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See Bishwajit Ganguly, Sukalyan Bhadra *et al.*, pp. 2941–2944. Image reproduced by permission of Sukalyan Bhadra from *Chem. Commun.*, 2025, **61**, 2941.

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Contributors to the Pioneering Investigators collection 2024: Part 3



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The chemistry of halide-based solid electrolytes: unlocking advances in solid-state Li-ion batteries

Palanivel Molaiyan,* Tingwu Jin, Shuo Wang,* Glaydson Simoes dos Reis, Shaikshavali Petnikota, Ulla Lassi and Andrea Paoletta*



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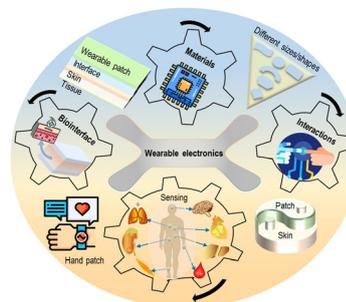
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Fundamental questions
Elemental answers



HIGHLIGHTS

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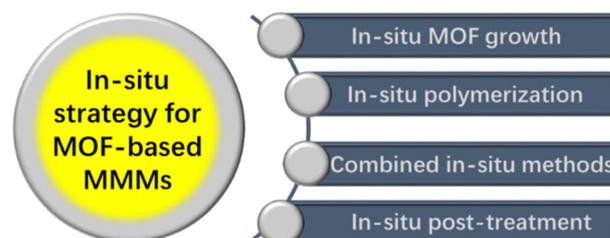
Biointerface engineering of flexible and wearable electronicsAlebel Nibret Belay, Rui Guo,*
Payam Ahmadian Koudakan and Shuaijun Pan*

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Recent innovations in *in situ* strategies to prepare metal–organic framework-based mixed matrix membranes

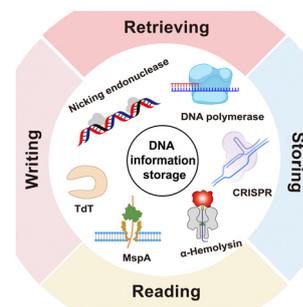
Liyang Zhang,* Yuxin He and Yu Fu*



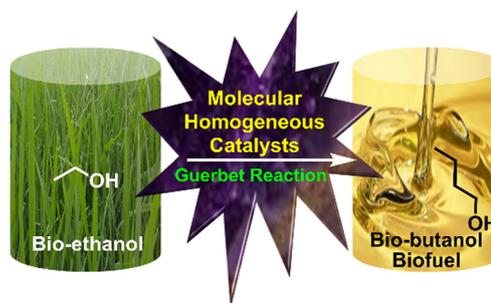
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Enzymes as green and sustainable tools for DNA data storage

Xutong Liu, Enyang Yu, Qixuan Zhao, Haobo Han* and Quanshun Li*

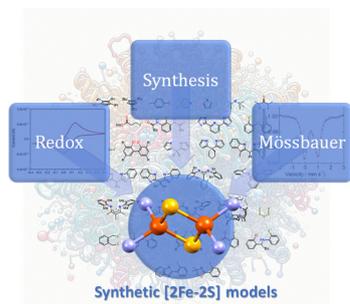


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State-of-the-art advances in homogeneous molecular catalysis for the Guerbet upgrading of bio-ethanol to fuel-grade bio-butanolAkshara Bisarya, Lakshay Kathuria, Kanu Das,
Eileen Yasmin, Raksh Vir Jasra, Sunil Dhole and
Akshai Kumar*

FEATURE ARTICLES

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**[2Fe–2S] model compounds**

Jun-Yang Ye, Theodore J. Gerard and Wei-Tsung Lee*

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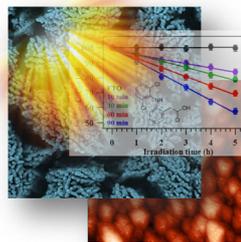


- C–C Bond formation through α -carbonyl radicals
- High regioselectivity
- 40 examples, up to 92% yield
- Access to α,β -diaryl propionic acids
- Applicability to ketones, drugs and complex molecules

Copper catalyzed C(sp³)–H/C(sp³)–H cross-coupling of arylacetic acid equivalents with methylarenes via α -carbonyl radicals

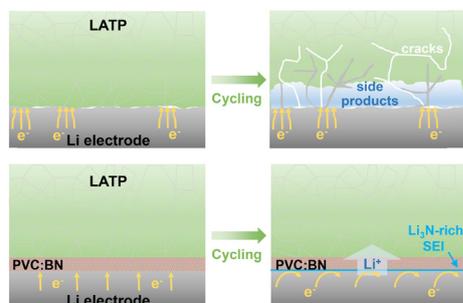
Anupam Kumar Singh, Ajjur Rahaman, Upendra Kumar Brijmohan Patel, Tulsu R. Patel, Surjit Bhai, Bishwajit Ganguly* and Sukalyan Bhadra*

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**Controllable properties of NiO nanostructures fabricated by plasma assisted-chemical vapor deposition**

Davide Barreca, Enrico Scattolin, Chiara Maccato,* Alberto Gasparotto, Lorenzo Signorin, Naida El Habra, Andraž Šuligoj, Urška Lavrenčič Štangar and Gian Andrea Rizzi

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**Stabilizing the interface of Li_{1.3}Al_{0.3}Ti_{1.7}(PO₄)₃ and lithium electrodes via an interlayer strategy in solid-state batteries**

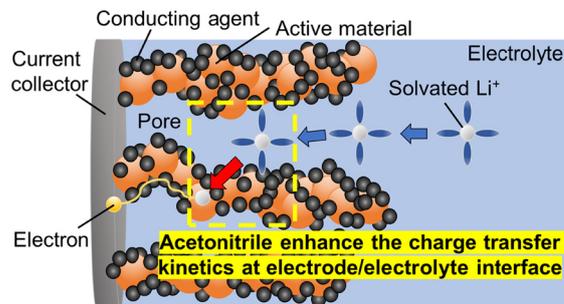
Jinhan Zhang, Guixian Liu,* Pengbo Zhai and Xiangxin Guo*



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Tatsumi Suzuki, Yuki Miyaura, Ken-ichi Okazaki, Chengchao Zhong, Keiji Shimoda, Fumiya Kondo, Masanori Fujii, Hajime Kinoshita and Yuki Orikasa*



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Pd(II)-catalyzed cyclization of alkyne-tethered malonitriles via nitrile insertion

Tarun Nallamilli, Anandaro Munakala, Ramulu Dhanavath, Hariharan Mahendran and Rambabu Chegondi*



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Dimerizing DNA-AgNCs via a C-Ag⁺-C structure for fluorescence sensing with dual-output signals

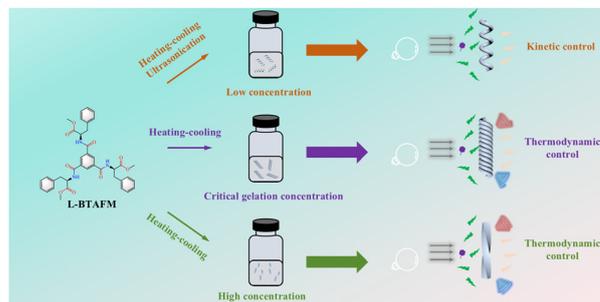
Shuai Chen, Wenjie Hu, Yuqi Cheng, Zhiwei Yin, Jiayang Xiao, Changwen Li, Haihong Zhao,* Qian Dong* and Zhuo Chen*



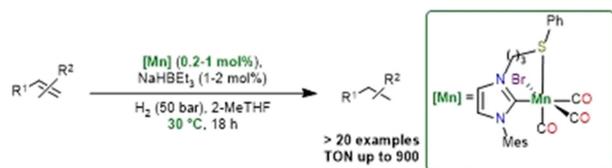
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Triple circularly polarized luminescence of phenylalanine-based supramolecular gels regulated by kinetic and thermodynamic assembly pathways

Enquan Tian, Guanghui Cao, Huanhuan Dong, Zhichao Xu and Zhaocun Shen*



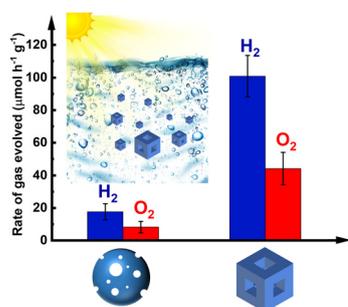
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Thioether–NHC bidentate manganese complexes as efficient phosphine-free catalysts for hydrogenation at room temperature

Mariia Hruzd, Sabrina L. Kleynemeyer, Christophe Michon, Stéphanie Bastin, Eric Pollet, Vincent Ritleng* and Jean-Baptiste Sortais*

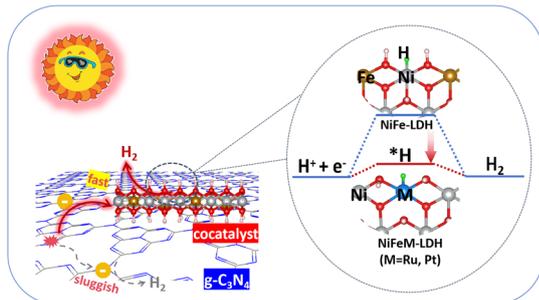
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Template-free synthesis of single-crystal SrTiO₃ nanocages for photocatalytic overall water splitting

Jian Zhang, Yang Zhang, Yu Peng, Meng Min Wang, Yan Zhu, Xing Wang, Yu Yang Tang, Peng Cheng Ding, Peng Fei Liu* and Hua Gui Yang*

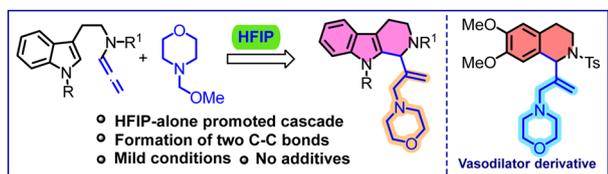
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Unveiling the role of NiFeM hydroxide (M = Pt, Ru, Ir, Rh) cocatalysts for robust H₂ production in photocatalytic water splitting

Mengmeng Shao,* Wei Shi, Junhui Jiang, Shihua Tan, Xuehan Wang, Jiawei Fei, Jinhua Li and Zhangjing Zhang*

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HFIP-mediated cascade aminomethylation and intramolecular cyclization of allenamides with N,O-acetals to access tetrahydro-β-carboline derivatives

Dhananjay Chaudhary, Chandra Shekhar Maurya, Urmila Unnikrishnan and Malleswara Rao Kuram*

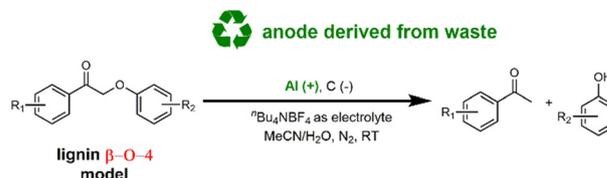


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Enhancing selectivity of β -O-4 bond cleavage for lignin depolymerization *via* a sacrificial anode

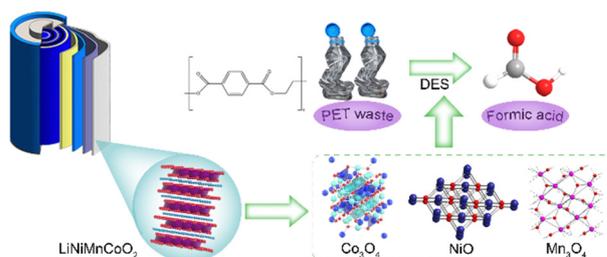
Zihan Yu, Zhenghui Huang, Linbin Jiang* and Wei Li*



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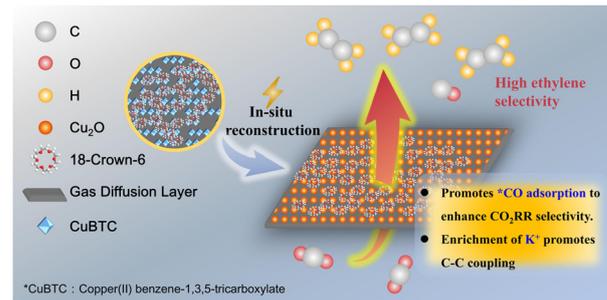
Xinhui Zhao,* Cheng Kuang, Rujin Zhou, Nina Yang, Chaopeng An, Jing Xu and Mingyan Wang



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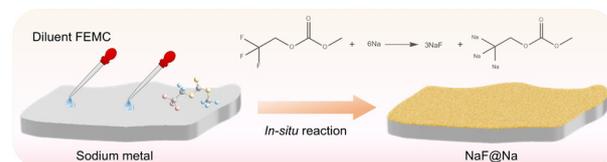
Xuan Zheng, Siheng Yang, Dingwen Chen, Yuxuan Kong, Tianhua Cui, Xueli Zheng, Haiyan Fu, Weichao Xue, Shuang Li, Chong Cheng, Hua Chen, Ruixiang Li* and Jiaqi Xu*



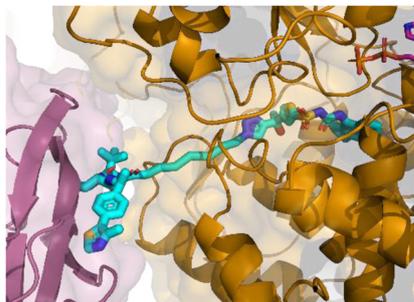
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FEMC-deuterogetic artificial solid electrolyte interphase boosts high-performance sodium-ion batteries

Sicheng Miao, Ye Jia, Ruoxuan Chen, Yueqi Pan, Jianan Peng, Xuemei Zhang* and Wenlong Cai*



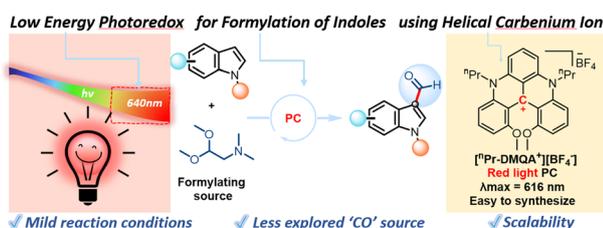
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Degrading the key component of the inflammasome: development of an NLRP3 PROTAC

Tim Keuler, Dominic Ferber, Jonas Engelhardt, Christian Steinebach, Nico Kirsch, Michael Marleaux, Günther Weindl, Matthias Geyer* and Michael Gütschow*

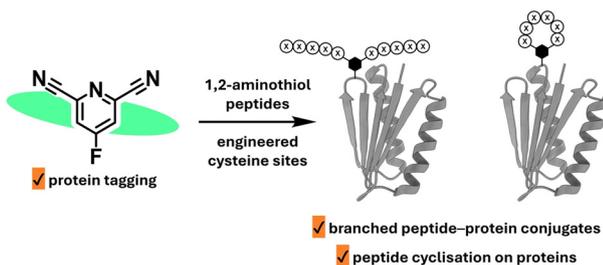
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Red-light mediated formylation of indoles using a helical carbenium ion as a photoredox catalyst

Nand Lal, Deepshikha, Puja Singh and Aslam C. Shaikh*

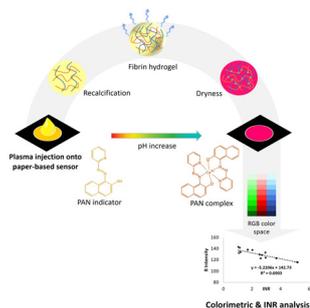
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Assembling branched and macrocyclic peptides on proteins

Sven Ullrich, Santhanalaxmi Kumaresan, Marina G. Rahman, Bishvanwasha Panda, Richard Morewood and Christoph Nitsche*

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A rapid colorimetric paper-based sensor strip for point-of-care monitoring of the blood plasma coagulation

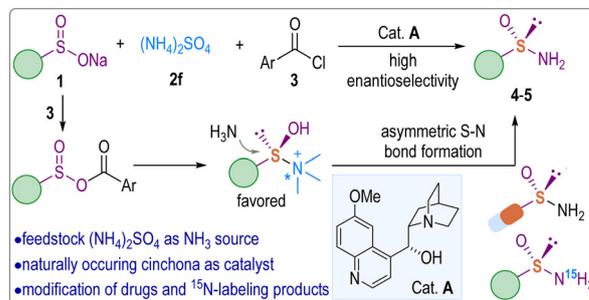
Elmira Rafatmah and Bahram Hemmateenejad*



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Synthesis of chiral *N*-free sulfinamides by asymmetric condensation of stable sulfinates and ammonium salts

Qin Xiong, Minghong Liao, Gangyu Wang, Hai Shi and Xingxing Wu*



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Interrupted borrowing hydrogen strategy enabled aminomethylation and direct cross-dehydrogenative coupling strategy enabled dicarbonylation reactions of imidazo[1,5-*a*]pyridines

Shivangani Mahajan, Debojyoti Bag, Harpreet Kour and Sanghapal D. Sawant*

