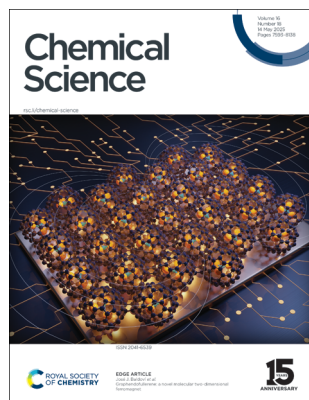


IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 16(18) 7593–8138 (2025)



Cover
See José J. Baldoví et al., pp. 7659–7666. Image reproduced by permission of José J. Baldoví from Chem. Sci., 2025, 16, 7659.



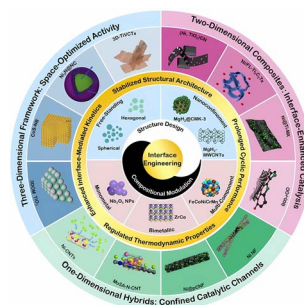
Inside cover
See Christo Z. Christov et al., pp. 7667–7684. Image reproduced by permission of Simahudeen Bathir Jaber Sathik Rifayee and Christo Z. Christov from Chem. Sci., 2025, 16, 7667.

REVIEWS

7610

Hierarchical interface engineering for advanced magnesium-based hydrogen storage: synergistic effects of structural design and compositional modification

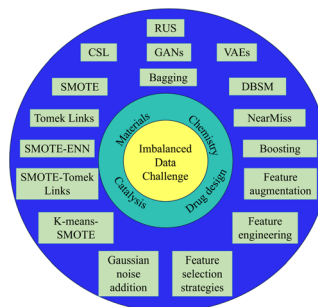
Han Jiang, Zhao Ding,* Yuting Li, Guo Lin, Shaoyuan Li, Wenjia Du, Yu'an Chen, Leon L. Shaw and Fusheng Pan



7637

A review of machine learning methods for imbalanced data challenges in chemistry

Jian Jiang,* Chunhuan Zhang, Lu Ke, Nicole Hayes, Yueying Zhu, Huahai Qiu, Bengong Zhang, Tianshou Zhou and Guo-Wei Wei*



Advance your career in science

with professional recognition that showcases
your **experience, expertise and dedication**

Stand out from the crowd

Prove your commitment
to attaining excellence in
your field

Gain the recognition you deserve

Achieve a professional
qualification that inspires
confidence and trust

Unlock your career potential

Apply for our professional
registers (RSci, RSciTech)
or chartered status
(CChem, CSci, CEnv)

Apply now

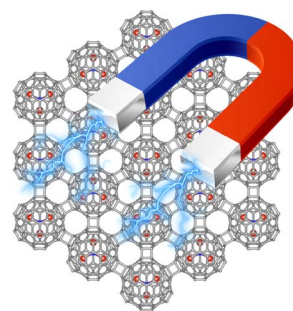
rsc.li/professional-development



7659

Graphendofullerene: a novel molecular two-dimensional ferromagnet

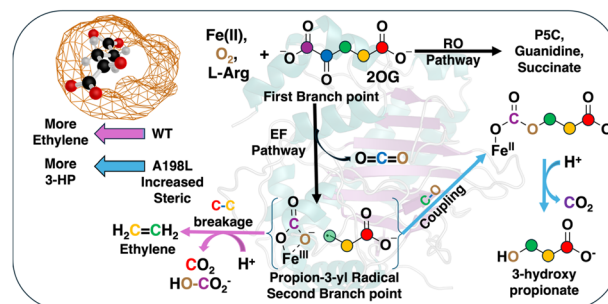
Diego López-Alcalá, Ziqi Hu and José J. Baldoví*



7667

Revealing the nature of the second branch point in the catalytic mechanism of the Fe(II)/2OG-dependent ethylene forming enzyme

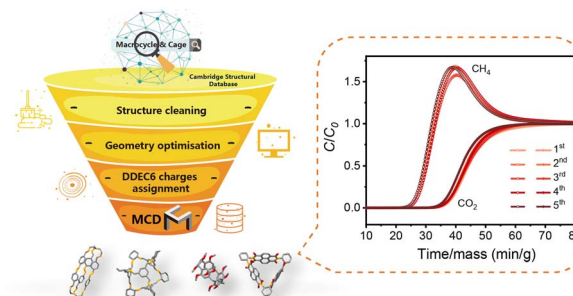
Simahudeen Bathir Jaber Sathik Rifayee, Midhun George Thomas and Christo Z. Christov*



7685

Discovery of a molecular adsorbent for efficient CO₂/CH₄ separation using a computation-ready experimental database of porous molecular materials

Siyuan Yang, Qianqian Mao, Heng Ji, Dingyue Hu, Jinjin Zhang, Linjiang Chen* and Ming Liu*

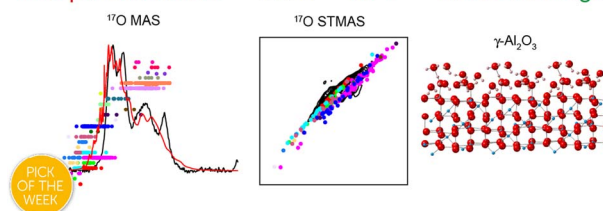


7695

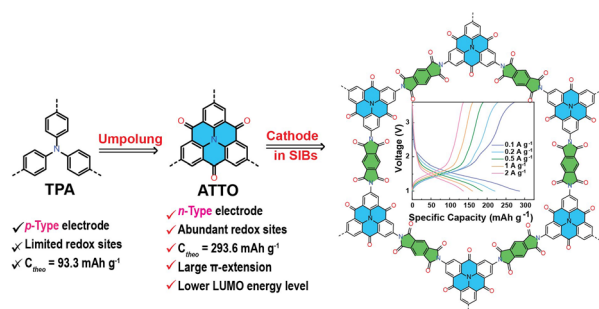
Insight into the atomic-level structure of γ -alumina using a multinuclear NMR crystallographic approach

M. Bonifac Legrady, Daniel M. Dawson, Paul B. Webb and Sharon E. Ashbrook*

Isotopic Enrichment + NMR + DFT = Structural Insight



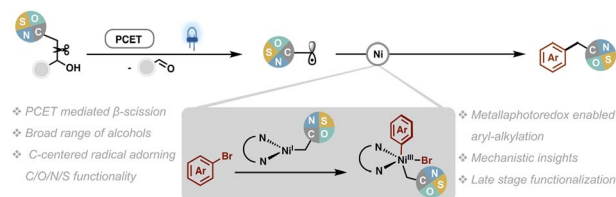
7711



Umpolung of a covalent organic framework for high-performance cathodic sodium ion storage

Fangyuan Kang, Yuchan Zhang, Zihao Chen, Zhaowen Bai, Qianfeng Gu, Jinglun Yang, Qi Liu, Yang Ren, Chun-Sing Lee* and Qichun Zhang*

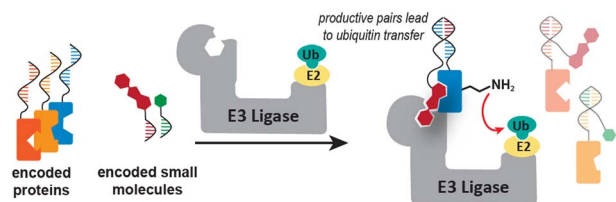
7720



PCET-mediated deconstructive cross-coupling of aliphatic alcohols

Yeersen Patehebieke, Rima Charaf, Kumar Bhaskar Pal, Beatriz Meana Baamonde, Andjela Brnovic, Leif Hammarström* and Carl-Johan Wallentin*

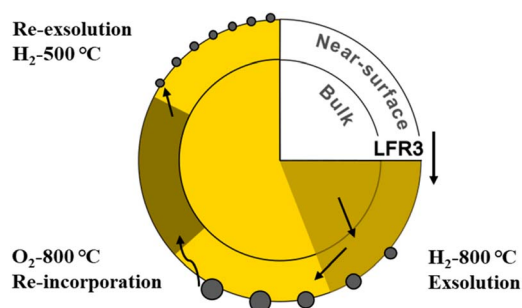
7730



A method to identify small molecule/protein pairs susceptible to protein ubiquitination by the CRBN E3 ligase

Pinwen Cai, Chiara Disraeli, Basilius Sauter, Saule Zhanybekova and Dennis Gillingham*

7739



Boosting Ru atomic efficiency of $\text{LaFe}_{0.97}\text{Ru}_{0.03}\text{O}_3$ via knowledge-driven synthesis design

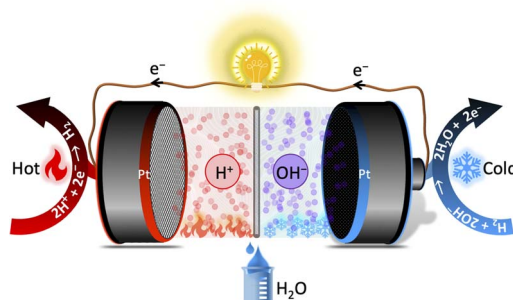
Yu Wang, Paul Paciok, Lukas Pielsticker, Alexander Spriewald Luciano, Lorena Glatthaar, Aijie Xu, Zimo He, Min Ding, Walid Hetaba, Jaime Gallego, Yanglong Guo,* Bernd M. Smarsly* and Herbert Over*



7751

A non-isothermal water formation cell for electrochemical heat recovery

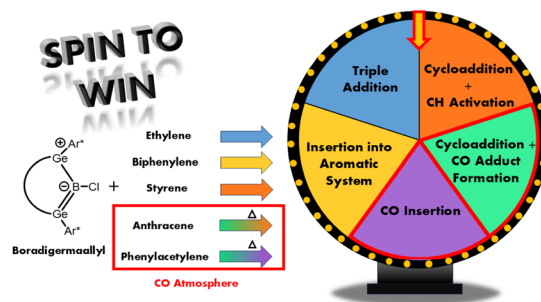
Ritwik Mondal, Shyaam Srirangadhamu Yuvaraj, Bhojkumar Nayak, Hemanga Pradhan and Musthafa Ottakam Thotiyl*



7759

Boradigermaallyl: inhibition of CH bond activation by borane CO adduct formation followed by CO insertion

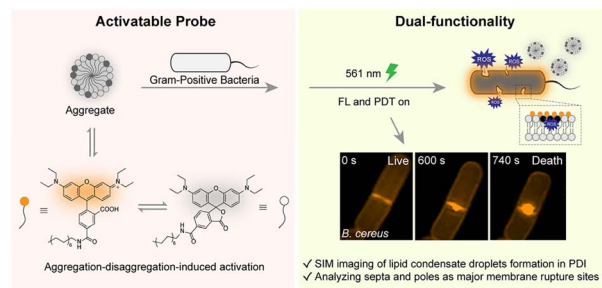
Ralf H. Kern, Noemi Hiller, Klaus Eichele, Hartmut Schubert, Christina Tönshoff, Holger F. Bettinger and Lars Wesemann*



7766

SIM imaging of bacterial membrane dynamics and lipid peroxidation during photodynamic inactivation with a dual-functional activatable probe

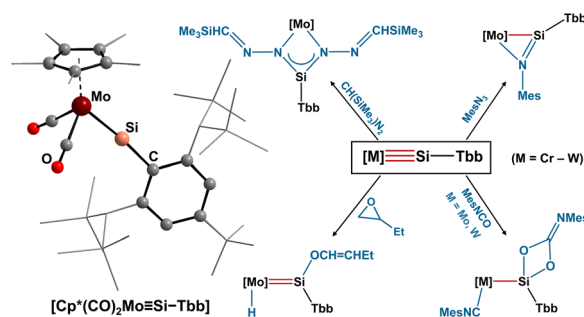
Yi Tao, Qinglong Qiao,* Yiyang Ruan, Xiangning Fang, Xiang Wang, Yinchuan Zhang, Pengjun Bao, Yalin Huang and Zhaochao Xu*



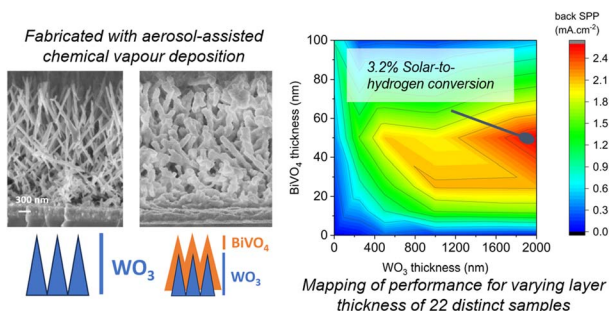
7773

Metal-silicon triple bonds: reactivity of the silyldiyne complexes $[\text{Cp}^*(\text{CO})_2\text{M}\equiv\text{Si}-\text{Tbb}]$ ($\text{M} = \text{Cr} - \text{W}$)

Kanishk Tomer, Gregor Schnakenburg, Ujjal Das and Alexander C. Filippou*



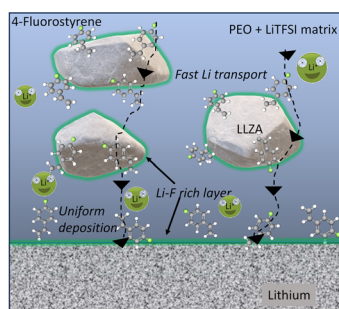
7794



The scalable growth of high-performance nanostructured heterojunction photoanodes for applications in tandem photoelectrochemical-photovoltaic solar water splitting devices

Brian Tam,^{*} Sebastian D. Pike, Jenny Nelson and Andreas Kafizas

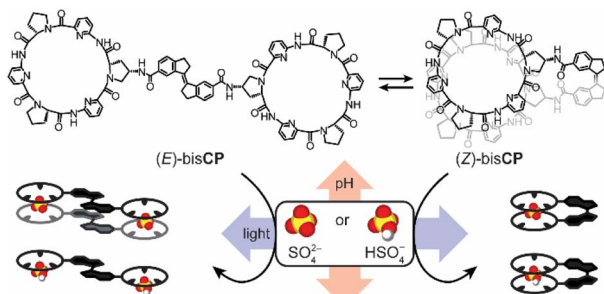
7811



Fluorine-rich interface for garnet-based high-performance all-solid-state lithium batteries

Shruti Suriyakumar,^{*} Indu M. Santhakumari, Souvik Ghosh, Anju Vakakuzhiyil Gopinathan, Sooraj Kunnikuruvan^{*} and Manikoth M. Shaijumon^{*}

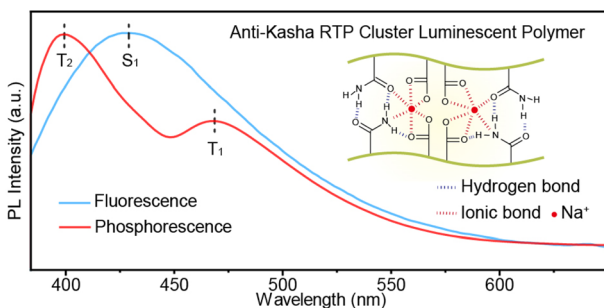
7822



Light and protonation-controlled complex formation between sulfate ions and a stiff-stilbene based bis(cyclopeptide)

Stefan Mommer, Benedict Wyrwol, Jasper E. Bos, Stefan Kubik^{*} and Sander J. Wezenberg^{*}

7829



Triggering anti-Kasha organic room temperature phosphorescence of clusteroluminescent materials

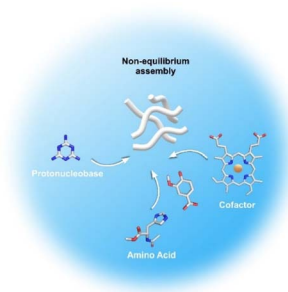
Jingyu Zhang, Yishan Jin, Xinchu Lu, Chengxi Sun, Wei Ma, Yuhang Li, Longyan Zhang and Runfeng Chen^{*}



7838

Minimal catalytic dissipative assemblies via cooperation of an amino acid, a nucleobase precursor and a cofactor

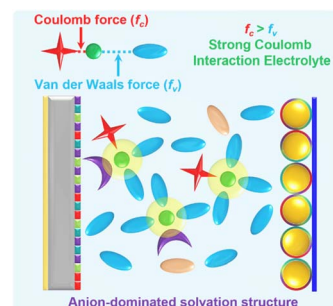
Syed Pavel Afrose, Soumili Roy, Pratip Bhattacharyya, Ajeet Kumar Singh, Lisa Roy and Dibyendu Das*



7847

Ultra-low concentration ether electrolytes with strong Coulomb interactions for high-voltage lithium metal batteries

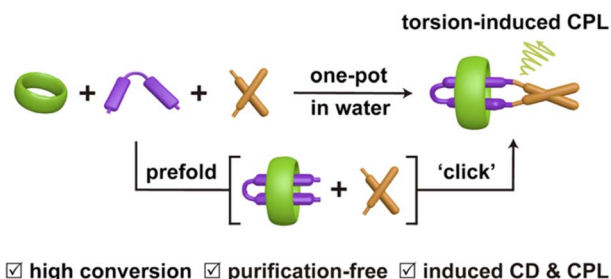
Chengkun Liu, Zhipeng Jiang,* Yuhang Zhang, Wenjun Xie, Jiahang Zou, Shilin Wu, Mengjun Sun* and Yongtao Li*



7858

Chiral ring-in-ring complexes with torsion-induced circularly polarized luminescence

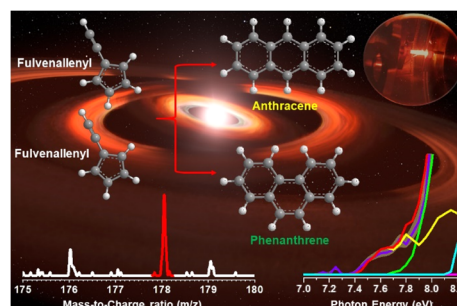
Jia Liu, Xiujie Han, Xin Wen, Hao Yu, Bao Li, Ming Wang, Minghua Liu* and Guanglu Wu*



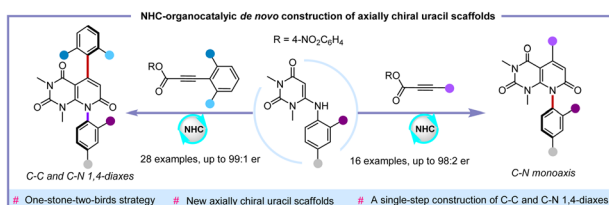
7864

Unconventional pathway for the gas-phase formation of 14π -PAHs via self-reaction of the resonantly stabilized radical fulvenallenyl ($C_7H_5^{\cdot}$)

Wang Li, Mengqi Wu, Changyang Wang, Jiabin Huang, Jiuzhong Yang, Minggao Xu, Feng Zhang,* Tao Yang* and Long Zhao*



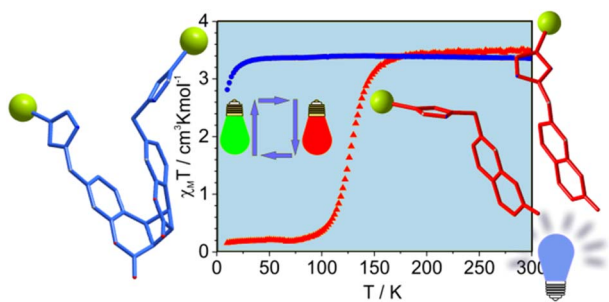
7876



Organocatalytic atroposelective *de novo* construction of monoaxially and 1,4-diaxially chiral fused uracils with potential antitumor activity

Yuzhi Ren, Chen Lin, Han Zhang, Zuquan Liu, Donghui Wei,* Jie Feng and Ding Du*

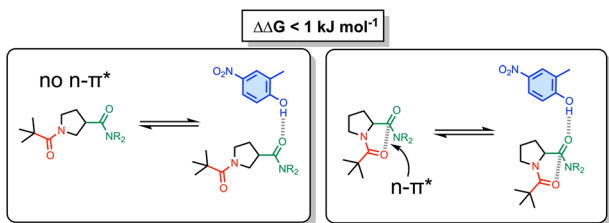
7884



[2 + 2] Photocyclization converts thermally induced spin crossover effect into "hidden hysteresis" one

Marcin Kaźmierczak, Marek Weselski, Miłosz Siczek, Juliusz A. Wolny, Volker Schünemann and Robert Bronisz*

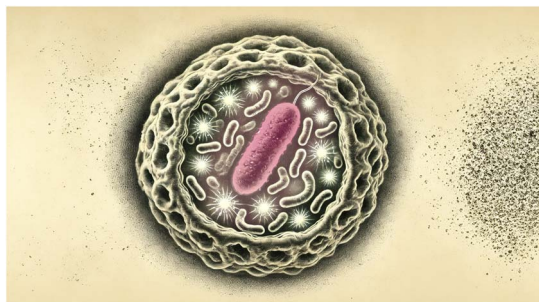
7894



Quantification of the effects of $n-\pi^*$ interactions on the H-bonding properties of amide groups

Fergal E. Hanna, Andrew D. Bond and Christopher A. Hunter*

7902



Fluorescent molecular probe for *in vivo* and *in vitro* targeting and imaging of an intracellular bacterial infection

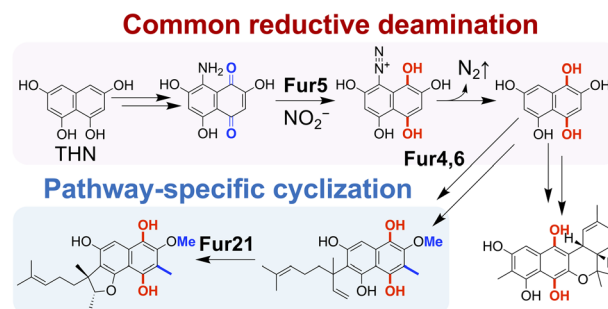
Shailendra Koirala, Miguel A. Gaspar, Yalini H. Wijesundara, Dong-Hao Li, Jashkaran G. Gadhvi, RYanne N. Ehrman, Samuel A. Cornelius, Charles Mariasoosai, Thien-Quang N. Nguyen, Orikeda Trashi, Ikeda Trashi, Sneha Kumari, Laurel M. Hagge, Thomas S. Howlett, Hedieh Torabifard, Bradley D. Smith, Nicole J. De Nisco* and Jeremiah J. Gassensmith*



7912

Biosynthesis of the tetrahydroxynaphthalene-derived meroterpenoid furaquinocin *via* reductive deamination and intramolecular hydroalkoxylation of an alkene

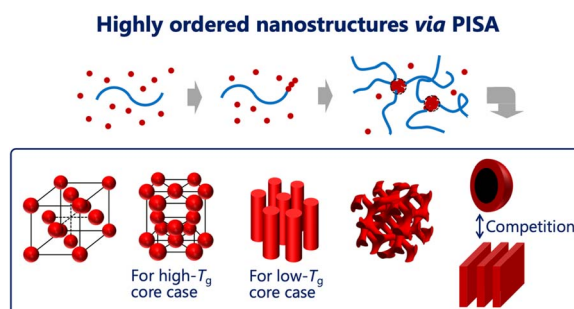
Tomohiro Noguchi, Fan Zhao, Yoshitaka Moriwaki, Hideaki Yamamoto, Kei Kudo, Ryuhei Nagata, Takeo Tomita, Tohru Terada, Kentaro Shimizu, Makoto Nishiyama and Tomohisa Kuzuyama*



7921

Polymerization-induced self-assembly enables access to diverse highly ordered structures through kinetic and thermodynamic pathways

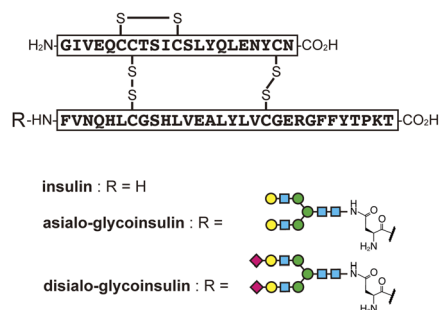
Ibuki Shibata, Ayae Sugawara-Narutaki and Rintaro Takahashi*



7929

Rapid synthesis of glycosylated insulins by flow-based peptide synthesis

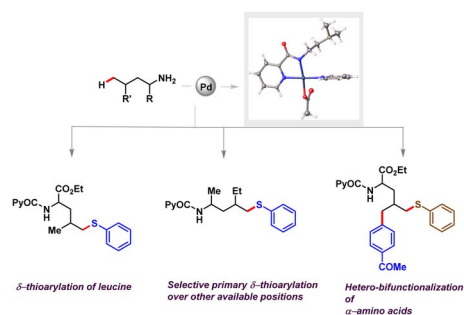
Yuta Maki,* Surin K. Mong, Chaitra Chandrashekar, Briony E. Forbes, Mohammed Akhter Hossain, Shintaro Yamaguchi, Colin M. Fadzen, Yasuhiro Kajihara and Bradley L. Pentelute*



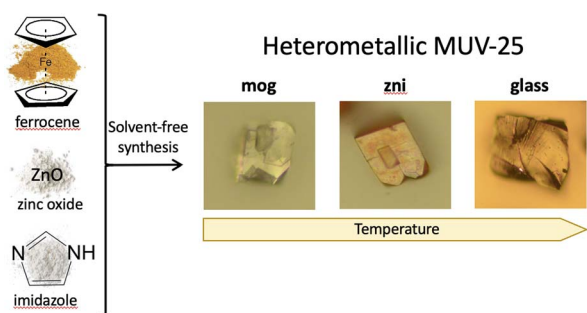
7936

Generating the Pd-catalyzed δ C–H chalcogenation of aliphatic picolinamides: systematically decreasing the bias

Soumya Kumar Sinha, Aniket Gholap, Yazhinimuthu C M, Anirban Pal, Anant R. Kapdi* and Debabrata Maiti*



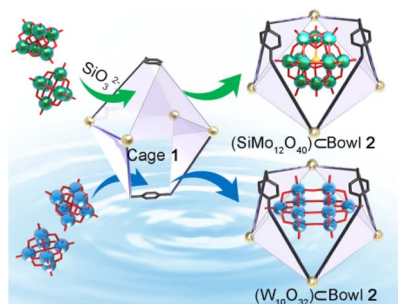
7946



Solvent-free approach for the synthesis of heterometallic Fe–Zn–ZIF glass *via* a melt-quenched process

Luis León-Alcaide, Celia Castillo-Blas, Vlad Martin-Diaconescu, Ivan da Silva, David A. Keen, Thomas D. Bennett and Guillermo Mínguez Espallargas*

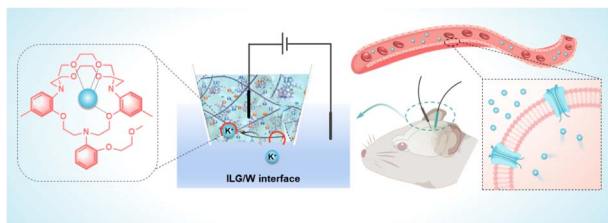
7956



Polyoxometalate condensation and transformation mediated by adaptive coordination-assembled molecular flasks

Li-Xuan Cai, Yu-Hang Hu, Li-Peng Zhou, Pei-Ming Cheng, Xiao-Qing Guo, Yi-Tsu Chan and Qing-Fu Sun*

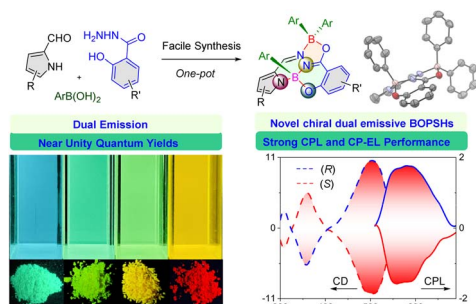
7963



An implantable ionic liquid-gel microelectrode for *in vivo* monitoring of K⁺ levels in the living rat brain

Zhihui Zhang, Zehui Chen, Tao Liu* and Limin Zhang*

7971



A novel boron-stereogenic fluorophore with dual-state circular polarization luminescence *via* a self-dispersing strategy

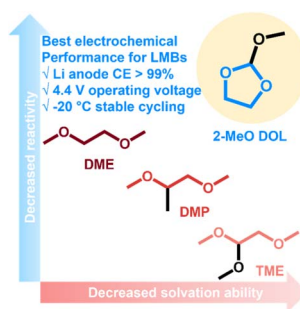
Changjiang Yu,* Chao Cheng, Zhangzhan Liu, Zhigang Ni, Zujin Zhao,* Hua Lu,* Erhong Hao* and Lijuan Jiao*



7981

Do weaker solvation effects mean better performance of electrolytes for lithium metal batteries?

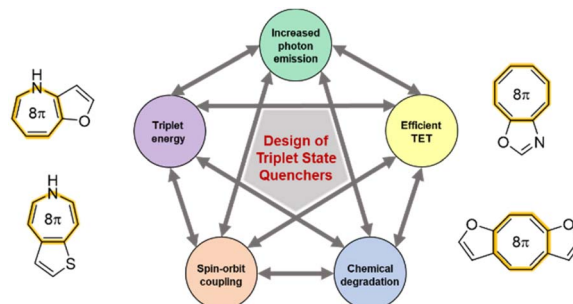
Liang Li, Kaixiang Ren, Wenjun Xie, Qi Yu, Shilin Wu, Hai-Wen Li, Meng Yao, Zhipeng Jiang* and Yongtao Li*



7989

Search for improved triplet-state quenchers for fluorescence imaging: a computational framework incorporating excited-state Baird-aromaticity

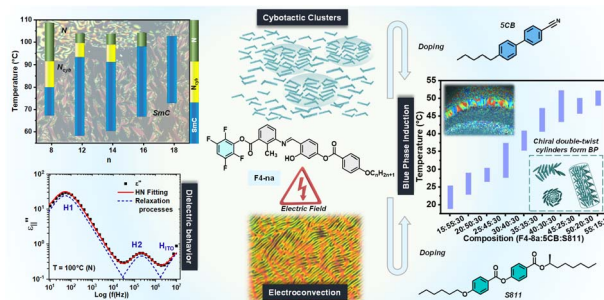
Ouissam El Bakouri, Matthew A. Johnson, Joshua R. Smith, Avik K. Pati, Maxwell I. Martin, Scott C. Blanchard* and Henrik Ottosson*



8002

Unusual polar ordering and room-temperature blue phase stabilization in tetrafluorinated bent-shaped mesogens

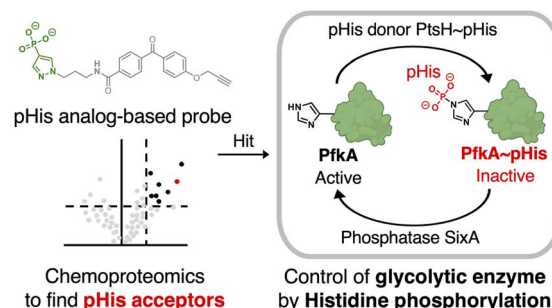
Anshika Baghla, Mudit Sahai, Neelam Yadav, Santosh Prasad Gupta, Vidhika Punjani, V. Manjuladevi, Jagdish K. Vij* and Santanu Kumar Pal*



8014

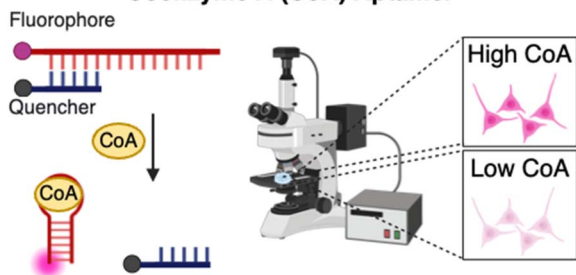
Chemoproteomic identification of phosphohistidine acceptors: posttranslational activity regulation of a key glycolytic enzyme

Solbee Choi, Seungmin Ahn, Kyung Hyun Cho, Sung Kuk Lee* and Jung-Min Kee*



8023

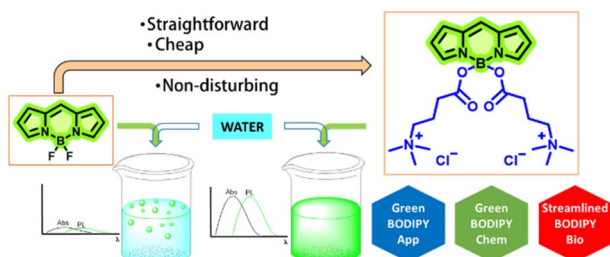
Coenzyme A (CoA) Aptamer



Highly selective DNA aptamer sensor for intracellular detection of coenzyme A

Yuan Ma, Whitney Lewis, Peng Yan, Xiangli Shao, Quanbing Mou, Linggen Kong, Weijie Guo and Yi Lu*

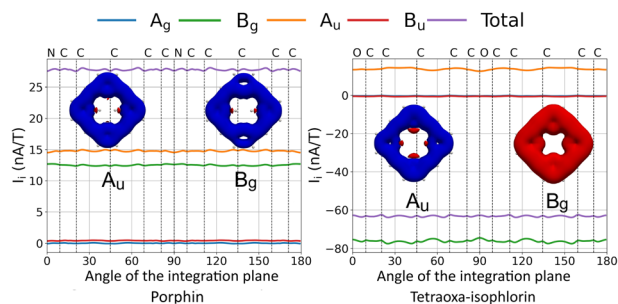
8030



Water-soluble BODIPY dyes: a novel approach for their sustainable chemistry and applied photonics

Christopher Schad, Cesar Ray, Carolina Díaz-Norambuena, Sergio Serrano-Buitrago, Florencio Moreno, Beatriz L. Maroto, Inmaculada García-Moreno, Mónica Muñoz-Úbeda, Iván López-Montero, Jorge Bañuelos* and Santiago de la Moya*

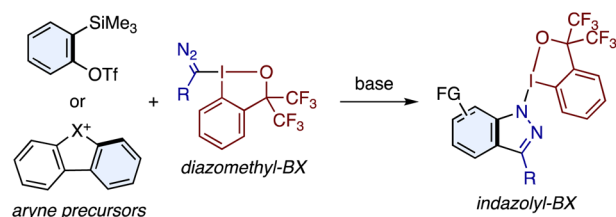
8040



Orbital contributions to magnetically induced current densities using gauge-including atomic orbitals

Rinat T. Nasibullin,* Maria Dimitrova, Rashid R. Valiev and Dage Sundholm*

8053

Diazomethyl- λ^3 -iodane meets aryne: dipolar cycloaddition and C-to-N iodane shift leading to indazolyl- λ^3 -iodanes

Shinya Otsuki, Kazuya Kanemoto,* Daniel Carter Martos, Eunsang Kwon, Joanna Wencel-Delord and Naohiko Yoshikai*

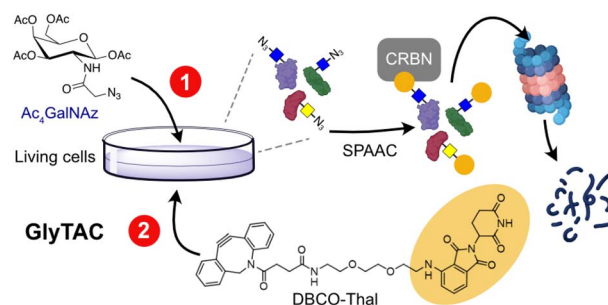
- Various aryne precursors & diazomethyl-BXs
- Unique mechanism: [3+2] and iodane migration
- Products as indazolyl transfer agents



8060

Self-assembled PROTACs enable glycoproteins degradation in the living cells

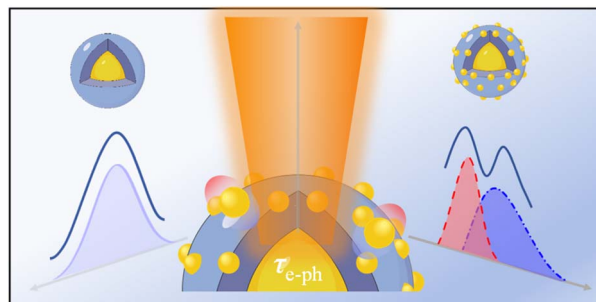
Haoyu Chen, Liu Zang and Pavel Kielkowski*



8069

Tuning the modal coupling in three-dimensional Au@Cu₂O@Au core-shell-satellite nanostructures for enhanced plasmonic photocatalysis

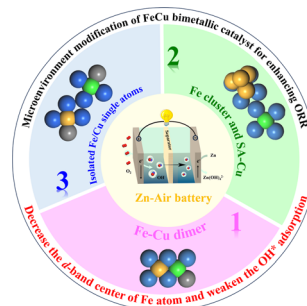
Yahui Yang, Binbin Zhang, Xuehao Sun, Yunlong Tao, Guizeng Yang, Chuang Liu, Zixu Wang, Lichao Sun* and Qingfeng Zhang*



8082

Unraveling microenvironment modification in an atomically dispersed bimetallic FeCu catalyst in the oxygen reduction reaction

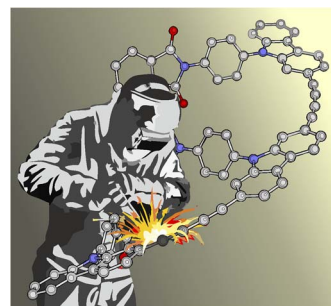
Lingmin Wu, Yinghua Wang, Chunfeng Shao, Fanfei Sun*, Liming Wang* and Baitao Li*



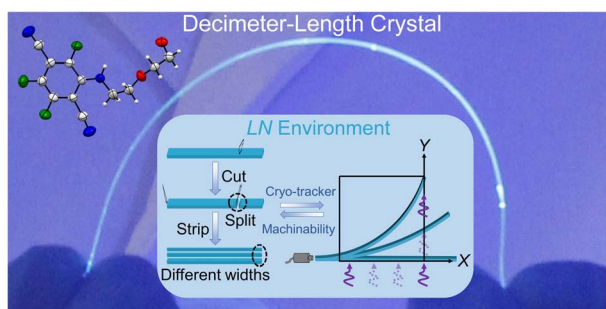
8092

Series of Geländer oligomers with orthogonal rungs

Adriano D'Addio, Camiel C. E. Kroonen, Olaf Fuhr, Dieter Fenske, Daniel Häussinger and Marcel Mayor*



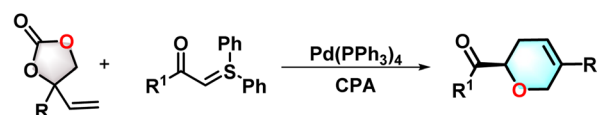
8099



Decimeter-length elastic organic crystals capable of mechanical post-processing and optical waveguide modulation at 77 K

Tingting Ji, Xuesong Yang, Quanliang Chen and Hongyu Zhang*

8108

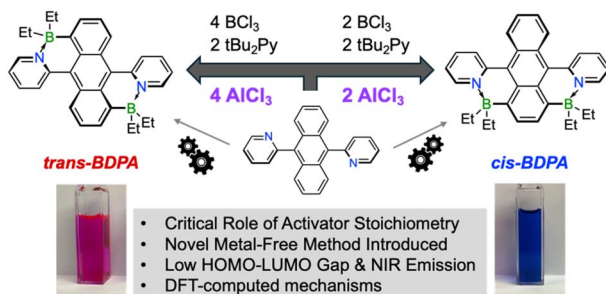


- Synergistic palladium/CPA catalysis
- Excellent enantioselectivities
- Mild reaction conditions and broaden substrate scope

Enantioselective [5 + 1] cycloaddition of sulfur ylides and vinyl ethylene carbonates via synergistic palladium/chiral phosphonic acid catalysis

Miaolin Ke, Jinying Zheng, Jiayi Zong, Keshuang Tang, Jiahao Wang, Guohui Zheng, Boxuan Zhang, Dang Cheng, Zhiran Ju* and Fener Chen*

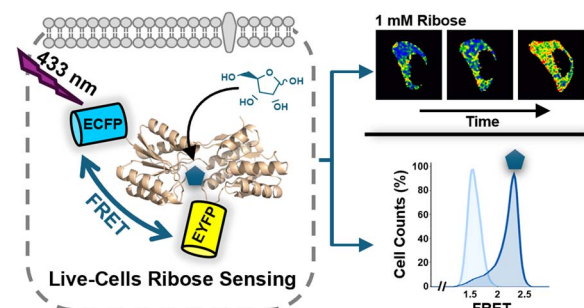
8114



Regioselective access to B–N Lewis pair-functionalized anthracenes: mechanistic studies and optoelectronic properties

Jingyao Zuo, Roger A. Lalancette, Demyan E. Prokopchuk* and Frieder Jäkle*

8125



RIBOsensor for FRET-based, real-time ribose measurements in live cells

Mina Ahmadi, Zhuangyu Zhao and Ivan J. Dmochowski*



CORRECTION

8136

Correction: Advanced fabrication techniques for polymer–metal nanocomposite films: state-of-the-art innovations in energy and electronic applications

Muhammad Tayyab, Liu Zizhe, Sajid Rauf, Zixuan Xu, R. U. R. Sagar, Faisal Faiz, Zuhra Tayyab, Rashid Ur Rehman, Muhammad Imran, Anjam Waheed, Rida Javed, A. Surulinathan, Zulakha Zafar, Xian-Zhu Fu* and Jing-Li Luo*

