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IN THIS ISSUE

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Cover
See Sung Ho Jung, Jong Hwa Jung *et al.*, pp. 19729–19738. Image reproduced by permission of Jong Hwa Jung from *Chem. Sci.*, 2024, **15**, 19729.

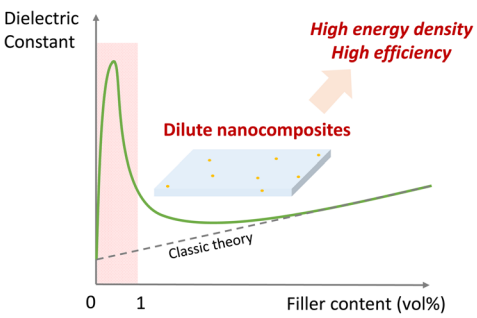
Inside cover
See Eun Jin Cho *et al.*, pp. 19739–19744. Image reproduced by permission of Eun Jin Cho and Jihoon Jang from *Chem. Sci.*, 2024, **15**, 19739.

PERSPECTIVE

19651

Dilute nanocomposites for capacitive energy storage: progress, challenges and prospects

Li Li, Wenhan Xu, Guanchun Rui, Shixian Zhang, Q. M. Zhang and Qing Wang*

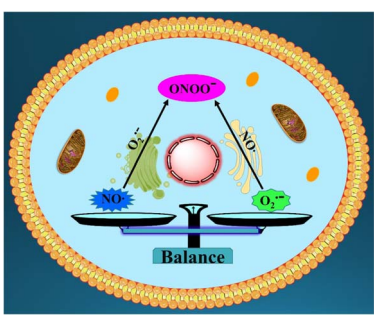


REVIEWS

19669

Recent progress in small-molecule fluorescent probes for the detection of superoxide anion, nitric oxide, and peroxynitrite anion in biological systems

Yongqing Zhou, Xuan Kuang, Xiaofeng Yang, Juan Li, Xianzhe Wei, Won Jun Jang, Shan-Shan Zhang,* Mei Yan* and Juyoung Yoon*



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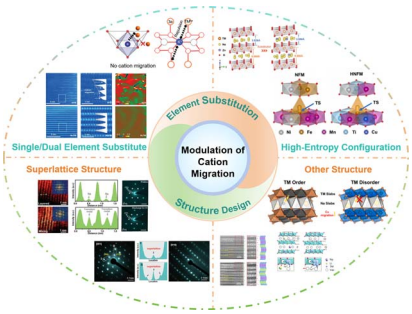
REVIEWS

19698

Cation migration in layered oxide cathodes for sodium-ion batteries: fundamental failure mechanisms and practical modulation strategies

Zhuang-Chun Jian, Jun-Xu Guo, Yi-Feng Liu, Yan-Fang Zhu,* Jingqiang Wang* and Yao Xiao*

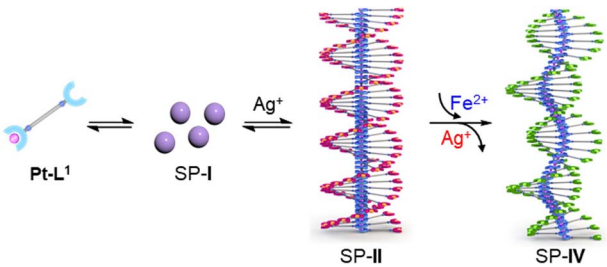


EDGE ARTICLES

19729

Pathway control in metallosupramolecular polymerization of a monoalkynylplatinum(II) terpyridine complex through competitive complex formation

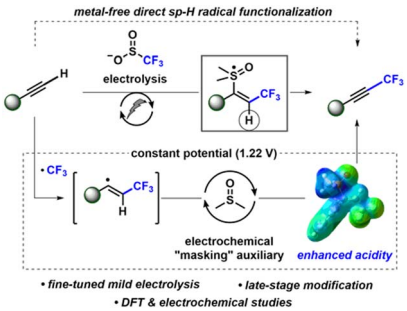
Minhye Kim, Heekyoung Choi, Minjoo Kim, Seonghan Kim, Seohyeon Yun, Eunji Lee, Jaeheung Cho, Sung Ho Jung* and Jong Hwa Jung*



19739

Electrochemical trifluoromethylation of alkynes: the unique role of DMSO as a masking auxiliary

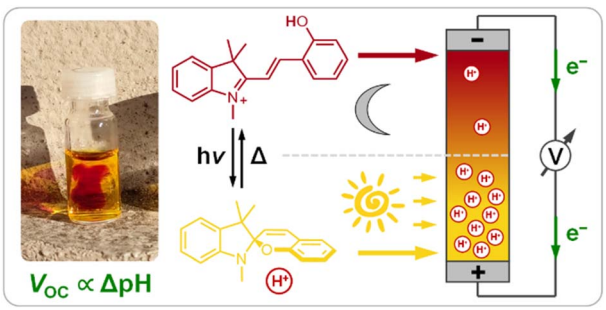
Jihoon Jang, Ho Seong Hwang, Haeryeong Jeong and Eun Jin Cho*



19745

Wiring proton gradients for energy conversion

Xinchen Dai, Cesare Berton, Dong Jun Kim* and Cristian Pezzato*



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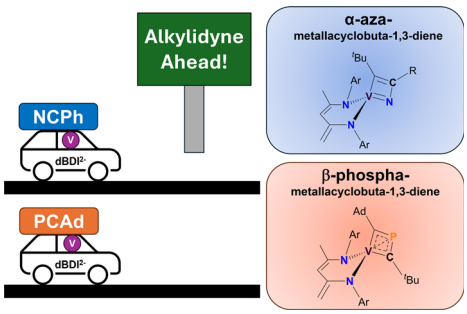
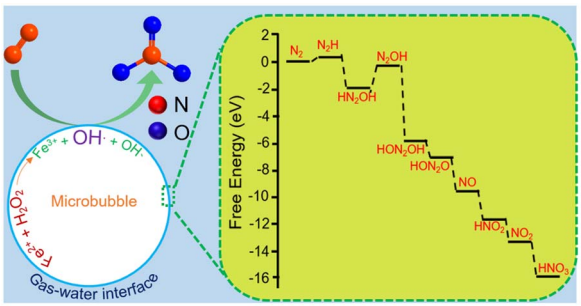


Pnictogen-based vanadacyclobutadiene complexes

Mehrafshan G. Jafari, John B. Russell, Hwan Myung, Seongyeon Kwon, Patrick J. Carroll, Michael R. Gau, Mu-Hyun Baik* and Daniel J. Mindiola*

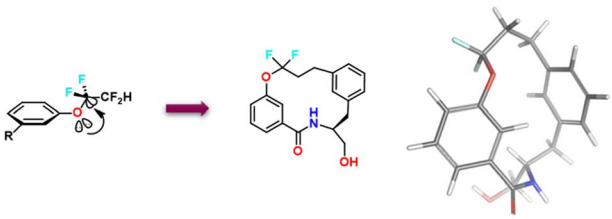
19764



Understanding the formation of nitrate from nitrogen at the interface of gas–water microbubbles

Sandeep Bose, Yu Xia* and Richard N. Zare*

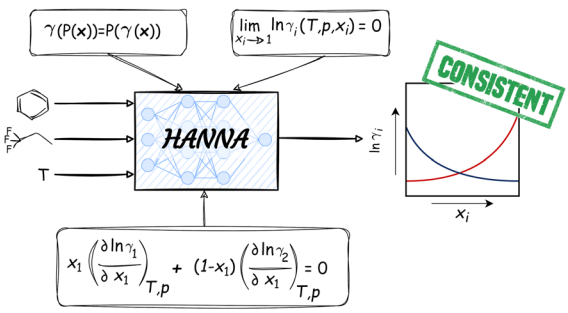
19770



The effect of *gem*-difluorination on the conformation and properties of a model macrocyclic system

T. J. Cogswell,* R. J. Lewis, C. Sköld, A. Nordqvist, M. Ahlqvist and L. Knerr*

19777



HANNA: hard-constraint neural network for consistent activity coefficient prediction

Thomas Specht, Mayank Nagda, Sophie Fellenz, Stephan Mandt, Hans Hasse and Fabian Jirasek*

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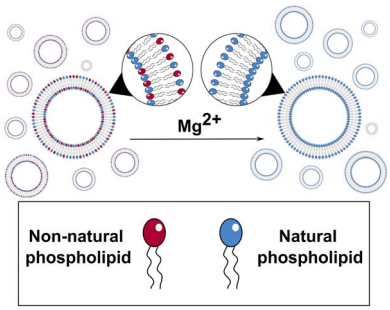
19787

Mg^{2+}-driven selection of natural phosphatidic acids in primitive membranes

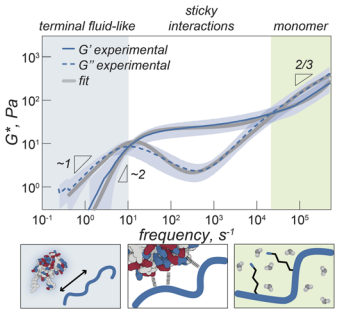
Krishnakavya Thaipurayil Madanan, Yuhan Li, Valeria J. Boide-Trujillo, David A. Russell and Claudia Bonfio*



19795

Viscoelasticity of globular protein-based biomolecular condensates

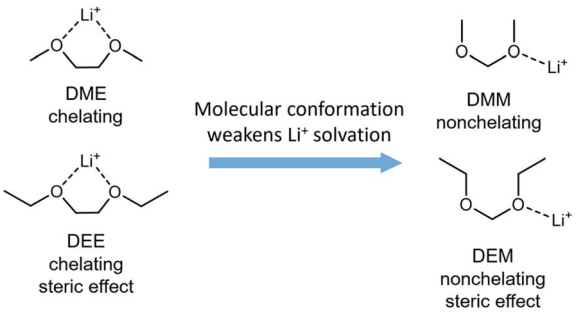
Rachel S. Fisher and Allie C. Obermeyer*



19805

Hyperconjugation-controlled molecular conformation weakens lithium-ion solvation and stabilizes lithium metal anodes

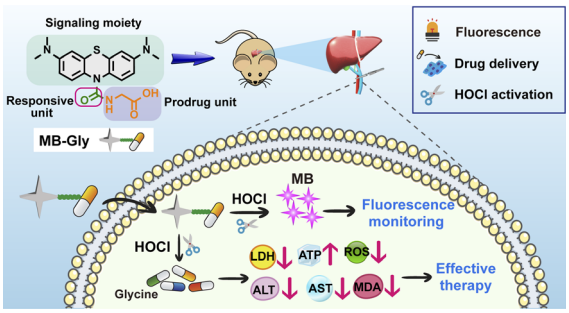
Yuelang Chen, Sheng-Lun Liao, Huaxin Gong, Zewen Zhang, Zhuojun Huang, Sang Cheol Kim, Elizabeth Zhang, Hao Lyu, Weilai Yu, Yangju Lin, Philaphon Sayavong, Yi Cui,* Jian Qin* and Zhenan Bao*



19820

A multifunctional "three-in-one" fluorescent theranostic system for hepatic ischemia–reperfusion injury

Jihong Liu, Dongni Yin, Wen Zhang,* Xin Wang, Tony D. James,* Ping Li* and Bo Tang*



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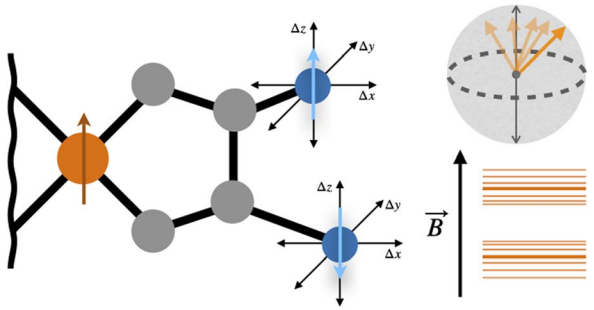
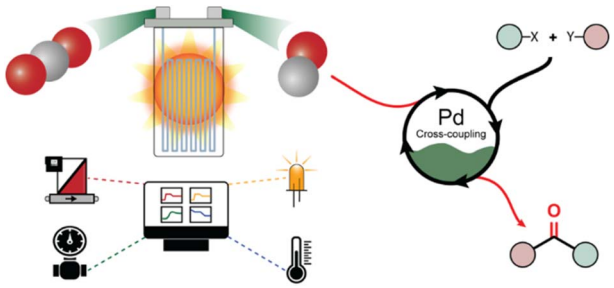


Low temperature decoherence dynamics in molecular spin systems using the Lindblad master equation

Timothy J. Krogmeier, Anthony W. Schlimgen and Kade Head-Marsden*

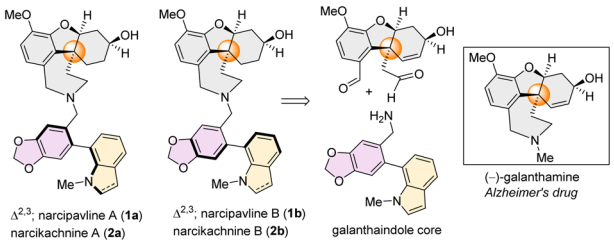
19842



Light-assisted carbon dioxide reduction in an automated photoreactor system coupled to carbonylation chemistry

Jasper H. A. Schuurmans, Tom M. Masson, Stefan D. A. Zondag, Simone Pilon, Nicola Bragato, Miguel Claros, Tim den Hartog, Francesc Sastre, Jonathan van den Ham, Pascal Buskens, Giulia Fiorani and Timothy Noël*

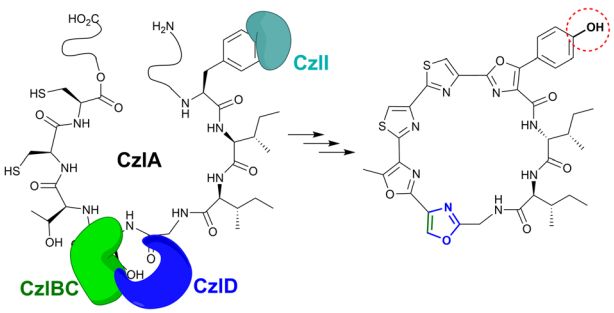
19851



Total synthesis of atropodiastereomers of heterodimeric *Amaryllidaceae* alkaloids: narcipavline and narcikachnine

Souvik Pal, Satyajit Majumder, Sovan Niyogi, Pranay Shyamal, Debabrata Mondal, Bishnu Das and Alakesh Bisai*

19858



Analysis of the cryptic biosynthetic gene cluster encoding the RiPP curacozole reveals a phenylalanine-specific peptide hydroxylase

Samantha Hollands, Julia Tasch, David J. Simon, Dimah Wassouf, Isobel Barber, Arne Gessner, Andreas Bechthold and David L. Zechel*

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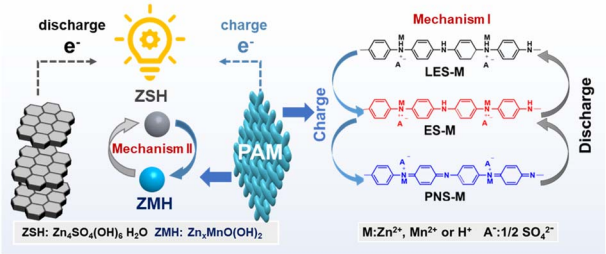
19870

An interactive dual energy storage mechanism boosts high-performance aqueous zinc-ion batteries

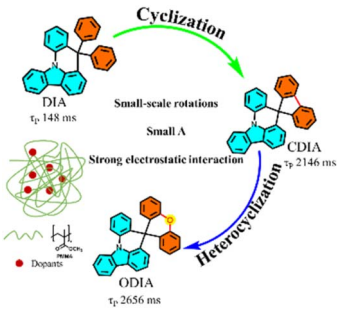
Shengen Gong, Meihua Zhu, Yan Zhou, Runan Li, Jianhua Zhang, Xiaoteng Jia,* Danming Chao* and Caiyun Wang*



19886

Organic dopant cyclization and significantly improved RTP properties

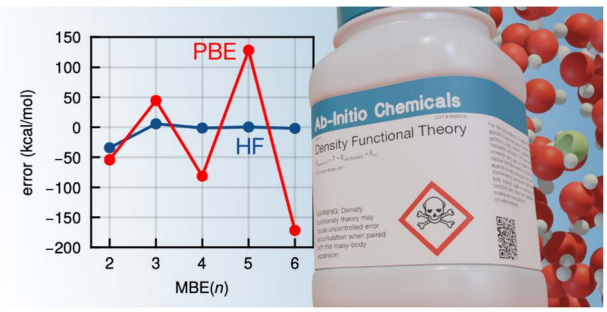
Shiguo Zhang, Guanyu Liu, Zhichao Mao, Shanfeng Xue, Qikun Sun* and Wenjun Yang*



19893

Delocalization error poisons the density-functional many-body expansion

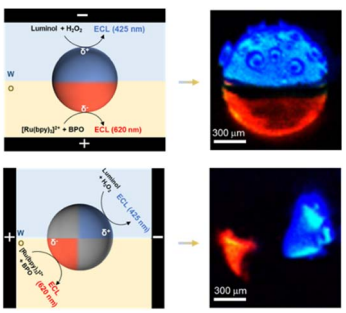
Dustin R. Broderick and John M. Herbert*



19907

Bipolar electrochemiluminescence at the water/organic interface

Yuheng Fu, Bingbing Xie, Miaoxia Liu, Shaojuan Hou, Qunyan Zhu, Alexander Kuhn, Lin Zhang,* Wensheng Yang* and Neso Sojic*



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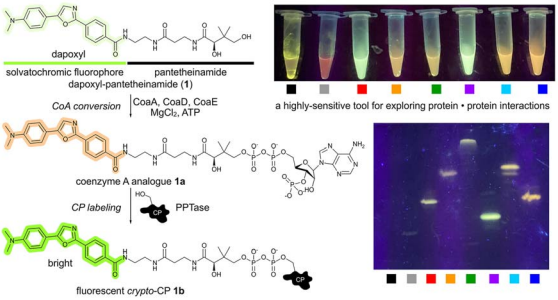
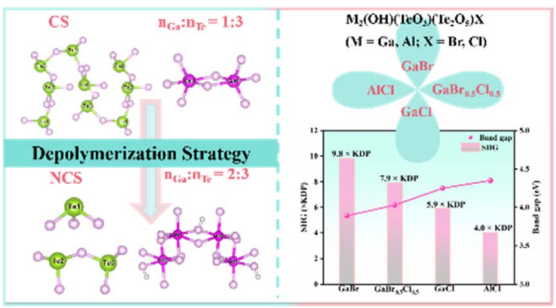


Differentiating carrier protein interactions in biosynthetic pathways using dapoxyl solvatochromism

Matthew G. Miyada, Yuran Choi, Kyle Rich, James J. La Clair and Michael D. Burkart*

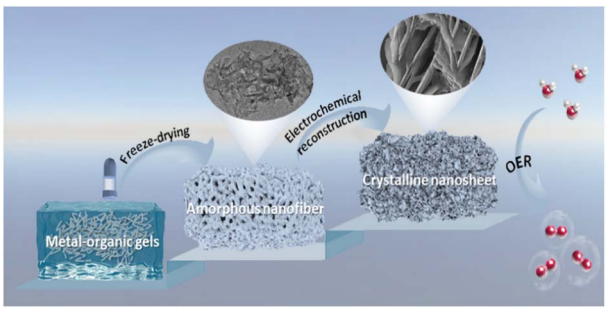
19920



Noncentrosymmetric tellurite halides created by a depolymerization strategy: toward strong SHG intensity and wide bandgap

Dan-Dan Zhou, Chun-Li Hu, Xin-Wei Zhang, Jiang-Gao Mao and Fang Kong*

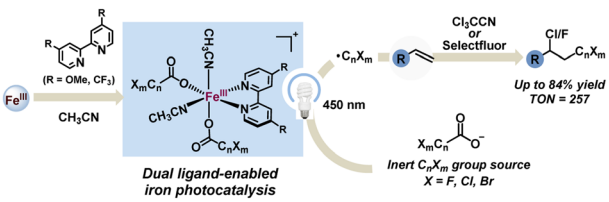
19928



Electrochemical reconstruction of metal–organic gels into crystalline oxy-hydroxide heterostructures for efficient oxygen evolution electrocatalysis

Kang Liu, Haikuo Lan, Yuting Chen, Weicheng Tang, Zhenyu Xiao, Yunmei Du, Jun Xing, Zexing Wu and Lei Wang*

19936



Dual ligand-enabled iron and halogen-containing carboxylate-based photocatalysis for chloro/fluoro-polyhaloalkylation of alkenes

Wanru Han, Zhenyan Zhao, Kui Jiang, Yu Lan,* Xuehan Yu, Xiaoyu Jiang, Wei Yang, Donghui Wei,* Shi-Jun Li* and Linbin Niu*

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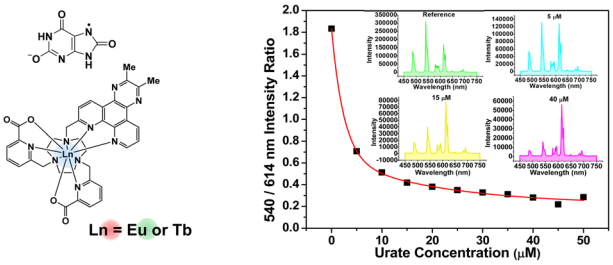
19944

Mechanism of action and evaluation of ratiometric probes for uric acid using lanthanide complexes with tetraazatriphenylene sensitisers

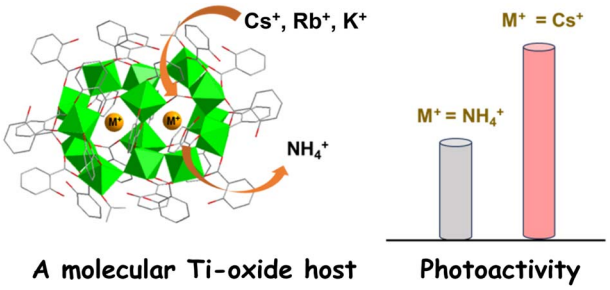
Xinyi Wen, Huishan Li, Zhijie Ju, Renren Deng and David Parker*



19952

Guest modulating the photoactivity of a titanium-oxide cage

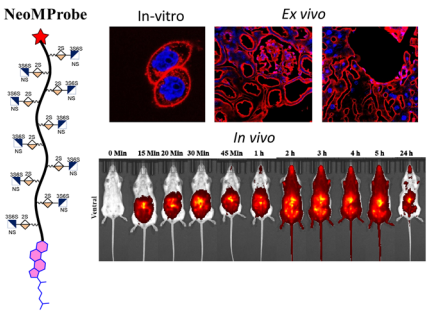
Dexin Wang, Yanshu Liu, Guanyun Zhang,* Menghui Chu, Fangfang Gao, Guanjie Chen, Guo Wang, Chen-Ho Tung and Yifeng Wang*



19962

NeoMProbe: a new class of fluorescent cellular and tissue membrane probe

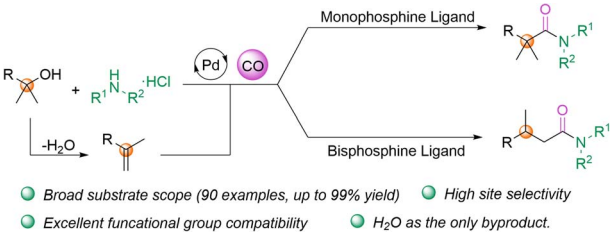
Saurabh Anand, Preeti Ravindra Bhoge, Rakesh Raigawali, Srinivas Vinod Saladi* and Raghavendra Kikkeri*



19970

Ligand-controlled palladium-catalyzed regiodivergent aminocarbonylation of *tert*-alcohols

Xing-Wei Gu, Yan-Hua Zhao and Xiao-Feng Wu*



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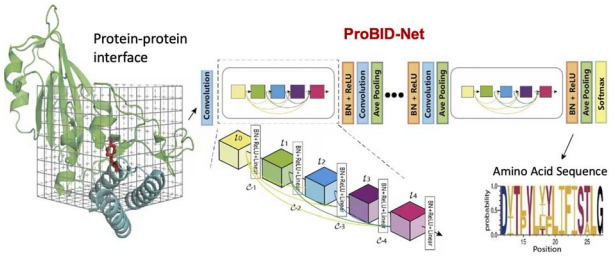
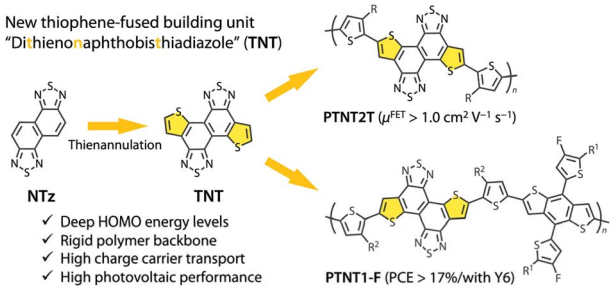


ProBID-Net: a deep learning model for protein–protein binding interface design

Zhihang Chen, Menglin Ji, Jie Qian, Zhe Zhang, Xiangying Zhang, Haotian Gao, Haojie Wang, Renxiao Wang* and Yifei Qi*

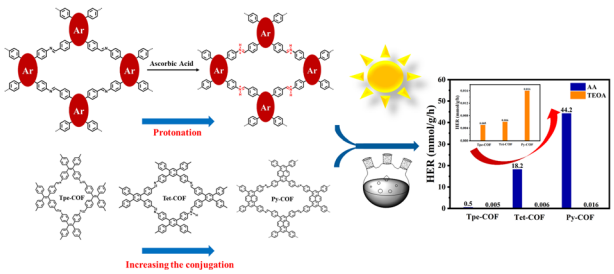
19991



Dithienonaphthobisthiadiazole synthesized by thienannulation of electron-deficient rings: an acceptor building unit for high-performance π-conjugated polymers

Tsubasa Mikie,* Tomokazu Morioku, Shota Suruga, Momoka Hada, Yuki Sato, Hideo Ohkita and Itaru Osaka*

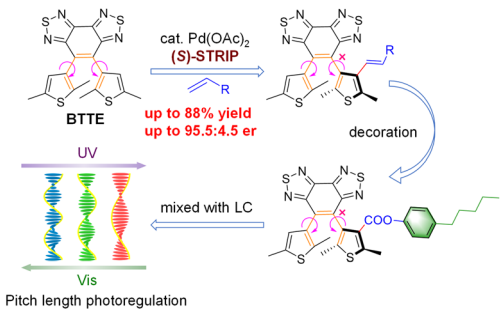
20002



Double enhancement of protonation and conjugation in donor–imine–donor covalent organic frameworks for photocatalytic hydrogen evolution

Huan He, Rongchen Shen, Yuhao Yan, Dejun Chen, Zhixiong Liu, Lei Hao, Xin Zhang,* Peng Zhang* and Xin Li*

20013



Pd(II)-catalyzed enantioselective C–H olefination and photoregulation of sterically hindered diarylethenes

Guanlun Zhang, Xu Wu, Shiyu Mao, Mengqi Li,* Honglong Hu, Bing-Feng Shi* and Wei-Hong Zhu*

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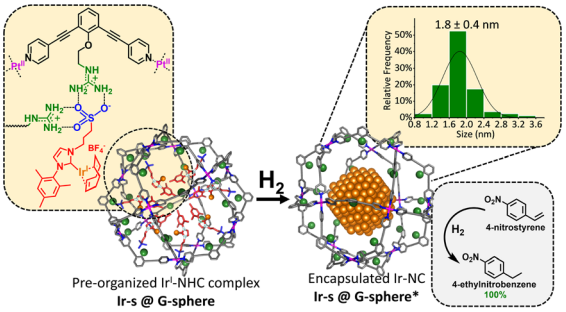
20022

$M_{12}L_{24}$ nanospheres as supramolecular templates for the controlled synthesis of Ir-nanoclusters and their use in the chemo-selective hydrogenation of nitro styrene

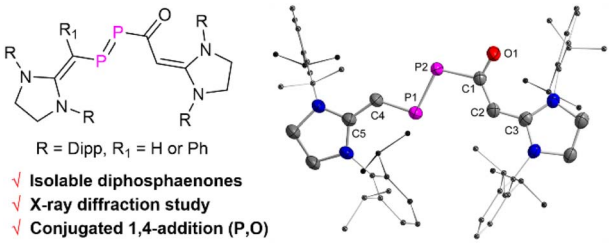
Lotte L. Metz, Rens Ham, Eduard O. Bobylev, Kelly J. H. Brouwer, Alfons van Blaaderen, Rim C. J. van de Poll, Victor R. Drozhzhin, Emiel J. M. Hensen and Joost N. H. Reek*



20030

Diphosphaenones: beyond the phosphorus analogue of enones

Jieli Lin, Shihua Liu, Shunlin Zheng, Hansjörg Grützmacher, Cheng-Yong Su and Zhongshu Li*



20039

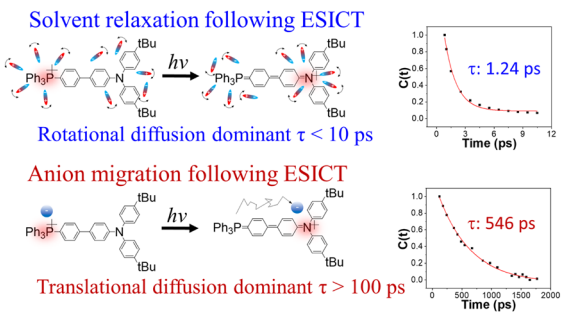
Deep learning enabled ultra-high quality NMR chemical shift resolved spectra

Zhengxian Yang, Weigang Cai, Wen Zhu, Xiaoxu Zheng, Xiaoqi Shi, Mengjie Qiu, Zhong Chen, Maili Liu and Yanqin Lin*

20045

Insights into the photoinduced anion translocation of donor–π–acceptor$^+$ (ion)$^-$ molecules

Hao-Ting Qu, Iida Partanen, Kai-Hsin Chang, Yan-Ding Lin, Igor O. Koshevoy,* Andrey Belyaev* and Pi-Tai Chou*



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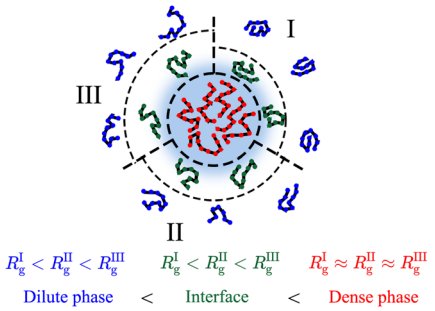
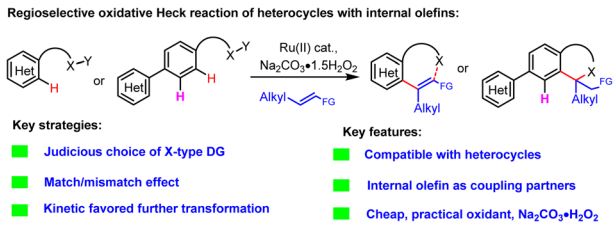
20056



Sequence-dependent conformational transitions of disordered proteins during condensation

Jiahui Wang, Dinesh Sundaravadivelu Devarajan, Keerthivasan Muthukumar, Young C. Kim,* Arash Nikoubashman* and Jeetain Mittal*

20064



Ru(II)-catalyzed regioselective oxidative Heck reaction with internal olefins that tolerated strongly coordinating heterocycles

Ci Chen, Qiaoya Zhang, Zhiwei Huang, Wensen Ouyang, Yang Gao, Jiye Luo, Yuan Liu, Yanping Huo, Qian Chen and Xianwei Li*

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