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IN THIS ISSUE

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Cover
See Yusuke Kuramochi, Motoko S. Asano, Akiharu Satake *et al.*, pp. 8743–8765. Image reproduced by permission of Yusuke Kuramochi from *Chem. Sci.*, 2023, **14**, 8743.

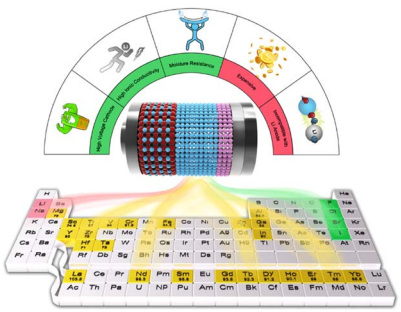
Inside cover
See Yohei Katsuyama *et al.*, pp. 8766–8776. Image reproduced by permission of Yusuke Shikai and Yohei Katsuyama from *Chem. Sci.*, 2023, **14**, 8766.

REVIEW

8693

Halide solid-state electrolytes for all-solid-state batteries: structural design, synthesis, environmental stability, interface optimization and challenges

Boran Tao, Dailin Zhong, Hongda Li, Guofu Wang and Haixin Chang*

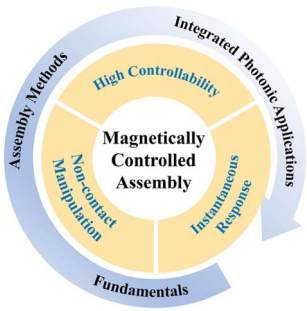


PERSPECTIVE

8723

Magnetically controlled assembly: a new approach to organic integrated photonics

Lixin Xu, Hao Jia, Chuang Zhang, Baipeng Yin* and Jiannian Yao*



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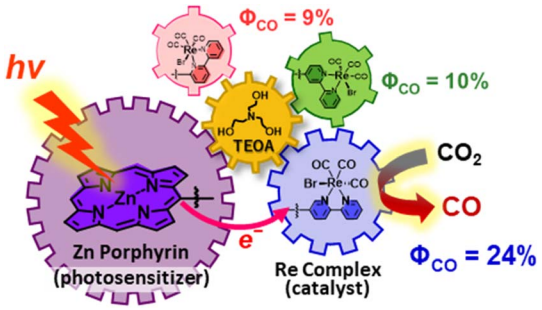
ROYAL SOCIETY OF CHEMISTRY

EDGE ARTICLES

8743

Significance of the connecting position between Zn(II) porphyrin and Re(I) bipyridine tricarbonyl complex units in dyads for room-temperature phosphorescence and photocatalytic CO_2 reduction: unexpected enhancement by triethanolamine in catalytic activity

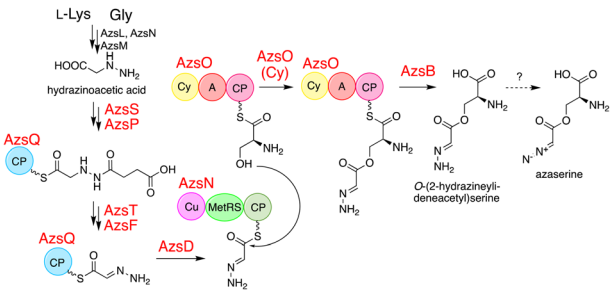
Yusuke Kuramochi,* Yuto Suzuki, Somyo Asai, Tomohiro Suzuki, Hiroki Iwama, Motoko S. Asano* and Akiharu Satake*



8766

***In vitro* characterization of nonribosomal peptide synthetase-dependent *O*-(2-hydrazineylideneacetyl) serine synthesis indicates a stepwise oxidation strategy to generate the α-diazo ester moiety of azaserine**

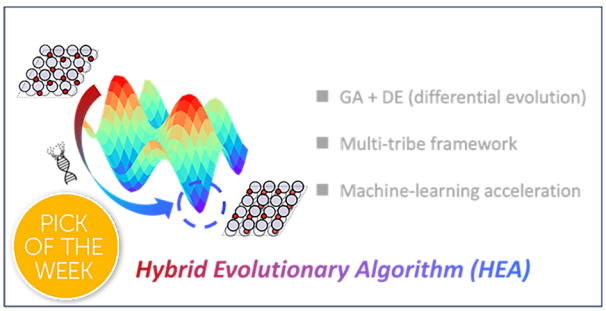
Yusuke Shikai, Seiji Kawai, Yohei Katsuyama* and Yasuo Ohnishi



8777

Accessing complex reconstructed material structures with hybrid global optimization accelerated *via* on-the-fly machine learning

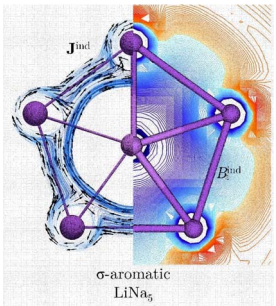
Xiangcheng Shi, Dongfang Cheng, Ran Zhao, Gong Zhang, Shican Wu, Shiyu Zhen, Zhi-Jian Zhao* and Jinlong Gong*



8785

Planar pentacoordinate s-block metals

Meng-hui Wang, Amlan J. Kalita, Mesías Orozco-Ic, Gai-ru Yan, Chen Chen, Bing Yan, Gabriela Castillo-Toraya, William Tiznado,* Ankur K. Guha,* Sudip Pan,* Gabriel Merino* and Zhong-hua Cui*



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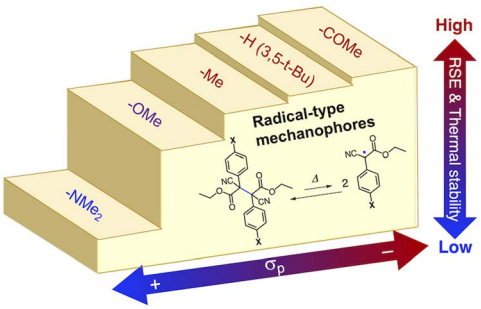
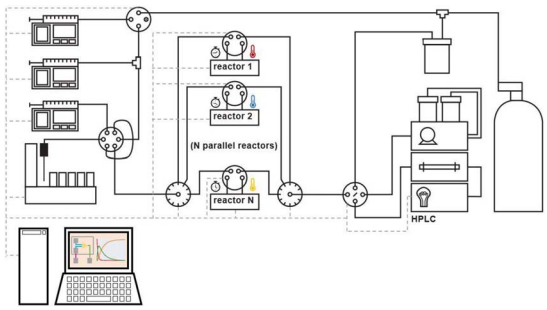
8792



A rational design strategy of radical-type mechanophores with thermal tolerance

Yi Lu, Hajime Sugita, Koichiro Mikami,* Daisuke Aoki and Hideyuki Otsuka*

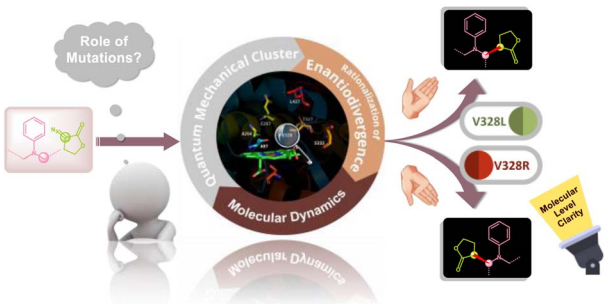
8798



Parallel multi-droplet platform for reaction kinetics and optimization

Natalie S. Eyke, Timo N. Schneider, Brooke Jin, Travis Hart, Sebastien Monfette, Joel M. Hawkins, Peter D. Morse, Roger M. Howard, David M. Pfisterer, Kakasaheb Y. Nandiwale and Klavs F. Jensen*

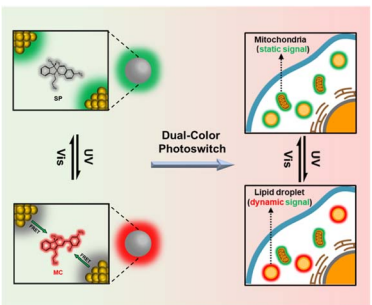
8810



Role of mutations in a chemoenzymatic enantiodivergent C(sp^3)–H insertion: exploring the mechanism and origin of stereoselectivity

Ritwika Chatterjee and Garima Jindal*

8823



Ligand-protected nanocluster-mediated photoswitchable fluorescent nanoprobes towards dual-color cellular imaging

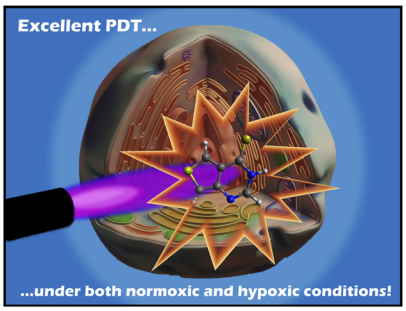
Wencheng Zhong, Kangqiang Liang, Wenfeng Liu and Li Shang*

EDGE ARTICLES

8831

Thieno[3,4-*d*]pyrimidin-4(3*H*)-thione: an effective, oxygenation independent, heavy-atom-free photosensitizer for cancer cells

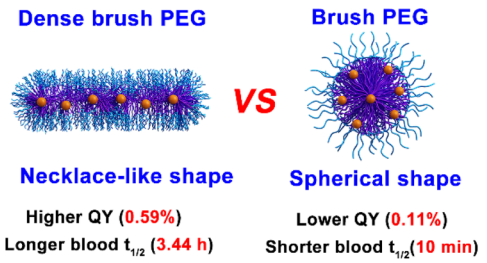
Luis A. Ortiz-Rodríguez, Ye-Guang Fang, Germain Niogret, Kaivin Hadidi, Sean J. Hoehn, Heather J. Folkwein, Steffen Jockusch, Yitzhak Tor,* Ganglong Cui,* Liraz Levi* and Carlos E. Crespo-Hernández*



8842

Controlling NIR-II emitting gold organic/inorganic nanohybrids with tunable morphology and surface PEG density for dynamic visualization of vascular dysfunction

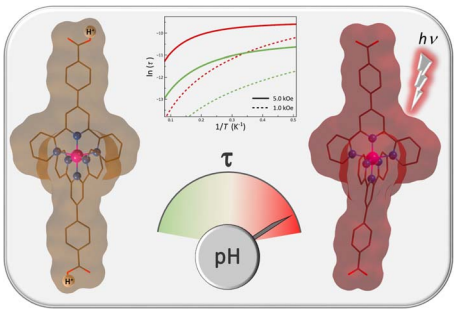
Tingyao Zhou, Menglei Zha, Hao Tang, Kai Li and Xingyu Jiang*



8850

pH-Switching of the luminescent, redox, and magnetic properties in a spin crossover cobalt(II) molecular nanomagnet

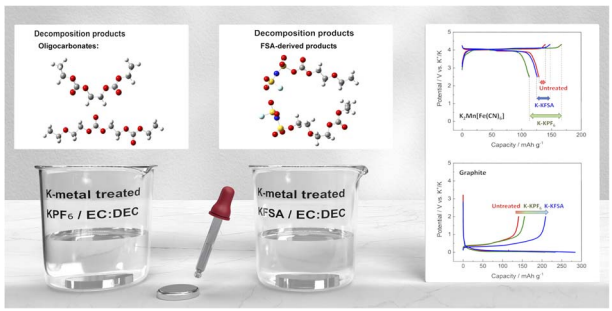
Renato Rabelo, Luminita Toma, Nicolás Moliner, Miguel Julve, Francesc Lloret, Mario Inclán, Enrique García-España, Jorge Pasán, Rafael Ruiz-García and Joan Cano*



8860

Impact of electrolyte decomposition products on the electrochemical performance of 4 V class K-ion batteries

Tomooki Hosaka, Tatsuo Matsuyama, Ryoichi Tatara, Zachary T. Gossage and Shinichi Komaba*



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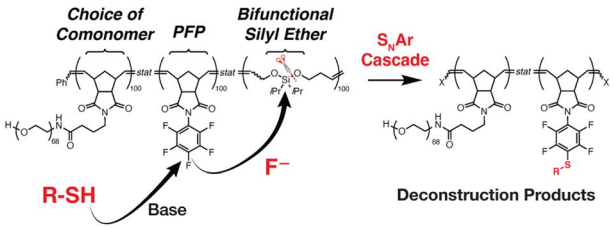
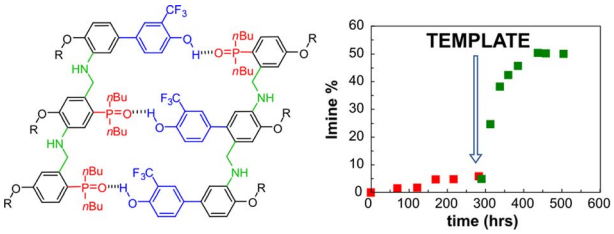
8869



Thiol-triggered deconstruction of bifunctional silyl ether terpolymers *via* an S$_N$Ar-triggered cascade

Christopher M. Brown, Keith E. L. Husted, Yuyan Wang, Landon J. Kilgallon, Peyton Shieh, Hadiqa Zafar, David J. Lundberg and Jeremiah A. Johnson*

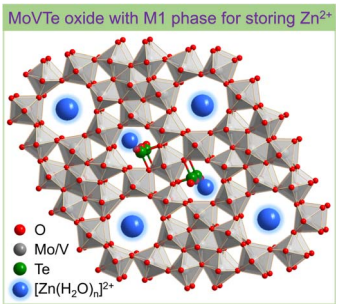
8878



Sequence-selective duplex formation and template effect in recognition-encoded oligoanilines

Daniele Rosa-Gastaldo, Andrea Dalla Valle, Tommaso Marchetti and Luca Gabrielli*

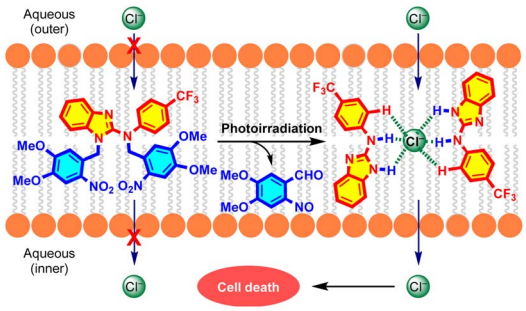
8889



Atomic scale analysis of Zn^{2+} storage in robust tunnel frameworks

Kaiyue Zhu, Hongxin Wang, Weikang Jiang, Weili Xie, Xu Li, Zhenghao Jia and Weishen Yang*

8897



Photocontrolled activation of doubly *o*-nitrobenzyl-protected small molecule benzimidazoles leads to cancer cell death

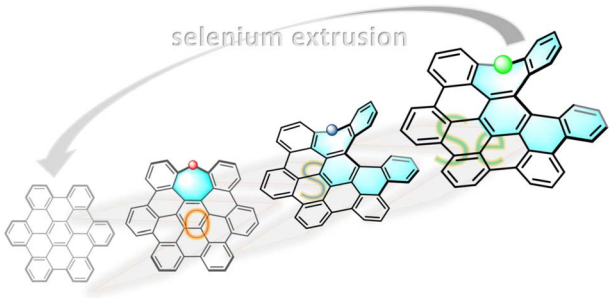
Manzoor Ahmad, Naveen J. Roy, Anurag Singh, Debashis Mondal, Abhishek Mondal, Thangavel Vijayakanth, Mayurika Lahiri and Pinaki Talukdar*

EDGE ARTICLES

8905

Chalcogen-doped, (*seco*)-hexabenzocoronene-based nanographenes: synthesis, properties, and chalcogen extrusion conversion

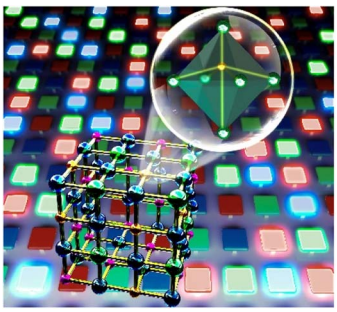
Ranran Li, Bin Ma, Shengtao Li, Chongdao Lu and Peng An*



8914

Surface polarization-induced emission and stability enhancement of $CsPbX_3$ nanocrystals

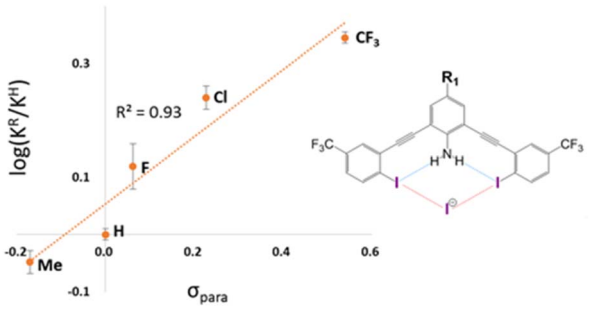
Keqiang Chen, Zixin Gu, Zhiqing Wang, Mengyu Guan, Xiu Tan, Wanqing Xu, Xinyu Ji, Weiqi Lu, Yueli Liu* and Guogang Li*



8924

The interplay between hydrogen and halogen bonding: substituent effects and their role in the hydrogen bond enhanced halogen bond

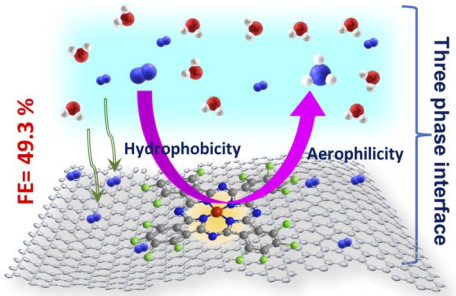
Jiyu Sun, Daniel A. Decato, Vyacheslav S. Bryantsev, Eric A. John and Orion B. Berryman*



8936

Engineering hydrophobic–aerophilic interfaces to boost N_2 diffusion and reduction through functionalization of fluorine in second coordination spheres

Sakshi Bhardwaj, Sabuj Kanti Das, Ashmita Biswas, Samadhan Kapse, Ranjit Thapa and Ramendra Sundar Dey*



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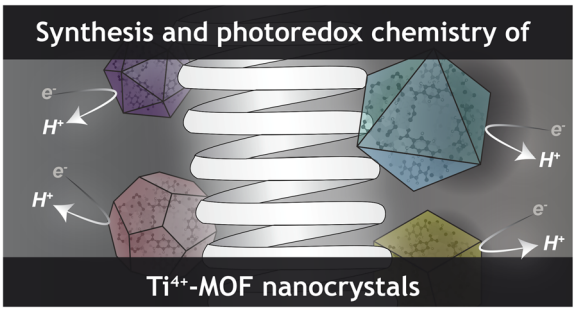
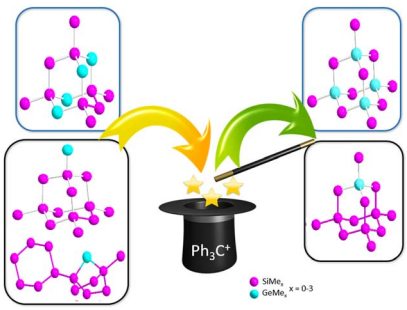


Gram-scale synthesis of MIL-125 nanoparticles and their solution processability

Kevin Fabrizio, Eoghan L. Gormley, Audrey M. Davenport, Christopher H. Hendon* and Carl K. Brozek*

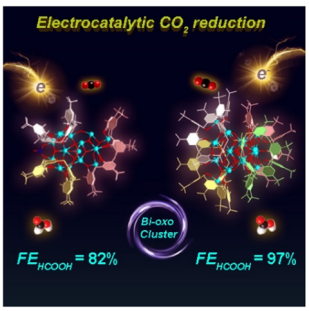
8956



Selective synthesis of germasila-adamantanes through germanium–silicon shift processes

Steffen Kühn, Benedikt Köstler, Celine True, Lena Albers, Matthias Wagner,* Thomas Müller* and Christoph Marschner*

8962



Electron delocalization of robust high-nuclear bismuth-oxo clusters for promoted CO_2 electroreduction

Baoshan Hou, Haiyan Zheng, Kunhao Zhang, Qi Wu, Chao Qin, Chunyi Sun,* Qinhe Pan, Zhenhui Kang, Xinlong Wang* and Zhongmin Su