

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 54(10) 3955-4382 (2025)



Cover
See Philipp Baur and Peter Comba, pp. 3968–3976.

Image reproduced by permission of Philipp Baur from *Dalton Trans.*, 2025, **54**, 3968.

Acknowledgement: The image was created by Philipp Baur using Blender 4.3.0 with Molecular Nodes plugin and license-free Assets from BlenderKit.



Inside cover
See Masaichi Saito *et al.*, pp. 4030–4038.

Image reproduced by permission of Shinnosuke Saito from *Dalton Trans.*, 2025, **54**, 4030.

PERSPECTIVES

3968

Copper coordination chemistry of the patellamides – cyanobactins in the ascidian-*Prochloron* symbiosis

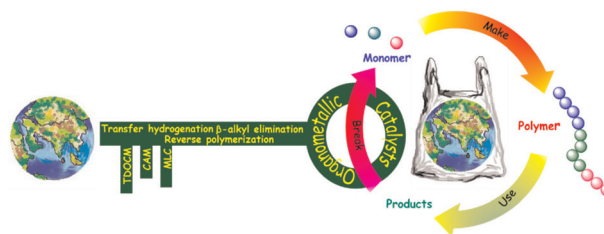
Philipp Baur* and Peter Comba*



3977

Depolymerization by transition metal complexes: strategic approaches to convert polymeric waste into feedstocks

Suman Dolai, Chinmoy K. Behera and Sanjib K. Patra*



**GOLD
OPEN
ACCESS**

EES Solar

**Exceptional research on solar
energy and photovoltaics**

Part of the EES family

**Join
in**

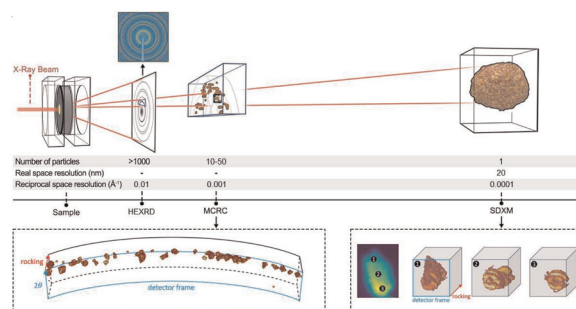
Publish with us

rsc.li/EESolar

4013

An emerging frontier of battery innovation: tackling lattice rotation in single-crystalline cathodes

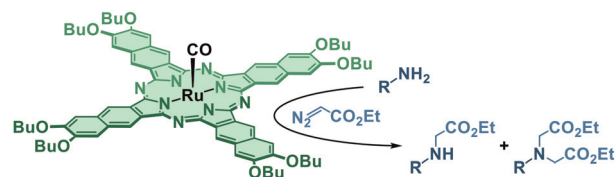
Tian Liang, Xiaoming Zhu* and Xiaojun Zeng*



COMMUNICATIONS

4018

Non-aggregated ruthenium naphthalocyanine enabling homogeneous carbene insertion into N–H bonds at low catalyst loading

Andrey P. Kroitor, Alexander G. Martynov,*
Yulia G. Gorbunova,* Aslan Yu. Tsivadze and
Alexander B. Sorokin*

◆ First example of the application of the naphthalocyanine complex in carbene transfer reactions

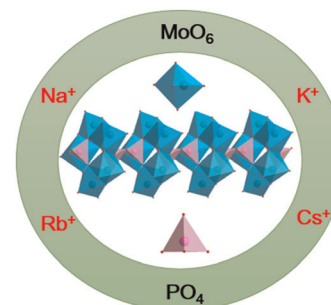
◆ Absence of aggregation under reaction conditions

◆ Low catalyst loading, TON up to 20000

4025

Four noncentrosymmetric molybdophosphates discovered by a chemical substitution strategy

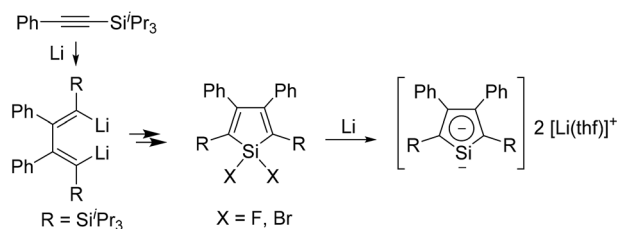
Zhixia Gao, Ke Li, Hong Du* and Tuohetijiang Baiheti*



PAPERS

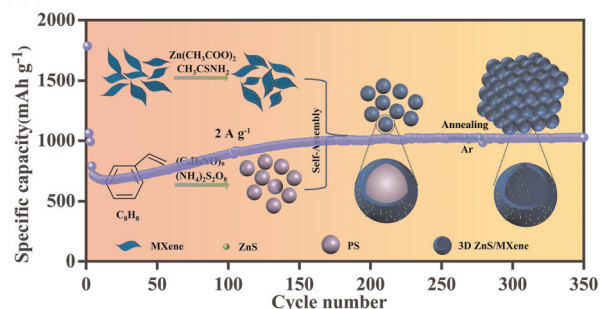
4030

Synthesis of a dilithiobutadiene bearing extremely bulky silyl substituents and its reactivity toward functionalized silanes

Katharina Münster, Shunsuke Kudo, Takuya Kuwabara,
Eriko Shimamura, Shunsuke Furukawa, Yusuke Yoshida,
Shintaro Ishida, Takeaki Iwamoto, Kazuki Tanifuji,
Yasuhiro Ohki, Mao Minoura and Masaichi Saito*

PAPERS

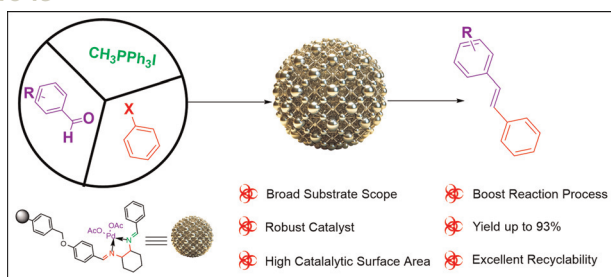
4039



Three-dimensional hollow ZnS/MXene heterostructures with stable Ti–O–Zn bonding for enhanced lithium-ion storage

Wei Yang, Wenqing Wang, Shidi Huang,* Mengluan Gao, Fuming Weng and Rujia Zou*

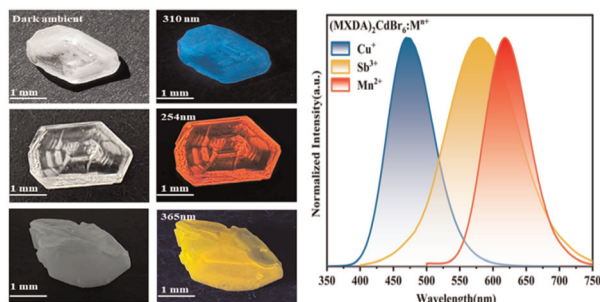
4049



Immobilization of palladium(II) acetate on a polymer-anchored Schiff base as a new heterogeneous catalyst for three-component one-Pot Mizoroki–Heck coupling via an *in situ* witting reaction

Akash V. Gujarati and Divyesh K. Patel*

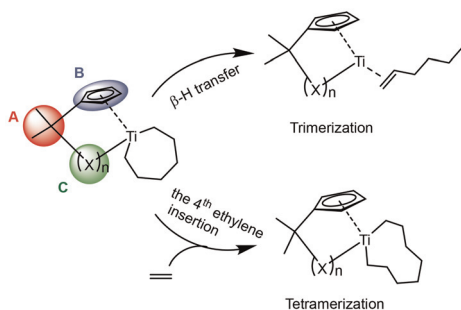
4061



Multicolor emission from a 0D-doped hybrid halide (C₈H₁₄N₂)₂CdBr₆ single crystal

Yuchen Xu, Wenxiao Dong, Shaoli Song, Huichao He, Hanmei Jiang, Bi Jia, Xiaoyan Liu, Jianbei Qiu and Tao Han*

4069



The structure–property relationship of metallocene-based ethylene oligomerization catalysts using DFT and graph neural networks

Zhudan Chen, Hao Li, Xiaowei Xu, ZhuoZheng Wang, Yan Jiang, Yi Luo, Libo Wang* and Weisheng Yang*

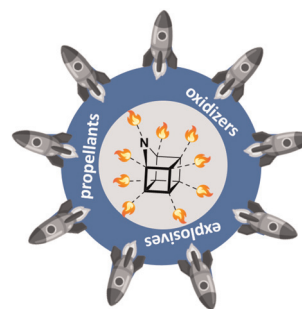


PAPERS

4082

Unveiling the energetic potential of azahomocubane (AHC): a new class of potential propellants, explosives and oxidizers

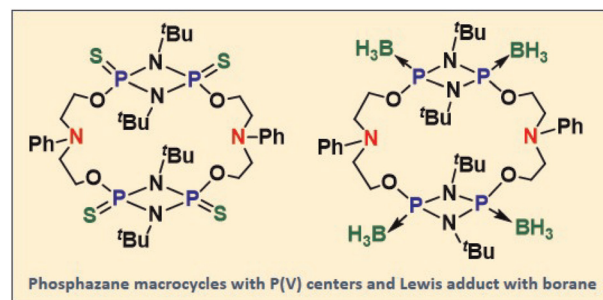
Sohan Lal, Haixiang Gao and Jean'ne M. Shreeve*



4089

Reactions of chalcogens and borane with phosphazane macrocycles assembled from diethanolamine and P₂N₂ building blocks

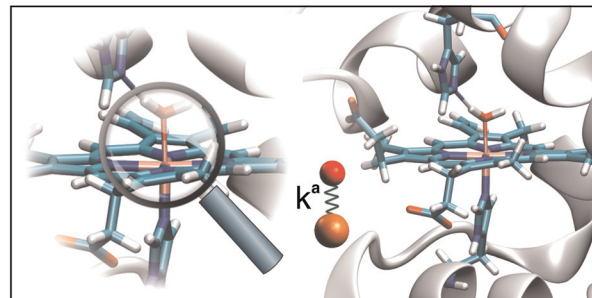
Manu Goyal, Chandrakala Negi, Nitish Kumar Garg, Shalender Jain and Sanjay Singh*



4096

Metal–ligand and hydrogen bonding in the active site of Fe(III)-, Mn(III)- and Co(III)-myoglobins

Marek Freindorf and Elfi Kraka*



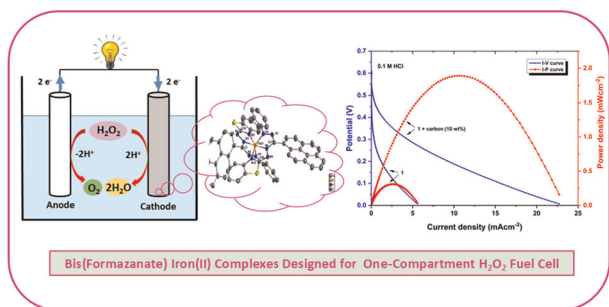
4112

An anionic metal–organic framework and its r-graphene oxide composite for selective adsorption and separation of methyl blue from aqueous solution

Uddit Narayan Hazarika, Anisha Pegu, Shrutipriya Devi, Surajit Konwer, Moirangthem Kameshwor Singh, Simi Gogoi, Mintumoni Pegu and Prithviraj Khakhlyar*



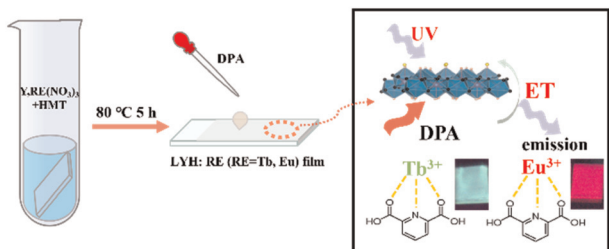
4120



Bis(formazanate) iron(II) complexes as cathode materials for one-compartment H₂O₂ fuel cells

Sunita Birara, Moumita Majumder and Ramesh K. Metre*

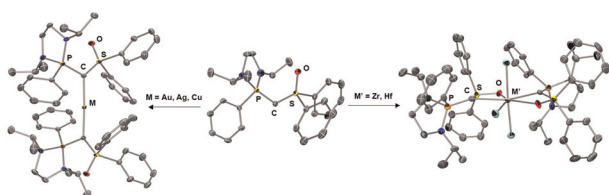
4135



One-step synthesis of LYH:Tb and LYH:Eu film probes and their application in *Bacillus anthracis* recognition

Yongping Guo, Haoxuan Zeng, Taihui Chen and Xiaoli Wu*

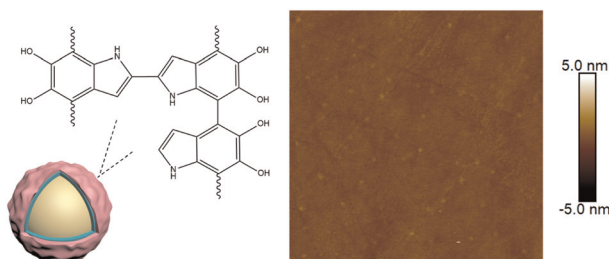
4142



Phosphine/sulfoxide-carbone, a ligand with a flexible bonding mode for early to late transition metals

Sophie Hameury, Laura Bousquet, Nathalie Saffon-Merceron, Antoine Baceiredo, David Madec and Eddy Maerten*

4151



Polydopamine-coated cerium oxide core-shell nanoparticles for efficient and non-damaging chemical-mechanical polishing

Xiaohai He, Bo Gao, Qingyuan Wu, Chengrui Xin, Junjie Xue, Fangwei Lu, Xin-Ping Qu, Simin Li,* Fan Zhang* and Hui Shen*

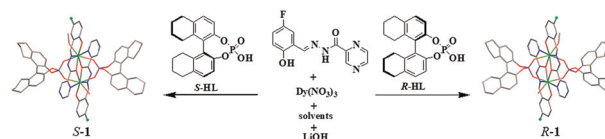


PAPERS

4159

Homochiral Dy₂ zero-field single-molecule magnets derived from axial chiral ligands (R)/(S)-octahydro-1,1'-bi-2-naphthyl phosphate

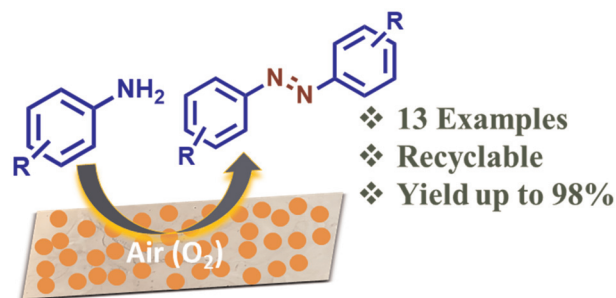
Cai-Ming Liu,* Xiang Hao and Yi-Quan Zhang*



4167

Ni–Pd bimetallic nanoparticle stabilized polymer membrane as an efficient dip-catalyst for oxidative coupling of aromatic amines to access symmetrical and unsymmetrical azo compounds

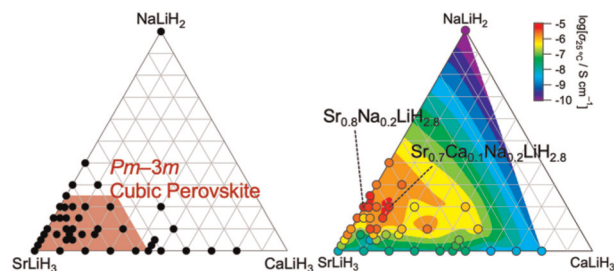
Anshuman, Raj Laxmi, Padmini Gupta, Renu Mishra, Neelam Gupta and Biplab K. Kuila*



4180

A trade-off between migration and association energies for hydride-ion conductivity in the SrLiH₃–CaLiH₃–NaLiH₂ system

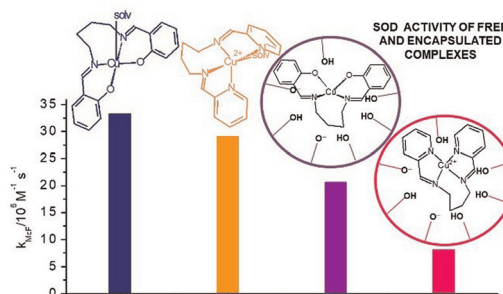
Takashi Hirose, Naoki Matsui,* Kenta Watanabe, Takashi Saito, Kazuhiro Mori, Kota Suzuki, Masaaki Hirayama* and Ryoji Kanno*



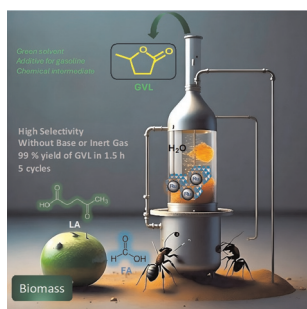
4187

The relative impact of ligand flexibility and redox potential on the activity of Cu superoxide dismutase mimics

Sharon Signorella, Micaela Bruno, Gianfranco Frattini, Claudia M. Palopoli, Diego M. Moreno, Nora Pellegrini, Verónica A. Daier* and Sandra R. Signorella*



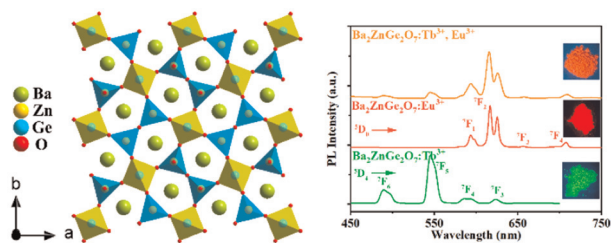
4201



Green catalytic process for γ -valerolactone production from levulinic acid and formic acid

Evelyn Vega Sánchez, J. Francisco Javier Tzompantzi-Morales, Luis Ortiz-Frade, Marcos Esparza-Schulz, Reyna Ojeda-López, Raúl Pérez-Hernández, Atilano Gutiérrez-Carrillo, Lázaro Huerta, Víctor H. Lara, Leticia Lomas-Romero* and Lucero González-Sebastián*

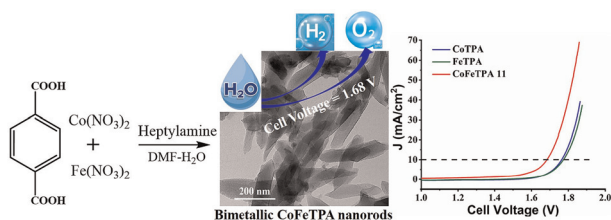
4213



Energy transfer and charge compensation of $\text{Ba}_2\text{ZnGe}_2\text{O}_7:\text{Tb}^{3+}, \text{Eu}^{3+}$ phosphors for white LEDs

Jiejun Ren, Shihui Zhou, Pu Hu, Peng Meng and Zhanhui Zhang*

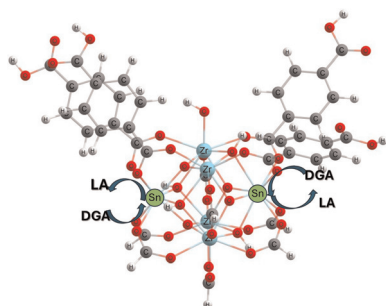
4225



Fabricating bimetallic cobalt–iron MOF nano/microcrystalline particles: strong bifunctional electrocatalytic activity and overall water splitting

Gunasekaran Arunkumar, Govindan Deviga, Mariappan Mariappan, Mehboobali Pannipara, Abdullah G. Al-Sehemi and Savarimuthu Philip Anthony*

4234



Sn-modified Zr-UiO-66 metal–organic frameworks for dihydroxyacetone conversion into lactic acid

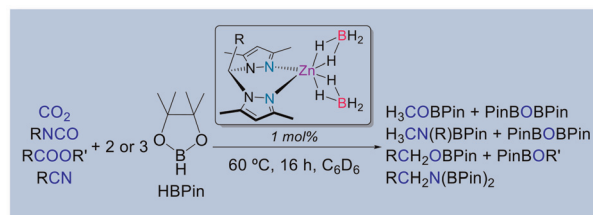
Karina Kurmanbayeva, Semyon Nikulaichev, Nikolai A. Sokovikov, Viktoriia V. Torbina and Olga V. Vodyankina*



4244

Borane-tethered heteroscorpionate zinc catalysts for the hydroboration of carbon dioxide, isocyanates, esters and nitriles

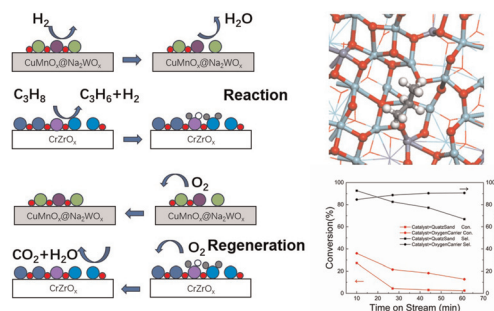
Tiago F. C. Cruz* and Luís F. Veiros



4255

Design of a $\text{CrZrO}_x\text{-Cu}_2\text{MnO}_x\text{@Na}_2\text{WO}_4$ catalyst-oxygen carrier system for efficient chemical looping oxidative dehydrogenation of propane

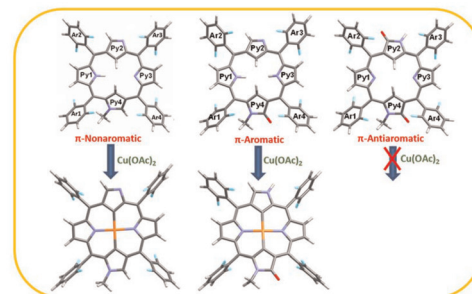
Ziyang Liu, Peng Bai,* Benjing Xu, Pingping Wu, Hao Wu, Haoran Sun, Junji Li and Zifeng Yan*



4267

Copper(III) organometallic complexes of non (anti) aromatic and aromatic doubly N-confused porphyrinoids: syntheses and characterization

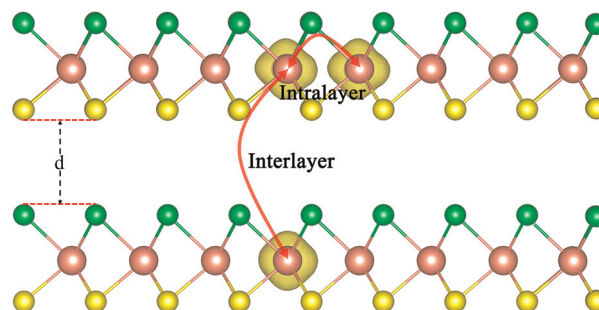
Anirban Panua, Gunasekaran Velmurugan, Peter Comba* and Harapriya Rath*



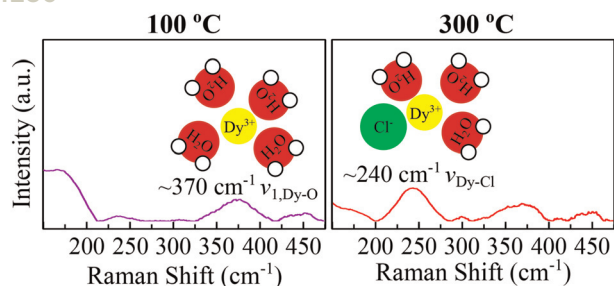
4276

Tunable transport mode of polaron in polarized Janus MoSSe few-layer structures: a constrained density functional theory study

Hong-Shun He, Yun-Bo Li, Jifeng Luo, Qingxia Ge, Jian Wu, Daifeng Zou, Ying Xu and Wen-Jin Yin*



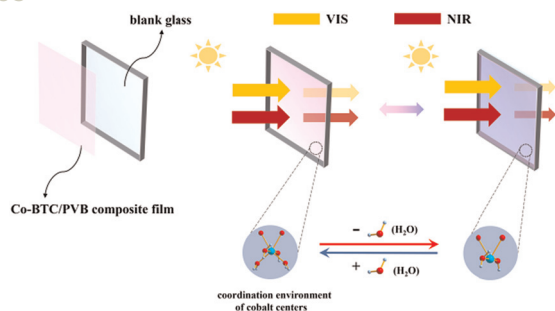
4286



In situ Raman investigation of Dy complexation in Cl-bearing aqueous solutions at 20–300 °C

Sarah E. Smith-Schmitz,* Nicole C. Hurtig and Alexander P. Gysi

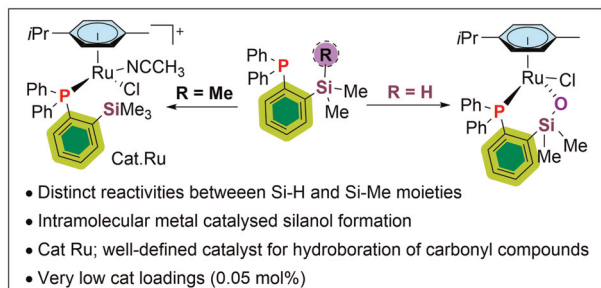
4303



Application of a reversible thermochromic Co-MOF in smart windows

Xuan Yang, Zesen Yu, Hedong Jiang, Huanhuan Guo, Jian Sun, Jiakeli, Hua Zhu, Yanxiang Wang and Pingchun Guo*

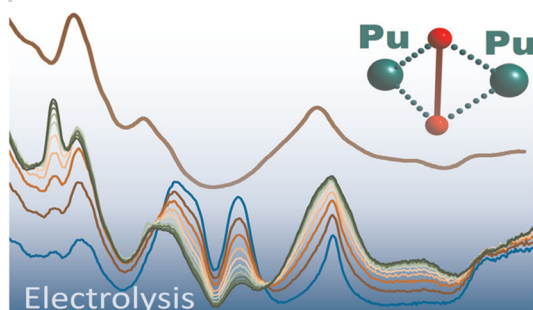
4312



Cationic and neutral ruthenium(II) complexes bearing silyl-phosphines: synthesis, structures, and catalytic studies in selective hydroboration of carbonyl compounds

Amiya Kumar Sahoo, Rageshree Dash, Suraj Kumar Agrawalla, Chandra Shekhar Purohit and Adinarayana Doddi*

4324



How plutonium "brown" peroxy complex emerges from electrolysis experiments

Richard Husar, Quentin Hervy,* Thomas Dumas,* Philippe Guilbaud, Matthieu Viot and Philippe Moisy

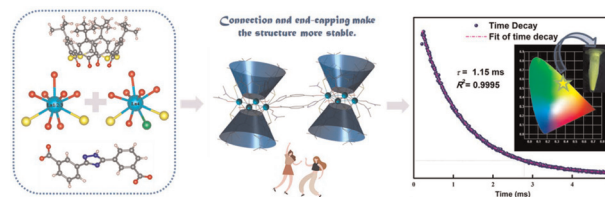


PAPERS

4332

Thiacalix[4]arene-capped Ln(III) aggregates with "hand in hand" structures and their luminescence properties

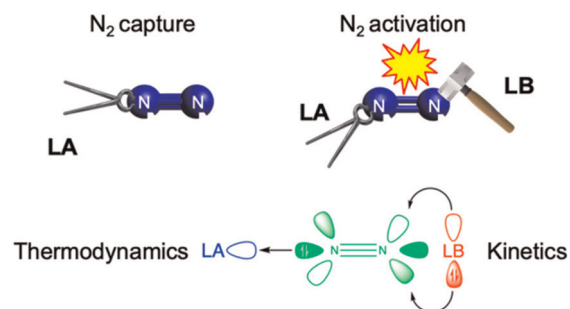
Hongbo Gao, Hao Wang, Chenxing Liu, Qicao Yan, Yanyan Wang, Herui Wen, Hongpeng You, Zhaomin Hao and Wuping Liao*



4338

Exploring N₂ activation using novel Lewis acid/base pairs: computational insight into frustrated Lewis pair reactivity

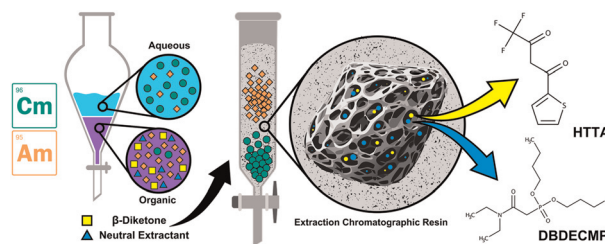
Xuban Gastearena, Jon M. Matxain* and Fernando Ruipérez*



4353

The synergic effect of neutral organophosphorus ligands combined with acidic β -diketones for the extraction and separation of trivalent actinides

Connor K. Holiski, Tara Mastren and Jennifer A. Shusterman*



4366

Design, synthesis, and redox properties of ferrocene-functionalized phenothiazine and phenothiazine sulfone isomers

Nikhil Ji Tiwari and Rajneesh Misra*

