

ChemComm

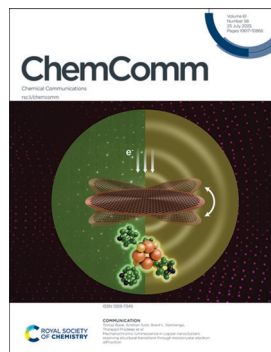
Chemical Communications

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IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 61(58) 10617-10866 (2025)



Cover

See Tomas Base, Anirban Som, Brent L. Nannenga, Thalappil Pradeep *et al.*, pp. 10764–10767. Image reproduced by permission of Thalappil Pradeep from *Chem. Commun.*, 2025, **61**, 10764.



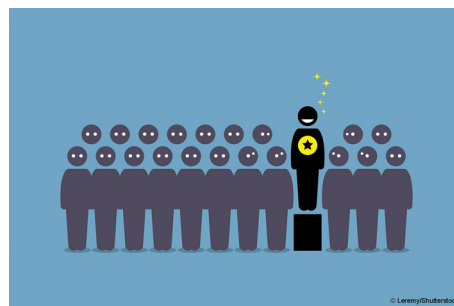
Inside cover

See Tzu-Ying Lin *et al.*, pp. 10768–10771. Image reproduced by permission of Tzu-Ying Lin from *Chem. Commun.*, 2025, **61**, 10768.

EDITORIAL

10629

Outstanding Reviewers for *ChemComm* in 2024

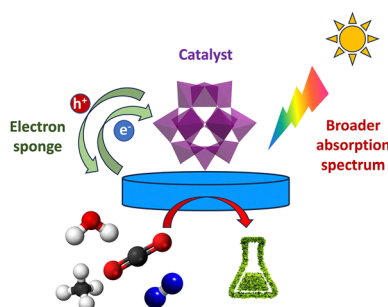


HIGHLIGHTS

10630

Polyoxometalate photocatalysts: solar-driven activation of small molecules for energy conversion and greenhouse gas valorization

Yinghao Wang, Geqian Fang, Vitaly V. Ordonsky* and Andrei Y. Khodakov*



Environmental Science: Atmospheres

GOLD
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Connecting communities
and inspiring new ideas



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Fundamental questions
Elemental answers

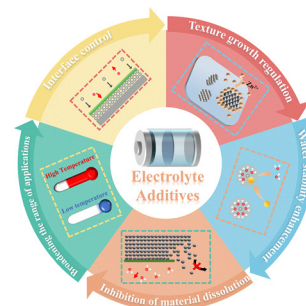


HIGHLIGHTS

10643

Recent advances and perspectives of electrolyte additives for enhanced anode reversibility in aqueous zinc-ion batteries

Chengfeng Li, Chaotian Ni, Xiang-Long Huang, Long Yao, Linyu Yang, Lei Zhang, Kunjie Zhu,* Hua-Kun Liu and Yun-Xiao Wang



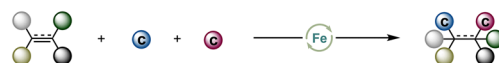
FEATURE ARTICLES

10668

Advances in dicarbofunctionalization of alkenes, alkynes and allenes via iron catalysis

Bohao Guo, Yu Pu, Siyu Wang, Feihu Gou, Hongli Ju, Xianrong Chen, Zhiqiang Liu and Zhang Feng*

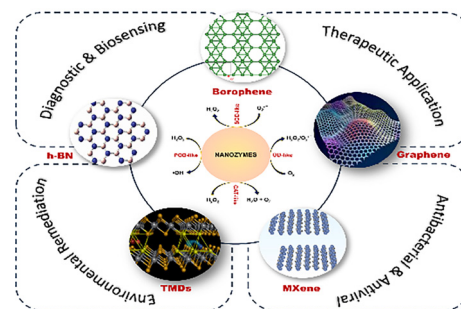
$3d^1 4s^2$ Sc	$3d^2 4s^2$ Ti	$3d^3 4s^2$ V	$3d^4 4s^2$ Cr	$3d^5 4s^2$ Mn	$3d^6 4s^2$ Fe	$3d^7 4s^2$ Co	$3d^8 4s^2$ Ni	$3d^{10} 4s^1$ Cu	$3d^{10} 4s^2$ Zn
$4d^1 5s^2$ Y	$4d^2 5s^2$ Zr	$4d^3 5s^1$ Nb	$4d^4 5s^1$ Mo	$4d^5 5s^2$ Tc	$4d^6 5s^1$ Ru	$4d^7 5s^1$ Rh	$4d^8 5s^1$ Pd	$4d^{10} 5s^1$ Ag	$4d^{10} 5s^2$ Cd
$5d^2 6s^2$ Hf	$5d^3 6s^2$ Ta	$5d^4 6s^2$ W	$5d^5 6s^2$ Re	$5d^6 6s^2$ Os	$5d^7 6s^2$ Ir	$5d^8 6s^1$ Pt	$5d^{10} 6s^1$ Au	$5d^{10} 6s^2$ Hg	



10685

2D nanozymes: bioinspired innovations for healthcare and environmental applications

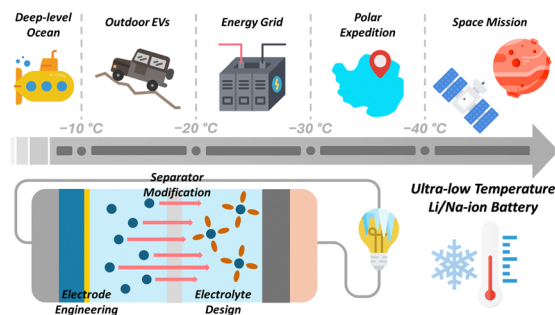
Pulakesh Borah, Diksha J. Baruah, Rituparna Duarah* and Manash R. Das*



10716

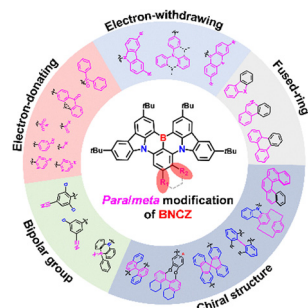
Powering the extreme: rising world of batteries that could operate at ultra-low temperatures

Sung-Kwang Jung, Jyotirekha Dutta, Surendra K. Martha, Martin Byung-Guk Jun and Vilas G. Pol*



FEATURE ARTICLES

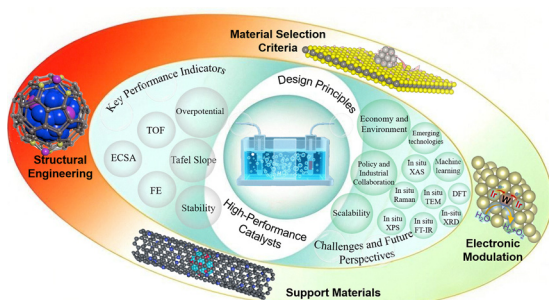
10731



Multi-resonance thermally activated delayed fluorescence emitters based on BNCz framework

Jia-Ming Jin, Chengxiang Shi, Wen-Cheng Chen* and Yanping Huo*

10747

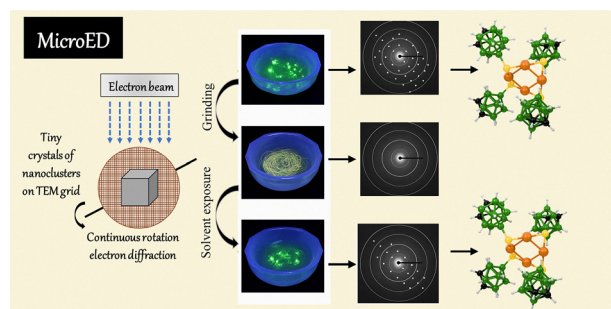


Navigating the energy crisis: design principles and challenges in the development of high-performance catalysts for electrolytic water splitting

Quan Zhang, Yifei Li, Fang Luo and Zehui Yang*

COMMUNICATIONS

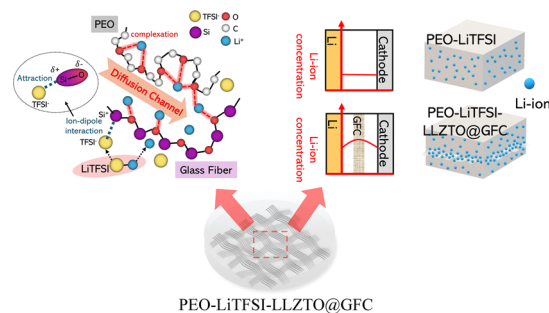
10764



Mechanochromic luminescence in copper nanoclusters: resolving structural transitions through microcrystal electron diffraction

Harshita Nagar, Subrata Duary, Vivek Yadav, Amoghavarsha Ramachandra Kini, Sudhadevi Antharjanam, Tomas Base,* Anirban Som,* Brent L. Nannenga* and Thalappil Pradeep*

10768



Design and integration of glass-fiber-cloth networks in PEO-LLZTO composite: a multifunctional approach for electrolyte engineering

Fu-Wei Chang, Che-Ya Wu and Tzu-Ying Lin*

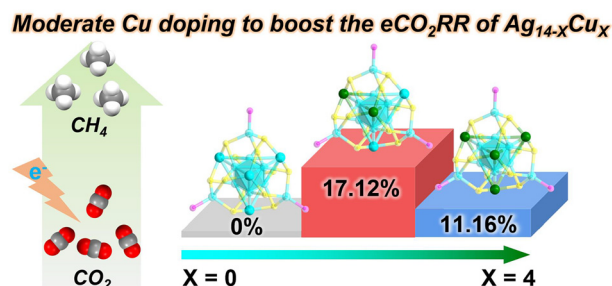


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10772

Regulating Ag–Cu synergy effect via Cu doping numbers to boost CO₂ electroreduction on Ag₁₄ nanoclusters

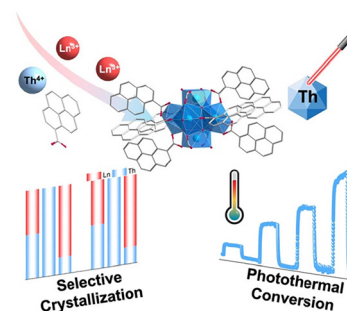
Along Ma, Yonggang Ren, Yang Zuo, Jiaqi Zhao, Shuo Zhang,* Xiaoshuang Ma* and Shuxin Wang*



10776

From separation to photothermal conversion: selective crystallization of thorium from lanthanides

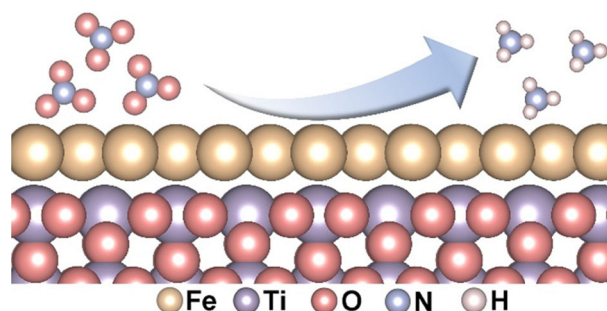
Junpu Yang, Yaoyao Bai, Guangtao Zhang, Jingqi Ma and Jian Lin*



10780

A TiO₂/Fe heterostructure enables high-efficiency electrochemical ammonia synthesis from nitrate

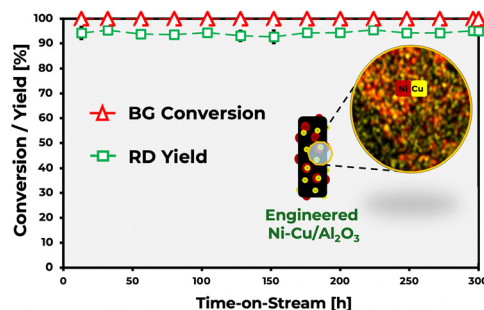
Yushuang Gong, Xiaojuan Zhu, Leyang Song, Zehua Wang, Jing Wang, Xiang Liu, Shiling Yuan and An-Liang Wang*



10784

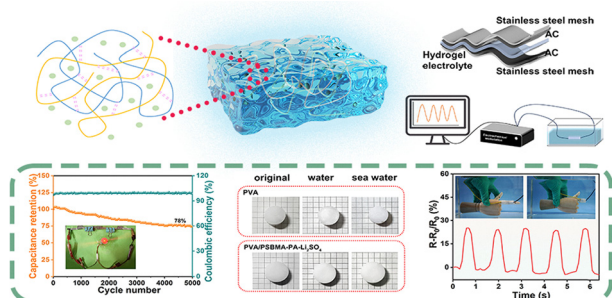
Robust engineered catalyst for the conversion of brown grease to renewable diesel via decarboxylation/decarbonylation

Great C. Umenweke, Brian Hogston, Olivier Heintz, Gilles Caboche, Robert B. Pace and Eduardo Santillan-Jimenez*



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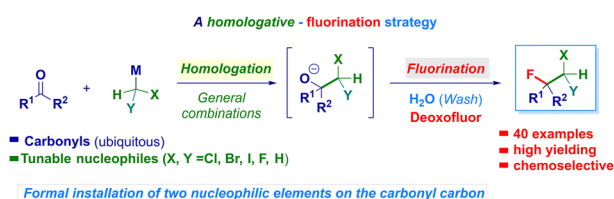
10788



Anti-swelling dual-network zwitterionic hydrogels with excellent mechanical properties for flexible supercapacitors and sensors

Mengmeng Xun, Xiaoyan Li, Kanjun Sun, Xuan Xie, Hui Peng, Guofu Ma* and Yuxi Xu*

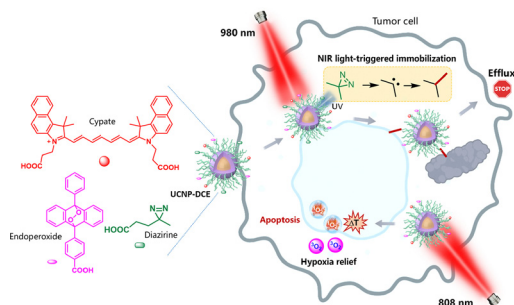
10792



Geminal homologative fluorination of carbonyl derivatives *en route* to 1-fluoro-2-haloethyl skeletons

Margherita Miele,* Davide Castiglione, Alexander Prado-Roller, Laura Castoldi* and Vittorio Pace*

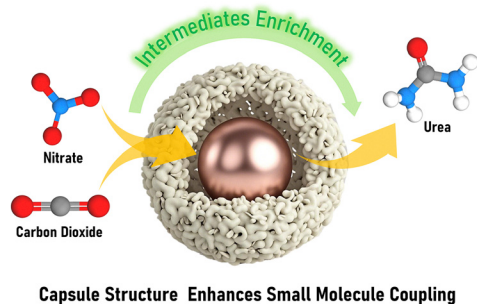
10796



A near-infrared light-triggered covalent nanodrug for combined singlet oxygen therapy and photothermal therapy

Yu Si, Xueying Jiang, Yiwen Wang, Wen Sun, Engin U. Akkaya and Lei Wang*

10800



Boosting small-molecule reduction with bismuth-based nanostructured reactors

Yue Wu, Bozhao Zhang, Yuan Yu, Qinyu Jiang, Shanru Feng, Yongjin Lin, Yaqiang Li, Chuhao Liu* and Chen Chen*

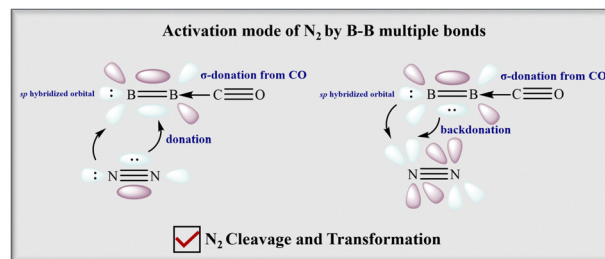


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10804

B–B multiple bond-mediated dinitrogen cleavage induced by carbon monoxide

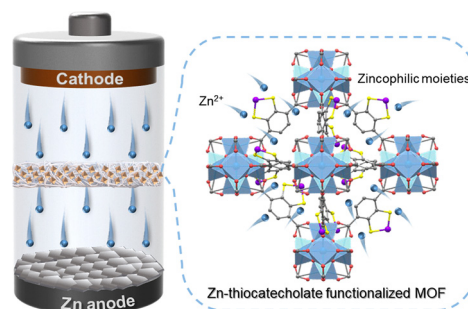
Chunwen Pan, Jin Hu, Liyan Cai and Xuefeng Wang*



10808

Zn-thiocatecholate functionalized MOF modified separator stabilizing zinc anodes for long-life aqueous zinc-ion batteries

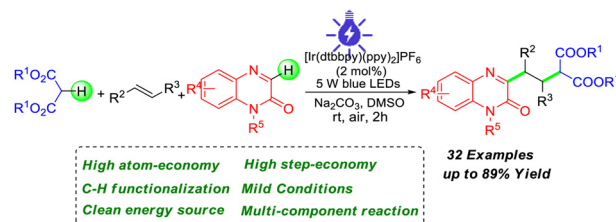
Hujing Zhou, Ruwei Chen, Zhixin Jiang, Jiangtao Li, Hongyuan Liang, Lai-Hon Chung, Xuanhe Hu* and Jun He*



10812

Visible-light induced 1,2-dicarbofunctionalization of alkenes with quinoxalin-2(1H)-ones and malonic esters

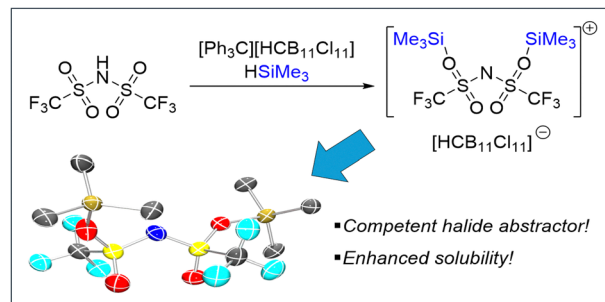
Yi Wang, Jia Wang, Chao Chen,* Lianhui Song, Zu-Li Wang, Wei Wei* and Dong Yi*



10816

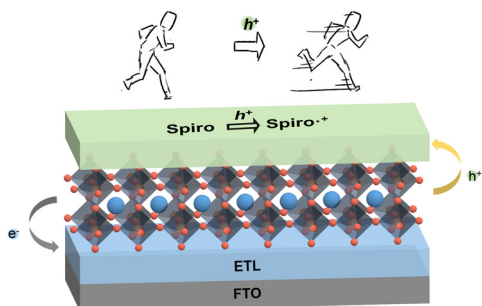
Structure and reactivity of a triflimide-bridged bis(trimethylsilyl) cation

Joshua H. Daum, Nattamai Bhuvanesh and Oleg V. Ozerov*



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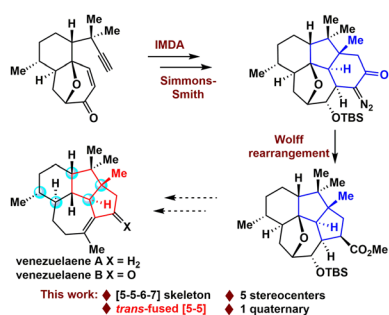
10819



***In situ* fast oxidation of spiro-OMeTAD hole transport layers under ambient indoor lighting compatible with air-processed perovskite solar cells**

Guangyao Liu and Xin Li*

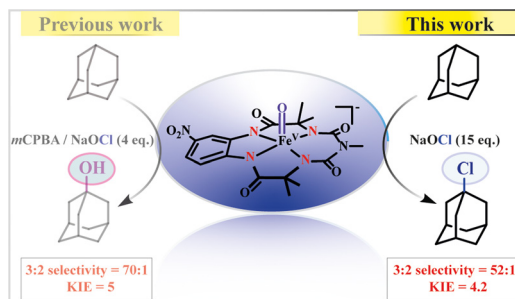
10823



Asymmetric synthesis of venezuelaene's core with a *trans*-fused [5-5] ring system

Louxi Chen, Chao-Han Zhang, Junyang Liu* and Chuang-Chuang Li*

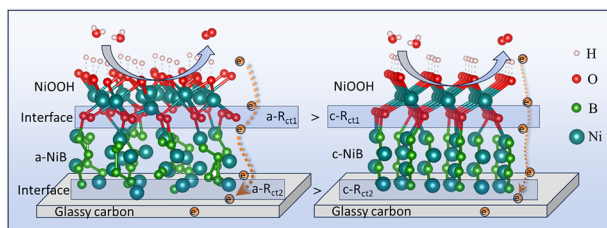
10827



Halogenase-mimicking selective chlorination of unactivated C–H bonds by a Fe-complex

Himangshu Kuiry, Anish Gangopadhyay, Bittu Chandra and Sayam Sen Gupta*

10831



Crystallinity effect of nickel borides on electrocatalytic performance toward the oxygen evolution reaction

Yuyang Zong, Baojian Xie, Shuonan Liu, Hong Bin Yang,* Lihong Bao* and Ruguang Ma*

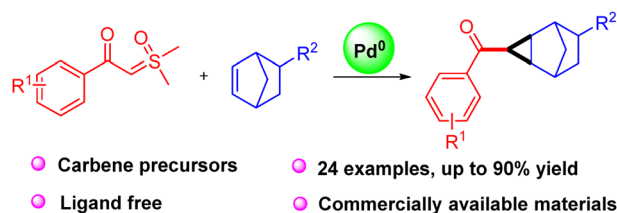


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10835

Synthesis of cyclopropanes via palladium-catalyzed [2+1] annulations of sulfoxonium ylides and norbornenes

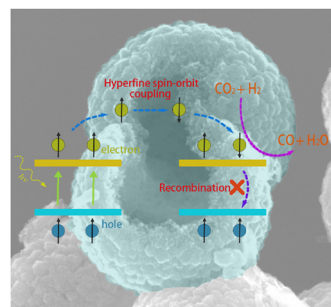
Wenguang Li,* Yongqi Yu, Heyun Sheng, Man Cao, Ming Chen, Wenchao Gao, Xu Zhang, Fengyun Su* and Ting Li*



10839

Spin-polarized charge separation in In₂O₃ hollow spheres for efficiently boosting photo-driven CO₂ hydrogenation

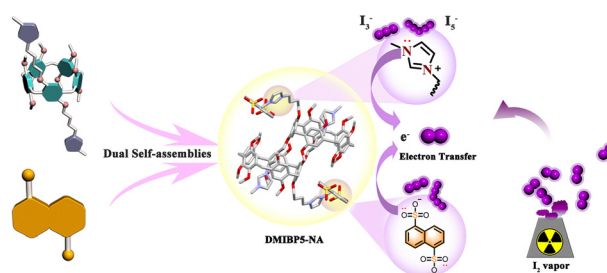
Dawei Liu, Zhengdao Li,* Zhisheng Shi,* Zhe Lu, Yongcai Zhang, San Zhang, Lu Wang, Chunfeng Zhang, Zhigang Zou and Yong Zhou*



10843

Pillar[5]arene-based ionic single crystals formed by dual self-assemblies through host-guest and ionic interactions for iodine capture

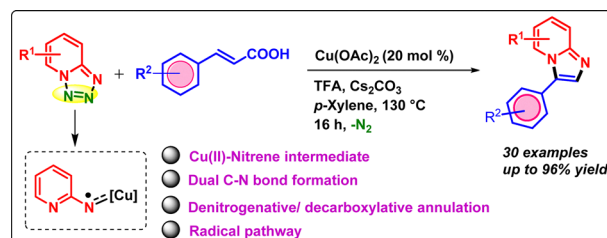
Ting Zhang, Lulu Wang, Hui Li, Mingxia Sun, Jia Chen,* Shuzhe Guan* and Hongdeng Qiu*



10847

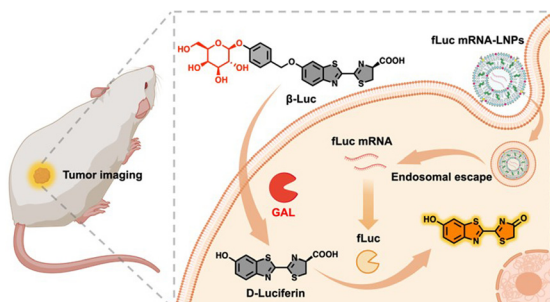
Copper(II)-mediated metalloradical activation: denitrogenative/decarboxylative annulation to 3-arylimidazo[1,2-a]pyridines using tetrazolo[1,5-a]pyridines and cinnamic acids

Km Ishu and Krishna Nand Singh*



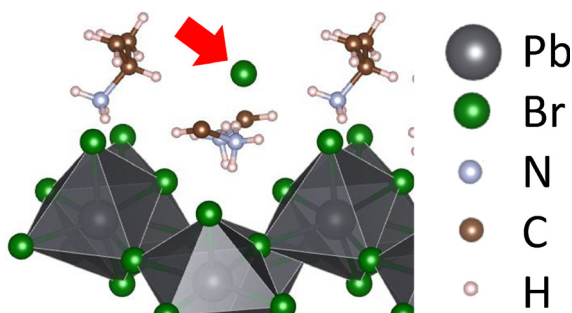
COMMUNICATIONS

10851

**β-Galactosidase-activated bioluminescent probe for *in vivo* tumor imaging**

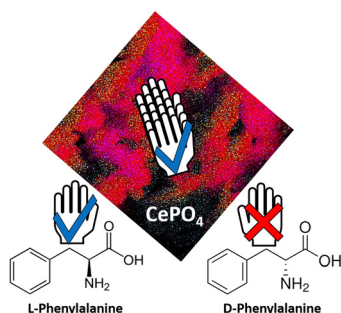
Tao Hu, Yuexia Yang, Bijia Zhou, Zhaoming Chen, Fapu Wu and Hu Xiong*

10855

**Utilizing enantiomerically pure organic spacers for anion-centred clusters in a hybrid inorganic–organic lead-halide crystal**

Markus W. Heindl, Joachim Ballmann* and Felix Deschler*

10859

**Inherent enantioselective adsorption and photocatalytic removal of L-phenylalanine on cerium phosphate films**

Nitai Arbell, Shoval Gilboa and Yaron Paz*

CORRECTION

10863

Correction: The power of aluminum: optimizing thermoelectric properties of the intermetallic, $\text{Eu}_{5+x}\text{Al}_{3+y}\text{Sb}_6$

Luis Garay, Leah Borgsmiller, G. Jeffrey Snyder and Susan M. Kauzlarich*

