

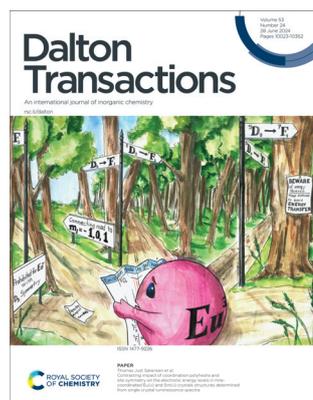
Dalton Transactions

An international journal of inorganic chemistry incorporating Acta Chemica Scandinavica
rsc.li/dalton

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

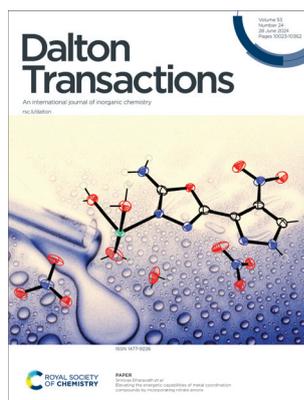
ISSN 1477-9226 CODEN DTARAF 53(24) 10023-10362 (2024)



Cover
See Thomas Just Sørensen
et al., pp. 10079–10092.

Image reproduced
by permission of
Sabina Svava Mortensen
from *Dalton Trans.*, 2024,
53, 10079.

Acknowledgement: Artwork
by Sabina Svava Mortensen



Inside cover
See Srinivas Dharavath *et al.*,
pp. 10093–10098.

Image reproduced
by permission of
Abhishek Kumar Yadav,
Richa Rajak and
Srinivas Dharavath from
Dalton Trans., 2024, **53**,
10093.

EDITORIAL

10036

Introduction to the *Dalton Transactions* themed collection: recent progress and perspectives on spin transition compounds

Shinya Hayami, Birgit Weber and Malcolm Halcrow

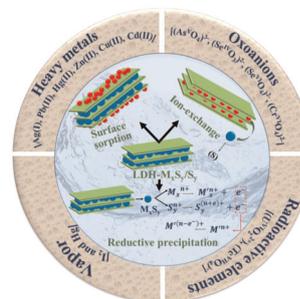


FRONTIER

10037

Metal-sulfide/polysulfide functionalized layered double hydroxides – recent progress in the removal of heavy metal ions and oxoanionic species from aqueous solutions

R. C. Rohit, Subrata Chandra Roy, Robiul Alam and Saiful M. Islam*



ChemComm

Uncover new possibilities
with outstanding
preliminary research

Original discoveries, fuelling
every step of scientific progress

rsc.li/chemcomm

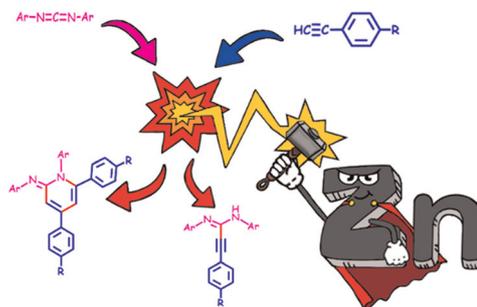
Fundamental questions
Elemental answers

COMMUNICATIONS

10050

Zinc amidinate-catalysed cyclization reaction of carbodiimides and alkynes. An insight into the mechanism

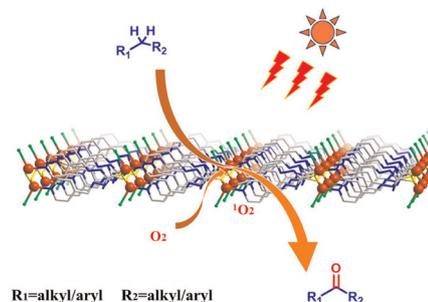
Blanca Parra-Cadenas, Carlos Ginés, Daniel García-Vivó, David Elorriaga* and Fernando Carrillo-Hermosilla*



10055

A novel Cu(I)-based coordination polymer for efficient photocatalytic oxidation of C(sp³)-H bonds

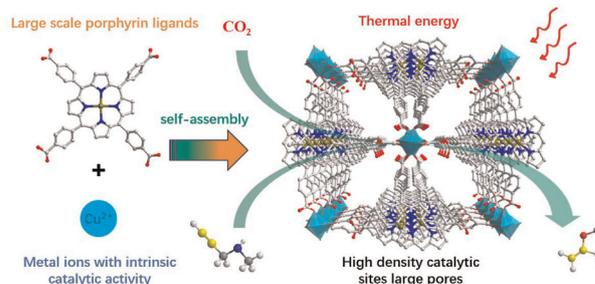
Jiangtao Deng, Huilin Huang, Zhentao Li, Xu Jing* and Chunying Duan



10060

A novel porphyrin MOF catalyst for efficient conversion of CO₂ with propargyl amines

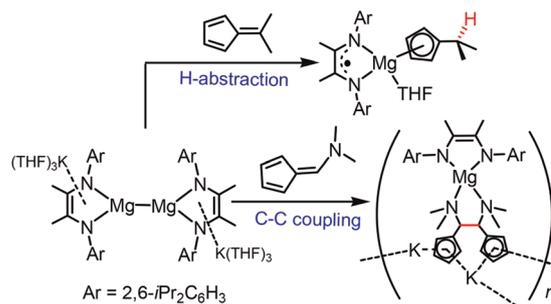
Zhitao Zhang, Kesheng Shen, Qian Zhang, Chunying Duan and Xu Jing*



10065

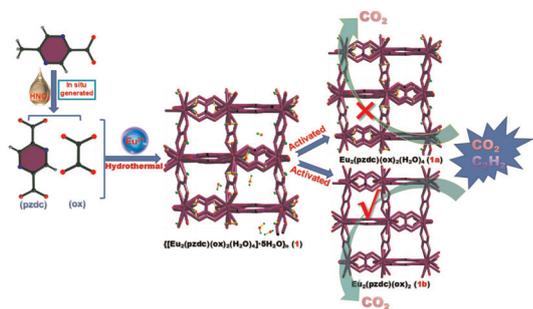
Activation of cyclopentadiene derivatives by an α -diimine-ligated Mg–Mg-bonded compound

Yao Qu, Zhixian Xi, Zhenzhou Sun, Li Yang, Rui Liu, Ben Dong, Biao Wu and Xiao-Juan Yang*



COMMUNICATIONS

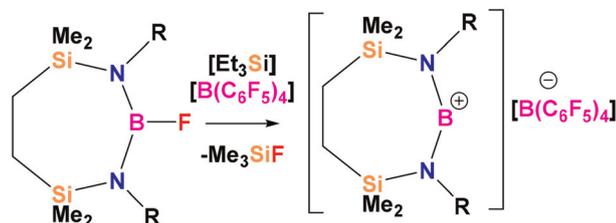
10070



In situ generated 2,5-pyrazinedicarboxylate and oxalate ligands leading to a Eu-MOF for selective capture of C₂H₂ from C₂H₂/CO₂

Fenglan Liang, Deyun Ma,* Liang Qin, Qiuqun Yu, Jing Chen, Rongxi Liang, Changheng Zhong, Huanzong Liao and Zhiyi Peng

10075

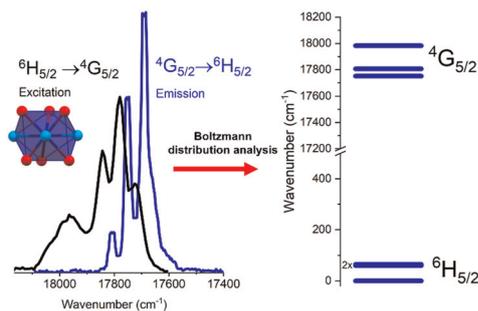


A chelated borinium cation

Christopher Major, Alan Lough and Douglas W. Stephan*

PAPERS

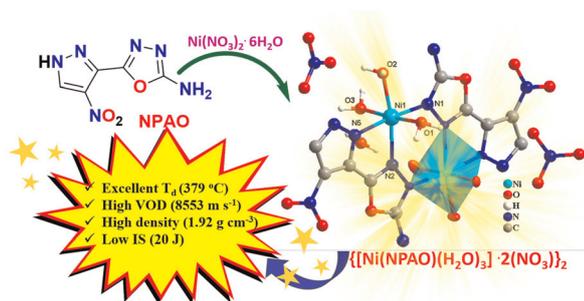
10079



Contrasting impact of coordination polyhedra and site symmetry on the electronic energy levels in nine-coordinated Eu(III) and Sm(III) crystals structures determined from single crystal luminescence spectra

Sabina Svava Mortensen, Villads R. M. Nielsen and Thomas Just Sørensen*

10093



Elevating the energetic capabilities of metal coordination compounds by incorporating nitrate anions

Abhishek Kumar Yadav, Richa Rajak and Srinivas Dharavath*

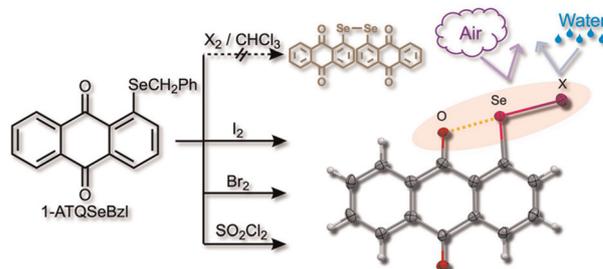


PAPERS

10099

Extremely stable system of 1-haloseleanyl-anthraquinones: experimental and theoretical investigations

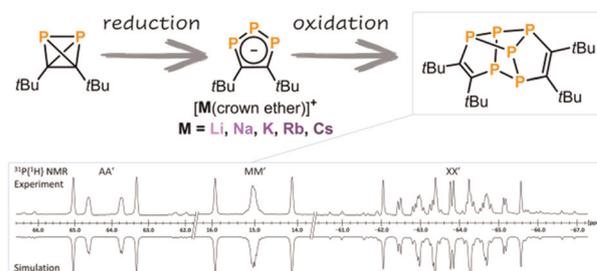
Naoki Ogawa, Nobuhiro Suzuki, Yoshifumi Katsura, Mao Minoura, Waro Nakanishi and Satoko Hayashi*



10113

Access to 1,2,3-triphospholide ligands by reduction of di-tert-butylidiphosphatetrahedrane

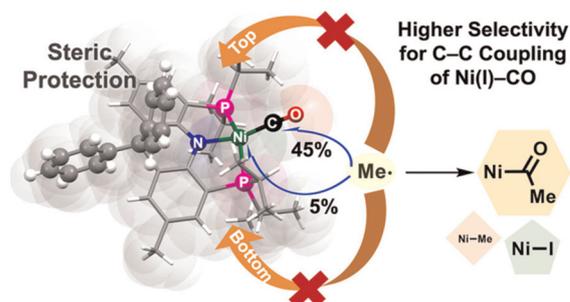
Maria K. Uttendorfer, Gabriele Hierlmeier, Gábor Balázs and Robert Wolf*



10120

Reactivity of low-valent nickel carbonyl species supported by acridane based PNP ligands towards iodoalkanes

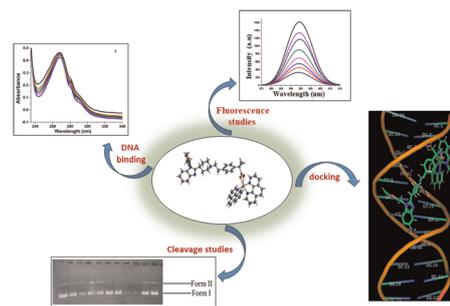
Sanha Park, Mi Sook Seo, Mingi Kim, Kang Mun Lee, Peter M. Graham* and Yunho Lee*



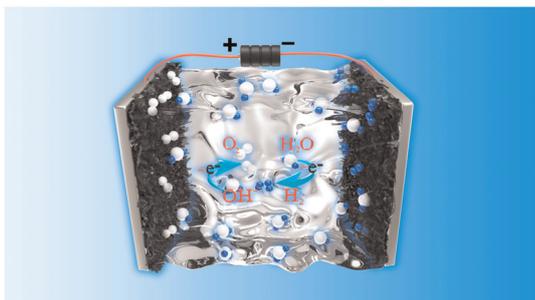
10126

Repurposing the antihistamine drug bilastine as an anti-cancer metallic drug entity: synthesis and single-crystal X-ray structure analysis of metal-based bilastine and phen [Co(II), Cu(II) and Zn(II)] tailored anticancer chemotherapeutic agents against resistant cancer cells

Rijwan, Farukh Arjmand and Sartaj Tabassum*



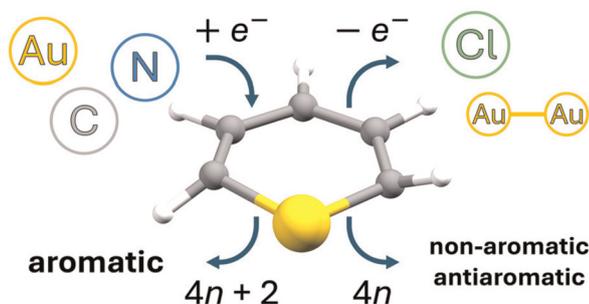
10142



Engineering hierarchical snowflake-like multi-metal selenide catalysts anchored on Ni foam for high-efficiency and stable overall water splitting

Enze Fan, Shuangqi Zhou, Hanwei Zhao, Jianxin Ran, Zhuangfang Zhang,* Guohua Dong,* Wenzhi Zhang, Yu Zang, Ming Zhao, Dong-Feng Chai and Xiaoming Huang

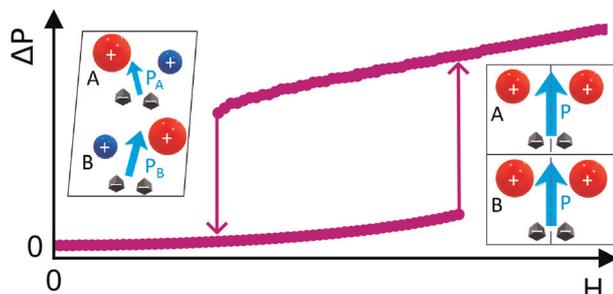
10150



The aromatic nature of auracycles and diauracycles based on calculated ring-current strengths

Daniel Blasco* and Dage Sundholm*

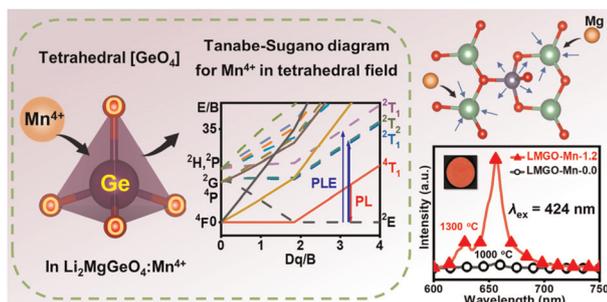
10159



Magnetolectric and MIESST effects in spin crossover materials exhibiting symmetry-breaking

Ricardo G. Torres Ramírez, Elzbieta Trzop and Eric Collet*

10168



Unveiling the luminescence property of $\text{Li}_2\text{MgGeO}_4:\text{Mn}^{4+}$ featuring the tetrahedral crystallographic-site occupancy of Mn^{4+}

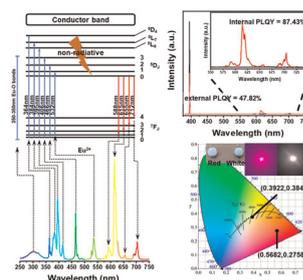
Mingshun Zhang, Anqi Sun, Xiaoniu Li, Shijie Sun, Wei Ding, Dong Fang, Baoxiu Mi* and Zhiqiang Gao*



10178

Synthesis and photoluminescence properties of high-quality reddish-orange emitting $\text{Ca}_4\text{Nb}_2\text{O}_9$: Eu^{3+} phosphors for WLEDs and anti-counterfeiting

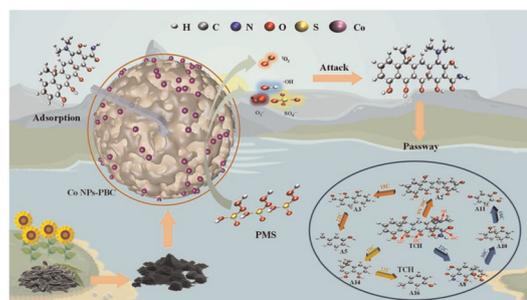
Weiwei Xiang and Jae Su Yu*



10189

Efficient degradation of tetracycline via peroxymonosulfate activation by phosphorus-doped biochar loaded with cobalt nanoparticles

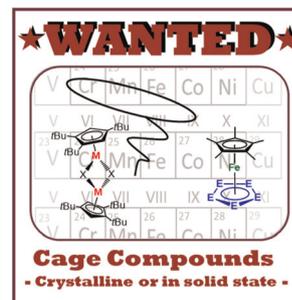
Yunpeng Wang, Ting Jiao, Peng Zhang, Wanyi Hou, Zhongping Li,* Chuan Dong, Wanying Zhang and Lei Zhang



10201

Homo- and heterobimetallic transition metal cluster derived from $[\text{Cp}^*\text{Fe}(\eta^5\text{-E}_5)]$ ($\text{E} = \text{P}, \text{As}$) – unprecedented structural motifs of the resulting polynictogen ligands

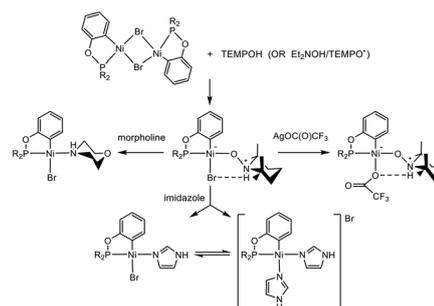
Sabrina B. Dinauer, Robert Szlosek, Martin Piesch, Gábor Balázs, Stephan Reichl, Lukas Prock, Christoph Riesinger, Marc D. Walter and Manfred Scheer*



10208

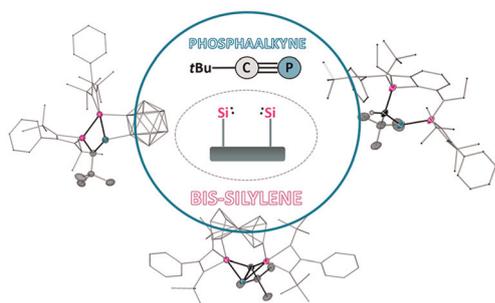
Reactions of cyclonickelated complexes with hydroxylamines and TEMPO: isolation of new TEMPOH adducts of Ni(II) and their reactivities with nucleophiles and oxidants

Rajib K. Sarker and Davit Zargarian*



PAPERS

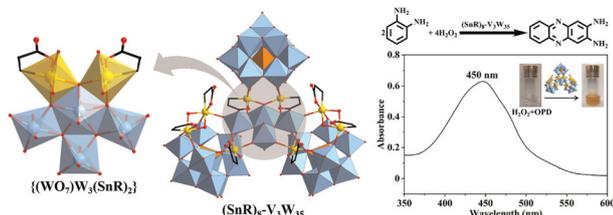
10220



Reactivities of phosphalkynes towards diverse bis-silylenes

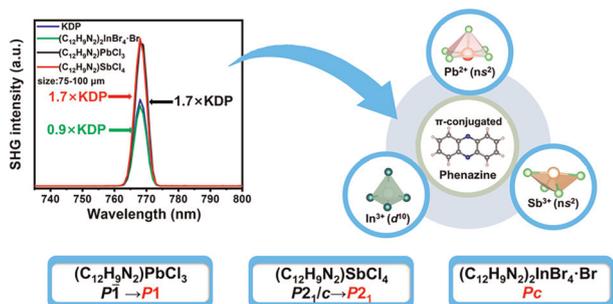
Xiaofei Sun, Da Jin, Stefanie Maier, Alexander Hinz and Peter W. Roesky*

10226

Self-assembly of a unique triangle-like tungstovanadate containing pentagonal $\{(WO_7)W_3(SnR)_2\}$ cluster

Hao-Tian Zhu, Yang Sun, Fang Su,* Ya-Jun Zhang, Xiao-Jing Sang, Jing Ren and Lan-Cui Zhang*

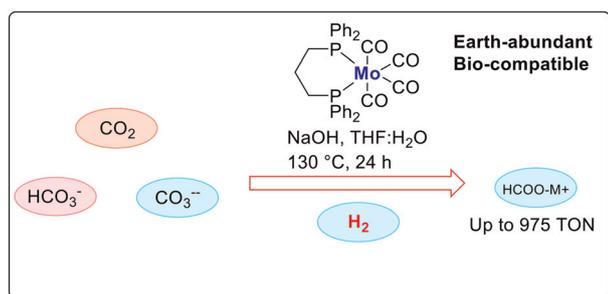
10235



Advancing nonlinear optics: discovery and characterization of new non-centrosymmetric phenazine-based halides

Yibo Cui, Jindong Cao, Jiawei Lin, Chunxiao Li, Jiyong Yao, Kunjie Liu, An Hou, Zhongnan Guo, Jing Zhao* and Quanlin Liu*

10244



Molybdenum-catalyzed hydrogenation of carbon dioxide, bicarbonate, and inorganic carbonates to formates

Tushar Singh and Subrata Chakraborty*

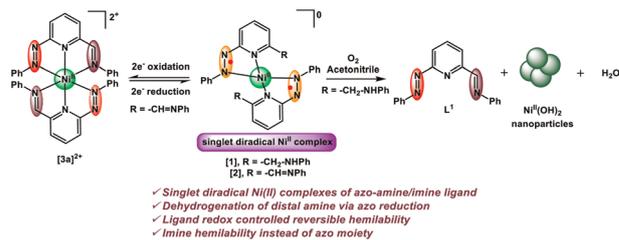


PAPERS

10250

Ligand redox controlled amine dehydrogenation and imine hemilability in singlet diradical azo-aromatic Ni(II) complexes: characterization of the electron transfer series of azo-imine complexes of Ni(II)

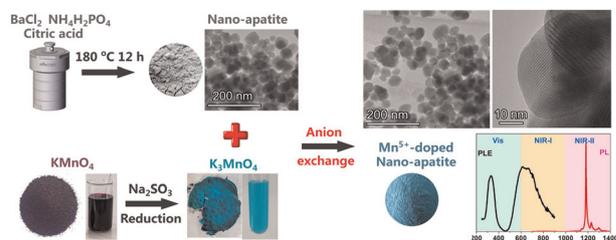
Bappaditya Goswami, Manas Khatua, Ambika Devi, Shivali Hans, Robindo Chatterjee and Subhas Samanta*



10261

Hydrothermal and anion exchange synthesis of Mn(V)-doped Ba₅(PO₄)₃Cl nano-apatite toward NIR-II temperature sensing

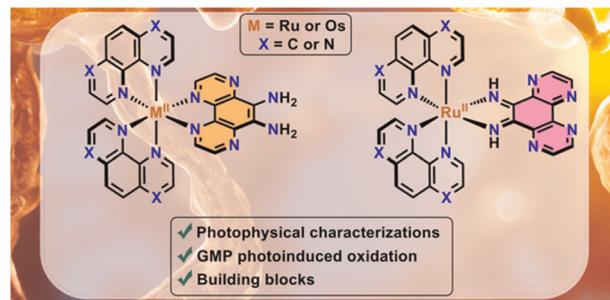
Wenjing Huang, Jiahui Zhang, Yuchuan Zheng, Linyun Zeng, Wei Liu, Zafari Umar, Mubiao Xie, Yuliya Bokshyts, Jialiang Pan* and Xinguo Zhang*



10270

Synthesis of Ru(II) and Os(II) photosensitizers bearing one 9,10-diamino-1,4,5,8-tetraazaphenanthrene scaffold

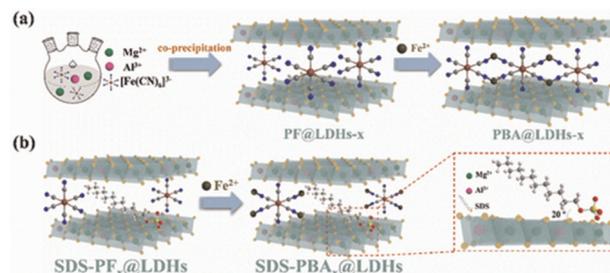
Simon De Kreijger, Emilie Cauët, Benjamin Elias* and Ludovic Troian-Gautier*



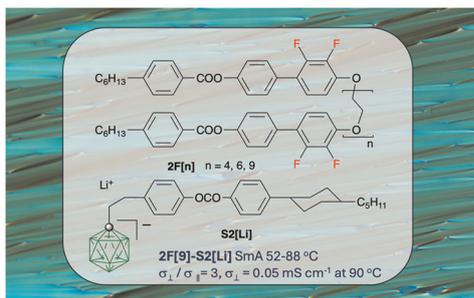
10285

Enhanced dispersion of prussian blue via intercalation into layered double hydroxides for efficient solar seawater evaporation

Weixin Mo, Qianqian Hu, Jun Guan, Yu Jiang, Weiliang Tian, Huiyu Li,* Fabrice Leroux and Yongjun Feng*



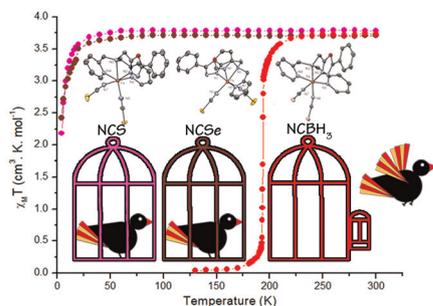
10293



Lithium salt of a pro-mesogenic [*closo*-CB₁₁H₁₂][−] derivative: anisotropic Li⁺ ion transport in liquid crystalline electrolytes

Litwin Jacob, Leszek Niedzicki, Rafał Jakubowski, Damian Pocięcha and Piotr Kaszyński*

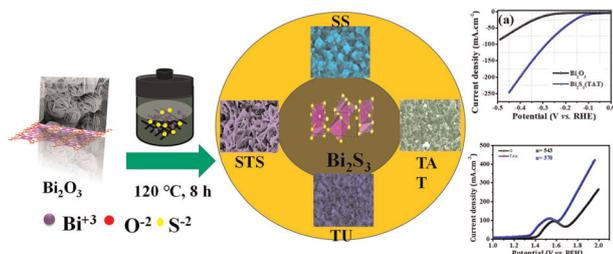
10303



A combined theoretical and experimental approach to determine the right choice of co-ligand to impart spin crossover in Fe(II) complexes based on 1,3,4-oxadiazole ligands

Sriram Sundaresan, Julian Eppelsheimer, Esha Gera, Lukas Wiener, Luca M. Carrella, Kuduva R. Vignesh* and Eva Rentschler*

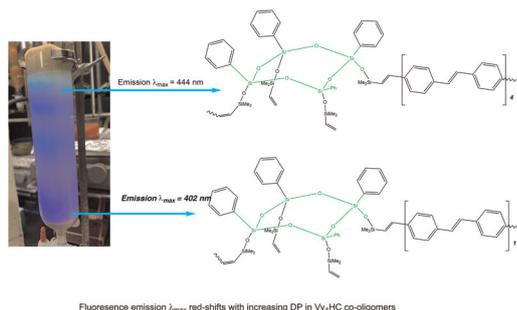
10318



Sulfur ion-exchange strategy to obtain Bi₂S₃ nanostructures from Bi₂O₃ for better water splitting performance

Hamdan M. Danamah, Tariq M. Al-Hejri, Vijakumar V. Jadhav, Zeenat A. Shaikh, T. A. J. Siddiqui, Shoyebmohamad F. Shaikh* and Rajaram S. Mane*

10328



Conjugation through Si–O–Si bonds, silsesquioxane (SQ) half cage copolymers, extended examples via SiO_{0.5}/SiO_{1.5} units: multiple emissive states in violation of Kasha's rule

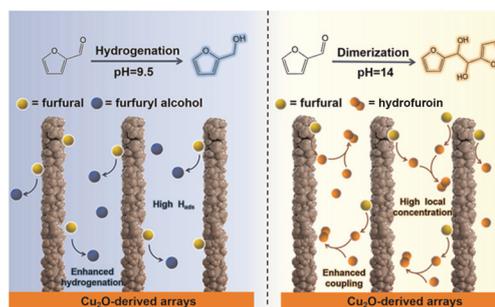
Zijing Zhang, Jose Jonathan Rubio Arias, Hana Kaehr, Yujia Liu, Ryoga Murata, Masafumi Unno, Nuttapon Yodsinn, Pimjai Pimboatham, Siriporn Jungstittiwong, Matt Rammo, Jung-Moo Heo, Jinsang Kim, Aleksander Rebane and Richard M. Laine*



10338

Switchable selectivity to electrocatalytic reduction of furfural over Cu₂O-derived nanowire arrays

Li Ma, Huiling Liu* and Cheng Wang*



10347

Exploring novel Cd(II) complexes with 5-methyl-4-imidazolecarboxaldehyde: synthesis, structure, computational insights, and affinity to DNA through switchSense methodology

Mateusz Kowalik,* Paulina Nowicka, Jakub Brzeski, Natalia Żukowska, Joanna Masternak, Katarzyna Kazimierczuk and Mariusz Makowski

