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Dalton Transactions

An international journal of inorganic chemistry incorporating Acta Chemica Scandinavica

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Cover
See Michal Szostak, Elwira Bisz *et al.*, pp. 14267–14276.

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Inside cover
See Raju Laishram *et al.*, pp. 14262–14266.

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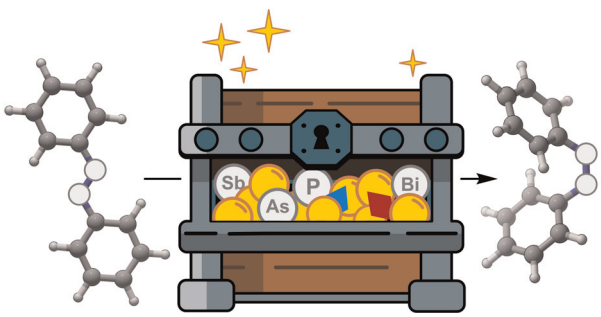
PERSPECTIVE

14241

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

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

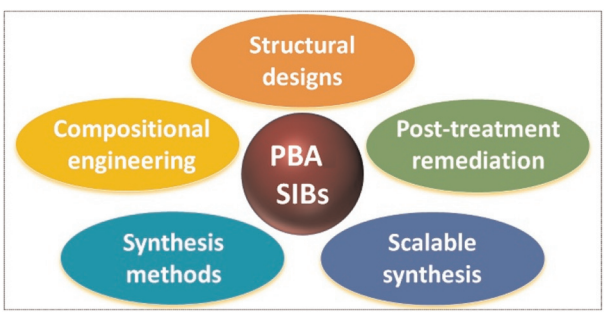


FRONTIER

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*



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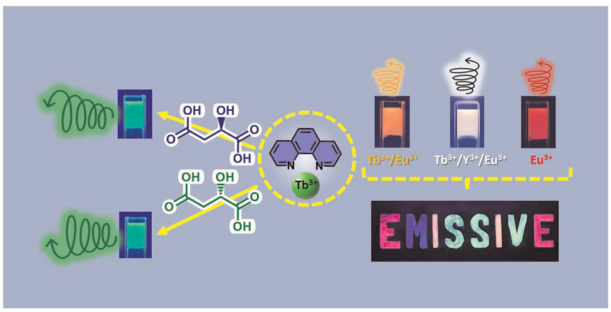
COMMUNICATION

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*

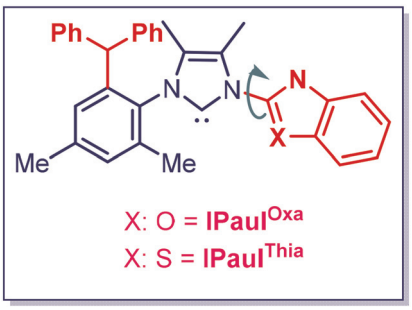


PAPERS

14267

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

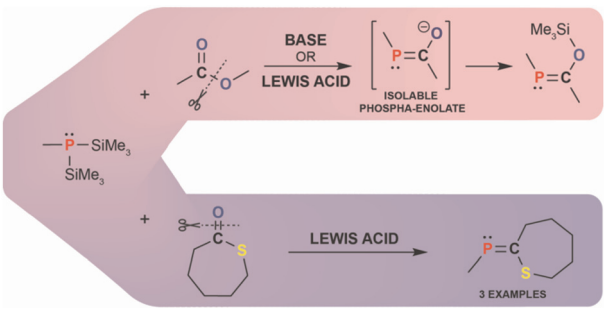
Pamela Podchorodecka, Błażej Dziuk, Roman Szostak, Michal Szostak* and Elwira Bisz*



14277

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

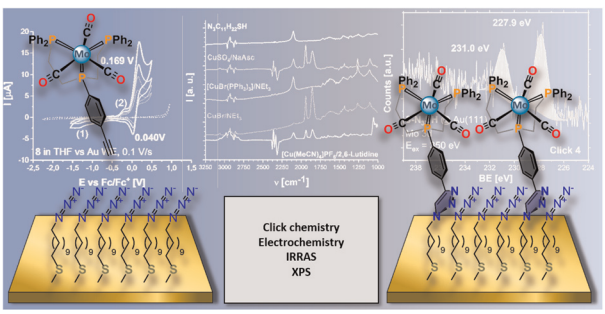
Aaron A. Mitchell, Paul A. Heine, Joseph Chang, Adam De Paolis, Brian O. Patrick and Derek P. Gates*



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 Strunskus, Christian Näther, Nicolas Le Poul* and Felix Tuczek*



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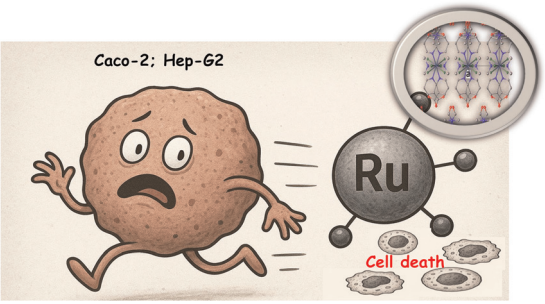
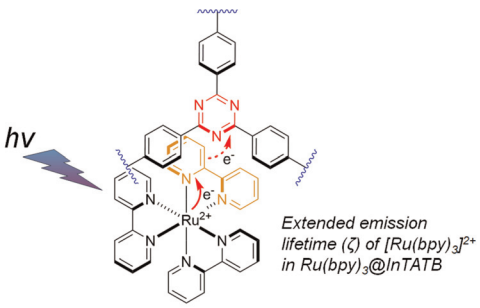


Nanoscale ruthenium(III) complexes with bioactive ligands: structural, colloidal, and dual antimicrobial–cytotoxic investigations

Olga Impert,* Natalia Czerniecka, Natalia Balińska, Barbara Kubiak, Anna Kozakiewicz-Piekarz, Oleksandra Pryshchepa, Paweł Pomastowski, Michalina Ehlert, Maciej Witwicki, Yogeswara Rao Pateda, Erik Rakovský, Anna Katafias and Rudi van Eldik*

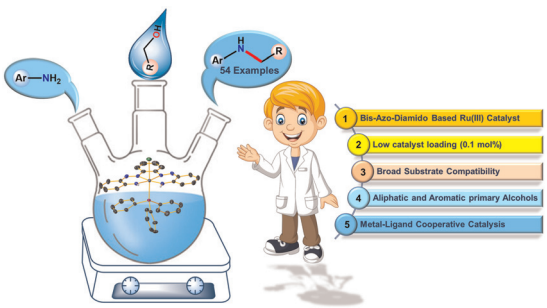
14322



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

Jongseo Kim and Seong Huh*

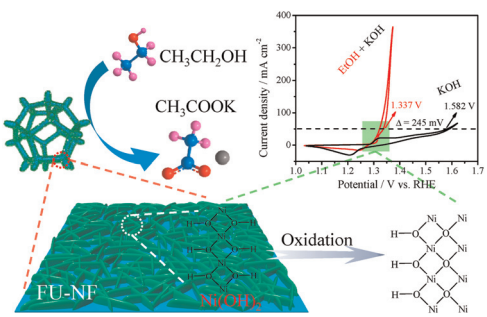
14331



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*

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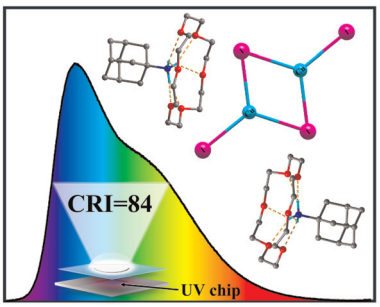
14359

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

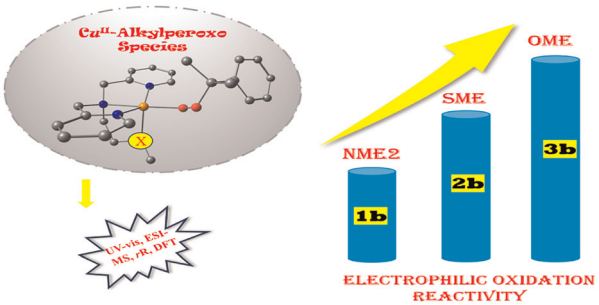
Rong-Yan Zhang, Ting Zhu, Jin Zhang, Dong-Sheng Shao, Ying-Zhao Ma, Guo Peng* and Xiao-Ming Ren



14367

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

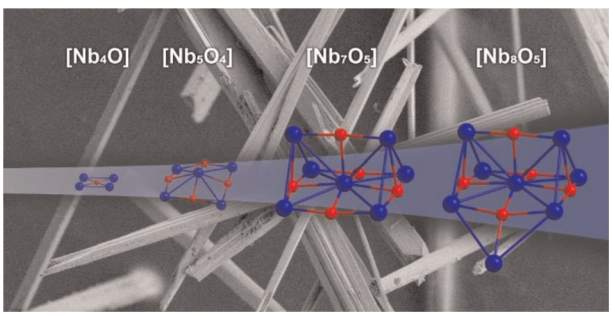
Limashree Sahoo, Yi Zhang, Amrit Das, Sam P. de Visser* and Chivukula V. Sastri*



14376

Niobium oxyiodide cluster compounds $Li_3Nb_7O_5I_{15}$ and $Nb_8O_5I_{17}(NbI_5)$ with expanding cluster architectures and multicentre Nb–Nb bonding

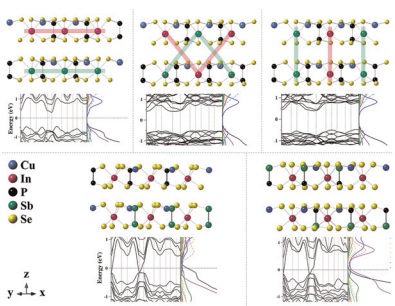
Jan Beitlberger, Markus Ströbele, Patrick Schmidt, Carl P. Romao and H.-Jürgen Meyer*



14384

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

Mona Layegh and Joseph W. Bennett*



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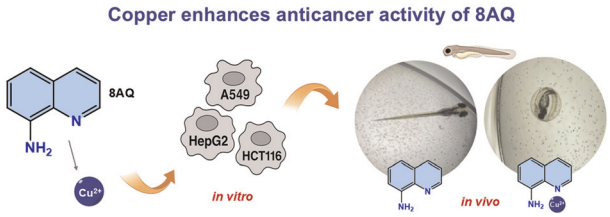
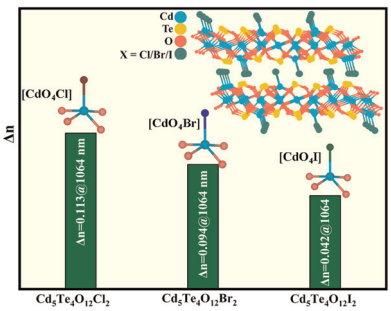


Exploring the effect of copper on the bioactivity of 8-quinolines: an *in vitro* and *in vivo* study

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

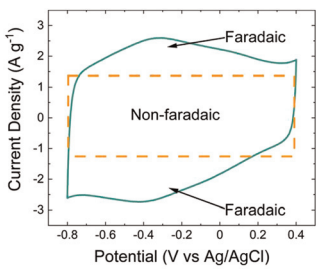
14407

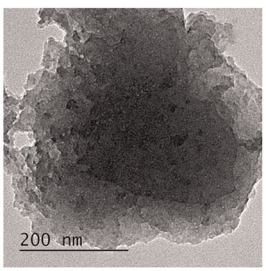


$Cd_5Te_4O_{12}X_2$ (X = Cl, Br, I): a new oxyhalide family with $[CdO_4X]$ mixed anionic units and adjustable optical properties

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

14415

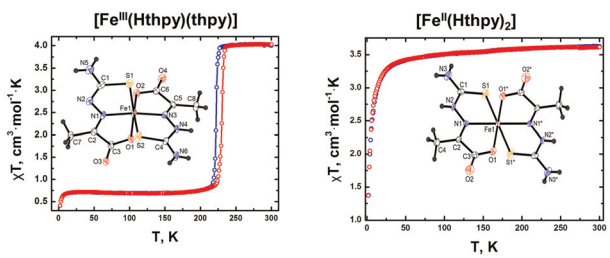




A unique hybrid of vanadium carbide and oxycarbide derived carbon from a preceramic polymer route with faradaic and supercapacitive charge storage

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*

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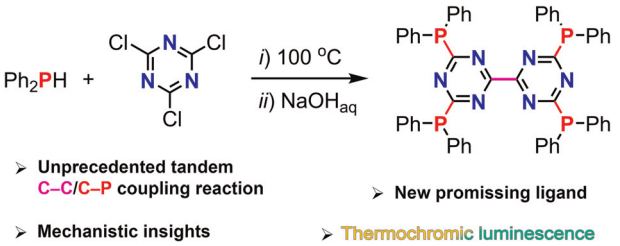
14440

A tetraphosphino-bis(*s*-triazine) from cyanuric chloride and Ph_2PH: new unexpected tandem C–C/C–P coupling reaction

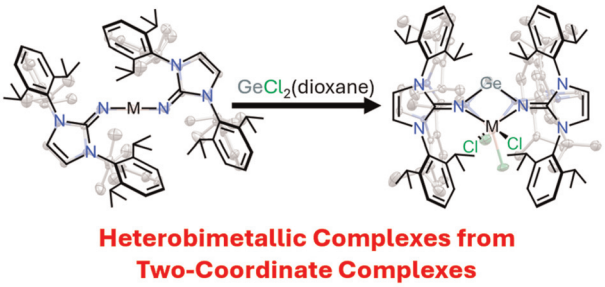
Alexander V. Artem'ev,* Maria P. Davydova, Anton V. Kuzmin, Mariana I. Rakhmanova and Irina Yu. Bagryanskaya



14448

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

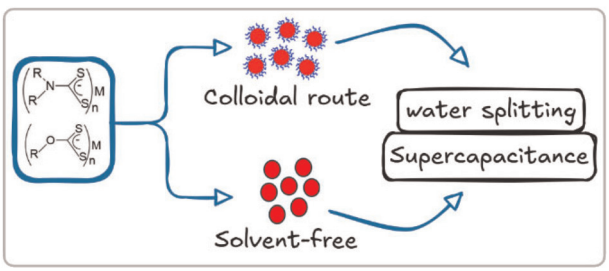
Yu-Hsuan Chen, Guan-Wen Chen, Yi-Hui Lee, Hsin-Kuan Liu and Chun-Yi Lin*



14456

Tailoring supercapacitance and water splitting performance of nickel sulfides (NiS and Ni_3S_2): a comparative study of colloidal and solventless synthesis

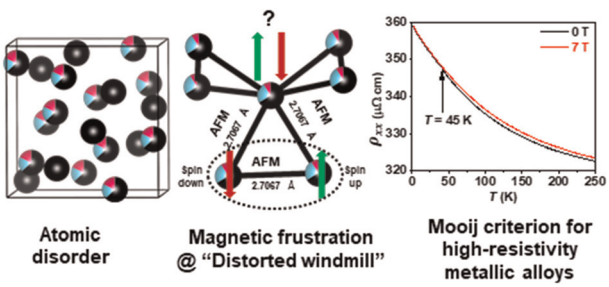
Gwaza Eric Ayom, Malik Dilshad Khan, Rishabh Srivastava, Wang Lin, Ram K. Gupta and Neerish Revaprasadu*



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*



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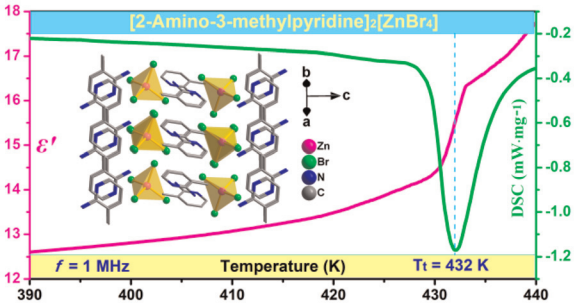
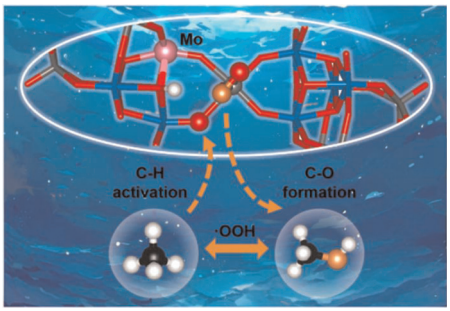


High-temperature phase transition and switchable dielectric properties of the [2-amino-3-methylpyridine]$_2$[ZnBr$_4$] complex

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

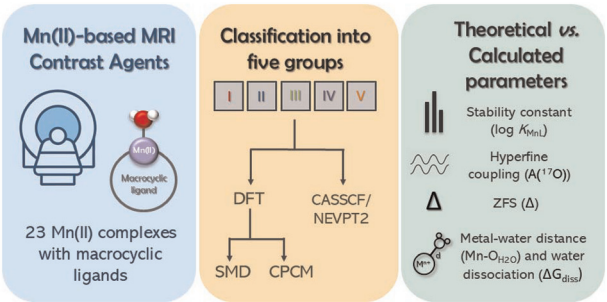
14486



Synthesis of Mo-incorporated zeolitic 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*

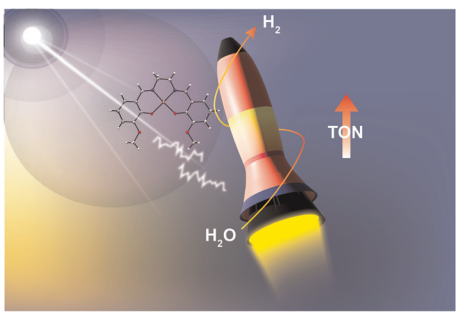
14495



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*

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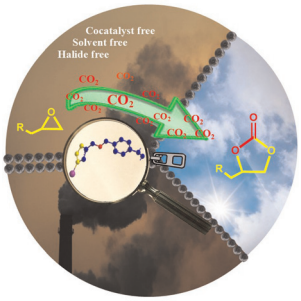
14513

A click grafted cobalt complex on chloromethyl polystyrene for the catalytic cycloaddition reaction of CO_2 with epoxides

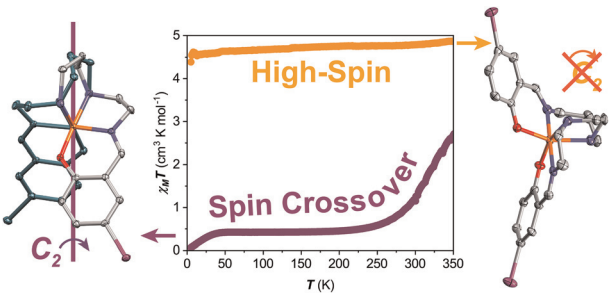
Zahra Khazaei and Maryam Mohammadikish*



14522

Symmetric and asymmetric ligands for Fe^{III} spin crossover – the influence of the C_2 axis

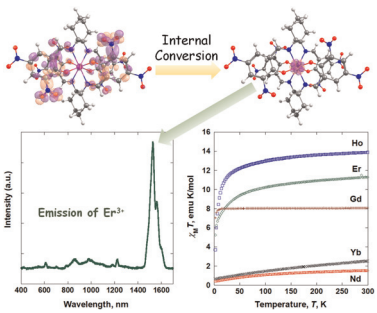
Conor T. Kelly,* Emmelyne Cuza, Eoin Pasquetti, Niall Quinn, Michael Griffin, Peter Nockemann, Helge Müller-Bunz, Julia Bruno-Colmenarez, Solveig Felton, Zoi G. Lada and Grace G. Morgan*



14533

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

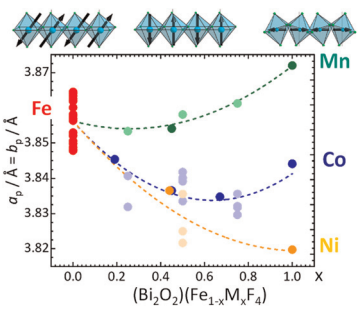
Yuri Jeong, Ngoc Tram Anh Le, Jeyun Ju, Iuliia Olshevskaia, Daeheum Cho, Ryuya Tokunaga, Shinya Hayami and Kil Sik Min*



14547

Structural and magnetic properties of mixed-metal $(Bi_2O_2)(Fe_{1-x}M_xF_4)$ Aurivillius oxyfluorides

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



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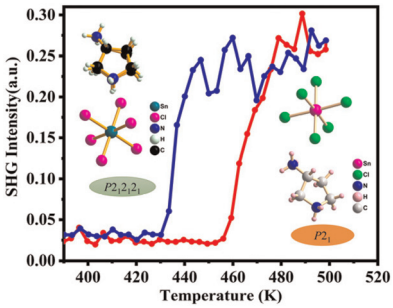
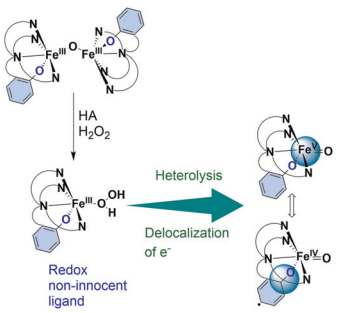
14559



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*

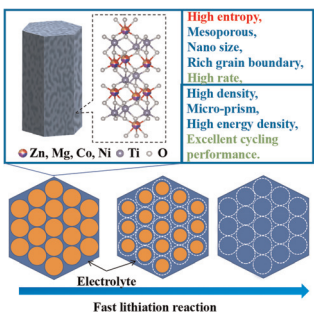
14566



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*

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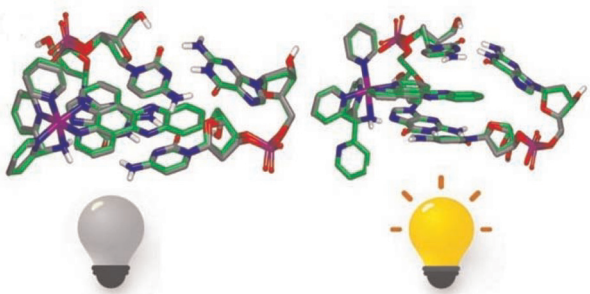

Investigating the DNA binding properties of two new Ru^{II}(dppz) complexes incorporating the facially coordinated ligands tris(pyridin-2-yl) methylamine and di(pyridin-2-yl)methylamine

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

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