. Image reproduced by permission of Guillem Aromí from *Chem. Sci.*, 2024, 15, 18295.



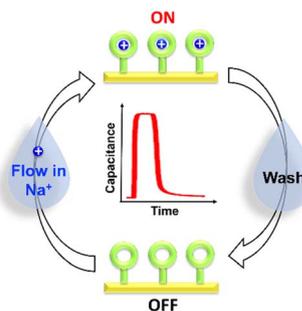
**Inside cover**  
See Jun Cheng *et al.*, pp. 18303–18309. Image reproduced by permission of Jun Cheng from *Chem. Sci.*, 2024, 15, 18303.

## COMMENTARY

18224

### A focus on capacitive cation sensing under flow: play it again SAM

Debapriya Gupta and Amar H. Flood

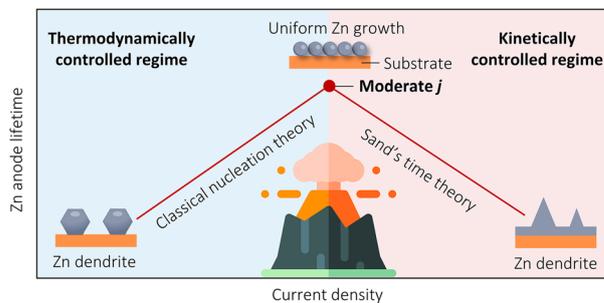


## PERSPECTIVES

18227

### Effects of current density on Zn reversibility

Licheng Miao, Wenqi Jia and Lifang Jiao\*



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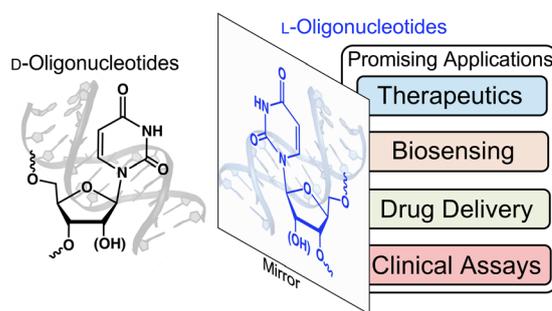
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## PERSPECTIVES

18239

**The clinical potential of L-oligonucleotides: challenges and opportunities**

Victoria Shearer, Chen-Hsu Yu, Xuan Han and Jonathan T. Szepanski\*

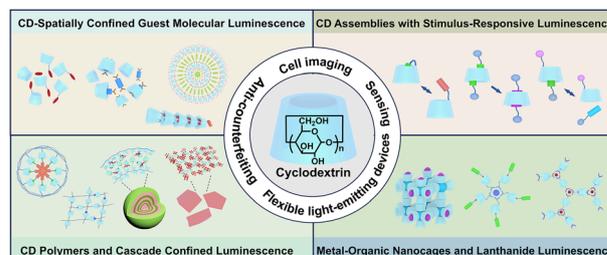


## REVIEWS

18259

**Cyclodextrin supramolecular assembly confined luminescent materials**

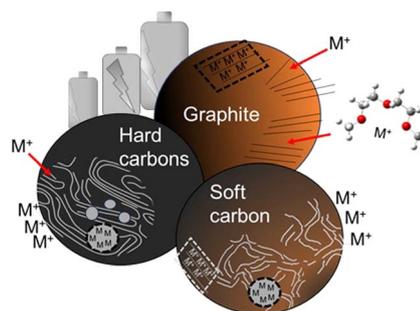
Xiaolu Zhou, Hengzhi Zhang and Yu Liu\*



18272

**New frontiers in alkali metal insertion into carbon electrodes for energy storage**

Zachary T. Gossage, Daisuke Igarashi, Yuki Fujii, Masayuki Kawaguchi, Ryoichi Tatara, Kosuke Nakamoto and Shinichi Komaba\*

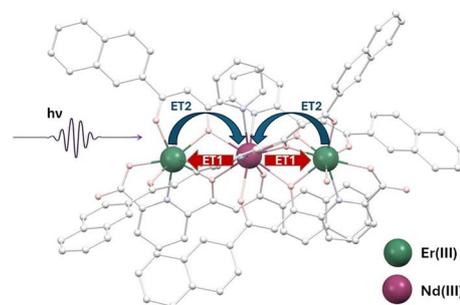


## EDGE ARTICLES

18295

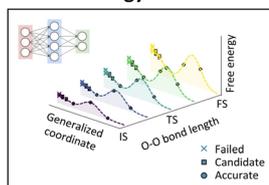
**Energy exchange between Nd<sup>3+</sup> and Er<sup>3+</sup> centers within molecular complexes**

Diamantoula Maniaki, Annika Sickinger, Leoní A. Barrios, David Aguilà, Olivier Roubeau, Yannick Guyot, François Riobé, Olivier Maury, Laura Abad Galán\* and Guillem Aromí\*



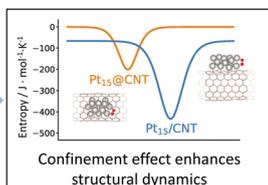
18303

## Active learning for free energy calculation



MLMD

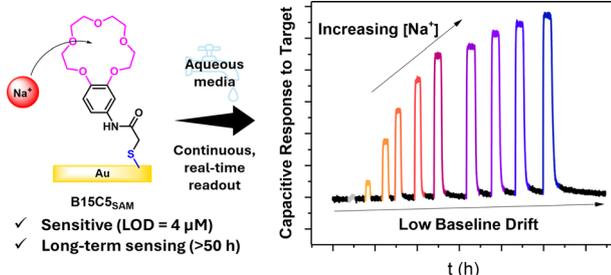
## Dynamic catalysis under confinement



## Entropy in catalyst dynamics under confinement

Qi-Yuan Fan, Yun-Pei Liu, Hao-Xuan Zhu, Fu-Qiang Gong, Ye Wang, Weinan E, Xinhe Bao, Zhong-Qun Tian and Jun Cheng\*

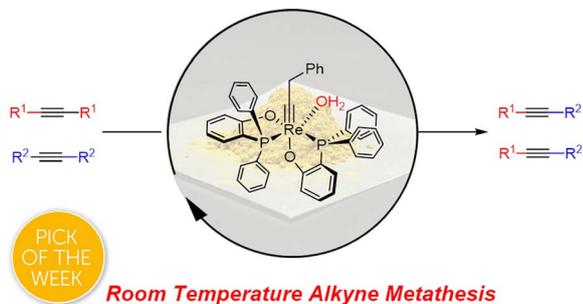
18310



## Non-faradaic capacitive cation sensing under flow

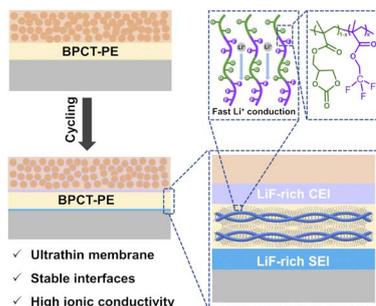
Sophie C. Patrick, Robert Hein, Paul D. Beer and Jason J. Davis\*

18318

Exploring efficient and air-stable d<sup>2</sup> Re(v) alkylidyne catalysts: toward room temperature alkyne metathesis

Mingxu Cui, Jie Huang, Long Yiu Tsang, Herman H. Y. Sung, Ian D. Williams\* and Guochan Jia\*

18327



## Molecular brush-based ultrathin polymer electrolytes with stable interfaces for high-voltage large-areal-capacity lithium metal batteries

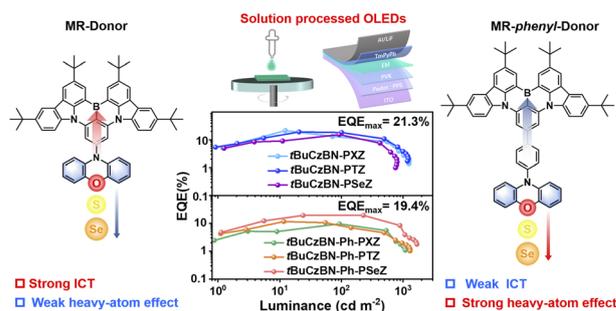
Rongfeng Liao, Congping Li, Minghong Zhou, Ruliang Liu, Shaohong Liu\* and Dingcai Wu\*



18335

### Modulatory spin-flip of triplet excitons via diversiform electron-donating units for MR-TADF emitters towards solution-processed narrowband OLEDs

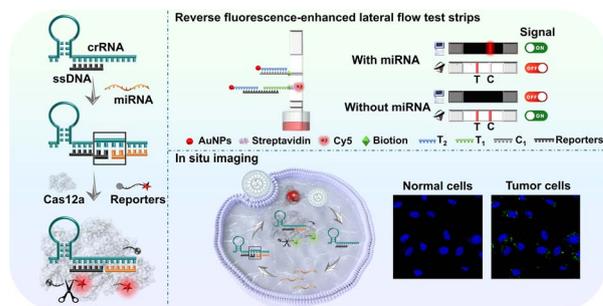
Shengyu Li, Zhi Yang, Yanchao Xie, Lei Hua, Shian Ying, Yuchao Liu,\* Zhongjie Ren and Shouke Yan\*



18347

### Amplification-free miRNA detection with CRISPR/Cas12a system based on fragment complementary activation strategy

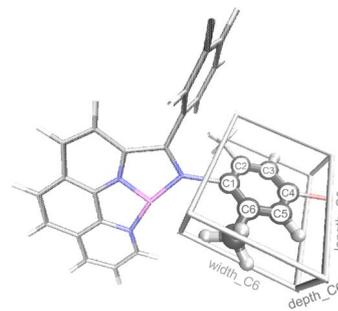
Shuang Zhao, Qiuting Zhang, Ran Luo, Jiudi Sun, Cheng Zhu, Dianming Zhou\* and Xiaoqun Gong\*



18355

### Experimentally-based Fe-catalyzed ethene oligomerization machine learning model provides highly accurate prediction of propagation/termination selectivity

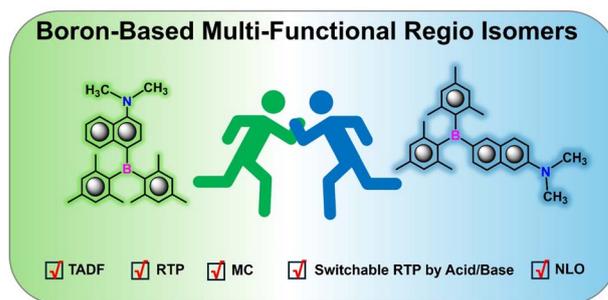
Bo Yang,\* Anthony J. Schaefer, Brooke L. Small, Julie A. Leseberg, Steven M. Bischof, Michael S. Webster-Gardiner\* and Daniel H. Ess\*



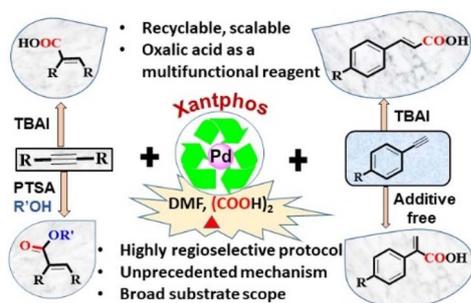
18364

### Regioisomers containing triarylboron-based motifs as multi-functional photoluminescent materials: from dual-mode delayed emission to pH-switchable room-temperature phosphorescence

Ramar Arumugam, Akkarakaran Thayyil Muhammed Munthasir, Ramkumar Kannan, Dipanjan Banerjee, Pagidi Sudhakar, Venugopal Rao Soma, Pakkirisamy Thilagar\* and Vadapalli Chandrasekhar\*



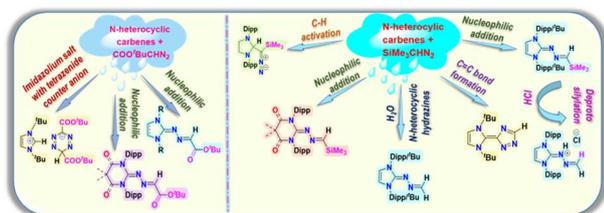
18379



### Pd/C-catalyzed regiodivergent hydrocarboxylation and esterification of alkynes

Pushkar Mehara, Poonam Sharma, Rohit Bains, Ajay Kumar Sharma and Pralay Das\*

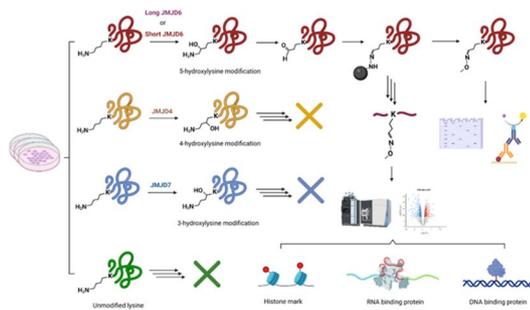
18387



### Uncovering diverse reactivity of NHCs with diazoalkane: C–H activation, C=C bond formation, and access to N-heterocyclic methylenehydrazine

Kajal Balayan, Himanshu Sharma, Kumar Vanka, Rajesh G. Gonnade\* and Sakya S. Sen\*

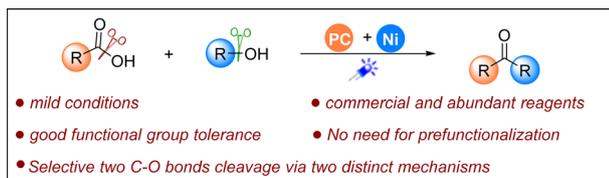
18395



### A constitutional isomer selective chemical proteomic strategy for system-wide profiling of protein lysine 5-hydroxylation

Yi-Cheng Sin, Meeyeon Park, Timothy J. Griffin, Jeongsik Yong\* and Yue Chen\*

18405



### Direct synthesis of dialkyl ketones from deoxygenative cross-coupling of carboxylic acids and alcohols

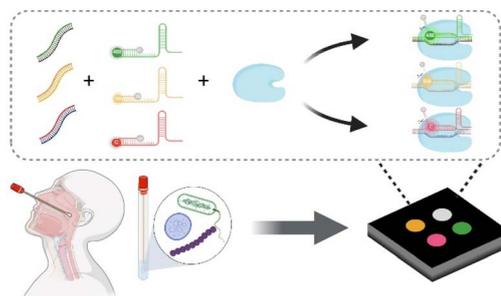
Bo Yang\* and Ri-Yuan Tang\*



18411

### Multiplexed detection of respiratory pathogens using a portable device combining a CREM strategy

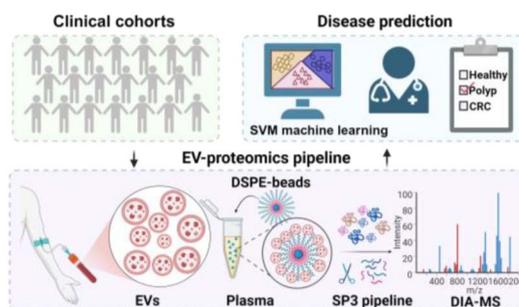
Xijuan Gu, Anli Pan, Lingwei Wu, Jing Zhang, Zixun Xu, Tao Wen, Miaomiao Wang, Xiuying Shi, Li Wu\* and Yuling Qin\*



18419

### A simplified and efficient extracellular vesicle-based proteomics strategy for early diagnosis of colorectal cancer

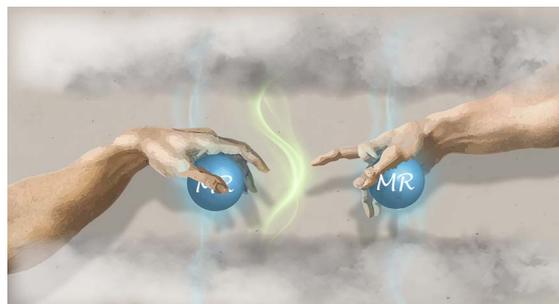
Jin Zhang, Zhaoya Gao, Weidi Xiao, Ningxin Jin, Jiaming Zeng, Fengzhang Wang, Xiaowei Jin, Liguang Dong, Jian Lin,\* Jin Gu\* and Chu Wang\*



18431

### Facilitating intrinsic delayed fluorescence of conjugated emitters by inter-chromophore interaction

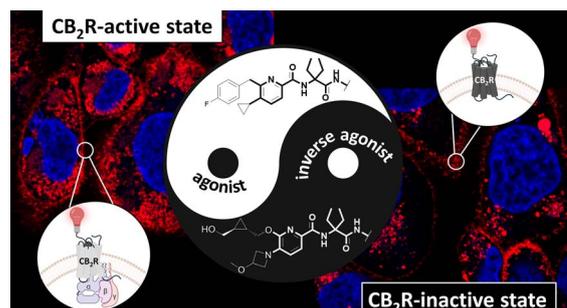
Yixuan Gao, Yingman Sun, Zilong Guo, Guo Yu, Yaxin Wang, Yan Wan, Yandong Han, Wensheng Yang, Dongbing Zhao\* and Xiaonan Ma\*



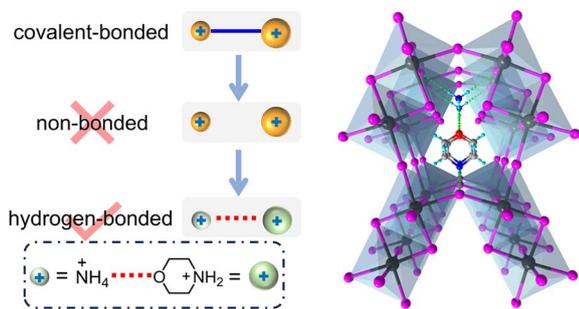
18443

### Visualization of membrane localization and the functional state of CB<sub>2</sub>R pools using matched agonist and inverse agonist probe pairs

M. Wąsińska-Katwa, A. Omran, L. Mach, L. Scipioni, J. Bouma, X. Li, S. Radetzki, Y. Mostinski, M. Schippers, T. Gazzì, C. van der Horst, B. Brennecke, A. Hanske, Y. Kolomeets, W. Guba, D. Sykes, J. P. von Kries, J. Broichhagen, T. Hua, D. Veprintsev, L. H. Heitman, S. Oddi,\* M. Maccarrone,\* U. Grether\* and M. Nazare\*



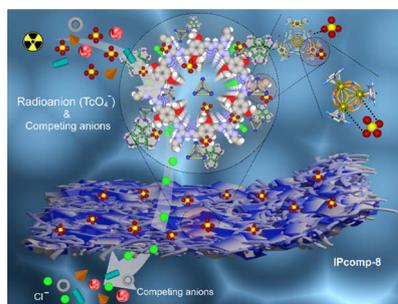
18455



### A three-dimensional lead iodide perovskite analog featuring hydrogen-bonded dual monovalent cations

Wei Wang, Cheng-Dong Liu, Chang-Chun Fan and Wen Zhang\*

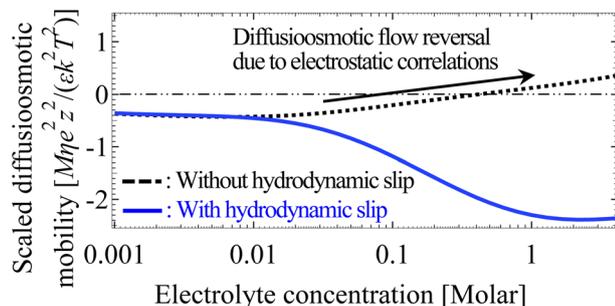
18463



### A nanotrapping infused ultrathin hybrid composite material for rapid and highly selective entrapment of $^{99}\text{TcO}_4^-$

Writakshi Mandal, Sahel Fajal, Dipanjan Majumder, Arijit Sengupta, Sumanta Let, Rajashri R. Urkude, Mandar M. Shirolkar, Arun Torris and Sujit K. Ghosh\*

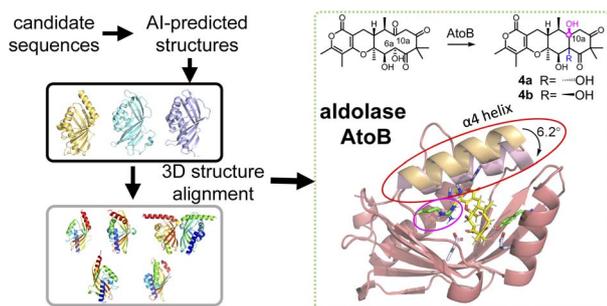
18476



### Competition between ion–ion electrostatic correlations and hydrodynamic slip radically changes diffusioosmosis

Shengji Zhang and Henry C. W. Chu\*

18490



### Three-dimensional structural alignment based discovery and molecular basis of AtoB, catalyzing linear tetracyclic formation

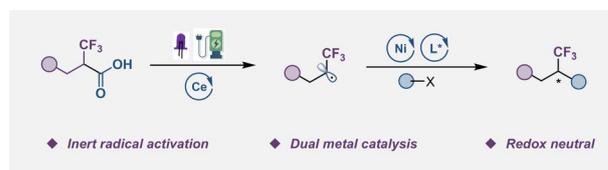
Ke Ma, Jie Liu, Zequan Huang, Mengyue Wu, Dong Liu, Jinwei Ren, Aili Fan\* and Wenhan Lin\*



18497

### Redox-neutral decarboxylative coupling of fluoroalkyl carboxylic acids *via* dual metal photoelectrocatalysis

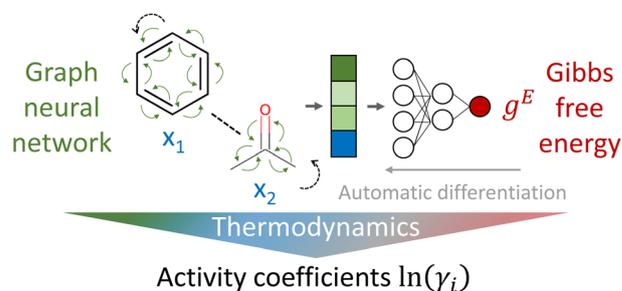
Yaxing Wu, Xiuling Wang, Zhenyu Wang and Chao Chen\*



18504

### Thermodynamics-consistent graph neural networks

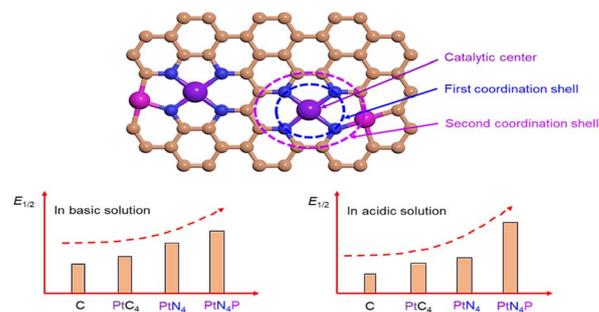
Jan G. Rittig and Alexander Mitsos\*



18513

### Second-shell modulation on porphyrin-like Pt single atom catalysts for boosting oxygen reduction reaction

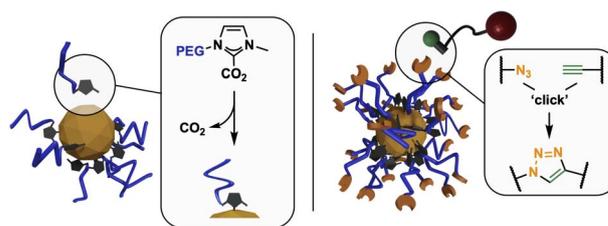
Tayyaba Najam, Syed Shoaib Ahmad Shah, Hanqing Yin, Xin Xiao, Shamraiz Talib, Qianqian Ji, Yonggui Deng, Muhammad Sufyan Javed, Jie Hu, Ruo Zhao, Aijun Du, Xingke Cai\* and Qiang Xu\*



18524

### Fabrication of azido-PEG-NHC stabilized gold nanoparticles as a functionalizable platform

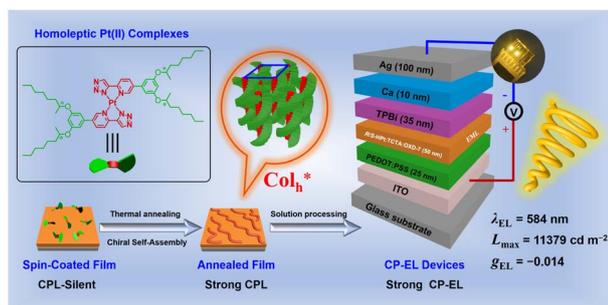
Constantin Eisen, Bernhard K. Keppler, Jia Min Chin,\* Xiaodi Su\* and Michael R. Reithofer\*



Top-down Fabrication and Conjugation of PEG-NHC@AuNPs



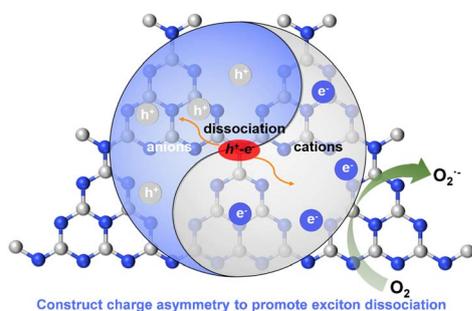
18534



### Efficient helical columnar emitters of chiral homoleptic Pt(II) metallomesogens for circularly polarized electroluminescence

Guo Zou, Zhenhao Jiang, Dong Li, Qihuan Li and Yixiang Cheng\*

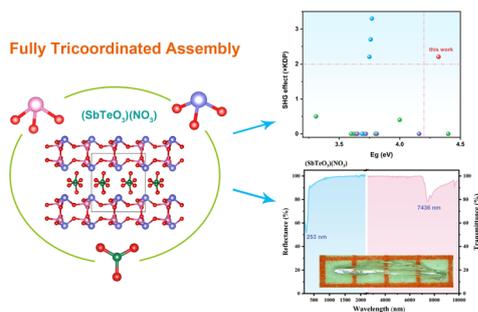
18543



### Boosting exciton dissociation in anion and cation co-doped polymeric semiconductor for selective oxidation reaction

Junkang Ge, Jun Zhao, Lei Li, Zhihao Li, Hui Wang,\* Xiaodong Zhang\* and Yi Xie

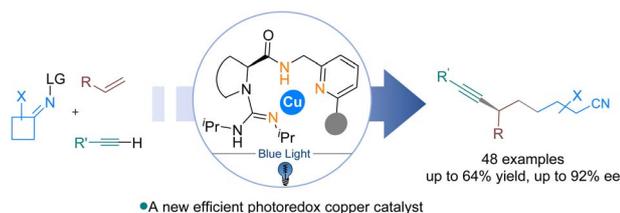
18549



### Fully tricoordinated assembly unveils a pioneering nonlinear optical crystal (SbTeO<sub>3</sub>)(NO<sub>3</sub>)

Bo Zhang, Chun-Li Hu, Jiang-Gao Mao and Fang Kong\*

18557



### Photoinduced copper-catalyzed asymmetric cyanoalkylalkynylation of alkenes, terminal alkynes, and oximes

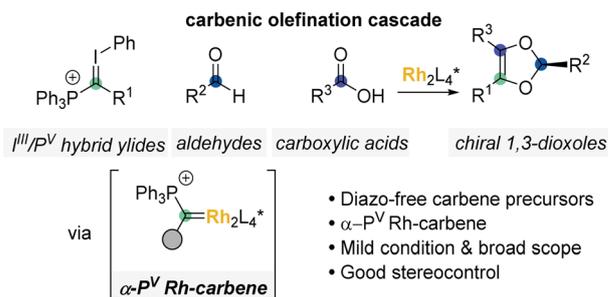
Shuang Xin, Jibang Liao, Qi Tang, Xiaoming Feng and Xiaohua Liu\*



18564

### Three-component modular synthesis of chiral 1,3-dioxoles via a Rh-catalyzed carbenic olefination cascade

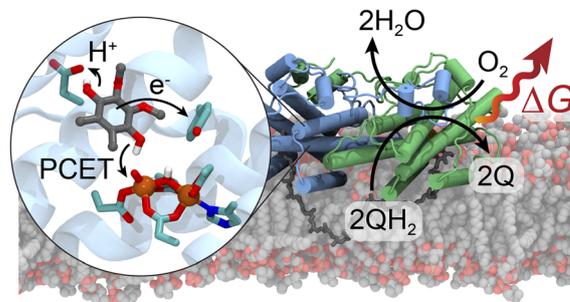
Shisheng Huang, Jilong Luo, Ping Chen, Jiean Chen\* and Zhaofeng Wang\*



18572

### Proton-coupled electron transfer dynamics in the alternative oxidase

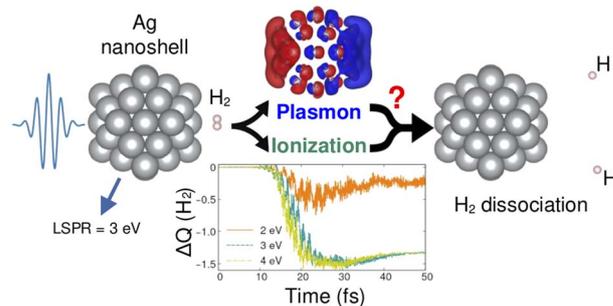
Patricia Saura, Hyunho Kim, Adel Beghiah, Luke Young, Anthony L. Moore and Ville R. I. Kaila\*



18581

### Strong-field effects in the photo-induced dissociation of the hydrogen molecule on a silver nanoshell

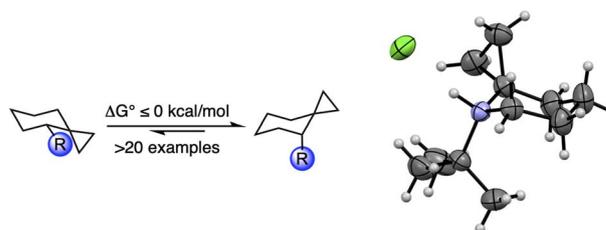
Natalia E. Koval,\* J. Iñaki Juaristi and Maite Alducin



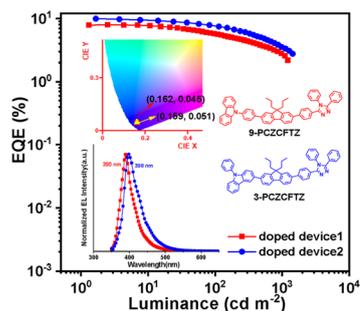
18592

### Driving *tert*-butyl axial: the surprising cyclopropyl effect

Anthony R. Izzotti and James L. Gleason\*



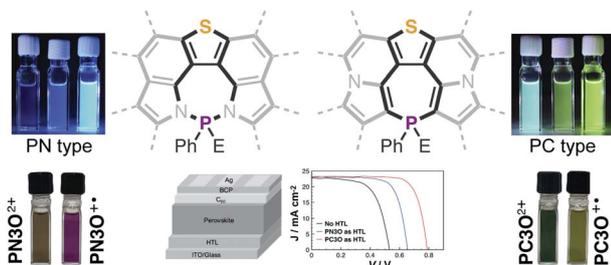
18601



### Highly efficient pure organic near-ultraviolet (NUV) electro-fluorescent materials with high electron mobility and improved hole mobility

Huayi Zhou, Runze Wang, Mizhen Sun, Yannan Zhou, Li Zhang, Jingru Song, Qikun Sun, Shi-Tong Zhang,\* Wenjun Yang and Shanfeng Xue\*

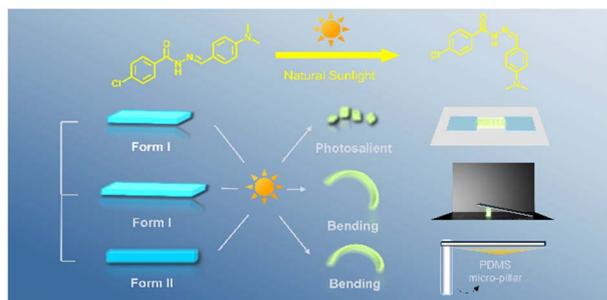
18608



### Non-innocent P-centers in nonbenzenoid polycyclic aromatic molecules with tunable structures and properties

Can Li, Wei Zhou, Zhaoxin Liu, Rong Gao, Qixi Mi, Zhijun Ning\* and Yi Ren\*

18617

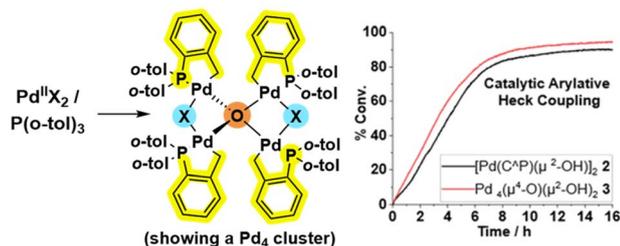


### Dynamic organic crystals as exceptionally efficient artificial natural light-harvesting actuators

Jiaxuan Zhu, Wenbo Wu, Haoqiang Qi, Yutong Yao, Hui Yu, Xin Huang, Na Wang,\* Ting Wang\* and Hongxun Hao\*

18627

#### Formation of palladacyclic Pd<sub>4</sub>, Pd<sub>6</sub> & Pd<sub>8</sub> clusters



### The ubiquitous P(o-tol)<sub>3</sub> ligand promotes formation of catalytically-active higher order palladacyclic clusters

David R. Husbands, Theo Tanner, Adrian C. Whitwood, Neil S. Hodnett, Katherine M. P. Wheelhouse and Ian J. S. Fairlamb\*

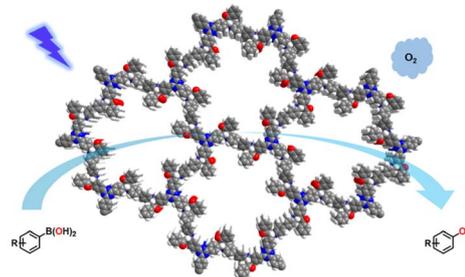


18634

### Construction of covalent organic frameworks *via* the Mannich reaction at room temperature for light-driven oxidative hydroxylation of arylboronic acids

Jian-Cheng Wang,\* Ting Sun, Jun Zhang, Zhi Chen, Jia-Qi Du, Jing-Lan Kan and Yu-Bin Dong\*

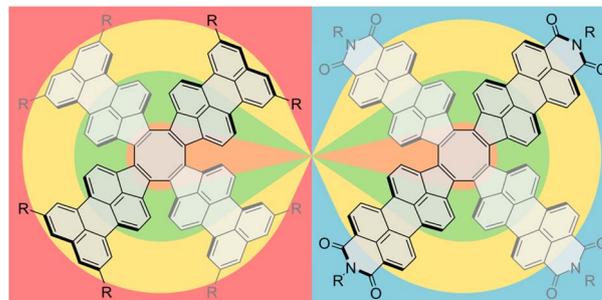
Construction of COFs *via* Mannich Reaction at Room Temperature



18640

### Pentacosacyclenes: cruciform molecular nanocarbons based on cyclooctatetraene

Rakesh Kumar, Piotr J. Chmielewski, Tadeusz Lis, Mirosław Czarnecki and Marcin Stępień\*



18650

### Easy access to amphiphilic nitrogenous block copolymers *via* switchable catalysis

Xue Liang, Jiachen Lv, Hongru Qiang, Jiahui Li, Wenli Wang,\* Jianzhong Du\* and Yunqing Zhu\*

