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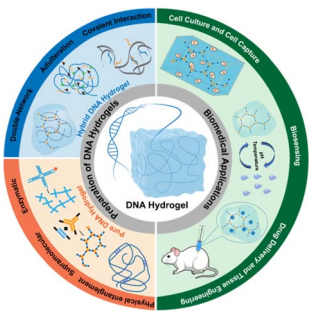
Inside cover
See Hideto Ito, Kenichiro Itami *et al.*, pp. 3998–4003. Image reproduced by permission of Hideto Ito from *Chem. Sci.*, 2026, **17**, 3998. Artwork created by Prof. Hideto Ito (Nagoya University).

PERSPECTIVES

3875

Preparation strategies and biomedical applications of DNA hydrogels

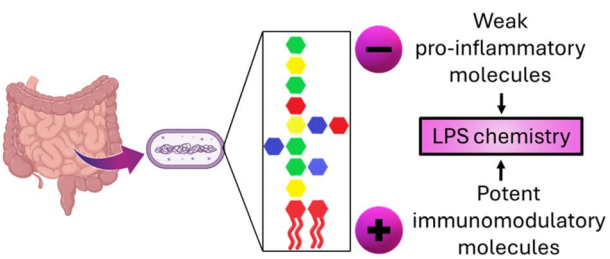
Miaomiao Qiu, Jing Wang, Xinchang Pang, Dongsheng Liu* and Yuanchen Dong*



3894

The hidden language of gut-derived lipopolysaccharides: fine chemistry, huge immunological consequences

Marcello Mercogliano, Valentina Mazziotti, Alba Silipo, Antonio Molinaro and Flaviana Di Lorenzo*



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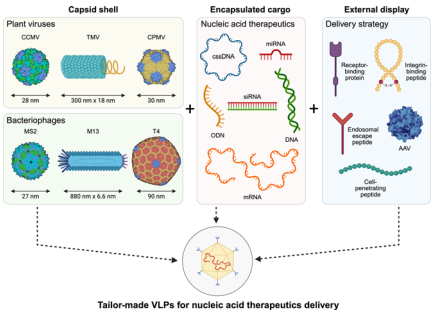
REVIEWS

3908

Virus-like particles based on plant viruses and bacteriophages: emerging strategies for the delivery of nucleic acid therapeutics

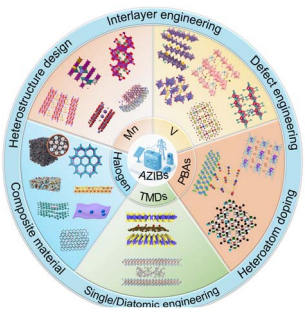
Dajeong Kim, Bryan Duoto, Meghana Varanasi, George Goldenfeld and Nicole F. Steinmetz*



3936

Positioning versatile inorganic cathode materials in the aqueous zinc-ion battery landscape

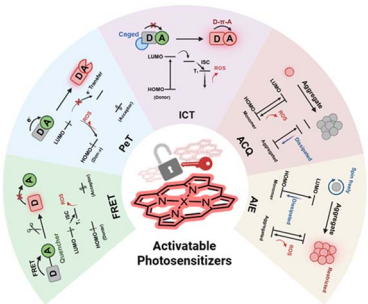
Kang Guo, Yaokang Lv, Ziyang Song,* Lihua Gan* and Mingxian Liu*



3958

Mechanism-guided design of specific-activated photosensitizers for precision photodynamic therapy

Kai Wang, Xiaoying Mao, Wuyan Xie, Xiaoyan Liu, Qin Zhou, Dan Wu, Qing Zhu* and Bin Liu*

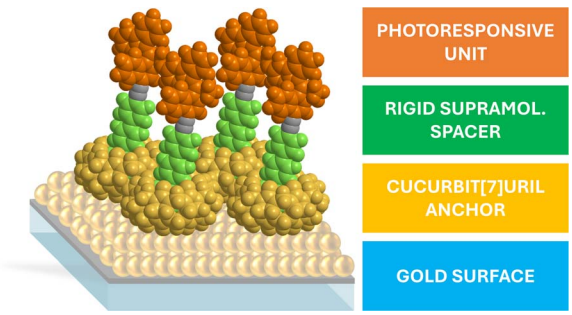


EDGE ARTICLES

3991

Cucurbit[7]uril as a universal anchor for photoswitchable monolayers on gold

Doroteja Lončarić, Eva Kaletová, Katarina Majerová Varga, Carina Santos Hurtado, Milan Mašát, Ivana Císařová and Jiří Kaleta*



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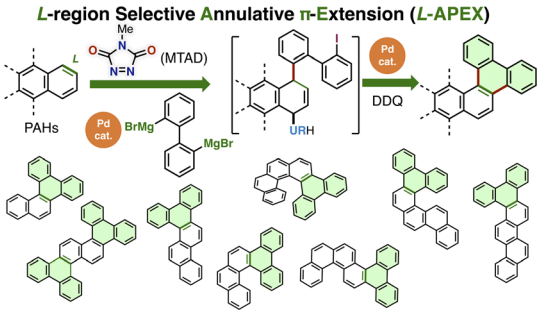
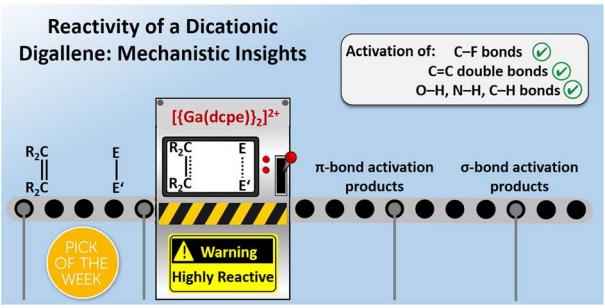


L-region-selective annulative π-extension through dearomative activation of polycyclic aromatic hydrocarbons

Kanami Nakata, Wataru Matsuoka, Hideto Ito* and Kenichiro Itami*

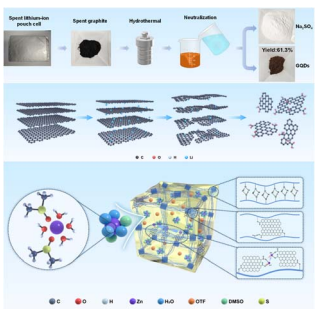
4004



Why is a dicationic digallene so reactive towards activation of strong covalent bonds? Scope and mechanistic investigations

Antoine Barthélemy, Nico Gino Kub, Celine Regnat, Harald Scherer and Ingo Krossing*

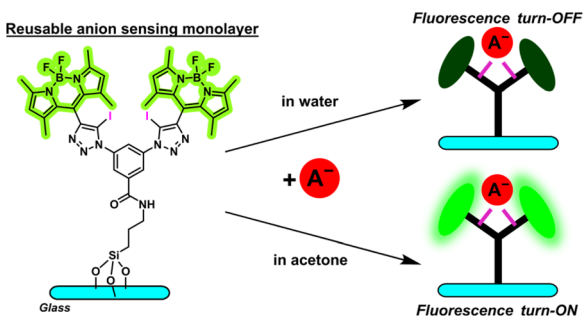
4021



High-yield synthesis of graphene quantum dots from spent graphite and application in hydrogel Zn batteries

Dingzhong Luo, Yinger Xiang, Zhenglei Geng, Huaxin Liu, Xue Zhong, Zhi Zheng, Zhiyu Hu, Shengli Lu, Wentao Deng, Guoqiang Zou, Hongshuai Hou* and Xiaobo Ji

4034



Halogen bonding and hydrogen bonding fluorescent anion sensing at the solid–liquid interface

Robert Hein,* Mohamed Sharafeldin, Edward J. Mitchell, Jason J. Davis and Paul D. Beer*

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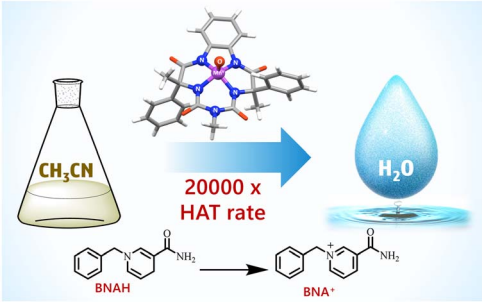
Unprecedented HAT rate acceleration in water by a non-heme manganese oxo complex

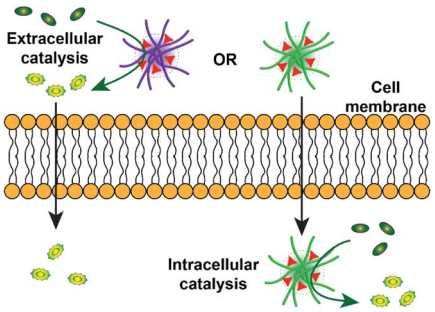
Puja De, Snehith Adabala, Soumya Samanta, Kuntal Mukhopadhyay, Soumya Ghosh* and Sayam Sen Gupta*



4050

Controlled intra- and extracellular localization of bioorthogonal polymeric nanozymes

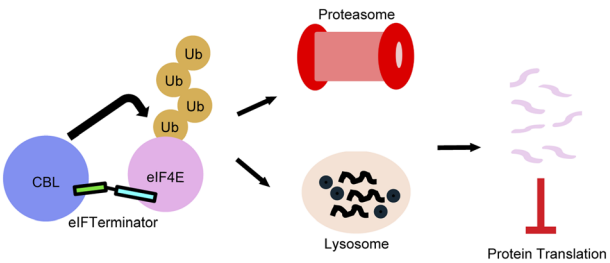
Cristina-Maria Hirschbiegel, Mathangi Shrikanth, Yagiz Anil Cicek, Nourina Nasim, Joe Truong, Junwhee Yang, Alexander Ribbe, Maged Abdelaziz and Vincent M. Rotello*



4061

CBL ubiquitin ligase targets translation as a degrader E3

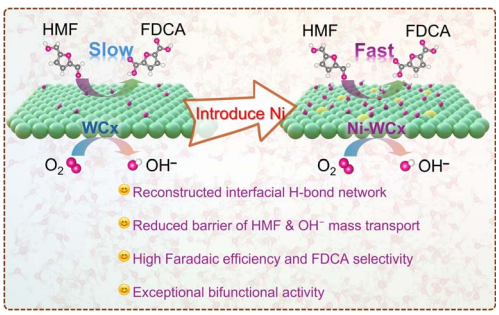
Alice T. Wicks, Lori Buetow, Toshiyasu Suzuki, Tobias Schmidt, Sergio Lilla, Abigail Macmillan-Jones, Jennifer Turney, Andrea Gohlke, Martin Bushell, Andreas K. Hock and Danny T. Huang*



4075

Beyond active sites: interfacial water engineering with single-atom Ni-WC_x for concurrent energy storage and biomass conversion

Xiaoyang He, Dengke Xiong, Kaiyan Zhang, Wei Wang, Shujie Xue, Jianying Wang,* Deli Wu and Zuofeng Chen*



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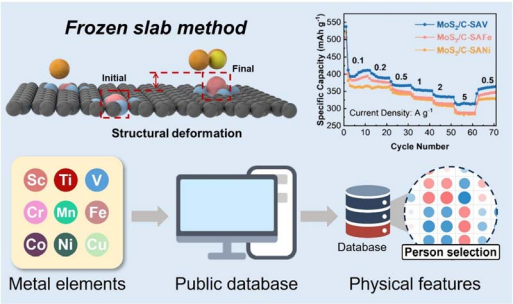
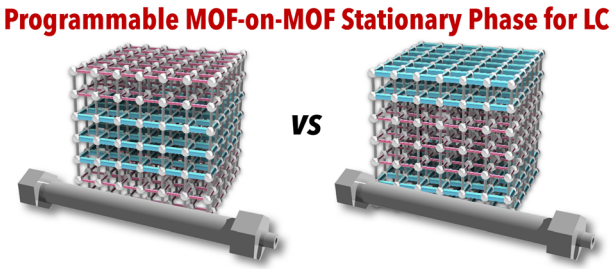


Frozen slab method mediated sulfur-affinitive single-atom catalysts for efficient reversible sodium storage

Kai Cui, Zijia Qi, Dominik Legut, Wanxiang Zhao, Biao Chen, Ningning Wu,* Qiuyu Zhang* and Tianshuai Wang*

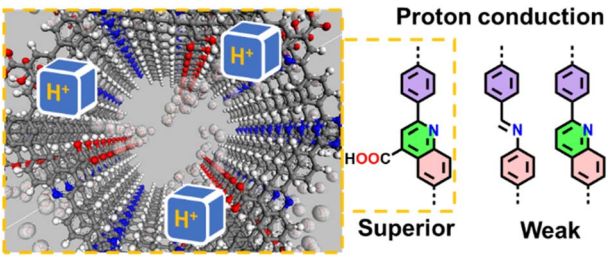
4097



Sequence controlled MOF-on-MOF microcrystals for multidomain liquid chromatography stationary phases

Toshiaki Matsumura, Takashi Uemura* and Nobuhiko Hosono*

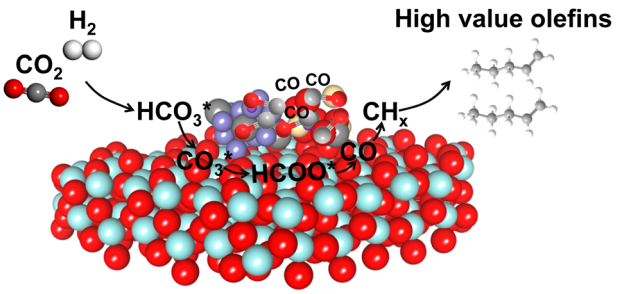
4107



Room-temperature superprotonic conductivity in COOH-functionalized multicomponent covalent organic frameworks

Gouri Chakraborty, Prasenjit Das,* Biswajit Bhattacharya,* Carsten Prinz, Franziska Emmerling* and Arne Thomas*

4116



Highly efficient CO_2 hydrogenation to long-chain linear α-olefins *via* CO intermediate enrichment over Na/FeMn/ZrO_2 catalysts

Kangzhou Wang,* Tong Liu, Pengqi Hai, Shunnosuke Fujii, Chufeng Liu, Hanyao Song, Caixia Zhu, Guangbo Liu, Jianli Zhang,* Zhou-jun Wang* and Noritatsu Tsubaki*

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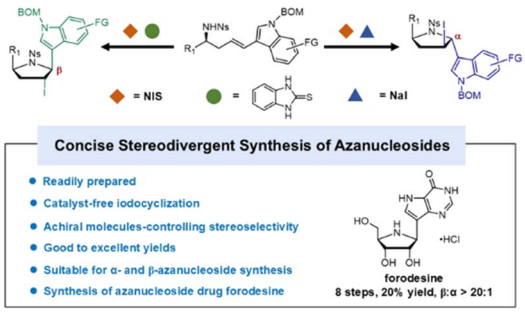
Stereodivergent access to α- and β-azanucleosides *via* catalyst-free, achiral modulator-controlled iodocyclization: a concise synthesis of forodesine

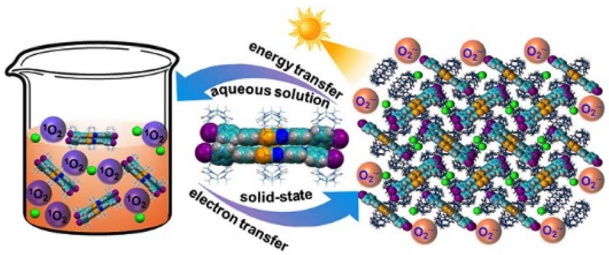
Yangyang Zhong, Jie Zeng, Mingwei Li, Yuli Liang, Shuman Guan, Kehan Zhao, Jiayi Mu, Pei Tang, Huijing Wang* and Fener Chen*



4137

A cucurbit[8]uril-triggered ionic photosensitizer in solution and solid states: selective control of $^1O_2$ and $O_2^{\cdot-}$ generation

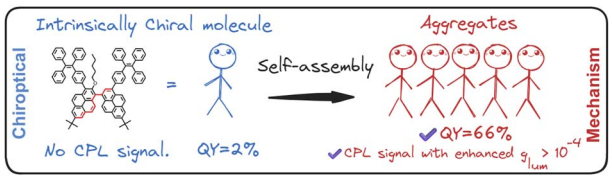
Haigen Nie, Jiao Tan, Yi Luo and Xin-long Ni*



4145

Unlocking intrinsically chiral bipyrenyl-based aggregation-induced emission luminogens: circularly polarized luminescence and dynamic chirality amplification

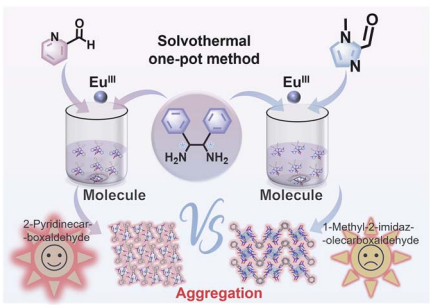
Zhixin Xie, Junpeng Deng, Dan Liu, Jieyu Lin, Tao Jiang, Xiaohui Wang, Wei Liu, Lin Ma,* Fengyan Song,* Zuping Xiong, Junru Chen, Jianyu Zhang,* Carl Redshaw, Zujin Zhao, Xing Feng* and Ben Zhong Tang*



4157

Improving the conjugation of organic ligands enhances the antenna effect and promotes the luminescence and optical imaging of chiral mononuclear Eu(III) complexes

Ru-Yan Li, Meng-Juan Tang, Yun-Lan Li, Fan Yang, Hua-Hong Zou, Hai-Ling Wang* and Zhong-Hong Zhu*



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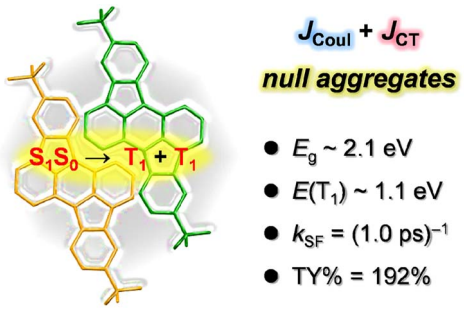

Efficient singlet fission in rubicene null aggregates

Xiaomei Shi,* Xinyu Chen, Yu Huang, Zuyuan Liu, Bo Zhao, Lingpeng Yan, Teng-Shuo Zhang,* Hongbing Fu and Long Wang*

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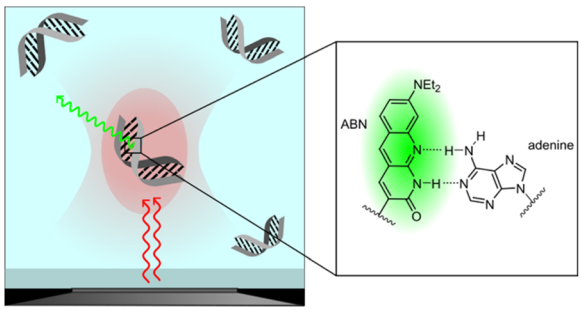

Two-photon excitation enables single-molecule detection of a fluorescent base analogue in DNA with high photostability

Henry G. Sansom, Alexandra E. Bailie, Filippos Stefanou, Byron W. Purse,* Anita C. Jones* and Steven W. Magennis*

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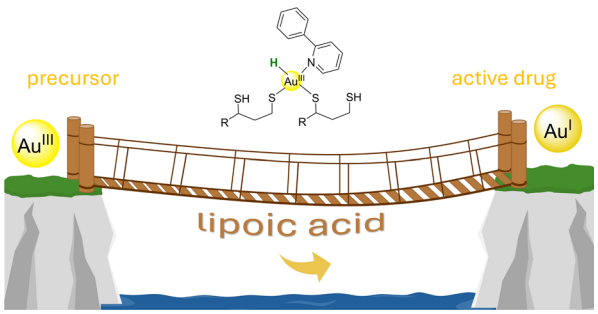
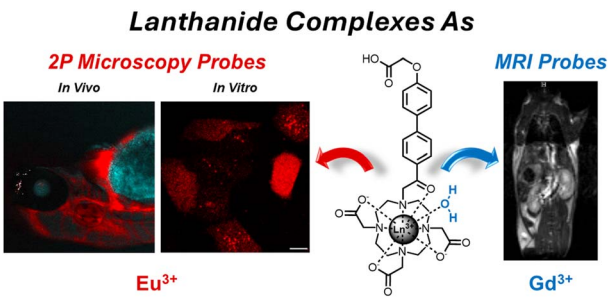


Identification of Au-hydrides as key intermediates in the reduction of Au(III) prodrugs to active Au(I) species under protic conditions

Jasmine Ochs and Nils Metzler-Nolte*

4191



Lanthanide complexes with acetophenone-based push-pull antennas as efficient MRI and two-photon microscopy imaging probes

Baptiste Chartier, Luke Marchetti, Lamiaa M. A. Ali, Dina Akl, Guillaume Micouin, Akos Banyasz, Sandra Même, Didier Boturyn, Sule Erbek, Véronique Martel-Frachet, Alexei Grichine, Olivier Maury, Magali Gary-Bobo,* Célia S. Bonnet* and Olivier Sénèque*

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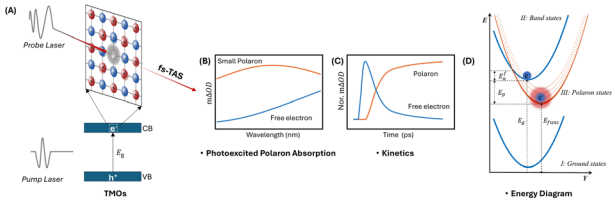
Optical spectroscopic determination of photoexcited small-polaron hopping in transition metal oxide photocatalysts

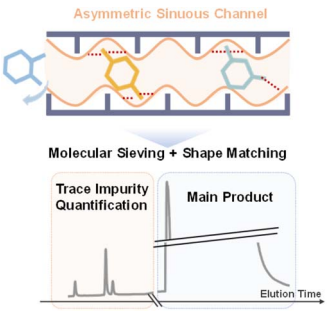
Lei Tian,* Michael Sachs, Lucas G. Verga, Viktoria F. Kunzelmann, Andreas Kafizas, Ian D. Sharp, Scott K. Cushing, Aron Walsh and James R. Durrant*



4213

Modulation of nanoscale sinuosity in asymmetric nano-channels for high-resolution separation of trace xylene isomer impurities

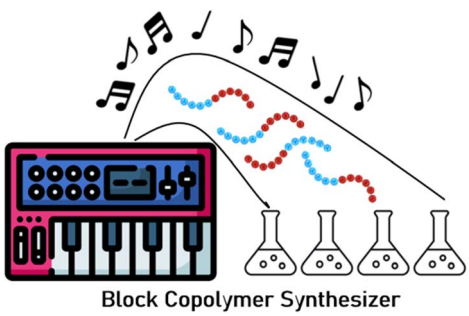
Ming Xu, Xiao-Yi Fu, Sha-Sha Meng, Shu-Rui Gao, Yu Wang and Zhi-Yuan Gu*



4222

Automated closed-loop continuous flow block copolymer synthesizer

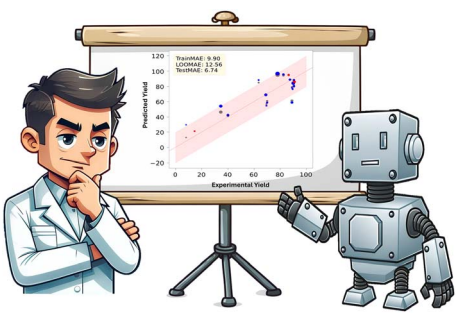
Wei Nian Wong, Daniel J. Phillips, Md Taifur Rahman and Tanja Junkers*



4235

Challenges in data-driven catalysis modelling: case study on palladium-NHC catalyzed Suzuki–Miyaura reactions

Vladislav A. Voloshkin, Cecile Valsecchi, Florian Medina, Laurent Lefort,* Mikko Muuronen,* Matthieu Jouffroy* and Steven P. Nolan*



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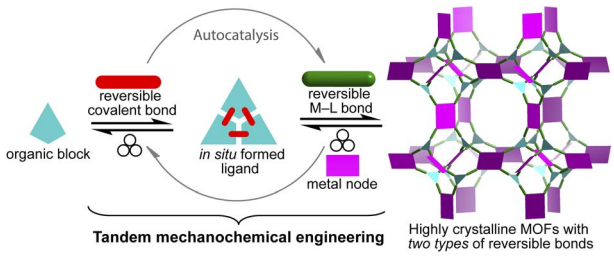
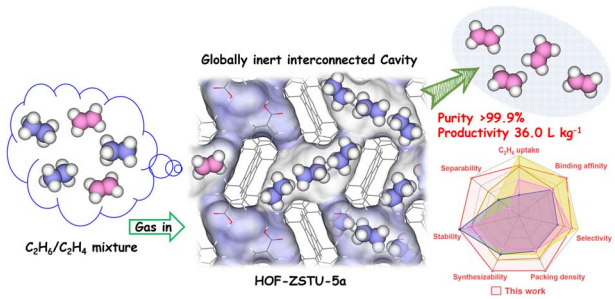


Tandem mechanochemical engineering yields highly crystalline metal–organic frameworks

Zhuorigebatu Tegudeer and Wen-Yang Gao*

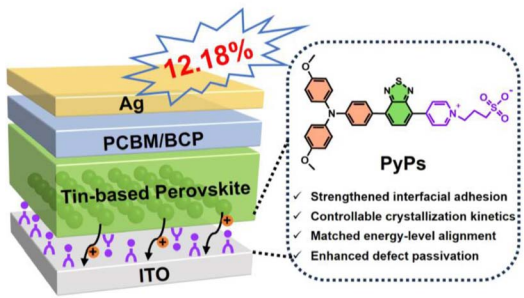
4256



Spatial pinning of globally inert pores in a superhydrophobic hydrogen-bonded organic framework for inverse ethane/ethylene separation

Youlie Cai, Jing-Hong Li, Xiaoyan Xiao, Runzhi Wei, Rui-Biao Lin,* Banglin Chen* and Junkuo Gao*

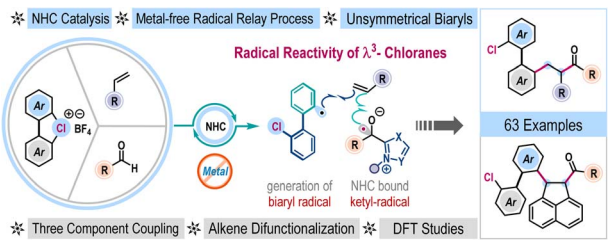
4268



A donor–acceptor zwitterion as a self-assembled hole-selective layer for highly efficient tin-based perovskite solar cells

Qianqian Chang, Guosen Zhang, Diwei Zhang,* Peng Lin, Jingjing Li, Xurang Wang, Tianci Gu, Jingying Lin, Yuan Lin, Xiaozhen Li, Mingwei An,* Yu Cao,* Chengbo Tian* and Yang Wang*

4277



Unlocking radical reactivity of cyclic diaryl λ^3-chloranes through NHC-catalyzed three-component coupling

Anusree A. Kunhiraman, Koushik Patra, Venkata Surya Kumar Choutipalli, Manjeet Godara, Kevin L. Shuford* and Mahiuddin Baidya*

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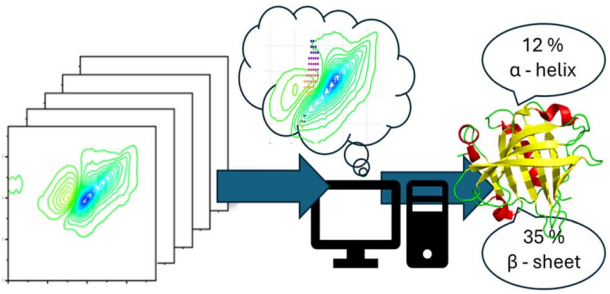
EDGE ARTICLES

4285

Dynamic protein structures in solution: decoding the amide I band with 2D-IR spectral libraries and machine learning

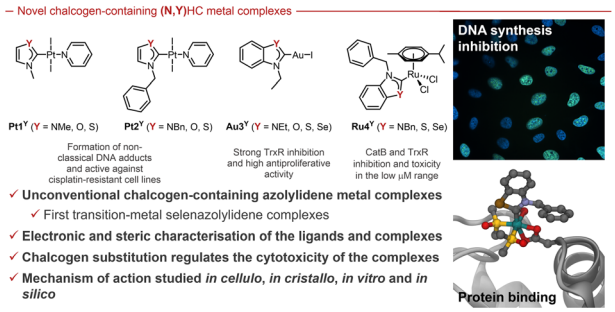
Amy L. Farmer, Kelly Brown, Sophie E. T. Kendall-Price, Partha Malakar, Gregory M. Greetham and Neil T. Hunt*



4296

Unconventional chalcogen-containing azolylidene metal complexes as potential anticancer therapeutics

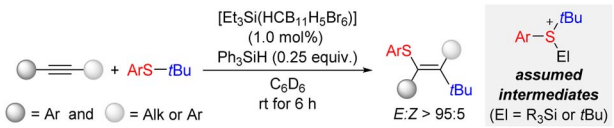
Jan Romano-deGea,* Irina L. Sinenko, Peter M. F. Pânzar, Adriana Neves Vieira, Lindsey E. K. Frederiksen, Kseniya Glinkina, Farzaneh Fadaei-Tirani, Rosario Scopelliti, Fabien Kuttler, Kelvin Lau and Paul J. Dyson*



4307

Regio- and stereoselective *tert*-butylthiolation of internal alkynes with thioethers initiated and maintained by silylium-ion catalysis

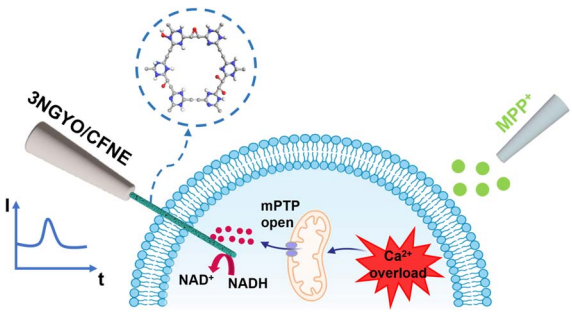
Dáiríne M. Morgan, Hendrik F. T. Klare and Martin Oestreich*



4312

Hydrogen-bond-assisted meta-nitrogen-doped graphyne enables real-time electrocatalytic NADH tracking in single cells

Jiale Wei, Jing Jiang, Chuqi Li, Guo Wang, Jiayao Wulan, Huan Yang, Fangxu Shen, Daixin Ye, Kai Li,* Xianchan Li* and Yuqing Lin*



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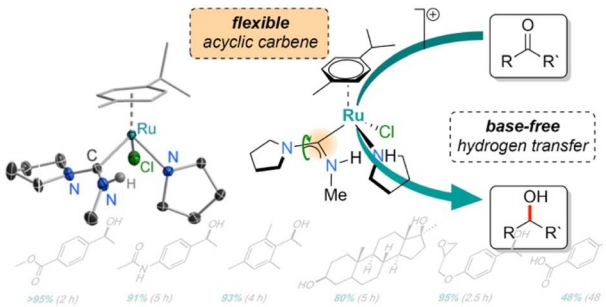
EDGE ARTICLES

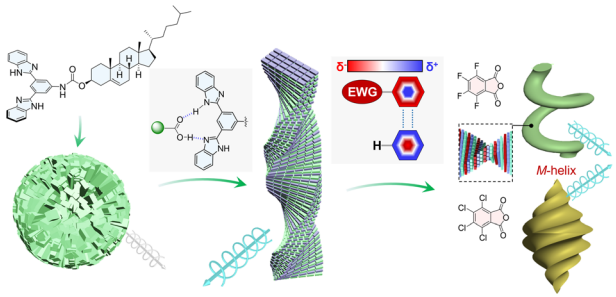
4325



Ligand flexibility as a concept to unlock catalytic activity: acyclic carbenes for base-free transfer ruthenium hydrogenation catalysis

Gianluca Righetti, Georgyi Koidan, Sergiy L. Filimonchuk, Svitlana Shishkina, Aleksandr Kostyuk* and Martin Albrecht*

4332



π−hole forces enabled programmable supramolecular chirality based on a chiral benzimidazole pincer

Weilong Ma, Aiyou Hao* and Pengyao Xing*

CORRECTIONS

4343

Correction: Chiral poly(aza-norbornene) derivatives with tunable tacticity and living ROMP capability

Jing Bai, Yu Wang,* Yisong Wang, Na Zhang, Xiaoyang Wang, Yan Xu* and Wei You*

4344

Correction: A mitochondria targeted nitroreductase-sensitive self-immolative spacer as an efficient shuttle for uncharged amine-based molecules

Laurane Michel, Vincent Steinmetz, Sophia Godel-Pastre, Philippe Durand and Arnaud Chevalier*

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