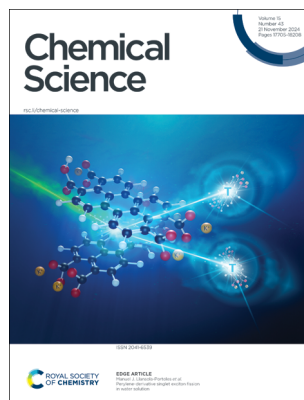


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Cover
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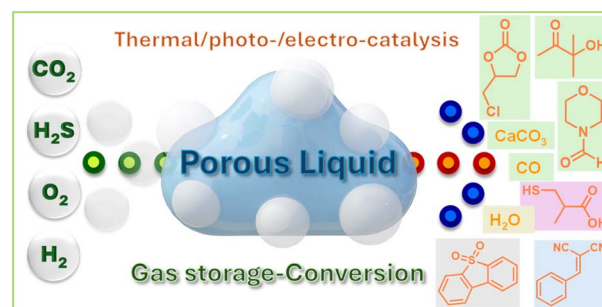
Inside cover
See Manuel J. Llansola-Portoles *et al.*, pp. 17831–17842. Image reproduced by permission of Manuel J. Llansola-Portoles from *Chem. Sci.*, 2024, 15, 17831.

PERSPECTIVES

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Porous liquids: an integrated platform for gas storage and catalysis

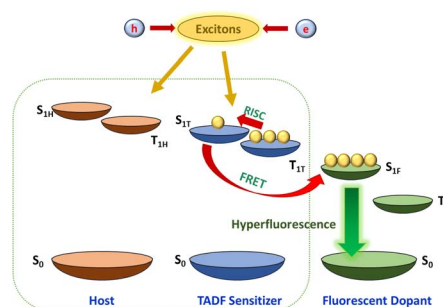
Errui Li, Kevin M. Siniard, Zhenzhen Yang* and Sheng Dai*



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A perspective on next-generation hyperfluorescent organic light-emitting diodes

Upasana Deori, Gyana Prakash Nanda, Caroline Murawski and Pachaiyappan Rajamalli*



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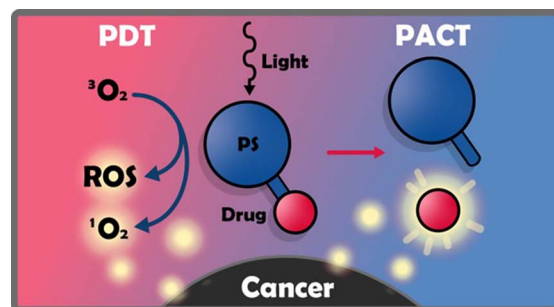
Fundamental questions
Elemental answers

PERSPECTIVES

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Two in one: merging photoactivated chemotherapy and photodynamic therapy to fight cancer

Kirill M. Kuznetsov, Kevin Cariou* and Gilles Gasser*

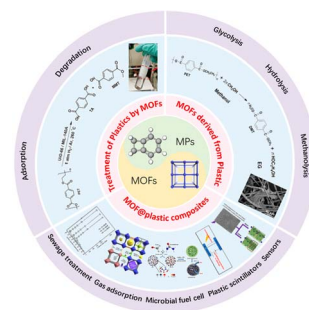


REVIEWS

17781

When microplastics/plastics meet metal–organic frameworks: turning threats into opportunities

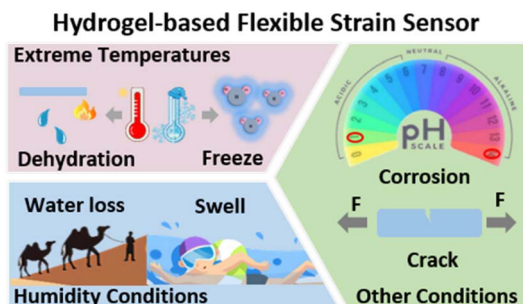
Pengfei Wu, Mengting Guo, Ran-Wei Zhang, Qing Huang,* Guibin Wang* and Ya-Qian Lan*



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Recent advances in hydrogel-based flexible strain sensors for harsh environment applications

Miaoyu Li, Jie Pu, Qinghe Cao, Wenbo Zhao, Yong Gao, Ting Meng, Jipeng Chen and Cao Guan*

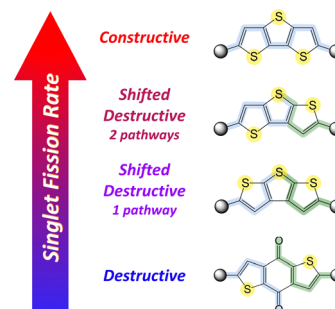


EDGE ARTICLES

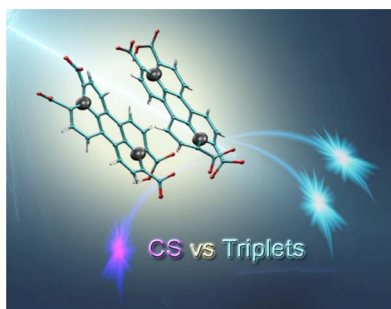
17823

Diverse quantum interference regimes in intramolecular singlet fission chromophores with thiophene-based linkers

Jonghwan Lee, Sungsik Eom and Hyungjun Kim*



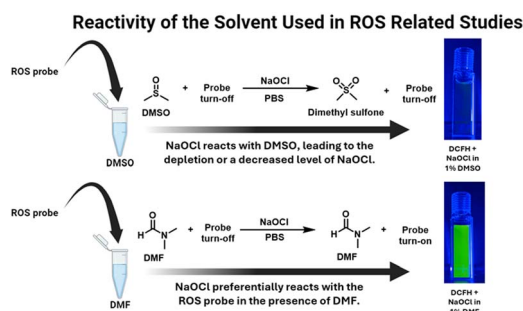
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Perylene-derivative singlet exciton fission in water solution

Chloe Magne, Simona Streckaite, Roberto A. Boto, Eduardo Dominguez-Ojeda, Marina Gromova, Andrea Echeverri, Flavio Siro Brigiano, Minh-Huong Ha-Thi, Marius Fanckevicius, Vidmantas Jašinskas, Annamaria Quaranta, Andrew A. Pascal, Matthieu Koepf, David Casanova, Thomas Pino, Bruno Robert, Julia Contreras-García, Daniel Finkelstein-Shapiro, Vidmantas Gulbinas and Manuel J. Llansola-Portoles*

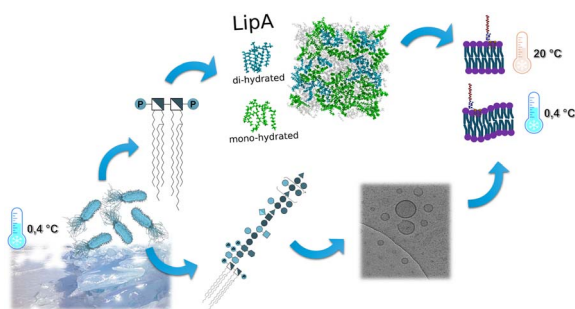
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A critical factor in reactive oxygen species (ROS) studies: the need to understand the chemistry of the solvent used: the case of DMSO

Shubham Bansal and Binghe Wang*

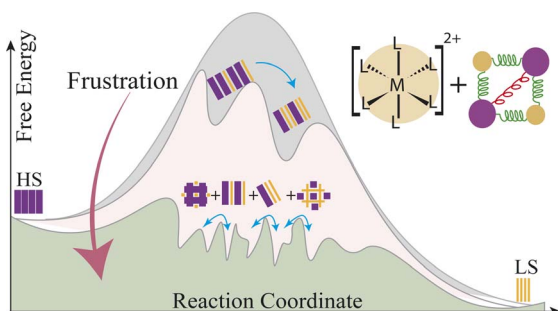
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Bucking the trend: understanding lipopolysaccharide structure and outer membrane dynamics in cold-adapted *Pseudomonas* isolated from Enigma Lake, Antarctica

Marcello Mercogliano, Stefania De Chiara, Antonio De Nicola,* Jacopo Cardellini, Costanza Montis,* Mikhail M. Yakimov, Violetta La Cono, Francesca Crisafi, Alba Silipo, Debora Berti, Giuseppe Milano, Antonio Molinaro and Flaviana Di Lorenzo*

17862



Complex relaxation of trapped spin-states in spin crossover materials

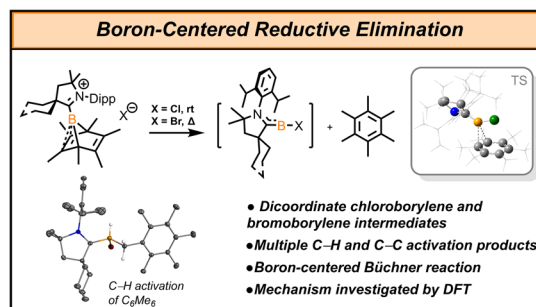
Nadeem Natt and Benjamin J. Powell*



17873

Arene extrusion as an approach to reductive elimination at boron: implication of carbene-ligated haloborylene as a transient reactive intermediate

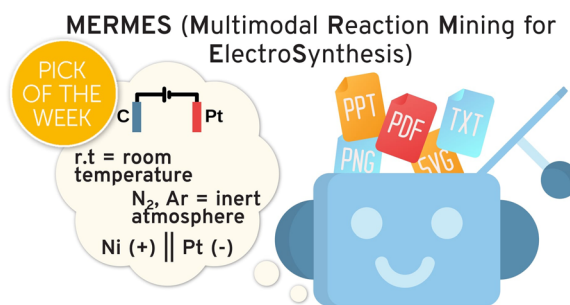
Chonghe Zhang, Robert J. Gilliard, Jr* and Christopher C. Cummins*



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Automated electrosynthesis reaction mining with multimodal large language models (MLLMs)

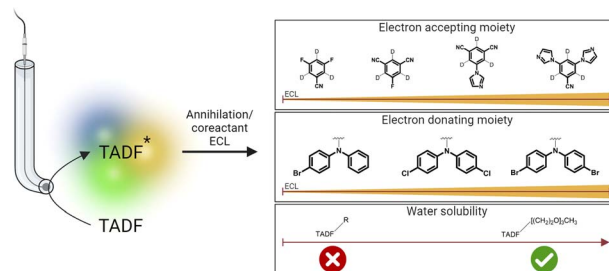
Shi Xuan Leong, Sergio Pablo-García, Zijian Zhang and Alán Aspuru-Guzik*



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Tunable electrochemiluminescence of TADF luminophores: manipulating efficiency and unveiling water-soluble emitters

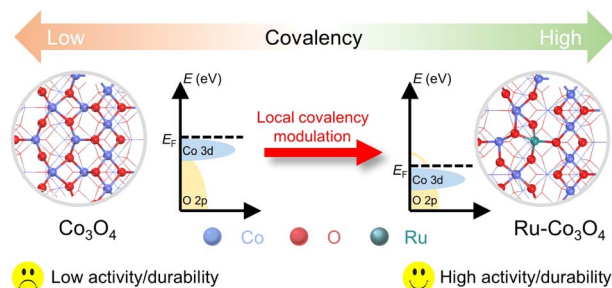
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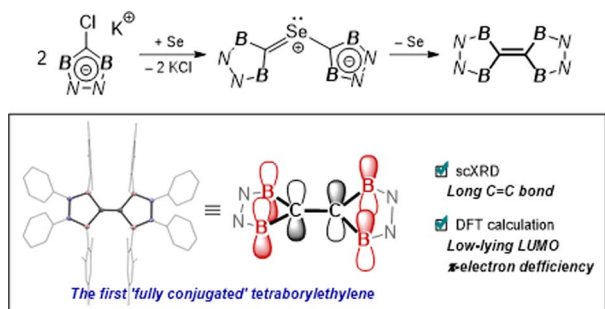
17900

Regulating Co–O covalency to manipulate mechanistic transformation for enhancing activity/durability in acidic water oxidation

Jiachen Zhang, Guangbo Chen, Dongmei Sun, Yawen Tang, Wei Xing, Hanjun Sun* and Xinliang Feng*



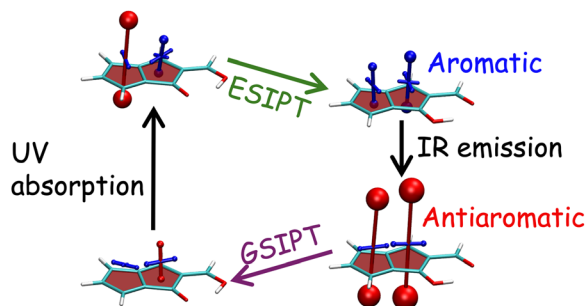
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Fully conjugated tetraborylethylene: selenium mediated C–C double bond formation from diborylcarbenoid

Yuki Shibutani, Shuhei Kusumoto* and Kyoko Nozaki

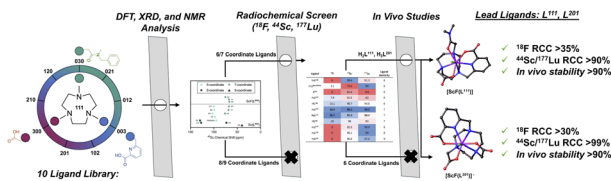
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Proton transfer induced excited-state aromaticity gain for chromophores with maximal Stokes shifts

Dong Xing, Florian Glöcklhofer and Felix Plasser*

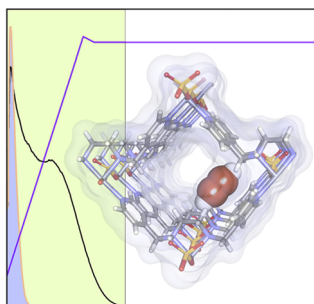
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Charting the coordinative landscape of the ^{18}F -Sc/ ^{44}Sc / ^{177}Lu triad with the tri-aza-cyclononane (tacn) scaffold

Cormac A. A. Kelderman, Owen M. Glaser, Jennifer N. Whetter, Eduardo Aluicio-Sarduy, Jason C. Mixdorf, Kyana M. Sanders, Ilia A. Guzei, Todd E. Barnhart, Jonathan W. Engle and Eszter Boros*

17937



Crystal engineering of a new platform of hybrid ultramicroporous materials and their C₂H₂/CO₂ separation properties

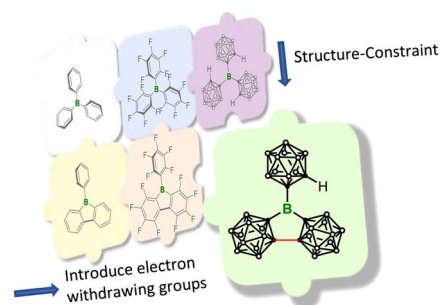
Daniel J. O'Hearn, Debobroto Sensharma, Asif Raza, Andrey A. Bezrukov, Matthias Vandichel*, Soumya Mukherjee* and Michael J. Zaworotko*



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Structure-constraint induced increase in Lewis acidity of tris(*ortho*-carboranyl)borane and selective complexation with Bestmann ylides

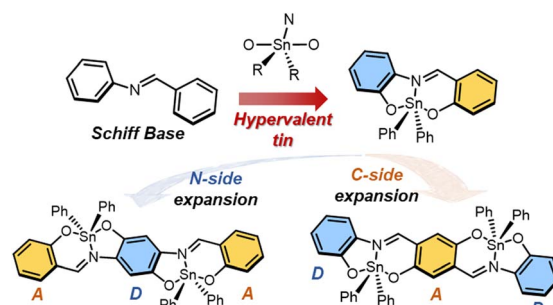
Libo Xiang, Junyi Wang, Alexander Matler and Qing Ye*



17950

Quadrupolar dinuclear hypervalent tin(IV) compounds with near-infrared emission consisting of Schiff bases based on π -conjugated scaffolds

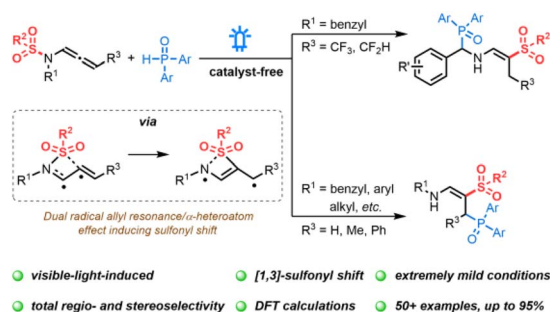
Kazuya Tanimura, Kento Tanaka, Masayuki Gon and Kazuo Tanaka*



17962

Photocatalyst-free, visible-light-induced regio- and stereoselective synthesis of phosphorylated enamines from *N*-allenamides via [1,3]-sulfonyl shift at room temperature

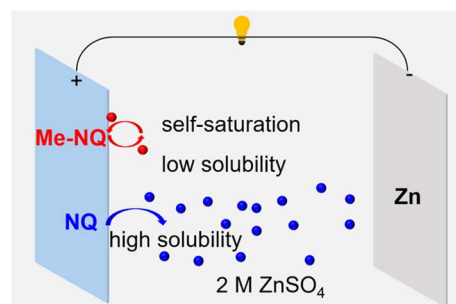
Jia-Dong Guo, Feven-Alemu Korsaye, Dorian Schutz, Ilaria Ciofini* and Laurence Miesch*



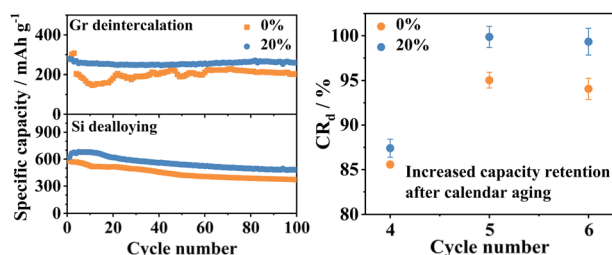
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A facile self-saturation process enabling the stable cycling of a small molecule menaquinone cathode in aqueous zinc batteries

Shuo Li, Guoli Zhang,* Qianrui Li, Tianshun He and Xiaoqi Sun*



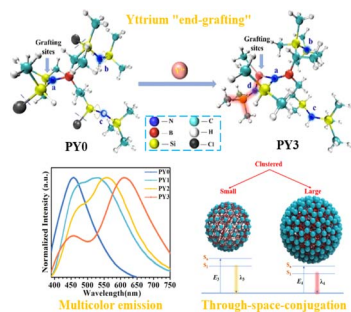
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Revealing the overlithiation effect on cycling and calendar aging of a silicon/graphite electrode for high-energy lithium-ion batteries

Xiaohong Wang, Chunhao Li, Shiyu Liu and Yongming Sun*

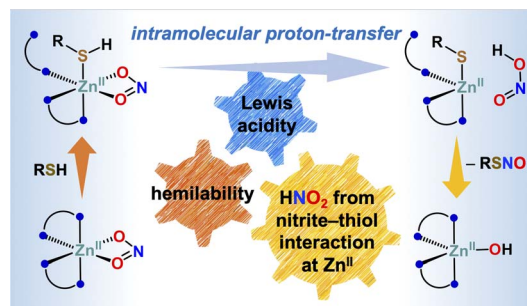
17988



Unexpected full-color luminescence produced from the aggregation of unconventional chromophores in novel polyborosilazane dendrimers

Yuang Li, Yingli Zhu,* Xiangcheng Li* and Pingan Chen

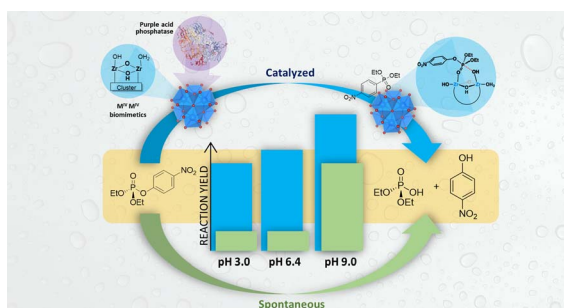
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Role of ancillary ligands in S-nitrosothiol and NO generation from nitrite-thiol interactions at mononuclear zinc(II) sites

Balakrishnan S. Anju, Neeraja R. Nair, Janavi Rajput, Jeffery A. Bertke, Bhaskar Mondal* and Subrata Kundu*

18008



Phosphoester bond hydrolysis by a discrete zirconium-oxo cluster: mechanistic insights into the central role of the binuclear Zr^{IV}-Zr^{IV} active site

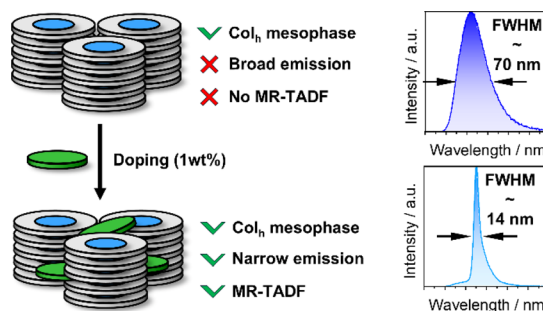
Edinara Luiz, Francisco de Azambuja,* Albert Solé-Daura,* Jordi Puiggali-Jou, Angelo Mullaliu, Jorge J. Carbó, Fernando R. Xavier, Rosely A. Peralta* and Tatjana N. Parac-Vogt*



18022

MR-TADF liquid crystals: towards self assembling host-guest mixtures showing narrowband emission from the mesophase

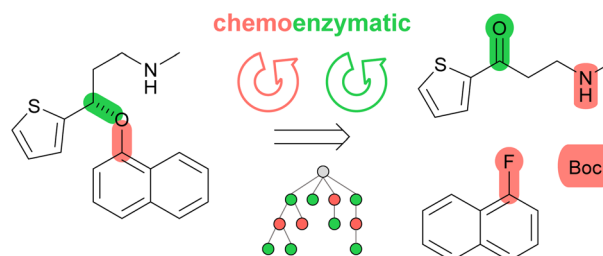
Julius A. Knöller,^{*} Franziska Müller, Tomas Matulaitis, John M. dos Santos, Abhishek Kumar Gupta, Eli Zysman-Colman^{*} and Sabine Laschat^{*}



18031

Chemoenzymatic multistep retrosynthesis with transformer loops

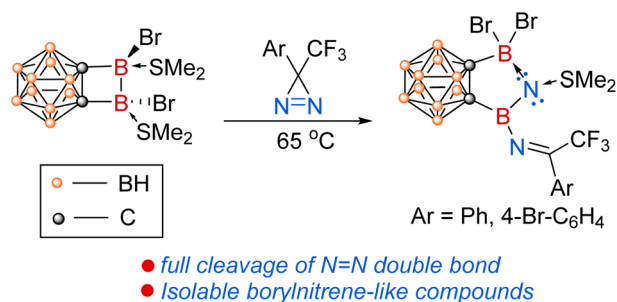
David Kreutter and Jean-Louis Reymond^{*}



18048

N=N bond cleavage in diazirines by a cyclic diborane(4) compound

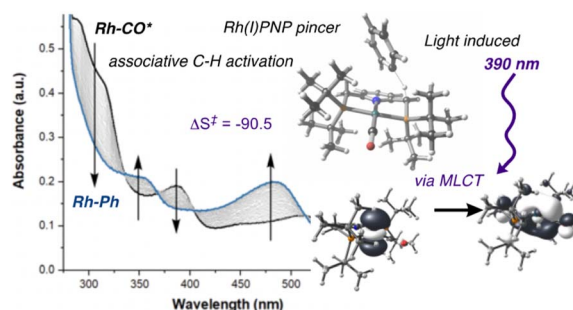
Minling Zhong, Jie Zhang and Zuowei Xie^{*}



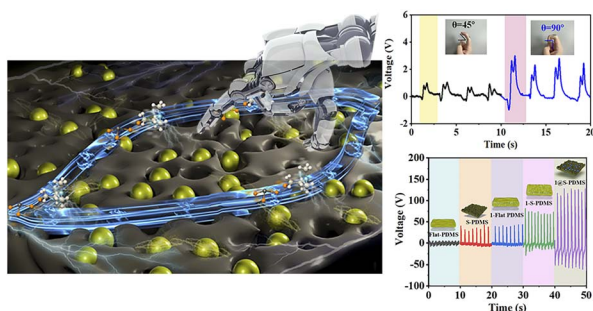
18052

Unlocking metal-ligand cooperative catalytic photochemical benzene carbonylation: a mechanistic approach

Francesco Crisanti, Michael Montag, David Milstein, Julien Bonin^{*} and Niklas von Wolff^{*}



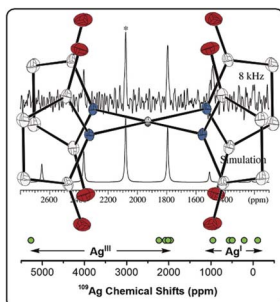
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Enhancing the performance of molecule-based piezoelectric sensors by optimizing their microstructures

Zheng-Xiao Tang, Bin Wang, Zhi-Rui Li, Zhuo Huang, Hai-Xia Zhao,* La-Sheng Long* and Lan-Sun Zheng

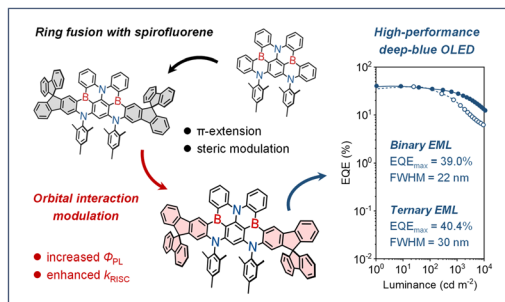
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A homoleptic Ag^{III} complex stabilized by succinimidate ligands

Emil Mickey Hilligsøe Larsen, Theis Brock-Nannestad, Jørgen Skibsted, Anders Reinholdt* and Jesper Bendix*

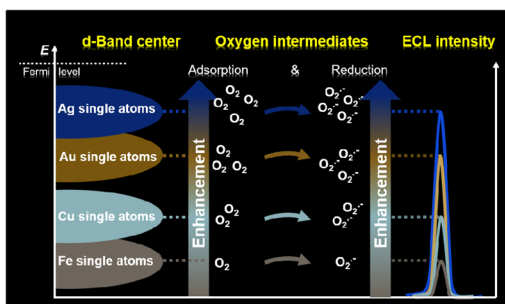
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High-performance deep-blue electroluminescence from multi-resonance TADF emitters with a spirofluorene-fused double boron framework

Ke Xu, Nengquan Li, Zeyuan Ye, Yuxi Guo, Yuxin Wu, Chenghao Gui, Xiaojun Yin, Jingsheng Miao, Xiaosong Cao* and Chuluo Yang

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Spotting d-band centers of single-atom catalysts by oxygen intermediate-boosted electrochemiluminescence

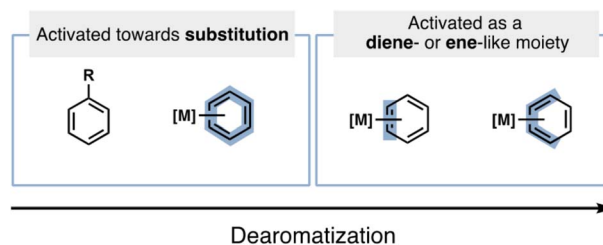
Ruyu Xie, Kaitao Li, Rui Tian* and Chao Lu*



18093

Is aromaticity loss necessary for transition-metal promoted arene–alkene cycloadditions?

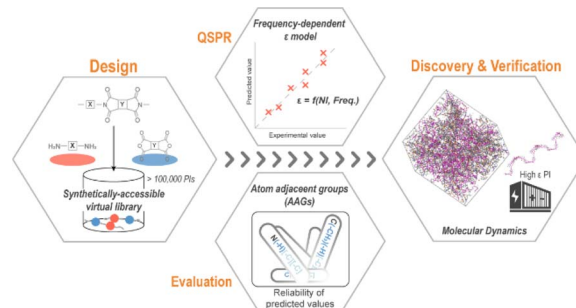
João V. Schober,* Croix J. Laconsay and Judy I. Wu*



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Data science-centric design, discovery, and evaluation of novel synthetically accessible polyimides with desired dielectric constants

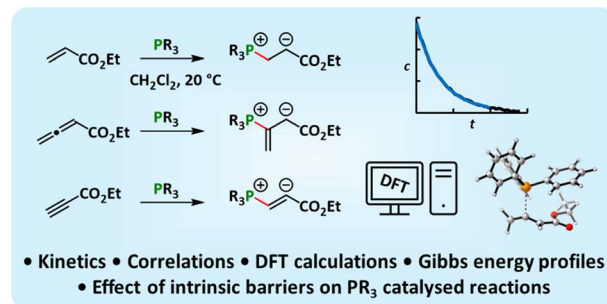
Mengxian Yu, Qingzhu Jia, Qiang Wang, Zheng-Hong Luo, Fangyou Yan* and Yin-Ning Zhou*



18111

Reactivities of tertiary phosphines towards allenic, acetylenic, and vinylic Michael acceptors

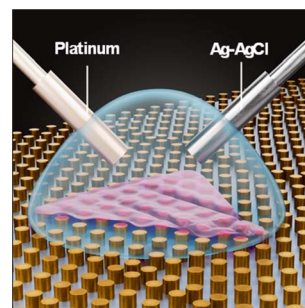
Feng An, Jan Brossette, Harish Jangra, Yin Wei, Min Shi, Hendrik Zipse* and Armin R. Ofial*



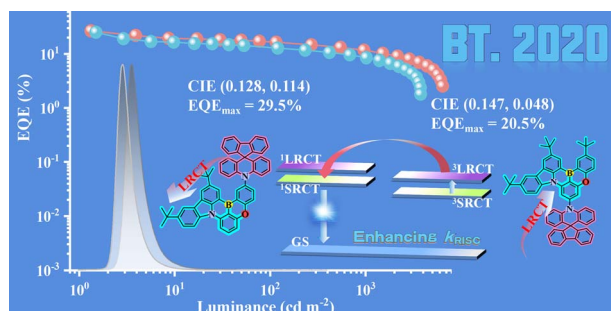
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Enhancing hydrogen evolution reaction activity through defects and strain engineering in monolayer MoS_2

Renjith Nadarajan, Sraboni Dey, Arijit Kayal, Joy Mitra and Manikoth M. Shajumon*



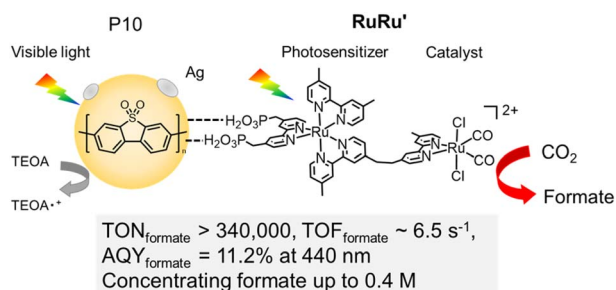
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Donor-modified asymmetric N/B/O multi-resonance TADF emitters for high-performance deep-blue OLEDs with the BT.2020 color gamut

Jing Jin, Zhaolong He, Di Liu,* Yongqiang Mei, Jiahui Wang, Huihui Wan and Jiuyan Li*

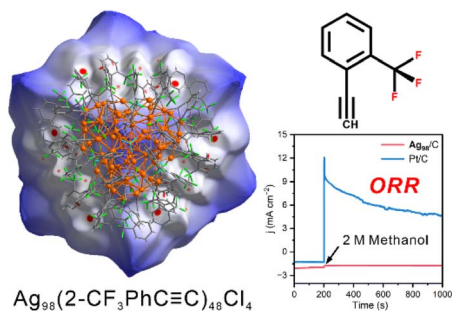
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Visible-light-responsive hybrid photocatalysts for quantitative conversion of CO₂ to highly concentrated formate solutions

Ewan McQueen, Noritaka Sakakibara,* Kei Kamogawa, Martijn A. Zwijnenburg, Yusuke Tamaki, Osamu Ishitani* and Reiner Sebastian Sprick*

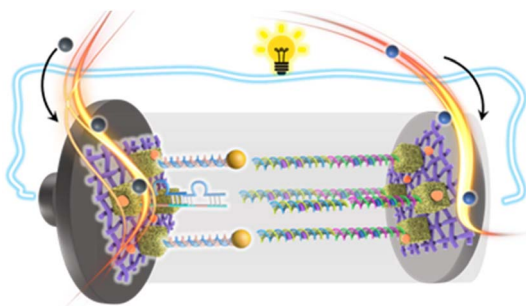
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Substituent effect in determining the total structure of an all-alkynyl-protected Ag₉₈ nanocluster for methanol tolerant oxygen reduction reaction

Xiaoqin Cui, Xuehuan Zhang, Ting Li, Sheng Zhu,* Gaoyi Han and Huan Li*

18170



On-demand controlled bidirectional DNzyme path for ultra-sensitive heavy metal ion detection

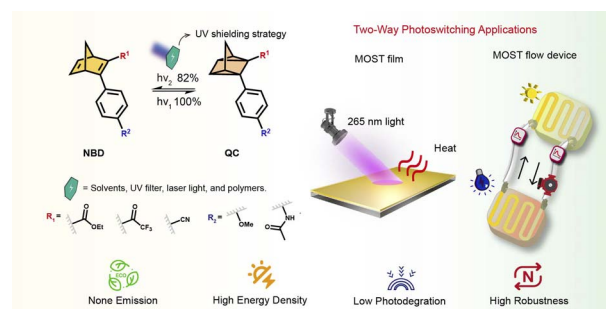
Jing Xu, Yujin Li, Futing Wang, Xinqi Luo, Wei Zhang, Yifan Lyu, Hongfen Yang, Ren Cai* and Weihong Tan



18179

Two-way photoswitching norbornadiene derivatives for solar energy storage

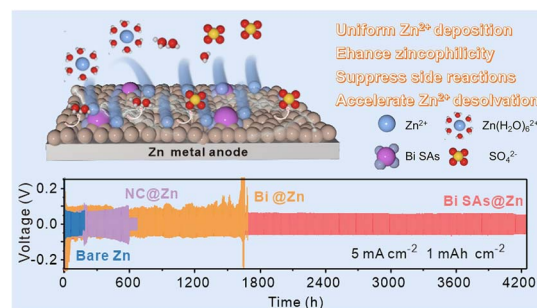
Liang Fei, Helen Hölzel, Zhihang Wang, Andreas Erbs Hillers-Bendtsen, Adil S. Aslam, Monika Shamsabadi, Jialing Tan, Kurt V. Mikkelsen, Chaoxia Wang* and Kasper Moth-Poulsen*



18187

A multi-functional protective material with atomically dispersed zincophilic sites enabling long-life zinc anodes

Miaomiao Zhang, Hongyu Wei, Yitong Zhou,* Weidong Wen, Lin Zhang* and Xin-Yao Yu*



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Encapsulated TADF macrocycles for high-efficiency solution-processed and flexible organic light-emitting diodes

Xinxin Ban,* Qingpeng Cao, Wenhao Zhang, Wenzhong Bian, Caixia Yang, Jiayi Wang, Youqiang Qian, Hui Xu, Chuangzhou Tao* and Wei Jiang*

