

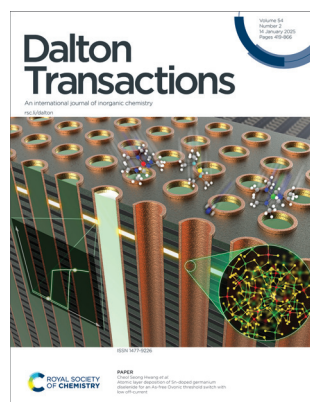
Dalton Transactions

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(2) 419–866 (2025)



Cover
See Cheol Seong Hwang
et al., pp. 492–502.

Image reproduced by
permission of Byongwoo
Park from *Dalton Trans.*,
2025, **54**, 492.



Inside cover
See Basab Bijayi Dhar *et al.*,
pp. 503–510.

Image reproduced by
permission of Jaipriya Khatri
and Basab Bijayi Dhar from
Dalton Trans., 2025, **54**, 503.

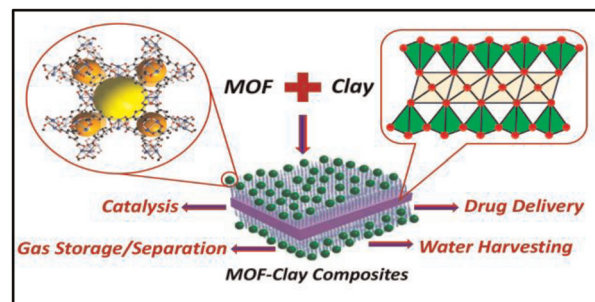
Acknowledgement: Images
via Pixabay

PERSPECTIVES

433

Integration of metal–organic frameworks and clay toward functional composite materials

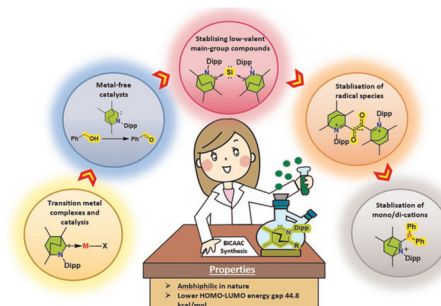
Anindita Chakraborty*, Jyoti and Tapas Kumar Maji*



458

Bicyclic (alkyl)(amino)carbenes (BICAACs): synthesis, characteristics, and applications

Ankita Sharma, Unnikrishnan Nair K and Subrata Kundu*



EES Solar

**Exceptional research on solar
energy and photovoltaics**

Part of the EES family

**Join
in** | Publish with us
rsc.li/EESolar

COMMUNICATIONS

477

Polyoxometalates as advanced-performance anions for $\sim D_{5h}$ Dy(III) single-ion magnets

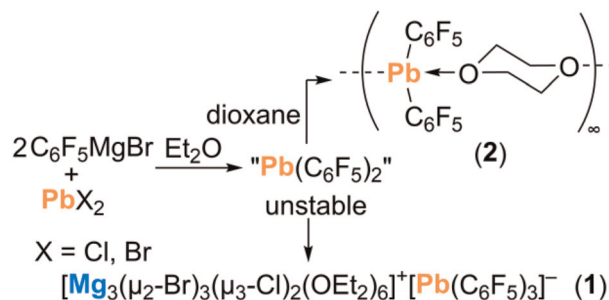
Ethan Lowe, Claire Wilson, Angelos B. Canaj* and Mark Murrie*



482

Of perfluorinated aryllead(II) complexes

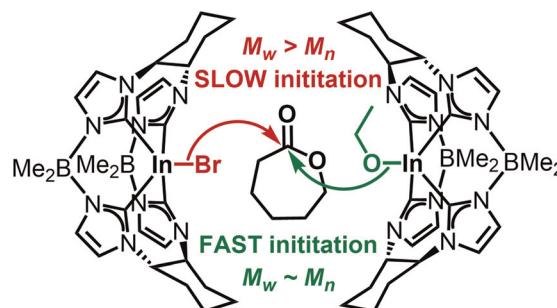
Adrian-Alexandru Someșan,* Thierry Roisnel and Yann Sarazin*



487

Ring-opening polymerization of ϵ -caprolactone with a macrocyclic tetracarbene indium complex

Henry R. Brothers, Raju Chamenahalli, Gary S. Nichol, Jennifer A. Garden* and David M. Jenkins*

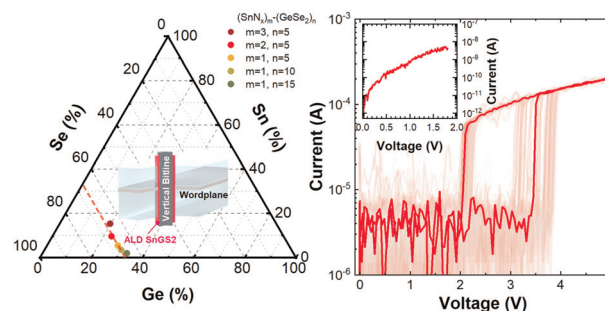


PAPERS

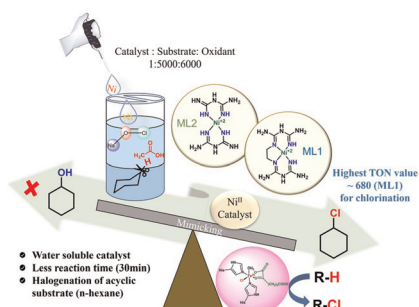
492

Atomic layer deposition of Sn-doped germanium diselenide for an As-free Ovonic threshold switch with low off-current

Byongwoo Park, Jeong Woo Jeon, Woohyun Kim, Wonho Choi, Gwang Sik Jeon, Sangmin Jeon, Sungjin Kim, Chanyoung Yoo, Junyoung Lim, Yonghun Sung, David Ahn and Cheol Seong Hwang*



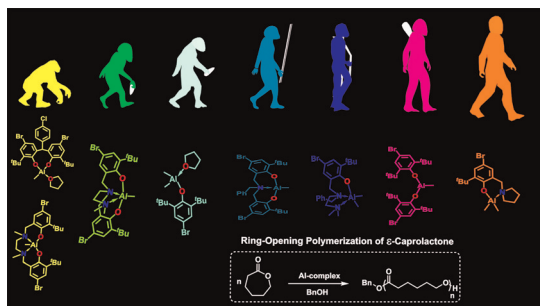
503



C–H bond chlorination and bromination using water soluble nickel(II) guanidine complexes

Jaipriya Khatri, Vasanthapandiyani Mari, Aniruddha Sarkar, Naiwrit Karmodak and Basab Bijayi Dhar*

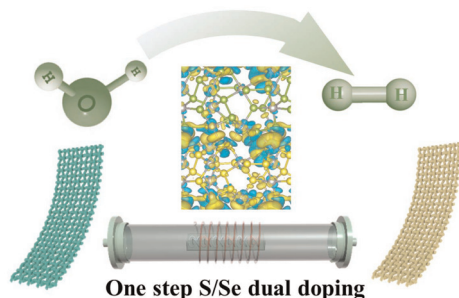
511



Evolution of aluminum aminophenolate complexes in the ring-opening polymerization of ϵ -caprolactone: electronic and amino-chelating effects

Prasanna Kumar Ganta, Fei Huang, Taoufik Ben Halima, Rajiv Kamaraj, Yu-Ting Chu, Hsi-Ching Tseng, Shangwu Ding, Kuo-Hui Wu* and Hsuan-Ying Chen*

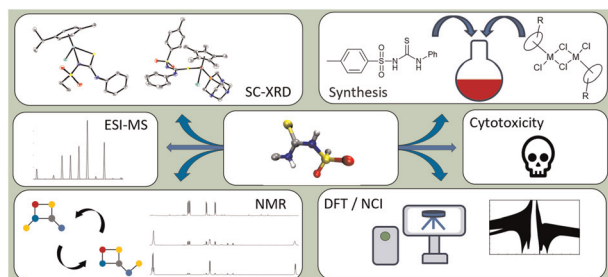
533



Dual chalcogenide coordination engineering on a self-supported alloy electrode for enhanced hydrogen evolution reaction

Shaobo Huang,* Fanhui Meng, Jianhui Dong, Wenhao Zhuang, Zexin Liang, Chengfeng Fan, Xiaoyi Hou and Huiwen Wang

539



The coordination chemistry and anticancer activity of organo-ruthenium(II), -iridium(III) and -rhodium(III) complexes with sulfonyl-substituted thiourea ligands

Matthew C. Risi,* Julia Stjärnhage, William Henderson, Joseph R. Lane, Christian G. Hartinger and Graham C. Saunders

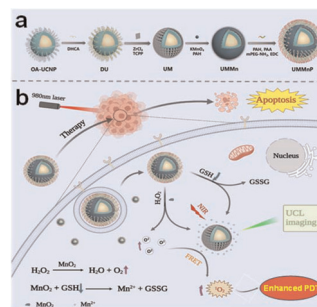


PAPERS

550

Alleviating hypoxia by integrating MnO_2 with metal–organic frameworks coated upconversion nanocomposites for enhanced photodynamic therapy *in vitro*

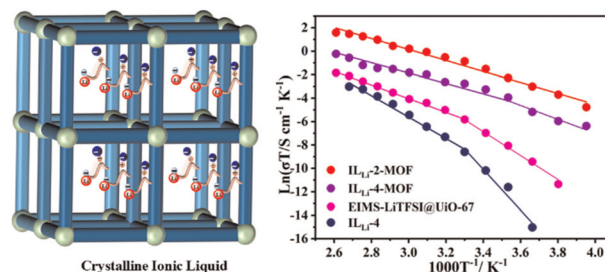
Junxun Zhou, Mengyue Jiang, Qiangqiang Zhang, Yuan Jiang, Haifang Wang* and Lining Sun*



561

An ionic-liquid functionalized metal–organic framework and its high performance as a solid electrolyte for lithium-ion conduction

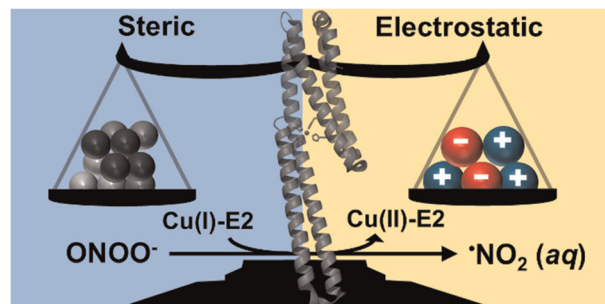
Xiang Kun Cui, Yu Ding, Li Feng, Li Ming Chen, Yang Mei Hu, Hui Chen* and Chong Qing Wan*



571

Secondary sphere interactions modulate peroxynitrite scavenging by the E2 domain of amyloid precursor protein

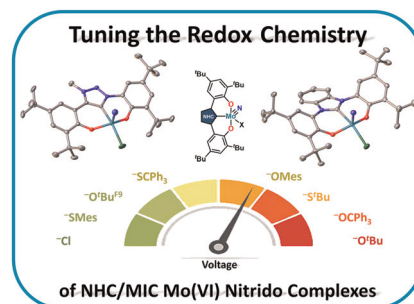
Eli C. Zuercher, Andrew T. Poore, Devendra Prajapat, Joseph Palazzo, Alana Thomas, Caitlin Birthright, Jack Lawrence, Ming Chen and Shiliang Tian*



582

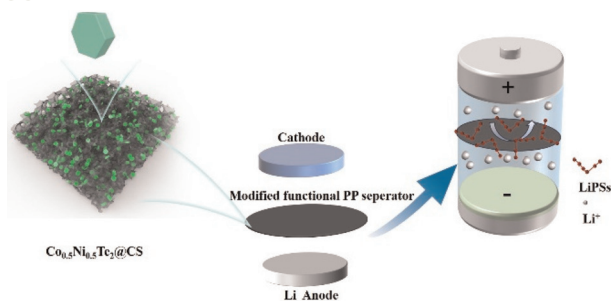
Synthesis and electrochemical properties of molybdenum nitrido complexes supported by redox-active NHC and MIC ligands

Daniel Leitner, Florian R. Neururer and Stephan Hohloch*



PAPERS

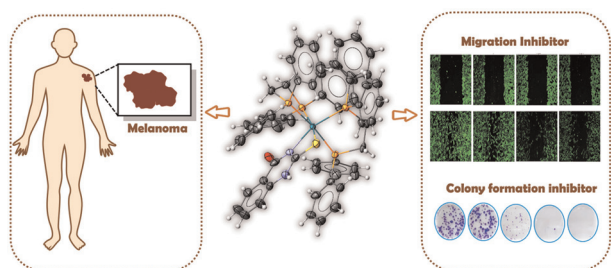
595



LDH-derived $\text{Co}_{0.5}\text{Ni}_{0.5}\text{Te}_2$ dispersed in 3D carbon sheets as a separator modifier to enable kinetics-accelerated lithium–sulfur batteries

Chunmei Li, Kan Mi,* Kai Xu, Zhuo Jia, Xiaolei Jiang, Huili Peng, Xiuwen Zheng* and Hongjiao Nie*

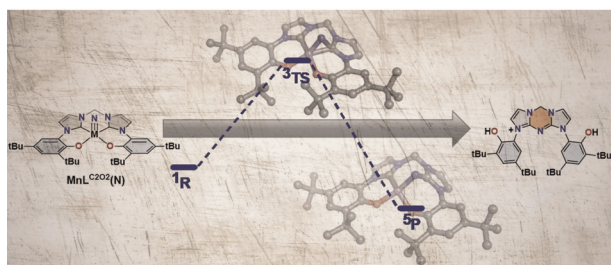
605



Ru(II) -diphosphine/N,S-mercapto complexes and their anti-melanoma properties

Nádija N. P. da Silva, Marcos V. Palmeira-Mello, Nathália O. Acésio, Carlos A. F. Moraes, João Honorato, Eduardo E. Castellano, Denise C. Tavares, Katia M. Oliveira* and Alzir A. Batista*

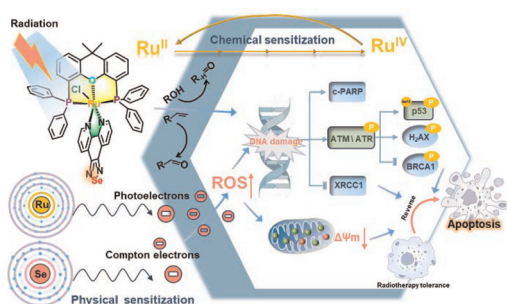
616



Investigating the formation of metal nitride complexes employing a tetradentate bis-carbene bis-phenolate ligand

Romain Kunert, Diego Martelino, Samyadeb Mahato, Nicholas M. Hein, Jason Pulfer, Christian Philouze, Olivier Jarjays,* Fabrice Thomas* and Tim Storr*

631



Selenium-containing metallodrug overcomes cervical cancer radioresistance through physical–chemical dual sensitization

Jianrong Cao, Fang Guo, Haiyan Jiang, Chang Liu, Junxian Guo, Fei Cai, Hao Lin, Li Ma* and Tianfeng Chen*

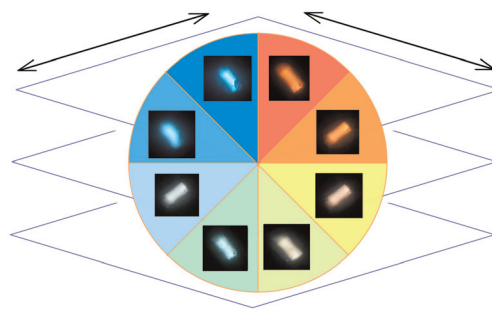


PAPERS

641

Solvatomorphic phase transitions and tunable luminescence emission in lanthanide metal–organic frameworks

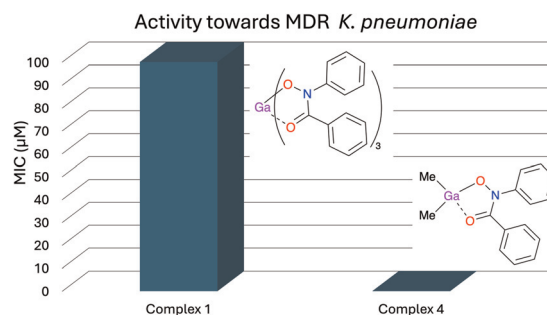
Alena A. Vasileva, Pavel A. Demakov,*
Tatiana Y. Guselnikova, Alexey A. Ryadun,
Vladimir P. Fedin and Danil N. Dybtsev



649

Highly selective organo-gallium hydroxamate mediated inhibition of antibiotic resistant *Klebsiella pneumoniae*

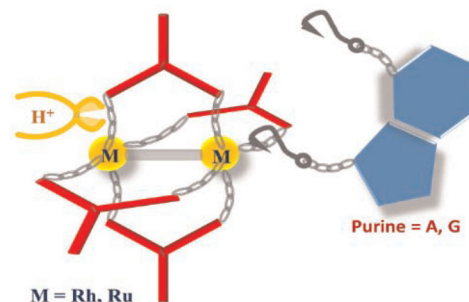
Rebekah N. Duffin, Jenisi T. A. Kelderman,
Megan E. Herdman and Philip C. Andrews*



662

Detailed mechanism of a DNA/RNA nucleobase substituting bridging ligand in diruthenium(II,III) and dirhodium(II,II) tetraacetato paddlewheel complexes: protonation of the leaving acetate is crucial

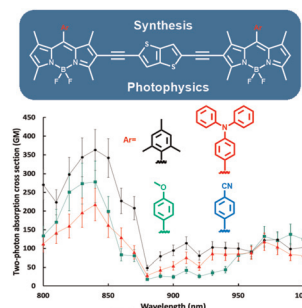
Igor Tolbatov, Tiziano Marzo, Paolo Umari, Diego La Mendola and Alessandro Marrone*



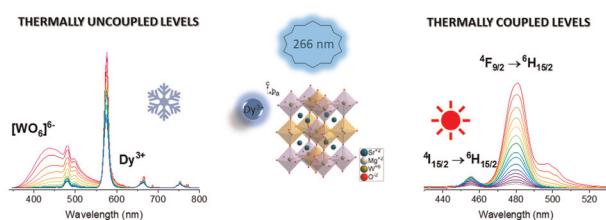
674

Thieno[3,2-*b*]thiophene-based bridged BODIPY dimers: synthesis, electrochemistry, and one- and two-photon photophysical properties

Zhiyong Chai, Tingting Gu, Annaelle Beau,
Frédéric Bolze,* Claude P. Gros,* Xu Liang, Donghai Shi
and Haijun Xu*



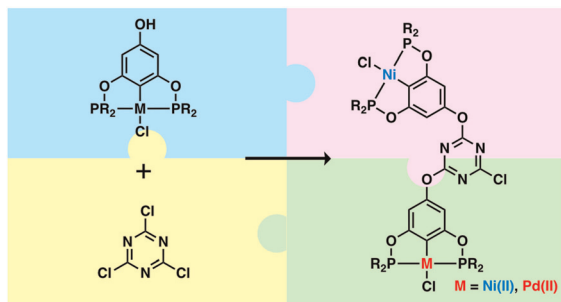
683



A highly sensitive ratiometric optical thermometer based on a Sr_2MgWO_6 double perovskite doped with Dy^{3+} exploiting thermally coupled and uncoupled levels

Thi Hong Quan Vu,* Bartosz Bondzior, Dagmara Stefańska, Shovan Dan and Przemysław Jacek Dereń

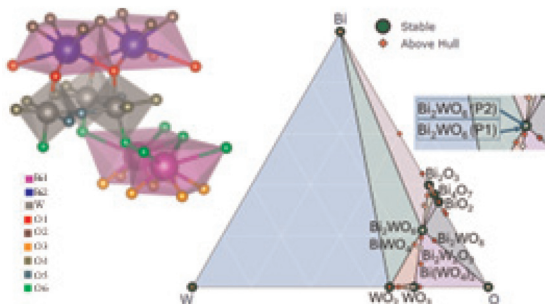
694



Simple and easy functionalization of *para*-hydroxy POCOP-M (M = Ni(II), Pd(II)) pincer complexes: synthesis of multimetallic species

Juan S. Serrano-García, Marco Antonio García-Eleno,* Antonino Arenaza-Corona, Ernesto Rufino-Felipe, Hugo Valdés, Simon Hernandez-Ortega and David Morales-Morales*

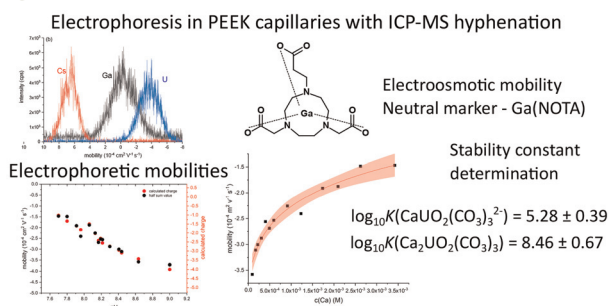
700



Structural properties, thermodynamic stability and reaction pathways for solid-state synthesis of Bi_2WO_6 polymorphs

Hien Doan-Thi, Linh Tran-Phan-Thuy, Hai Pham-Van* and Hoang Luc-Huy

719



Study of $\text{Ca}_n\text{UO}_2(\text{CO}_3)_3^{(4-2n)-}$ complexes using CE-ICP-MS with polyetheretherketone (PEEK) capillaries

Ruopei Sun, Erwan Dupuis, Jean Aupiais and Pascal E. Reiller*

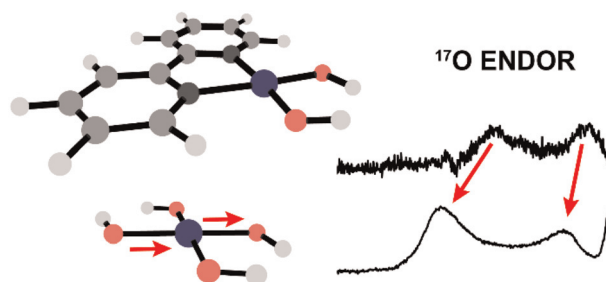


PAPERS

728

Distinguishing between aquo and hydroxo coordination in molecular copper complexes by ^1H and ^{17}O ENDOR spectroscopy

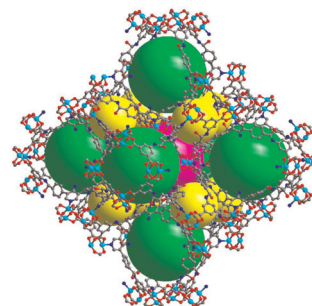
Julia Haak and George E. Cutsail III*



745

Highly efficient CO_2 capture and chemical fixation of a microporous (3, 36)-connected *txt*-type $\text{Cu}(\text{II})$ -MOF with multifunctional sites

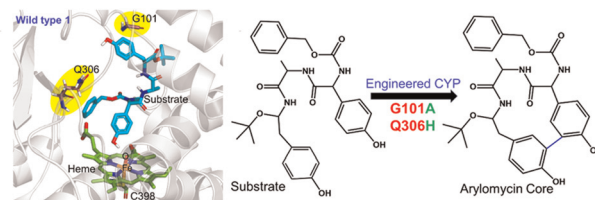
Wenyu Dong, Zhaoxu Wang,* Zuxian Cai, Yiqiang Deng,* Guanyu Wang and Baishu Zheng*



754

Structural and mechanistic insights into oxidative biaryl coupling to form the arylomycin core by an engineered CYP450

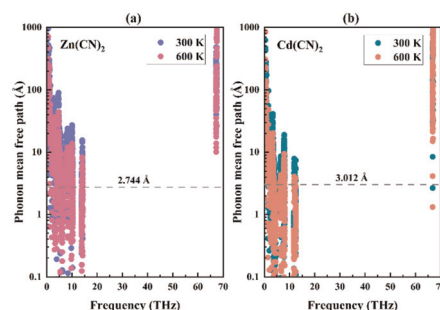
Vandana Kardam, Vaibhav Bhatt and Kshatresh Dutta Dubey*



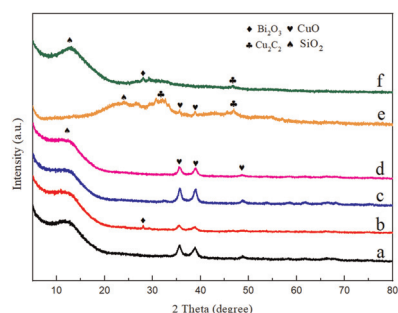
764

Anharmonicity and lattice thermal conductivity of negative thermal expansion materials $\text{Zn}(\text{CN})_2$ and $\text{Cd}(\text{CN})_2$ by first-principles calculations

Ya-Ning Sun, Lei Wang* and Cong Wang*



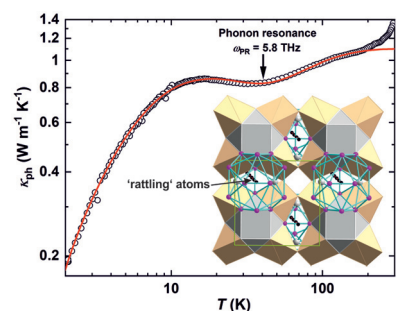
774



The preparation of CuM/SiO_2 ($\text{M} = \text{Bi}, \text{Mg}, \text{Mn}$) catalysts applied in ethynylation of formaldehyde for 1,4-butyne-1,3-diol synthesis: the positive interface effect of CuO and Bi_2O_3

Jiali Chen, Guihua Yang,* Feng Gao and Rui Wang

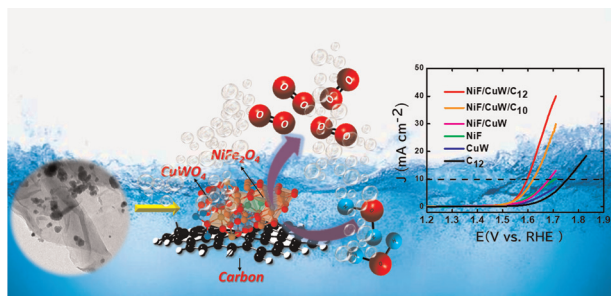
784



$\text{Yb}_5\text{Rh}_6\text{Sn}_{18}$: a valence fluctuating system with ultra-low thermal conductivity

Oleksandr Bolielyi, Volodymyr Levytskyi, Jörg Wagler, Kristina O. Kvashnina, Bohdan Kundys, Andreas Leithe-Jasper and Roman Gumeniuk*

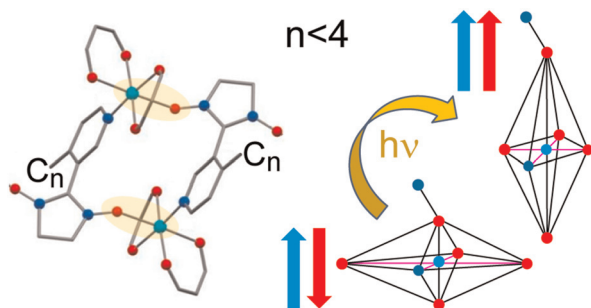
797



An oxycarbide-derived-carbon supported nickel ferrite/copper tungstate ternary composite for enhanced electrocatalytic activity towards the oxygen evolution reaction

Kumar Sanket, Uttam Kumar, Indrajit Sinha* and Shantanu K. Behera*

811



Light-induced spin-state switching in heterospin complexes of $\text{Cu}(\text{hfac})_2$ with pyridine-based nitroxides

Konstantin V. Zaitsev, Svyatoslav E. Tolstikov, Artem S. Bogomyakov, Sergey L. Veber, Renad Z. Sagdeev and Matvey V. Fedin*

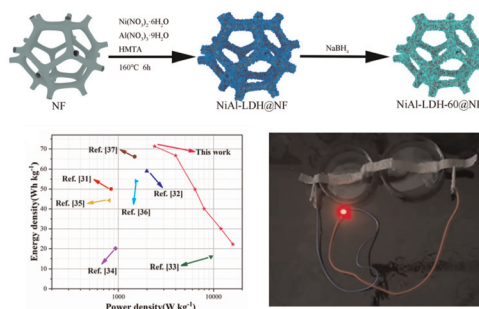


PAPERS

821

Fabrication of oxygen-vacancy abundant NiAl-layered double hydroxides for ultrahigh capacity supercapacitors

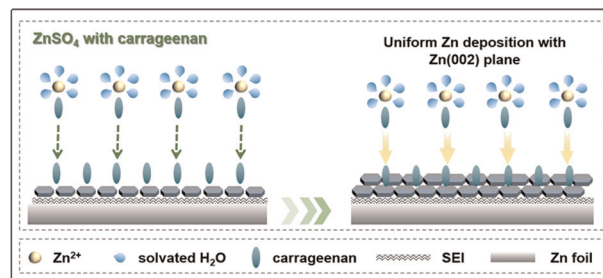
Ziyu Wang, Yifan Song, Ruiqi Li, Risheng Li, Runping Jia, Kunliang Nie,* Haijiao Xie, Xiaowei Xu* and Lin Lin*



832

A carrageenan-induced highly stable Zn anode by regulating interface chemistry

Yan Xu,* Zhaohe Guo, Xuena Xu, Liluo Shi, Xueyao Mo, Lu Li, Limei Sun, Hongri Wan* and Ming Song*

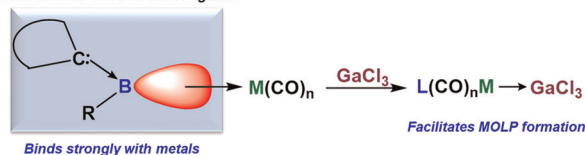


842

Binding of base-stabilized borylenes with transition metals and formation of metal only Lewis pairs

Barsha Chakraborty, Raj Rishi Hazarika, Holger Braunschweig* and Ashwini K. Phukan*

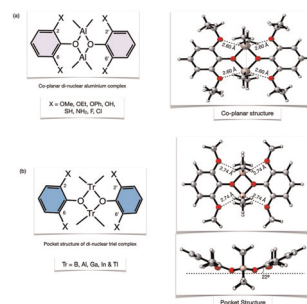
Base-stabilized borylene (*L*) – an alternative for conventional electron donor ligands



851

The curious case of co-planarity in di-nuclear triel complexes: a density functional investigation

Mayank Khera and Neetu Goel*



CORRECTION

863

Correction: Construction of efficient Pb(II) carboxylate catalysts for the oxygen and hydrogen evolution reactions

Janak, Vijay S. Sapner, Bhaskar R. Sathe* and Sadhika Khullar*

