

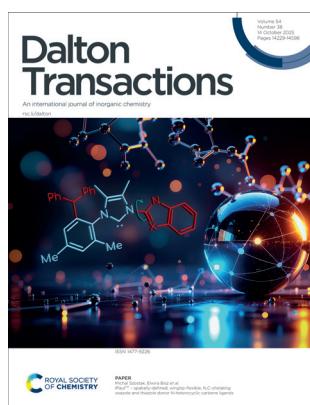
Dalton Transactions

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(38) 14229–14598 (2025)



Cover

See Michał Szostak,
Elwira Bisz et al.,
pp. 14267–14276.

Image reproduced
by permission of
Elwira Bisz from
Dalton Trans.,
2025, **54**, 14267.

Cover image generated
with Adobe Firefly.



Inside cover

See Raju Laishram et al.,
pp. 14262–14266.

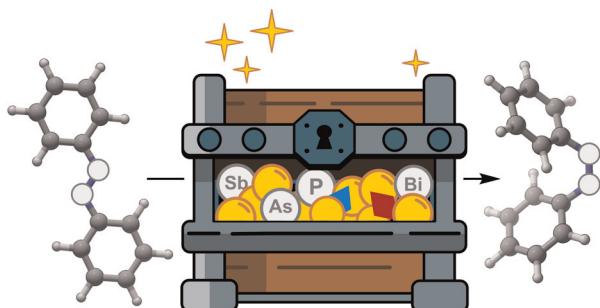
Image reproduced
by permission of
Loitongbam Thoithoi
and Raju Laishram
from *Dalton Trans.*,
2025, **54**, 14262.

PERSPECTIVE

14241

Heavier group 15 elements: a new frontier in molecular switch development

Rajesh Deka,* Merve Temel, Stefano Crespi and Andreas Orthaber*

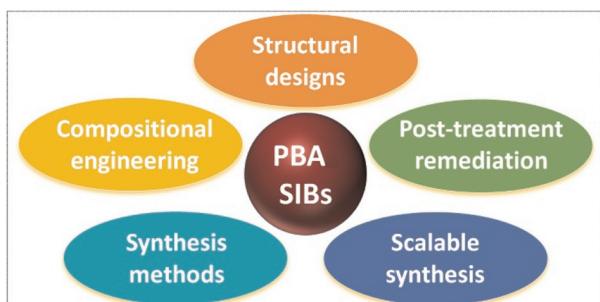


FRONTIER

14254

Prussian blue analogues for high-performance sodium ion battery cathodes: recent advances and challenges

Shumin Sun,* Xingqi Jiang, Ziyu Wang, Haibo Lei, Yongqin Zhai and Peiyuan Wang*



Environmental Science: Atmospheres



GOLD
OPEN
ACCESS

Connecting communities and inspiring new ideas

rsc.li/submittoEA

Fundamental questions
Elemental answers



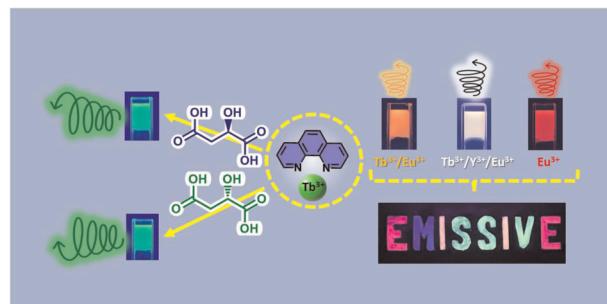
Registered charity number: 207890

COMMUNICATION

14262

Circularly polarized luminescence-active low molecular weight lanthanide gels: tunable emission including white light

Loitongbam Thoithoi Singh, Ningombam Banshi Devi, Darshana Deb, Saikat Ghosh and Raju Laishram*

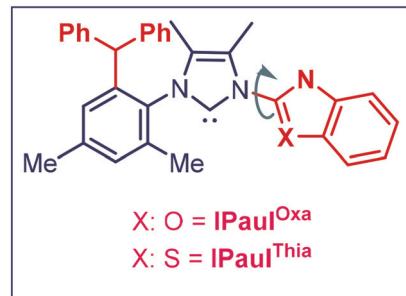


PAPERS

14267

IPaul^{Het} – spatially-defined, wingtip-flexible, N,C-chelating oxazole and thiazole donor N-heterocyclic carbene ligands

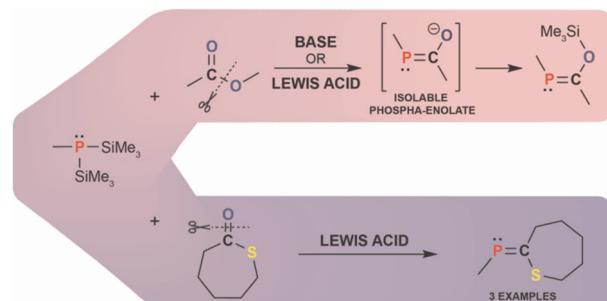
Pamela Podchorodecka, Błażej Dziuk, Roman Szostak, Michał Szostak* and Elwira Bisz*



14277

Phospha-Peterson reactions with esters and thioesters: isolation of phosphaalkenes bearing C-heteroatom substituents

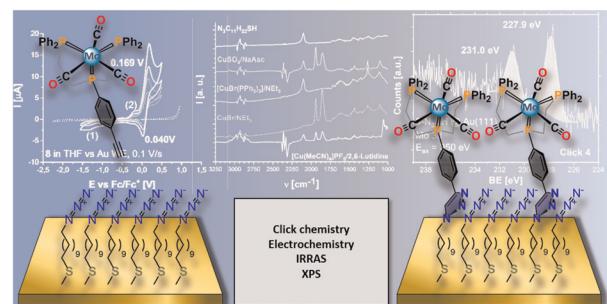
Aaron A. Mitchell, Paul A. Heine, Joseph Chang, Adam De Paolis, Brian O. Patrick and Derek P. Gates*



14286

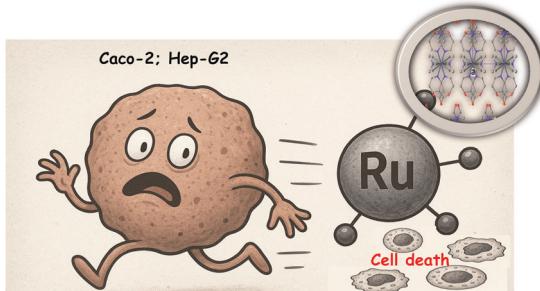
Clicking [Mo(CO)₃(triphos)] to an azide-terminated alkylthiol SAM: structural, spectroscopic and electrochemical investigations

Niels Michaelis, Tobias A. Engesser, Jan Krahmer, Thomas Strunkus, Christian Näther, Nicolas Le Poul* and Felix Tuczek*



PAPERS

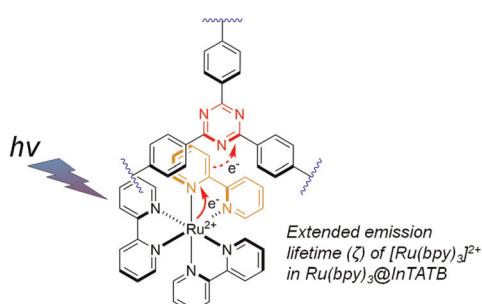
14304



Nanoscale ruthenium(III) complexes with bioactive ligands: structural, colloidal, and dual antimicrobial–cytotoxic investigations

Olga Impert,* Natalia Czerniecka, Natalia Balińska, Barbara Kubiak, Anna Kozakiewicz-Piekarcz, Oleksandra Pryschepa, Paweł Pomastowski, Michałina Ehlert, Maciej Witwicki, Yugeswara Rao Pateda, Erik Rakovský, Anna Katafias and Rudi van Eldik*

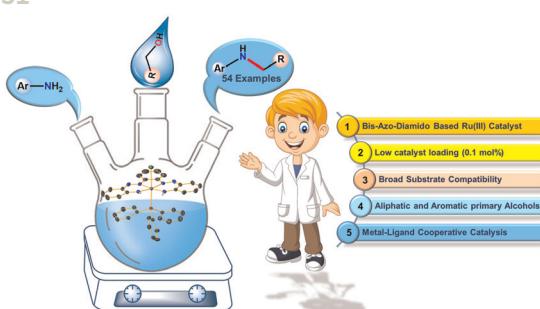
14322



Photoluminescence and photoredox catalytic properties of cationic Ru(II) polypyridine complexes encapsulated within an InTATB metal-organic framework

Jongseo Kim and Seong Huh*

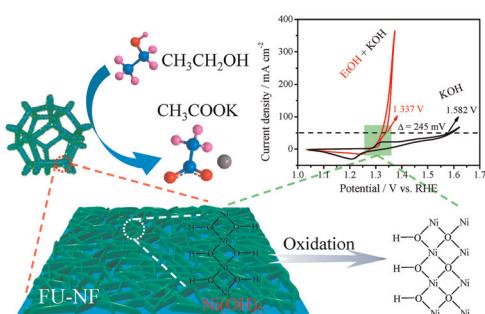
14331



Synthesis of *N*-alkylated amines via alcohol dehydrogenation catalyzed by a bis-azo-diamido coordinated ruthenium(III) complex

Supriyo Halder, Srijita Naskar, Sampad Malik, Dipika Roy and Kausikisankar Pramanik*

14349



Constructing Ni(OH)₂ nanosheets on a nickel foam electrode for efficient electrocatalytic ethanol oxidation

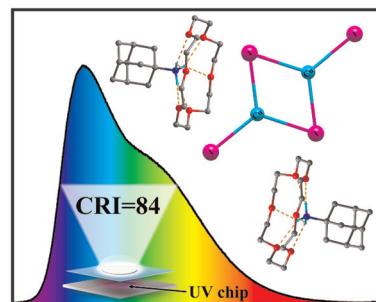
Shasha Ma, Di Chen, Zhaobin Ye, Yuanlong Wang, Jie Xu and Jianyong Zhang*

PAPERS

14359

A single-component white-light-emitting hybrid copper(I) halide constructed using a supramolecular cation for WLEDs

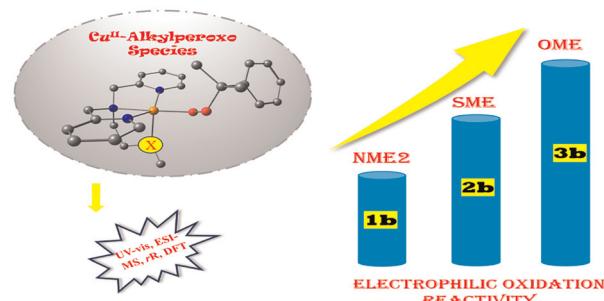
Rong-Yan Zhang, Ting Zhu, Jin Zhang,
Dong-Sheng Shao, Ying-Zhao Ma, Guo Peng* and
Xiao-Ming Ren



14367

Role of heteroatom substitution on the stability and reactivity of mononuclear Cu(II)-alkylperoxo complexes

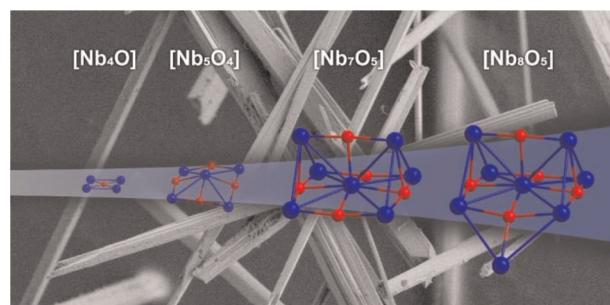
Limashree Sahoo, Yi Zhang, Amrit Das,
Sam P. de Visser* and Chivukula V. Sastri*



14376

Niobium oxyiodide cluster compounds $\text{Li}_3\text{Nb}_7\text{O}_5\text{I}_{15}$ and $\text{Nb}_8\text{O}_5\text{I}_{17}(\text{NbI}_5)$ with expanding cluster architectures and multicentre Nb–Nb bonding

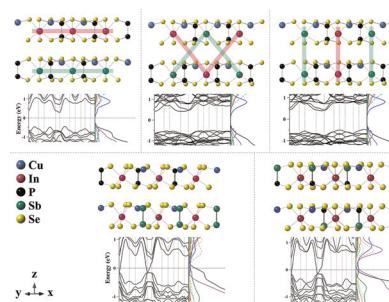
Jan Beitlberger, Markus Ströbele, Patrick Schmidt,
Carl P. Romao and H.-Jürgen Meyer*



14384

Compositional design rules for tuning functionalities in CuInP_2X_6 ($\text{X} = \text{S}, \text{Se}$) van der Waals semiconductor ferroelectrics

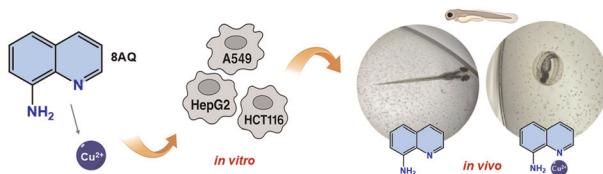
Mona Layegh and Joseph W. Bennett*



PAPERS

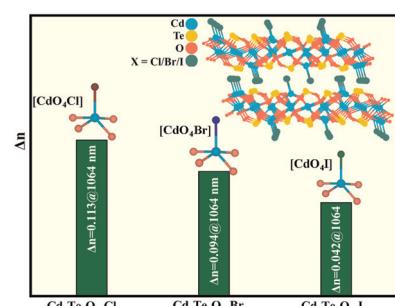
14396

Copper enhances anticancer activity of 8AQ

Exploring the effect of copper on the bioactivity of 8-quinolines: an *in vitro* and *in vivo* study

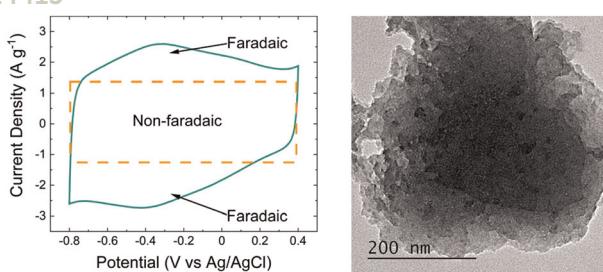
Alessia Sambugaro, Riccardo Po, Martina Lorenzetto, Rebecca Ceolin, Giuditta Palmerston, Erik Murador, Laura Cifalinò, Giulia Annesi, Valeria Scalcon, Chiara Nardon* and Valentina Oliveri*

14407

 $\text{Cd}_5\text{Te}_4\text{O}_{12}\text{X}_2$ ($\text{X} = \text{Cl}, \text{Br}, \text{I}$): a new oxyhalide family with $[\text{CdO}_4\text{X}]$ mixed anionic units and adjustable optical properties

Maqsood Iqbal, Jiazheng Zhou, Hongshan Wang, Juanjuan Lu, Shilie Pan* and Junjie Li*

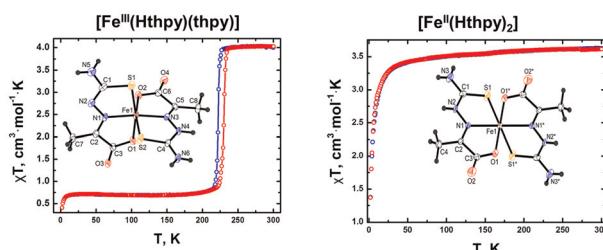
14415



A unique hybrid of vanadium carbide and oxycarbide derived carbon from a preceramic polymer route with faradaic and supercapacitive charge storage

Sudhin Sukumaran and Shantanu K. Behera*

14427



The magneto-structural correlations of ferric and ferrous neutral complexes with the pyruvic acid thiosemicarbazone ligand

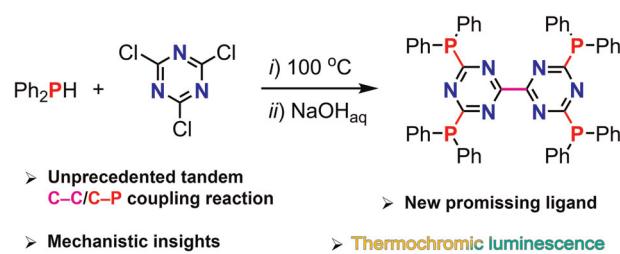
Maxim A. Blagov, Anatoly S. Lobach, Leokadiya V. Zorina, Sergey V. Simonov, Konstantin V. Zakharov, Alexander N. Vasiliev and Nataliya G. Spitsyna*

PAPERS

14440

A tetraphosphino-bis(s-triazine) from cyanuric chloride and Ph₂PH: new unexpected tandem C–C/C–P coupling reaction

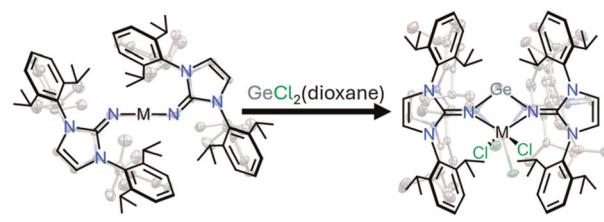
Alexander V. Artem'ev,* Maria P. Davydova, Anton V. Kuzmin, Mariana I. Rakhmanova and Irina Yu. Bagryanskaya



14448

Two-coordinate Co and Ni complexes of a bulky imidazolin-2-iminato ligand and facile synthesis of heterobimetallic complexes

Yu-Hsuan Chen, Guan-Wen Chen, Yi-Hui Lee, Hsin-Kuan Liu and Chun-Yi Lin*

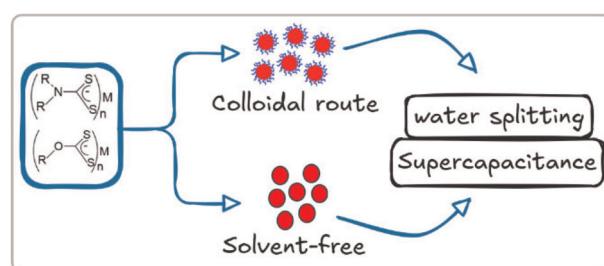


Heterobimetallic Complexes from Two-Coordinate Complexes

14456

Tailoring supercapacitance and water splitting performance of nickel sulfides (NiS and Ni₃S₂): a comparative study of colloidal and solventless synthesis

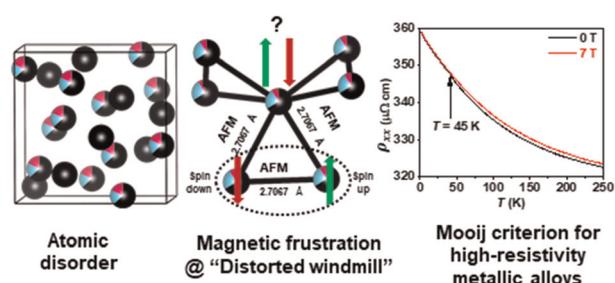
Gwaza Eric Ayom, Malik Dilshad Khan, Rishabh Srivastava, Wang Lin, Ram K. Gupta and Neerish Revaprasadu*



14469

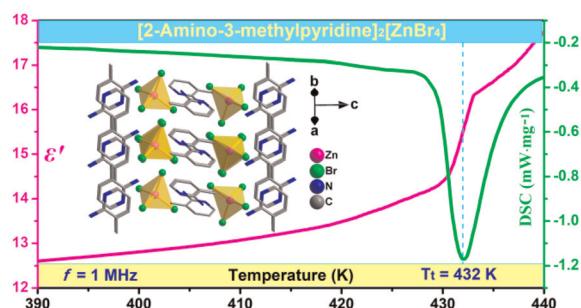
Unusual magnetic and transport properties of heavily disordered Mn–Zn–M (M = Ga and Sn) alloys with a β-Mn-type chiral structure

Rahul Pan, Anyesh Saraswati, Amit Mondal, Pujalin Biswal, Debakanta Samal, Nitesh Kumar and Partha Pratim Jana*



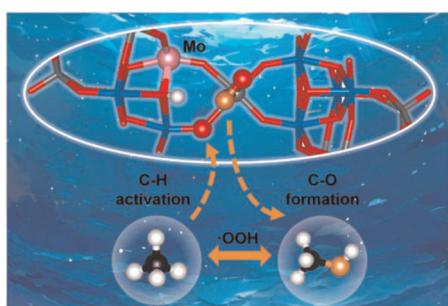
PAPERS

14480

**High-temperature phase transition and switchable dielectric properties of the [2-amino-3-methylpyridine]₂[ZnBr₄] complex**

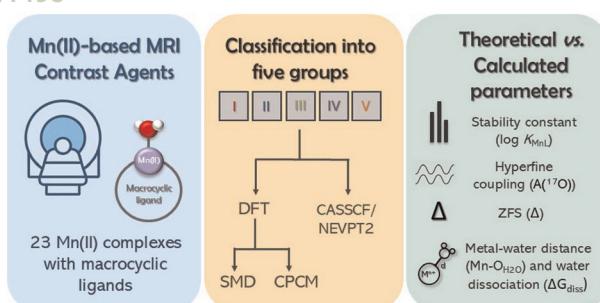
Jia-Le Song, Jia Song, Guang-Ying Zhang, Su-Jing Zhang, Xiang-Yu Shi, Ze-Feng Yang, Ting-Ting Qi* and Ji-Xing Gao*

14486

**Synthesis of Mo-incorporated zeolithic octahedral metal oxides based on vanadotungstate for the selective oxidation of methane to methanol**

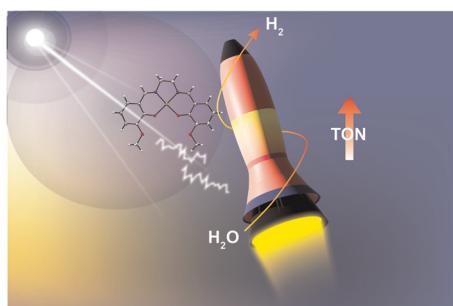
Yihang Hua, Ting Gou, Qianqian Zhu,* Yanshuo Li* and Zhenxin Zhang*

14495

**Computational insight into manganese(II) complexes comprising macrocyclic ligands for magnetic resonance imaging**

Radovan Herchel,* Marie Pražáková and Bohuslav Drahoš

14505

**Oxygen-tolerant hydrogen evolution in water using Schiff base copper complexes with tuneable secondary coordination environments**

Santanu Ghorai, Gulafshan, Sukanta Saha, Abhishek Saini, Chandan Das, Yashwant Pratap Kharwar, Aritro Sinha Roy and Arnab Dutta*

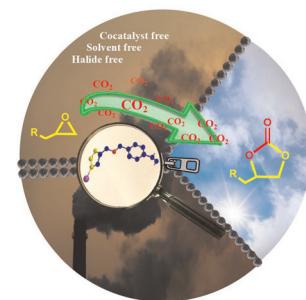


PAPERS

14513

A click grafted cobalt complex on chloromethyl polystyrene for the catalytic cycloaddition reaction of CO₂ with epoxides

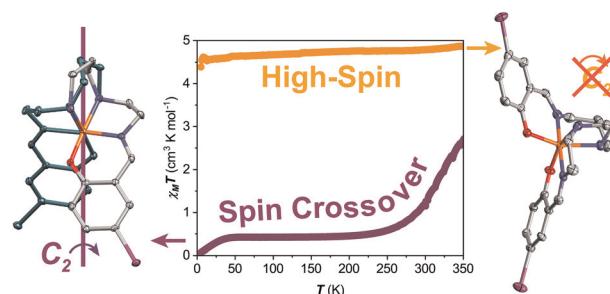
Zahra Khazaei and Maryam Mohammadikish*



14522

Symmetric and asymmetric ligands for Fe^{III} spin crossover – the influence of the C₂ axis

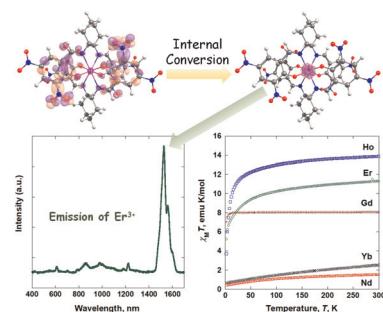
Conor T. Kelly,* Emmelyne Cuza, Eoin Pasquetti, Niall Quinn, Michael Griffin, Peter Nockemann, Helge Müller-Bunz, Julia Bruno-Colmenarez, Solveig Felton, Zoi G. Lada and Grace G. Morgan*



14533

Near-infrared emissive mononuclear lanthanide(III) complexes based on chiral Schiff base ligands: synthesis, crystal structure, luminescence, and magnetic properties

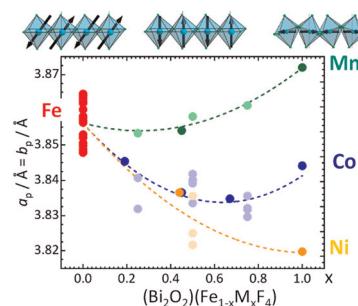
Yuri Jeong, Ngoc Tram Anh Le, Jeyun Ju, Iuliia Olshevskaya, Daeheum Cho, Ryuya Tokunaga, Shinya Hayami and Kil Sik Min*



14547

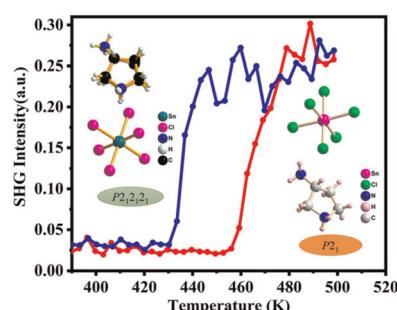
Structural and magnetic properties of mixed-metal (Bi₂O₂)(Fe_{1-x}M_xF₄) Aurivillius oxyfluorides

Jonas Wolber, Victor Duffort, Claire Minaud, Marielle Huvé, Mathieu Duttine, Ángel-M. Arévalo-López, Oscar Fabelo, Clemens Ritter and Olivier Mentré*



PAPERS

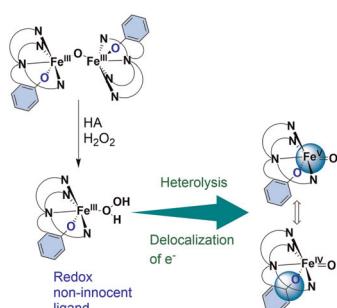
14559



A pair of chiral organic–inorganic hybrid tin compounds showing reversible phase transition and enhanced SHG properties

Ting Jiang, Mingjun Zou, Yaozhen Wu, Jie Zhou, Xin Yin, Wenjing Guo, Zhenhong Wei* and Hu Cai*

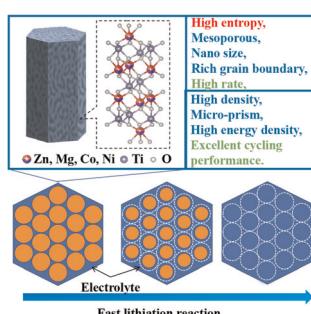
14566



Ligand driven heterolytic O–O bond cleavage in a non-haem phenolato-Fe(III)–OOH complex to yield a formal Fe(v)=O intermediate

Daniël R. Duijnstee, Marika Di Berto Mancini, C. Maurits de Roo, Duenpen Unjaroen, Moniek Tromp, Ronald Hage, Wesley R. Browne* and Marcel Swart*

14578



Controlled synthesis and multi-effect synergistic lithium storage of micron-sized porous hexagonal prismatic titanium-based high-entropy oxide anodes

Yu-Qing Cai, Ming-Zhang Huang, Shan He, Wen-Juan Xu,* Zi-Quan Li* and Zhen-Dong Huang*

14587



Investigating the DNA binding properties of two new Ru^{II}(dppz) complexes incorporating the facially coordinated ligands tris(pyridin-2-yl)methylamine and di(pyridin-2-yl)methylamine

Thomas S. Andrews, Craig Robertson, Anthony J. H. M. Meijer* and Jim A. Thomas*

