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IN THIS ISSUE

ISSN 1359–7345 CODEN CHCOFS 61(6) 989–1230 (2025)

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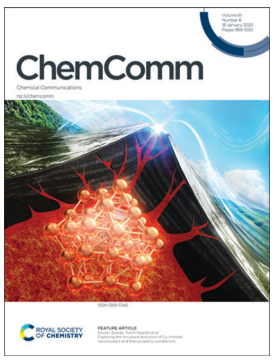


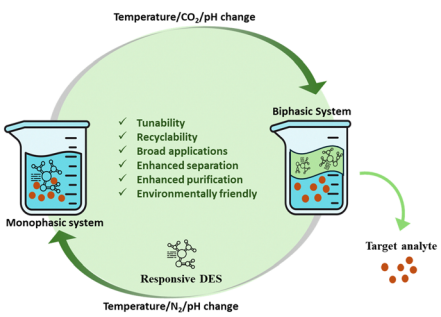
Inside cover
See Sourav Biswas, Yuichi Negishi *et al.*, pp. 1048–1062. Image reproduced by permission of Yuichi Negishi from *Chem. Commun.*, 2025, **61**, 1048.

HIGHLIGHTS

1002

Responsive deep eutectic solvents: mechanisms, applications and their role in sustainable chemistry

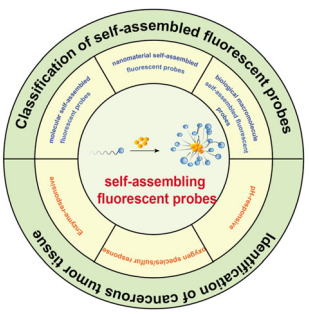
Filipa A. Vicente,* Nuša Tkalec and Blaž Likozar



1014

Classification of self-assembled fluorescent probes and their application in cancer diagnosis

Wenjiao Wu, Fangjun Huo* and Caixia Yin*



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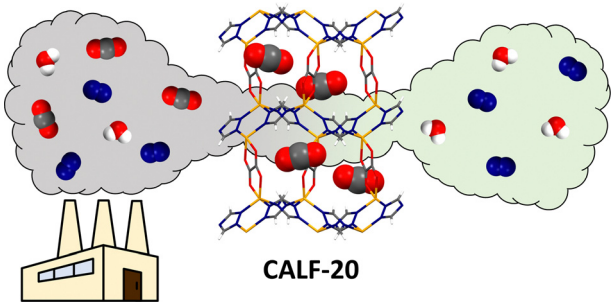
HIGHLIGHTS

1032

Advances in chemistry of CALF-20, a metal–organic framework for industrial gas applications

Joanna Drwęska, Kornel Roztocki* and Agnieszka M. Janiak*

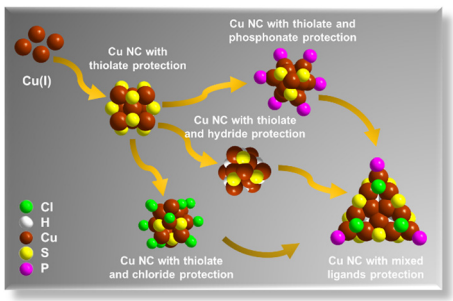


FEATURE ARTICLES

1048

Exploring the structural evolution of Cu–thiolate nanoclusters and their property correlations

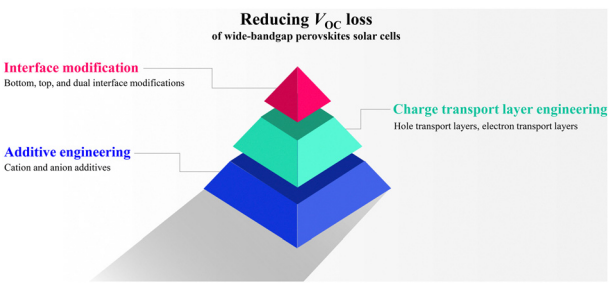
Maho Kamiyama, Yamato Shingyouchi, Rupa Sarma, Mandira Ghosh, Tokuhisa Kawawaki, Sourav Biswas* and Yuichi Negishi*



1063

A review: strategies for reducing the open-circuit voltage loss of wide-bandgap perovskite solar cells

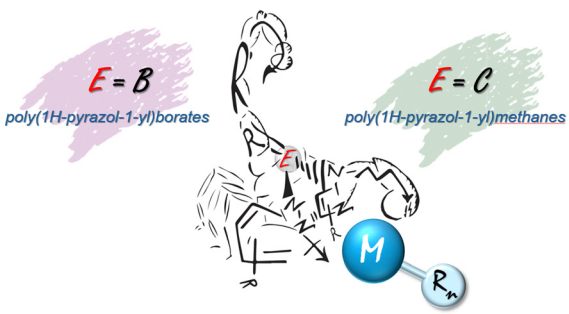
Lu-Yao Chen, Qi Sun, Yue-Min Xie* and Man-Keung Fung*



1087

Main advances in the application of scorpionate-based catalytic systems for the preparation of sustainable polymers

Luis F. Sánchez-Barba,* Andrés Garcés,* Agustín Lara-Sánchez,* Marta Navarro and David González-Lizana



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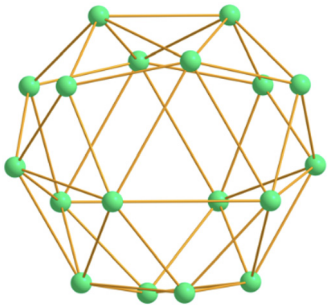
1104



The coordination chemistry of *p-tert*-butylcalix[8]arene with transition and lanthanide metal ions

Abhijnan Chakraborty, Lucinda R. B. Wilson, Scott J. Dalgarno* and Euan K. Brechin*

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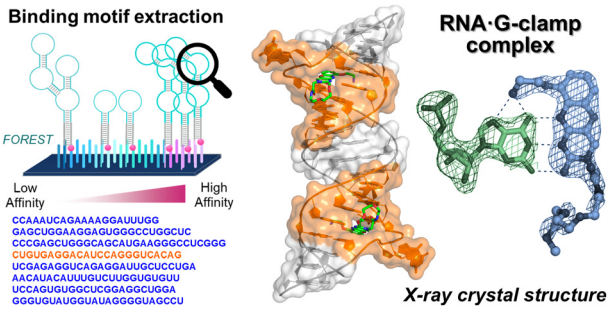
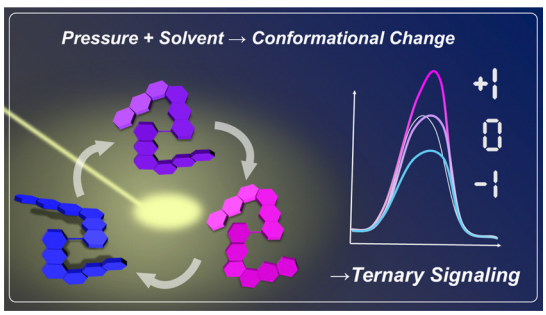


Crystallographic analysis of G-clamp–RNA complex assisted by large scale RNA-binding profile

Ryosuke Nagasawa, Kazumitsu Onizuka,* Karen Kawamura, Kosuke Tsuzuki, Hirotaka Murase, Kaoru R. Komatsu, Emi Miyashita, Hirohide Saito, Jiro Kondo* and Fumi Nagatsugi*

1124



Pseudohelicene chemosensor displaying ternary signaling stimulated by hydrostatic pressure and solvent

Tomokazu Kinoshita, Kota Watanabe, Eiji Tsurumaki, Shinji Toyota* and Gaku Fukuhara*

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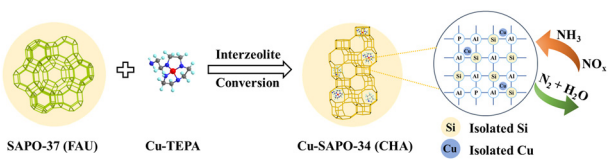

Enhanced NH_3-SCR activity of Cu–SAPO-34 by regulating Si distribution *via* an interzeolite conversion strategy

Yuxuan Xiao, Bohui Cai, Huifang Wu, Hui Wang, Jiachen Wang, Junyan Liu, Runyu Ma, Tianming Lv, Lei Miao, Jiaxu Liu, Chengyang Yin,* Changgong Meng* and Limin Ren*

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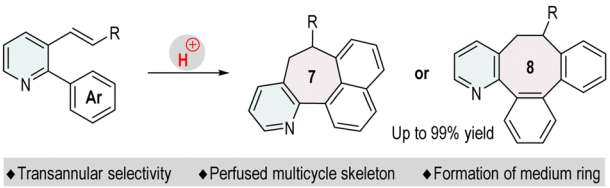
Pyridine-oriented transannular C–H functionalization of arenes

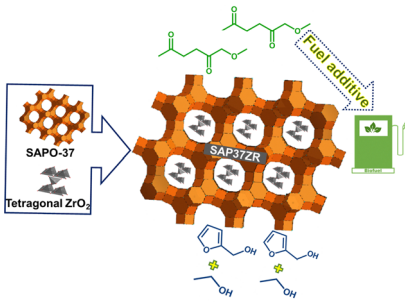
Yanchun Hou, Jianwei Liu, Yi Tian, Guangshen Wang, Xingcan Zhang, Jingpeng Han* and Baosheng Li*



1136

Synergistically stabilized SAPO-37-tetragonal zirconia composites: a promising catalyst for ethyl levulinate synthesis

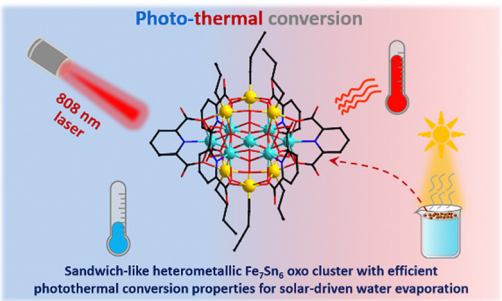
K. Khadheejath Shabana, Soumya B. Narendranath, N. P. Nimisha and A. Sakthivel*



1140

A sandwich-like heterometallic Fe_7Sn_6 oxo cluster constructed by tessellation of an Anderson-like $\{Fe_7\}$ wheel for near-infrared photothermal conversion

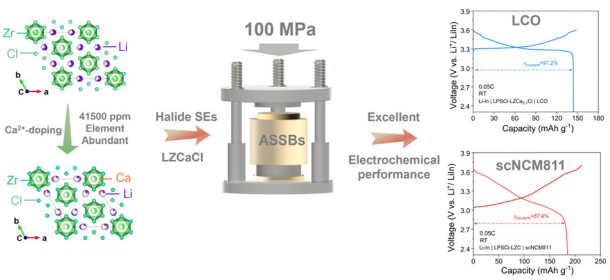
Xiu-Juan Tian, Qian Lu, Shi-Li Li* and Xian-Ming Zhang*



1144

A cost-effective Ca-doped Li_2ZrCl_6 halide solid electrolyte for all-solid-state lithium batteries

Xingkun Liu, Fanghui Mi and Chunwen Sun*



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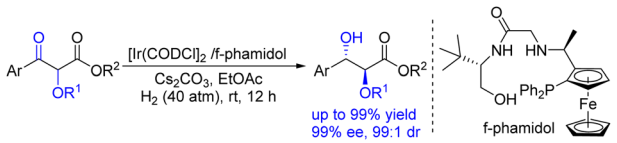

Facile access to chiral *anti*-1,2-diol derivatives *via* Ir-catalyzed asymmetric hydrogenation of α-alkoxy-β-ketoesters

Yuan-Zheng Wang, Bin Lu, Gen-Qiang Chen* and Xumu Zhang*

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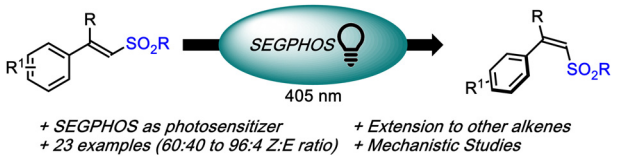
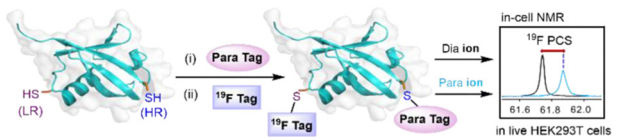


***E*→*Z contra*-Thermodynamic isomerization of alkenes with SEGPHOS**

Margaux Riomet, Philippe Jubault and Thomas Poisson*

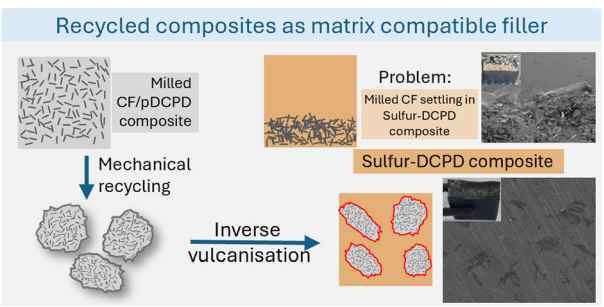
1156



^{19}F-PCS measurements on proteins in live mammalian cells

Shu-Li Guo, Bin-Bin Pan, Xia-Yan Li, Yu-Hao Xiao and Xun-Cheng Su*

1160



Utilizing composite recyclate as reinforcement in inverse-vulcanised polymers

Y. Athulya Wickramasingha, Margaux Rodriguez, David J. Hayne, Zan Simon, Bhagya Dharmasiri, Sameh Dabees, Justin M. Chalker and Luke C. Henderson*

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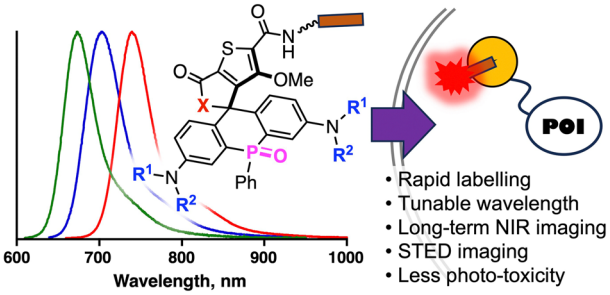
Near-infrared fluorescent HaloTag ligands for efficient organelle labelling in live cells

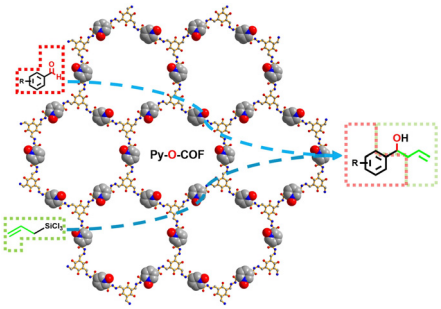
Yoshiki Tanaka, Masayasu Taki* and Shigehiro Yamaguchi*



1168

Pyridine oxide-decorated covalent organic framework for catalytic allylation of aromatic aldehydes with allyl(trichloro)silane

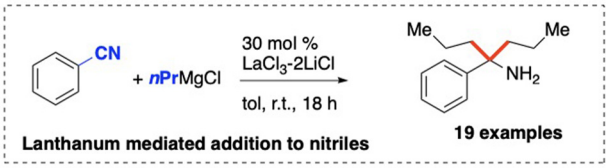
Jian-Cheng Wang,* Ru Pan, Wen-Ting Yang, Zhi Chen, Jia-Qi Du, Jing-Lan Kan and Yu-Bin Dong*



1172

Convenient lanthanum-mediated synthesis of bulky *tert*-alkyl amines from nitriles

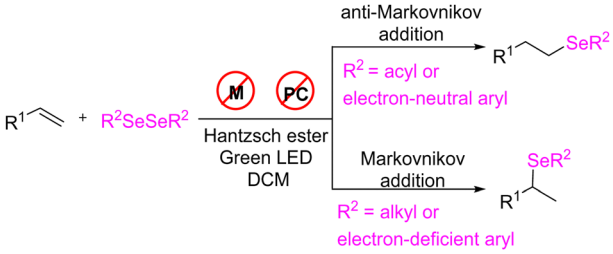
Emily K. Burke, Katherine N. Robertson and Alexander W. H. Speed*



1176

Green-light-induced selective hydroselenation of olefins with diselenides

Fan Li, Hao-Cheng Zhao, Hua-Yue Wu, Miao-Chang Liu* and Yun-Bing Zhou*



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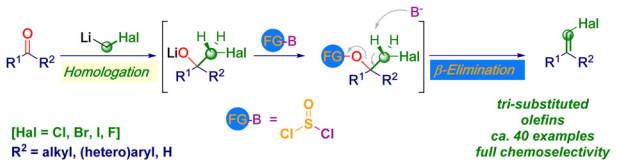
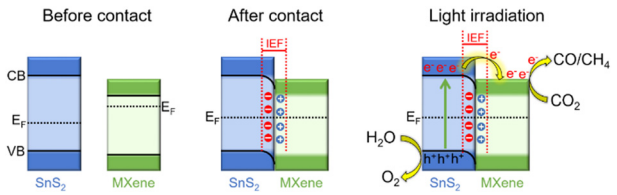


Chemoselective homologative preparation of trisubstituted alkenyl halides from carbonyls and carbenoids

Margherita Miele,* Davide Castiglione, Wolfgang Holzer, Laura Castoldi* and Vittorio Pace*

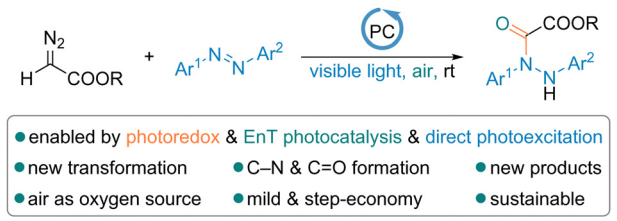
1184



Tuning interfacial charge transport *via* Ti–O–Sn bonds for efficient CO_2 conversion

Shikang Yin, Fan Zhou, Yiying Zhou, Yuming Sun, Binrong Li,* Yingying Qin,* Yan Yan* and Pengwei Huo*

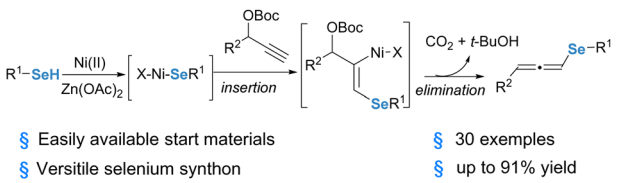
1188



Synergistic photocatalysis enables aerobic oxo-hydrazination of α-diazoacetates with azobenzenes

Jingya Yang,* Shengyu Wang, Yating Han, Qi Dong, Wantong Ma and Hongyan Zhou*

1192



Ni(II)-catalyzed nucleophilic substitution for the synthesis of allenylselenide

Ling-Hong Zeng, Ranran Cui, Zhuo Huang and Qing-Wei Zhang*

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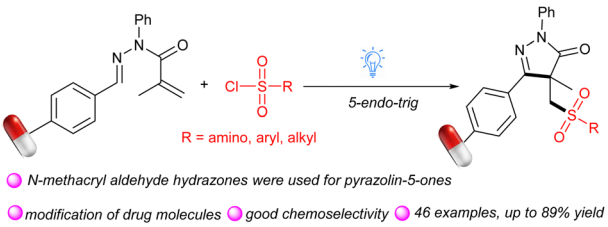
Access to 1-aryl-pyrazolin-5-ones *via* photoinduced chemoselective cyclization of *N*-methacrylo aldehyde hydrazones

Sheng Yu, Yangjian Cheng, Changduo Pan* and Jin-Tao Yu*



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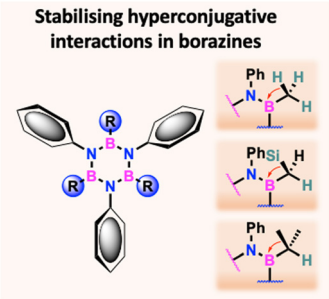
Expression of hyperconjugative stereoelectronic interactions in borazines

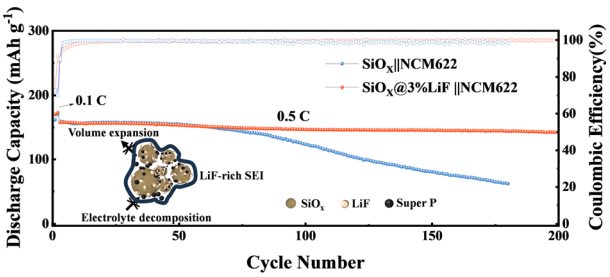
Vivek Chandrakant Wakchaure, Jacopo Dosso, Martina Crosta, Hanspeter Kählig, Benjamin D. Ward and Davide Bonifazi*



1204

Accurate prelithiation of lithium ion battery SiO_x anodes towards improved initial coulombic efficiency

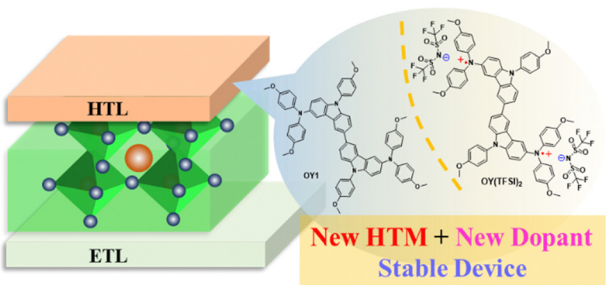
Cuicui Hu, Minghao Zhang, Wenbo Zhou, Chenyu Liu* and Zhan Lin



1208

Li-TFSI free carbazole-based hole transport materials enable highly stable perovskite solar cells

Liangding Zheng, Yangmei Ou, Shihuai Wang,* Lin Xie* and Yong Hua*



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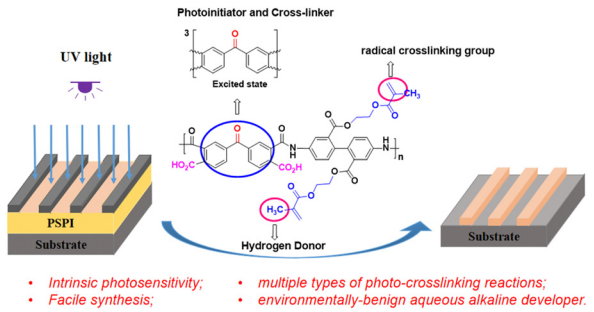
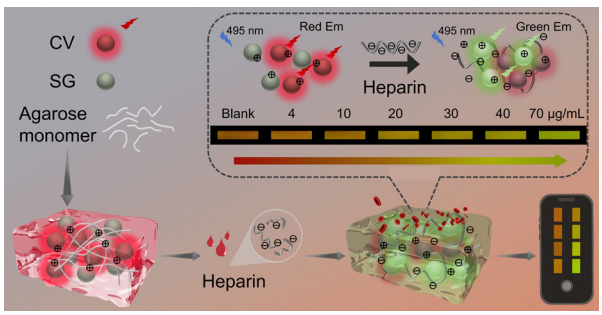


Intrinsically photosensitive polyimide photoresist and its double crosslinking mechanism

Peng Yang,* Haiping Yu, Yuting Zhu, Xiaonuo Liu, Pin Liu, Xu Wang* and Bo Tang*

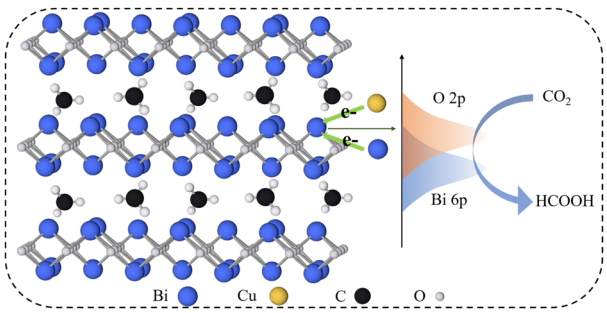
1215



A label-free fluorescent-hydrogel sensor for heparin detection in diluted whole blood

Yingnan Wei, Jie Tang, Jinyi Zhang, Yao Lin* and Chengbin Zheng*

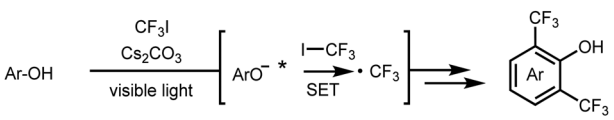
1219



Synergy of Cu-doping and *in situ* reconstruction on $Bi_2O_2CO_3$ for promoting CO_2 electroreduction over a wide pH range

Shengnan Zhang, Xiaoyan Zhang,* Jiatai Yang, Kang Liu, Jingwen Zhao, Shaojun Guo* and Lixue Zhang*

1223



Continuous activation of phenoxide and CF_3I for multiple trifluoromethylations

Yusei Nakashima, Shinjiro Kusano, Tsukasa Inishi, Yasuyuki Nitta and Takashi Nishikata*

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CORRECTION

1227

Correction: (Thio)chromenone derivatives exhibit anti-metastatic effects through selective inhibition of uPAR in cancer cell lines: discovery of an uPAR-targeting fluorescent probe

So-Young Chun, Chanhee Park, Jiwon Oh, Hye-Jin Yoon, Tae-il Kim, Youngmi Kim, Seung Wook Ham, Hye Ran Koh, Hyung Ho Lee, Hun Young Kim* and Kyungsoo Oh*

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