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See Ziyang Song, Lihua Gan, Mingxian Liu *et al.*, pp. 906–915. Image reproduced by permission of Mingxian Liu from *Chem. Sci.*, 2026, **17**, 906.

COMMENTARY

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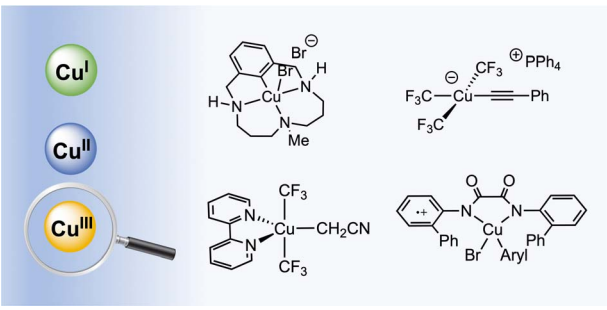
A reflection on recent advances in organometallic copper(III) chemistry

Alicia Casitas* and Xavi Ribas*

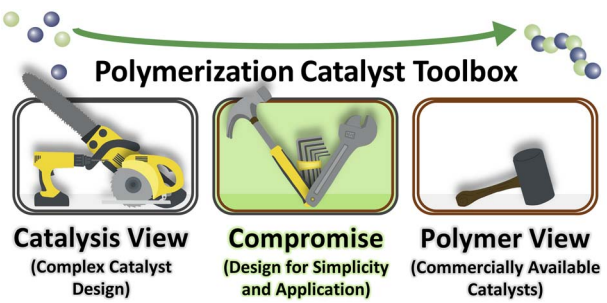


PERSPECTIVES

699

Simplifying the problem: metal salts can be active and controlled catalysts in polyester synthesis

Mary Dana Czarinah L. Cheng-Tan, Zachary A. Wood and Megan E. Fieser*



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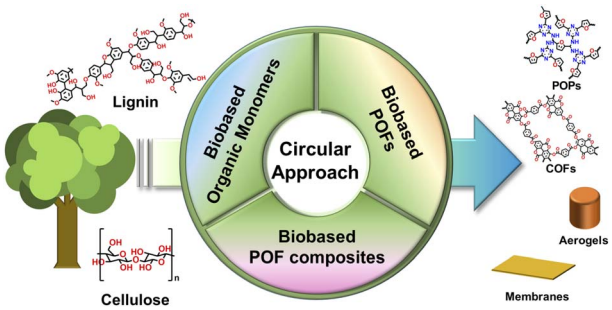
PERSPECTIVES

712

A sustainable approach to biobased porous organic frameworks and their composites

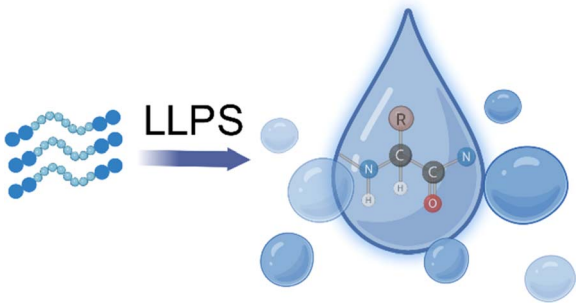
Michelle Åhlén, Samson Afewerki and Chao Xu*



725

Liquid–liquid phase separation of peptides: a molecular foundation for next-generation biomaterials

Liheng Lu and Huaimin Wang*

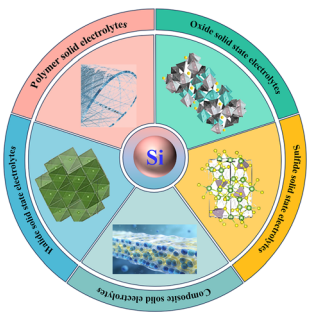


REVIEWS

738

Mechanisms, development, and applications of silicon-based anodes in solid state batteries

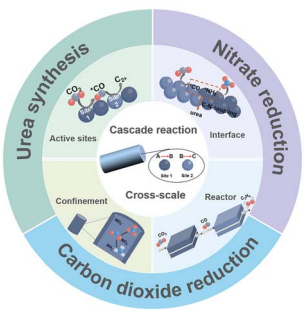
Feipan Liang, Lichun Yang,* Renzong Hu, Bin Yuan, Min Zhu and Jun Liu*



772

Cross-scale understanding of cascade electrocatalysis for carbon and nitrogen utilization

Shiping Li, Youyu Pang, Hongmei Li, Rui Yang, Zhaoyu Jin, Guihua Yu* and Panpan Li*



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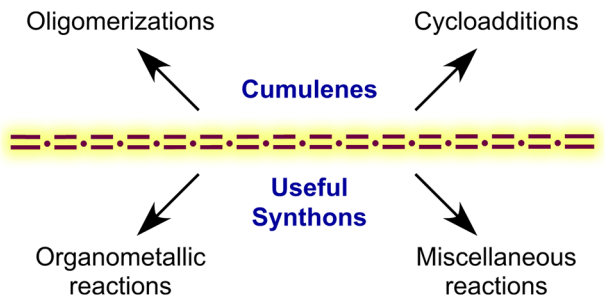

The versatile world of cumulene chemistry

Abhishek Pareek, Yu Qiu, Matthew A. Johnson, Rik R. Tykwinski* and Przemysław Gaweł*

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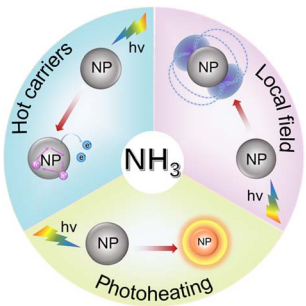

Enabling plasmon-assisted ammonia synthesis: from mechanistic insights to catalyst design

Wen-Qian Li, Miao Xu, Gang Chen, Xiaoping Chen,* Jie-Sheng Chen and Tian-Nan Ye*

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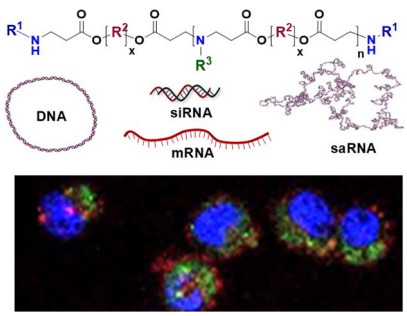

Poly(beta-amino esters): applications in immunology

Hulya Bayraktutan, Rafał J. Kopiasz, Amr Elsherbeny, Pratik Gurnani and Cameron Alexander*

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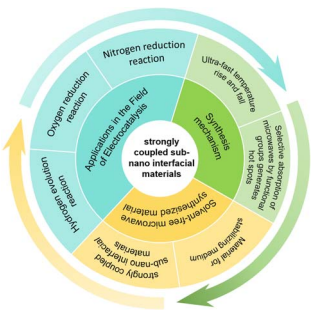

Rational design of solvent-free microwave nano-architectonics for the preparation of strongly coupled sub-nanometer interface materials: mechanisms, structures, and electrocatalytic applications

Yujia Gao, Wenxia Xu, Hongdong Li, Jingqi Chi, Jianping Lai* and Lei Wang*

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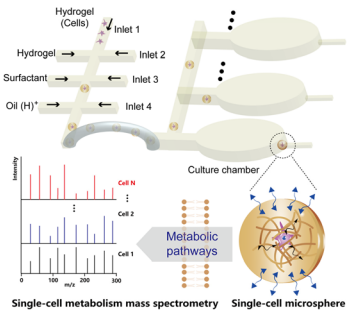
EDGE ARTICLES

899

Single-cell metabolic accumulation analysis by microfluidic hydrogel microspheres combined with mass spectrometry

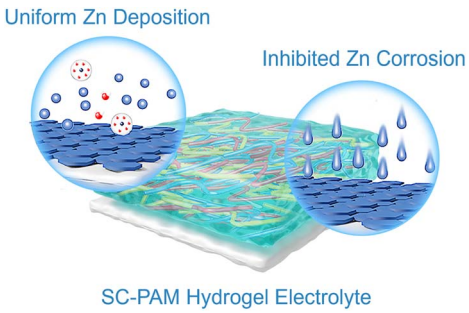
Gaowa Xing, Hongren Yao, Zengnan Wu,* Yuxuan Li, Ying Hou and Jin-Ming Lin*



906

Highly zincophilic-hydrophobic polyzwitterionic hydrogel electrolyte with strong electronegative sulfobetaine-carboxyl motifs for ultrastable zinc-ion batteries

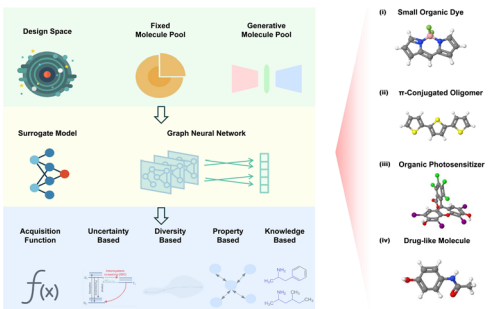
Jia Zhou, Qi Huang, Yaokang Lv, Ziyang Song,* Lihua Gan* and Mingxian Liu*



916

A unified active learning framework for photosensitizer design

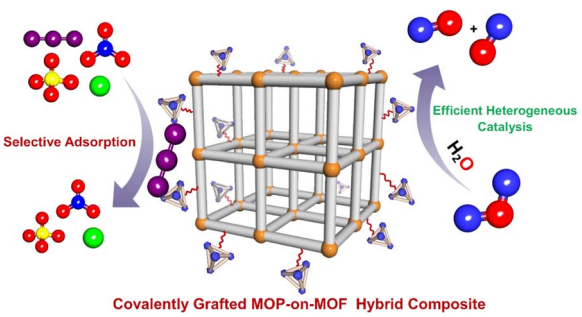
Yizhe Chen, Shomik Verma, Kevin P. Greenman, Haoyu Yin, Zhihao Wang, Lanjing Wang, Jiali Li,* Rafael Gómez-Bombarelli,* Aron Walsh* and Xiaonan Wang*



927

Covalently grafted MOP-on-MOF hybrid ionic-porous composite for efficient adsorption and catalysis

Dipayan Ghosh, Sahel Fajal, Kishalay Biswas, Anirban Roy, Dipanjan Majumder and Sujit K. Ghosh*



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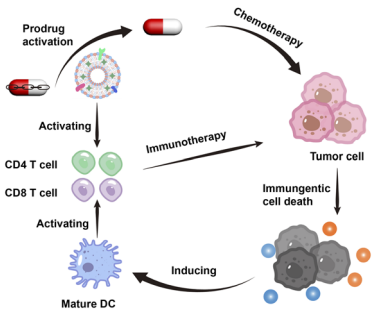

A bioorthogonal-catalytic artificial antigen-presenting cell for chemo- and immuno-therapy

Zhengwei Liu, Wenting Zhang, Chuanqi Zhao, Mengyu Sun, Jinsong Ren and Xiaogang Qu*

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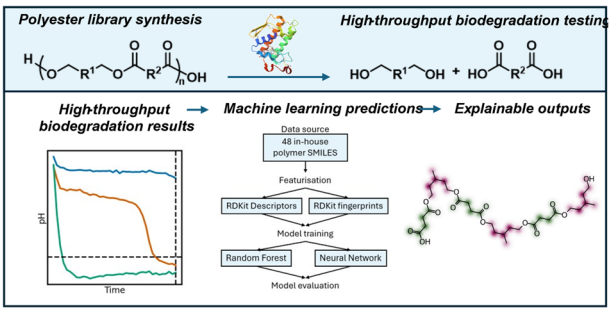

Explainable random forest predictions of polyester biodegradability using high-throughput biodegradation data

Philippa L. Jacob, Madeleine I. Parker, Daniel J. Keddie, Vincenzo Taresco, Steven M. Howdle and Jonathan D. Hirst*

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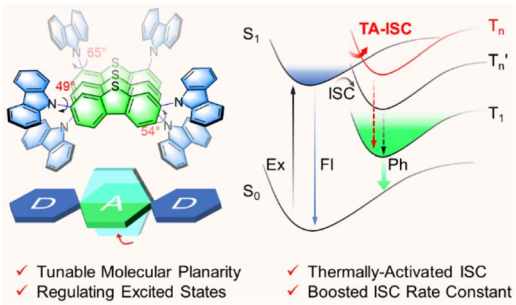

Observation of thermally activated intersystem crossing in room-temperature phosphorescence of weakly donor–acceptor–donor π-ternary molecules

Wenbin Huang, Chenlong Wei, Yuxin Zhu, Qian Zhang* and Zikai He*

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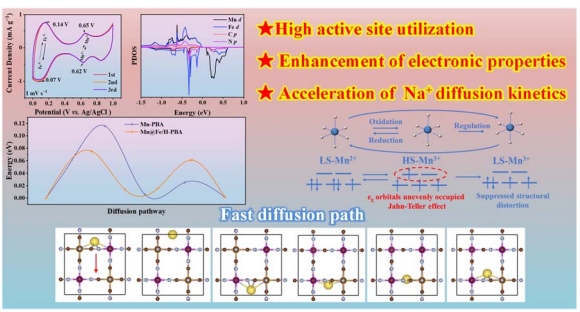

***In situ* surface manipulation Mn-based Prussian blue analogues with enhanced redox chemistry and ion diffusion toward high-energy-density aqueous sodium-ion batteries**

Hao Fu, Xianpeng Wang, Jun Yang,* Zhiqiang Wu, He Ren, Jianeng Ji, Minjie Shi and Edison Huixiang Ang*

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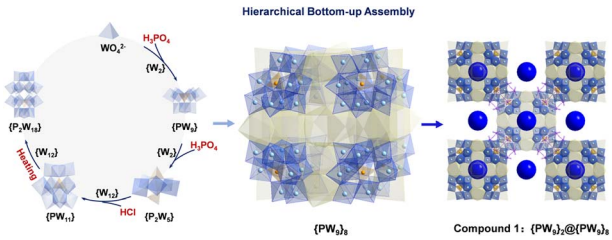
Real-time tracking of molecular cluster assembly and precise hierarchical reassembly into pure POM host–guest architecture

Kai-Ling Zhu, Ke Li, Liu-Bin Feng, Le Yang and Jia-Jia Chen*



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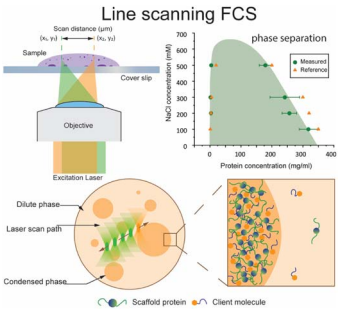
Measuring concentration and diffusivity within biomolecular condensates using calibration-free scanning fluorescence correlation spectroscopy

Prerit Mathur, Marcell Papp, Katarzyna Makasewicz, Paolo Arosio, Andrew J. deMello* and Stavros Stavrakis*



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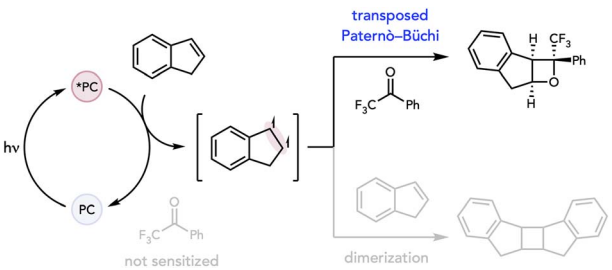
Intermolecular transposed Paternò–Büchi reactions enabled by triplet sensitization

Tahoe A. Fiala, Omar A. Solis, Jesse B. Kidd and Tehshik P. Yoon*



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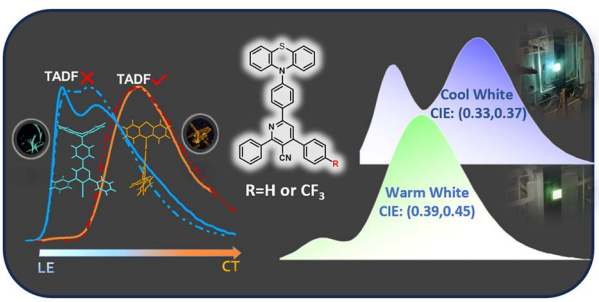
Phenothiazine-based TADF emitters with dual conformations for single-molecule white OLEDs

Pavithra V. Prabhu, Vibhu Darshan, Indira S. Divya, Moumita Banerjee, Sunil Varughese, Anakuthil Anoop,* K. N. Narayanan Unni* and Joshy Joseph*



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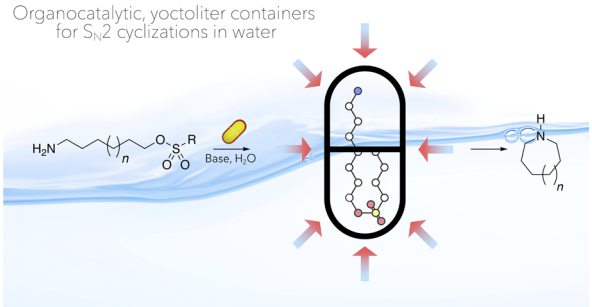

Exploring the formation of medium-sized cyclic amines within self-assembled yoctoliter inner-spaces

Yahya A. Ismaiel, Douglas Rogers and Bruce C. Gibb*

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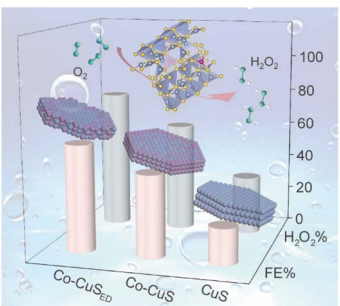

Surface dynamic engineering of discontinuous cobalt dopants on copper sulfide for enhanced electrosynthesis of hydrogen peroxide

Changhui Sun, Chaoqun Ma, Xuyun Guo, Yingjun Ma, Qiying Yang, Liangyu Gong,* Ye Zhu, Valeria Nicolosi and Jie Wang*

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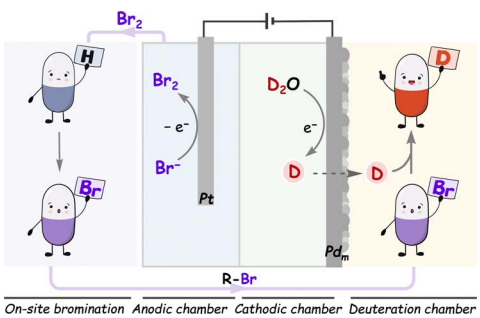

Electricity-driven site-selective deuteration of pharmaceuticals

Minling Zhong, Feihu Wang, Guanqun Han, Shuai Yuan, Guodong Li, De-en Jiang* and Yujie Sun*

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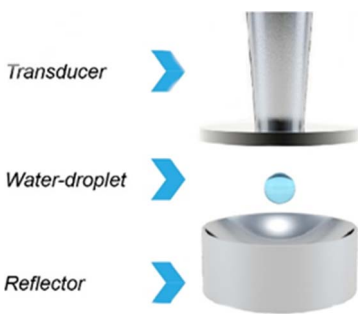

Generation of reactive oxygen species in water droplets levitated in air

Yu Xia, Xiaoxu Li, Fengjie Chen, Jinheng Xu, Xufeng Gao, Bolei Chen,* Xinxing Zhang* and Richard N. Zare*

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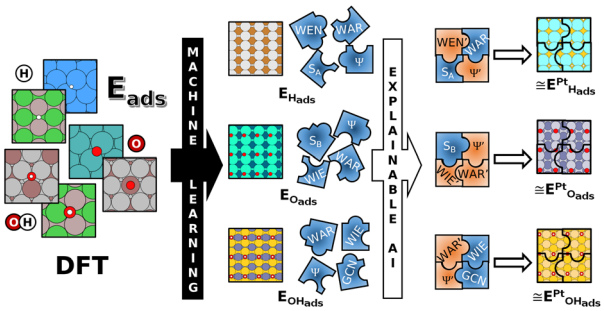
Explainable artificial intelligence for materials discovery: application to catalysts for the HER and ORR

Valentin Vassilev-Galindo* and Javier LLorca*



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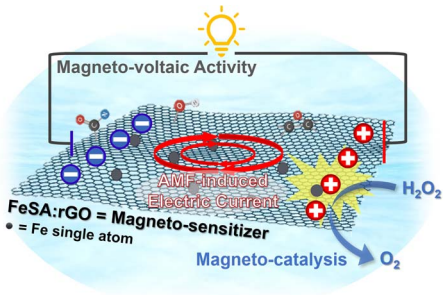
Magneto-voltaic activity of single-atom iron on reduced graphene oxide for magneto-catalytic conversion of H_2O_2 into O_2

Chieh-Wei Chung, Jyun-Yau Huang, Jing-Guan Liang, Linda Iffland, Loise Ann Dayao, Dinesh Kumar Dhanthala Chittibabu, Chong-Chi Chi, Jeng-Lung Chen, Ting-Shan Chan, Chi-Liang Chen, Ying-Rui Lu, Chieh-Cheng Huang, Ho-Hsiu Chou, Zong-Hong Lin, Ying-Chieh Chen, Ming-Yen Lu, Hsin-Tsung Chen,* Ulf-Peter Apfel,* Yei-Chen Lai* and Tsai-Te Lu*



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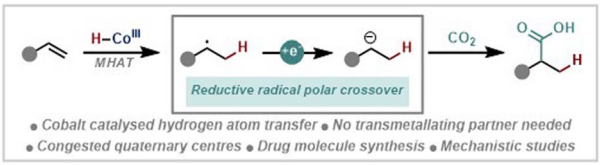
Inverting polarity in a cobalt MHAT reaction *via* reductive catalytic turnover

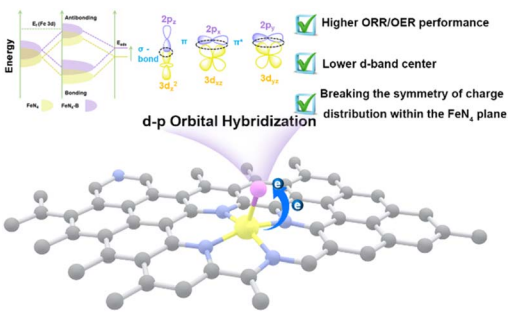
Samikshan Jana, Daniel A. Kusza, Nikita Vystavkin, Danijela Lunic and Christopher J. Teskey*



1105

Engineering d–p orbital hybridization of single-atom Fe sites *via* axial B-mediation for the oxygen reduction reaction

Xiaoqin Xu, Tianmi Tang, Xue Bai, Tao Gan* and Jingqi Guan*



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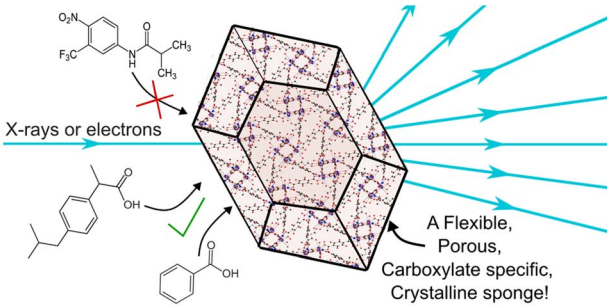

A flexible copper MOF as a carboxylate-specific crystalline sponge for structure solution using X-ray and electron diffraction

Russell M. Main,* Daniel N. Rainer, Marta Bauzá, Romy Ettlinger, Nicole L. Kelly, Simon J. Coles, Sharon E. Ashbrook and Russell E. Morris

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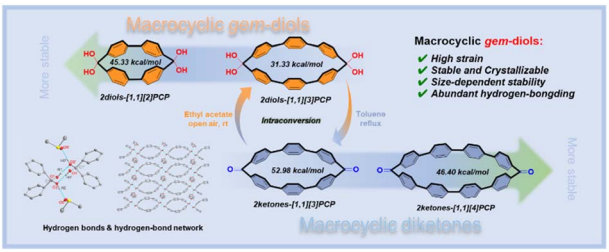

Macrocyclic geminal diols: synthesis, structures, stability and photophysical properties

Bo Zou, Xiaolin Chen, Haoran Liu, Sijie Wen, Jieqing Huang, Hengshan Wei, Jinqing Huang, Yucheng Gu, Bingjia Xu,* Jun Fan* and Hua-Wei Jiang*

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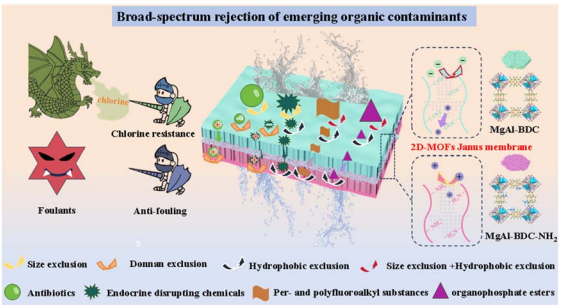

Broad-spectrum rejection of emerging organic contaminants with different structures and properties from complex water matrices by a chlorine-resistant Janus nanofiltration membrane

Zebin Hu, Kaiyue Tian, Longzhe Li, Han Dai, Zhangbo Peng, Zhonglong Yin* and Weiben Yang

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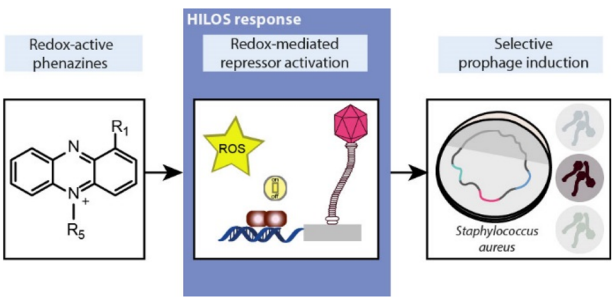

A phage-selective trigger hints at an SOS-independent mechanism of prophage induction by oxidative stress

Magdalena Jancheva, Thi-Hong Nhung Nguyen, Felix Anderl, Shubham Joge, Jessica Neubauer, Clarissa Rominger-Baumann, Alexandra Walter, Golo Storch and Thomas Böttcher*

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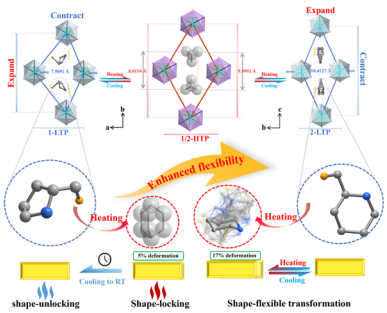
Organic cation conformational flexibility governs mechanical response in organic–inorganic hybrid materials

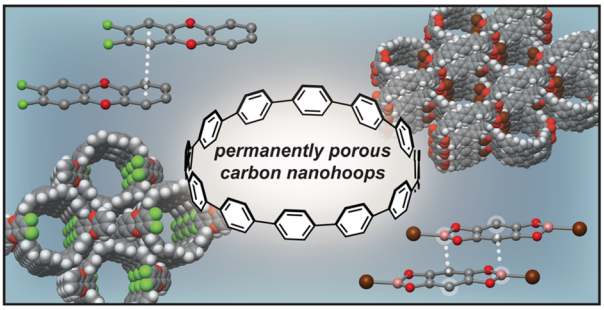
Ya-Wen Yang, Ke Xu, Zi-Ning Zhou, Ming-Liang Jin, Ryo Tsunashima, Takayoshi Nakamura, Chao-Yang Chai* and Qiong Ye*



1167

Permanently porous cycloparaphenylene nanohoops *via* supramolecular engineering

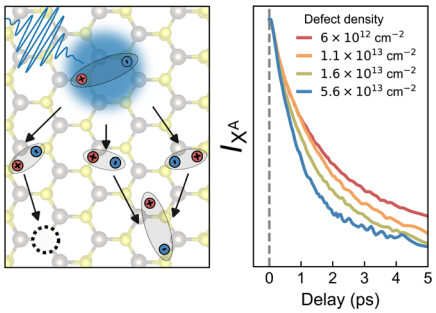
Ashlyn A. Kamin, Nathaniel J. Schuster, Haomiao Xie, Phuong H. Le, Kathleen M. Snook, Sebastian Krajewski, Werner Kaminsky, Omar K. Farha, Ramesh Jasti and Dianne J. Xiao*



1176

Defect-engineered competition between exciton annihilation and trapping in MOCVD WS_2

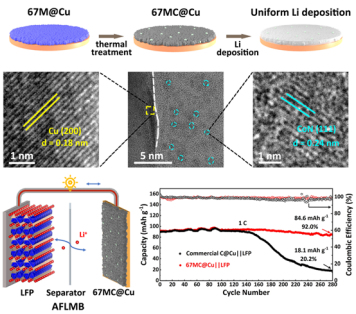
Ruofei Zheng, Leon Daniel, Dedi Sutarma, Christian Viernes, Yingfang Ding, Tobiloba Fabunmi, Gerd Bacher, Michael Heuken, Holger Kalisch, Andrei Vescan, Peter Kratzer, Marika Schleberger* and Germán Sciaini*



1186

Breaking the lithium deposition limit: *in situ* fabrication of a CoN-doped carbon skeleton membrane for anode-free lithium metal batteries

Wenyu Ma, Haiyang Wu, Lingtong Zhu, Zhenming Xu,* Bing Ding, Hui Dou* and Xiaogang Zhang*



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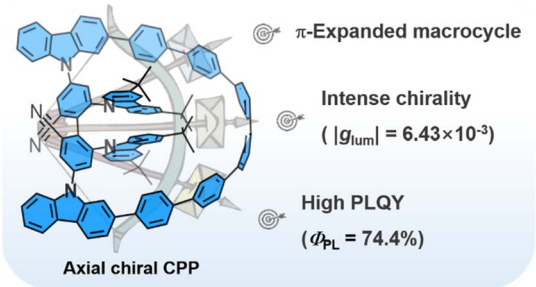
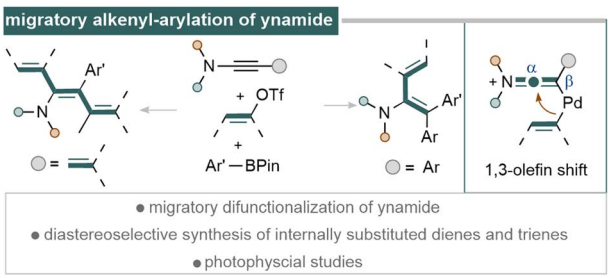


A bow-like axially chiral cycloparaphenylene with simultaneously enhanced photoluminescence quantum yield and dissymmetry factor

Meng-Xue Yu, Chao Feng, Wei-Chen Guo and Chuan-Feng Chen*

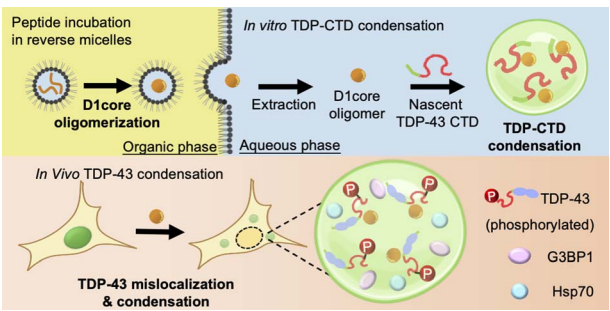
1203



Regio-reversed alkenyl–arylation of ynamides *via* 1,3-olefin shift

Saumya Verma, Manoj Sethi and Akhila K. Sahoo*

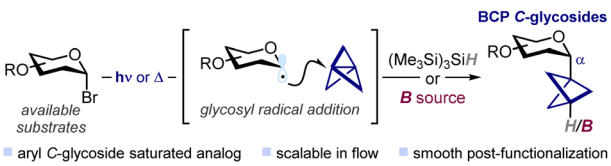
1210



Amyloidogenic oligomers derived from TDP-43 LCD promote the condensation and phosphorylation of TDP-43

Bryan Po-Wen Chen, Chi-Chang Lee, Ruei-Yu He, An-Chi Huang, Jie-rong Huang, Jerry Chun Chung Chan* and Joseph Jen-Tse Huang*

1223



A radical strategy to the synthesis of bicyclo[1.1.1] pentyl *C*-glycosides

Giulio Goti,* Alessia Marrese, Simone Baldon, Patricia Gómez Roibás, Giorgio Pelosi, Andrea Sartorel and Luca Dell'Amico*

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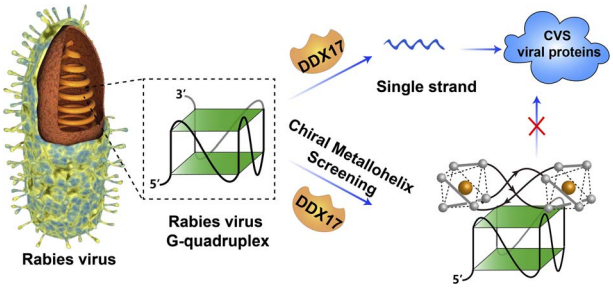
1232

Exploring RNA G-quadruplex in the rabies virus genome and its potential against RABV infection

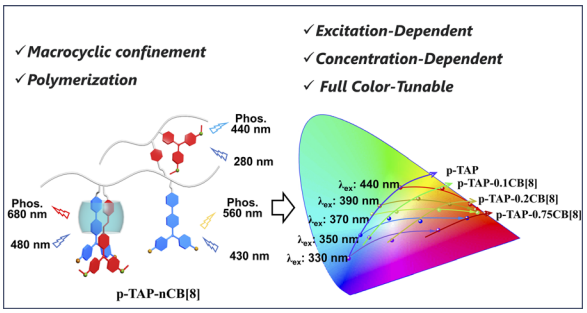
Xinying Zhang, Geng Qin, Shengnan Lv, Jianxiong Guo, Hualong Song, Miles L. Postings, Peter Scott, Chunyu Wang, Chuanqi Zhao,* Changchun Tu,* Yan Liu* and Xiaogang Qu*



1242

Spatially confined single-molecule folding achieves multicolor phosphorescence

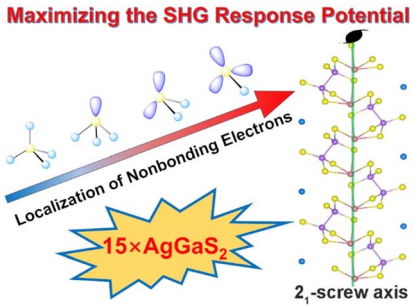
Xiaolu Zhou, Xin-Kun Ma, Xiaoye Zhang, Shuihuan Yu, Zhaoyuan Zhang and Yu Liu*



1249

Maximizing the second-harmonic generation response *via* coordination-induced localization of nonbonding electrons

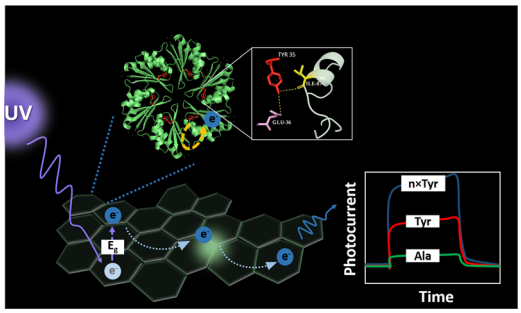
Jia-Xiang Zhang, A-Lan Xu, Yang Chi,* Xin-Tao Wu, Hua Lin* and Qi-Long Zhu*



1259

Biological semiconductors: self-assembled shell proteins as photoactive materials

Silky Bedi, S. M. Rose and Sharmistha Sinha*



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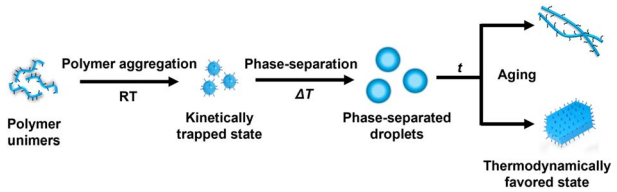
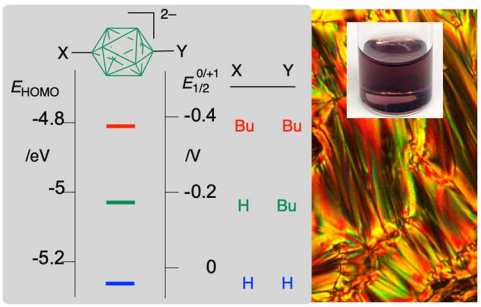
1271



Droplet-mediated kinetic-to-thermodynamic transition for the fabrication of uniform 1D and 2D nanostructures from conjugated homopolymers

Zehua Li, Yufan Gu, Yiheng Liu, Siyu Ji and Xu-Hui Jin*

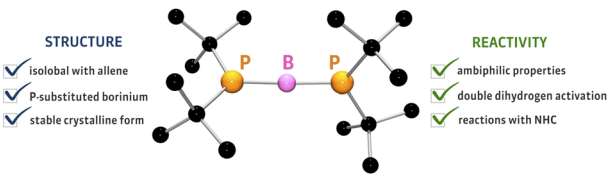
1282



Raising the HOMO level of the [*closo*-$B_{10}H_{10}$]$^{2-}$ anion: apical alkyl derivatives for modern materials

Rafał Jakubowski, Kehinde Ogunmola, Oleksandr Hietsoi, Andrienne C. Friedli,* Kevin H. Shaughnessy* and Piotr Kaszyński*

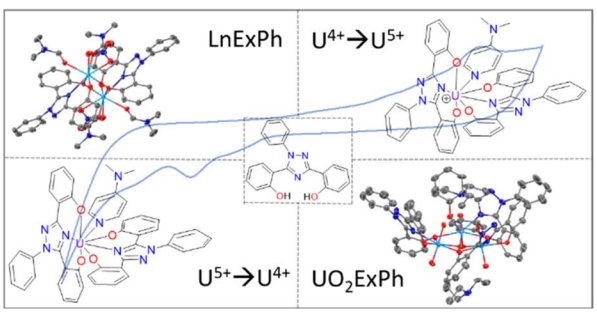
1288



A crystalline phosphorus-substituted borinium ion: double dihydrogen activation by an ambiphilic inorganic allene

Anna Ordyszewska-Lach,* Kinga Cieplińska, Iwona Anusiewicz, Jarosław Chojnacki, Kinga Kaniewska-Laskowska and Rafał Grubba*

1294



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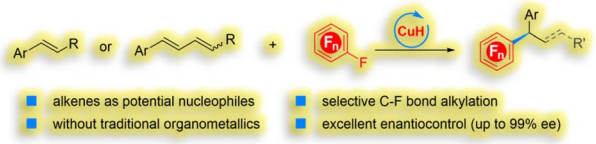
1301

Enantioselective copper-catalysed defluorinative alkylation of polyfluoroarenes with alkenes and 1,3-dienes

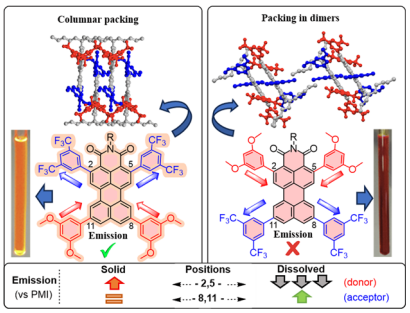
Dazhen Shi, Lihan Zhu, Ying Jiang, Simin Wang, Jianjun Yin, Xiuping Yuan, Shucheng Ma, Xiaoyu Li, Jiaqiong Sun, Qian Zhang* and Tao Xiong*



1310

Controlling optoelectronic properties and aggregation of planar dipoles through symmetry-preserving modifications

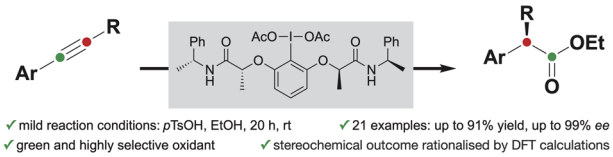
José García-Calvo,* María Modino-Montes, Ignacio Romero-Muñiz and Tomás Torres*



1318

Oxidative rearrangement of alkynes to chiral α-arylalkanoic esters

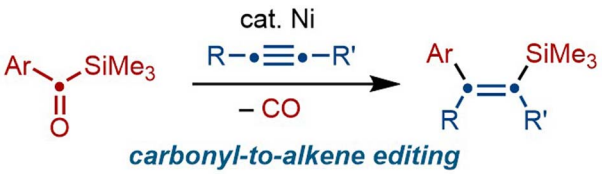
Rawiyah Alkahtani, Johannes Westphäling, Aleksandra Gorecka, Rasool Babaahmadi, Hanaa Gieman, Maylis Finance, Jaime Lorente-Martinez, Dhananjay Bhattacherjee, Rebecca L. Melen,* Mu-Hyun Baik* and Thomas Wirth*



1325

Nickel-catalyzed decarbonylative addition of acylsilanes across alkynes *via* the cleavage of a carbon–silicon bond

Yui Morimoto, Takahiro Ando, Tetsuya Inagaki, Hayato Fujimoto and Mamoru Tobisu*



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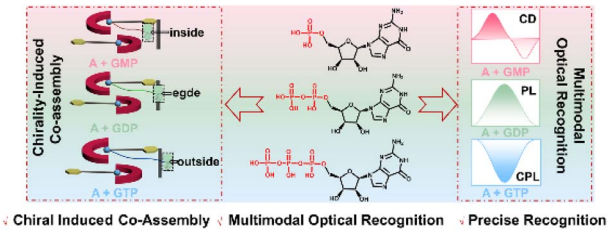
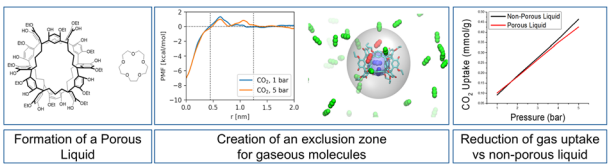
1330



Guanine nucleotide directed co-assembly with Pt-complexes for tailoring chiroptical properties and multimodal molecular recognition

Jiannan Xiao, Fang Zeng, Zhi-Wang Luo, Bo Yang, Jun Song, Pengfei Duan, Xue Jin,* Yong Chen* and Zhen-Qiang Yu*

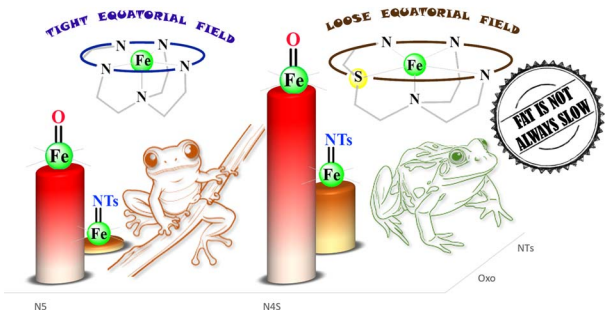
1341



Gas exclusion zones in Type II porous liquids

Cathal F. Kelly, Sergio F. Fonrouge, José L. Borioni, Mario G. Del Pópolo, Émer M. F. Rooney, Deborah E. Crawford, K. Travis Holman and Stuart L. James*

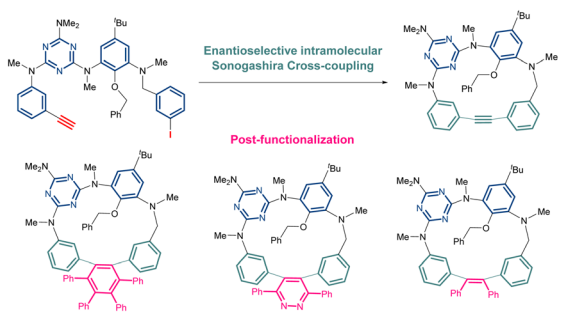
1349



Sulfur-ligated iron(IV)-imido and iron(IV)-oxo complexes, which one is more reactive?

Jagnyesh Kumar Satpathy, Rolly Yadav, Limashree Sahoo, Jens Uhlig, Ebbe Nordlander, Chivukula V. Sastri* and Sam P. de Visser*

1365



Inherently chiral homo-heteracalixarenes: design and synthesis *via* an enantioselective intramolecular Sonogashira cross-coupling reaction

Y.-F. Jiang, Y. Zhang, S. Tong,* J. Zhu and M.-X. Wang

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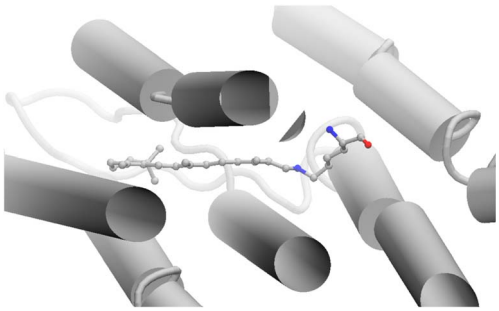
COMMENTS

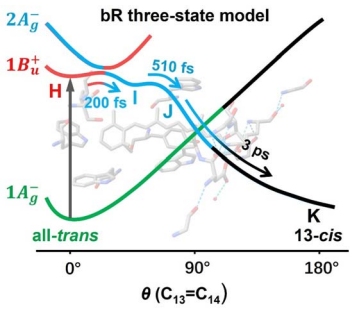
1373

Comment on "Mapping photoisomerization dynamics on a three-state model potential energy surface in bacteriorhodopsin using femtosecond stimulated Raman spectroscopy" by Z. Wang, Y. Chen, J. Jiang, X. Zhao and W. Liu, *Chem. Sci.*, 2025, 16, 3713

I. Schapiro, M. Olivucci, K. Heyne and S. Haacke*



1376

Reply to the 'Comment on "Mapping photoisomerization dynamics on a three-state model potential energy surface in bacteriorhodopsin using femtosecond stimulated Raman spectroscopy"' by I. Schapiro, M. Olivucci, K. Heyne and S. Haacke, *Chem. Sci.*, 2025, 16, DOI: 10.1039/D5SC05038C

Ziyu Wang, Boxiang Liu, Hongjie Li* and Weimin Liu*