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Dalton Transactions

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IN THIS ISSUE

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Cover
See Scott J. Dalgarno and Euan K. Brechin, pp. 16643–16659.

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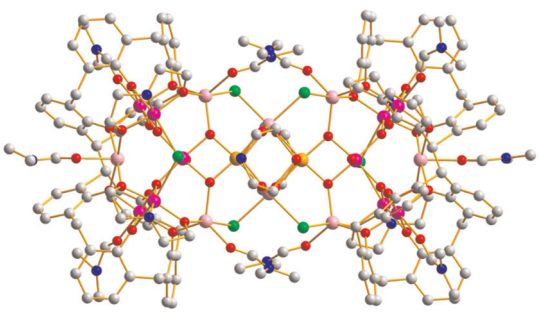
PERSPECTIVE

16643

The coordination chemistry of 2,2′-bis-*p*-^{t}Bu-calix[4]arene

Scott J. Dalgarno* and Euan K. Brechin*

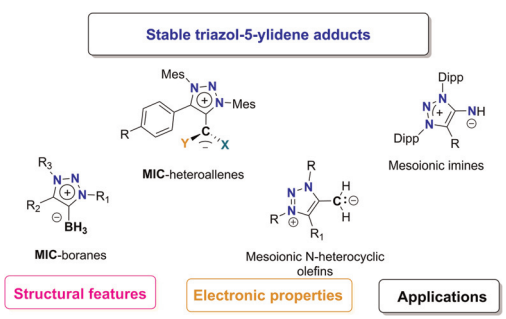


FRONTIER

16660

Recent advances and application of triazol-5-ylidene (MIC) adducts of the type MIC·E (E = BR_3, CS_2, CO_2, and CSN) and related mesoionic MIC═X (X = CR_2 and NR) species

María G. Torres-Salazar, Emmanuel Campos-Dominguez, Alejandro Álvarez-Hernández and Daniel Mendoza-Espinosa*



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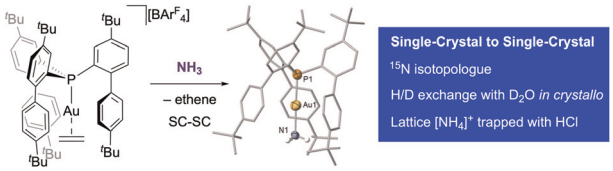
COMMUNICATIONS

16673

Single-crystal to single-crystal synthesis of a gold(I)-ammonia complex and H/D exchange *in crystallo* with D_2O

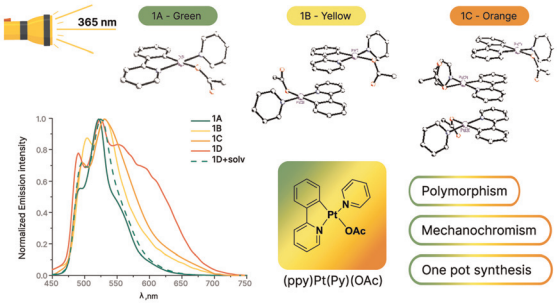
Chloe L. Johnson, Kristof M. Altus, Miquel Navarro, Jesús Campos, Simon B. Duckett* and Andrew S. Weller*



16677

One-pot straightforward access to a cyclometalated acetate platinum(II) complex exhibiting mechanochromic luminescence

Egor A. Sosunov,* Sergei V. Tatarin, Ivan V. Skabitsky, Maria V. Panina, Alexandra G. Son and Ilya A. Yakushev

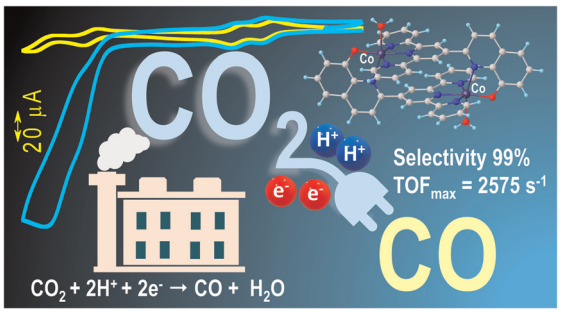


PAPERS

16682

Selective electrochemical CO_2 reduction to CO by a Co(II) dimer catalyst by metal–ligand cooperativity

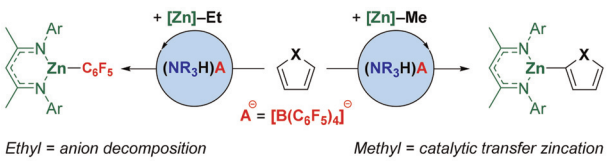
Sk Samim Akhter, Koushik Makhal, Dev Raj, Manaswini Raj, Thillai Natarajan M, Bhabani S. Mallik, Prabhakar Bhardwaj, Pankaj Kumar, Ebbe Nordlander and Sumanta Kumar Padhi*



16697

Catalytic transfer zincation using ammonium cations

Justyna Łosiewicz, Milan Kumar Bisai, Gary S. Nichol, Stuart A. Macgregor* and Michael J. Ingleson*



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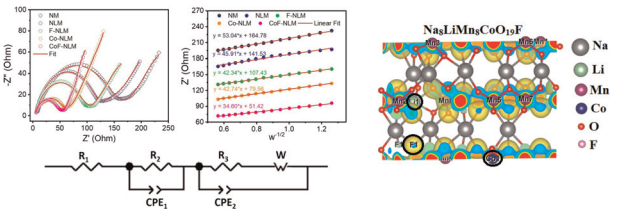
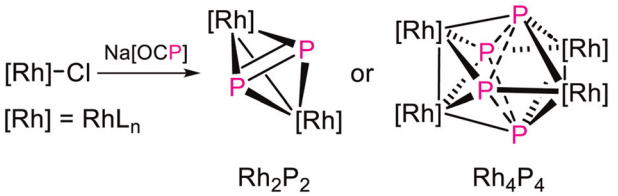
16704



Unraveling the electronic mechanisms of transition metal and fluorine co-doping for enhanced electrochemical performance in sodium lithium manganese oxide cathodes

Duong Trong Nhan, Nguyen Vo Anh Duy, Nguyen Chi Ben, Duy Khanh Nguyen, Yohandys A. Zulueta, Nguyen To Van, Viet Bac Thi Phung, Nguyen Van Nghia, Minh Tho Nguyen and Minh Triet Dang*

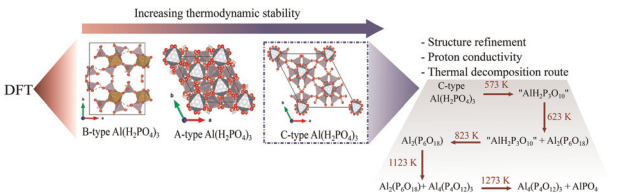
16718



Sodium phosphaethynolate as P-source for the synthesis of molecular rhodium phosphides: an exploratory study

Zhongshu Li,* Jaap E. Borger, Thomas L. Gianetti, Fabian Müller, Bruno Pribanic, Peter Coburger* and Hansjörg Grützmacher*

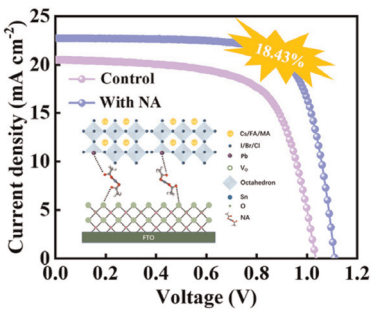
16727



Stability, structure, dynamics and thermal properties of C-type aluminium tris-dihydrogen phosphate

Sheyi C. Adediwura, Jan K. Wied, Christian F. Litterscheid and Jörn Schmedt auf der Günne*

16737



Dynamic self-regulating interfaces enable crystallization control and lead sequestration in perovskite photovoltaics

Wenhui Meng, Haojie Sui, Zan Li, Xinjing Chen, Yongjia Li, Shufang Zhang,* Hai Zhong, Qi Zhang and Changlin Yao*

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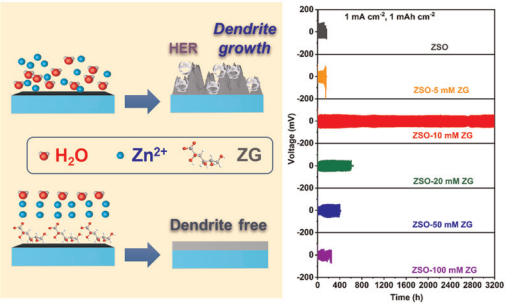
PAPERS

16745

Zinc gluconate as a multifunctional electrolyte additive for dendrite-free and long-life zinc ion batteries

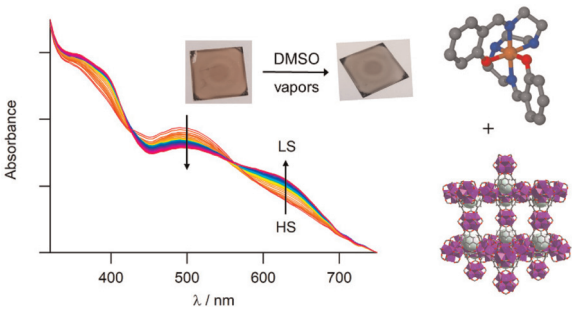
Yaling Ji, Ronghan Jiang, Xiqing Mai, Xueqin Zhang, Song Lu, Xusheng Wang, Min Guo, Jiadi Ying, Qi Shen, Yeqing Wang, Zhixin Yu and Tiancun Liu*



16754

A spin-state switchable MOF-based film for visual DMSO vapor sensing

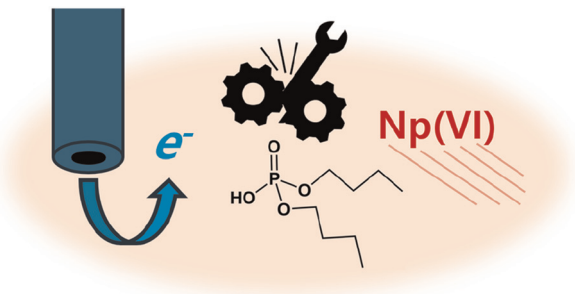
Yuwei Shen, Soraya Bouras, Latévi Max Lawson Daku, Christian Serre and Antoine Tissot*



16760

The electrochemistry of neptunium in tri-*n*-butyl phosphate

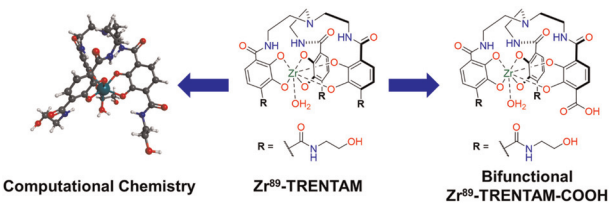
Joshua R. Dunbar and Mark P. Jensen*



16772

Investigation and preparation of a TREN-based bifunctional chelator for ^{89}Zr

Melissa Y. Lucero, A. Paden King, Woonghee Lee, Kwamena E. Baidoo, Joseph Ivanic, Martin J. Schnermann* and Freddy E. Escorcia*



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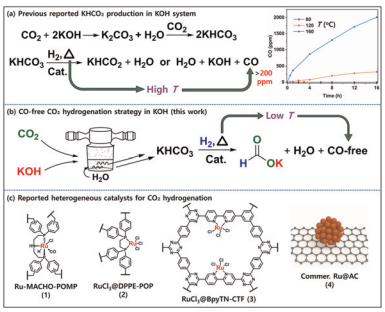
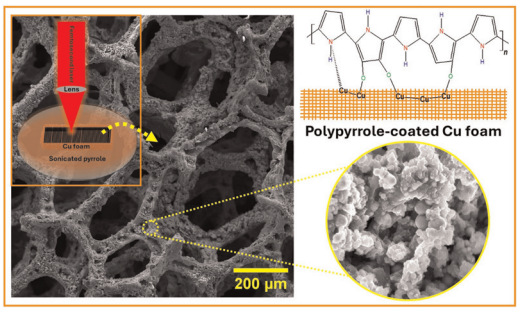
16781



CO-free selective hydrogenation of CO_2 to value-added formate under low-temperature aqueous conditions using a heterogenized Ru-PNP catalyst

Hongjin Park, Minkyoung Go and Sungho Yoon*

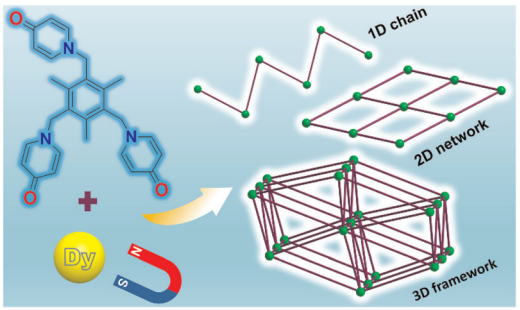
16792



***In situ* polypyrrole coating on copper foam *via* femtosecond laser-irradiation for supercapacitor applications**

Muhammad Faheem Maqsood,* Faisal Ghafoor, Syed Muhammad Zain Mehdi and Iqra Rabani*

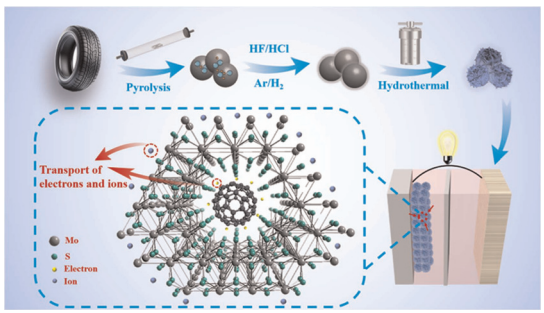
16805



From 1D to 3D: dimensional control of low-coordinate lanthanide coordination polymers with SMM behavior and white-light emission

Xiang-Tao Dong, Ting Zhu, Rong-Yan Zhang, Guo Peng,* Lijun Fu and Xiao-Ming Ren

16814



From waste to power: transforming waste tires into high-performance sodium-ion battery anodes *via* carbon/MoS_2 composites

Shuai Yang, Ziyi Zhou, Yuchen Yang, Lijun Feng, Jiyuan Xiao, Jisheng Wang, Li Lili and Guorui Yang*

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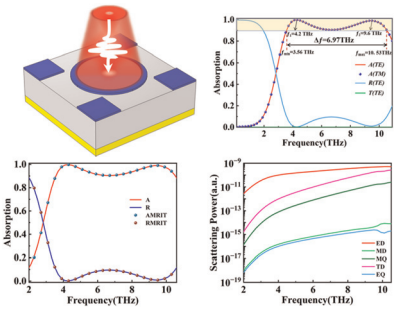
PAPERS

16826

A quadrupolar-symmetric VO_2 metasurface with edge-plasmonic dipoles for ultrabroadband and polarization-insensitive terahertz absorption

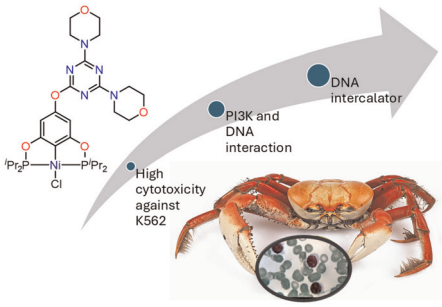
Zhihan Chen, Shengyuan Wang, Xinyao Wu, Shenglan Pu, Dingcier Lu and Hao Chen*



16836

Synthesis and cytotoxic activity of morpholino-*s*-triazine derivatives of POCOP-Ni(II) pincers

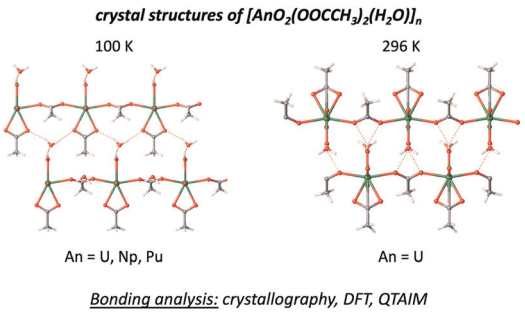
Juan S. Serrano-García, Andrés Amaya-Flórez, Antonino Arenaza-Corona, María Teresa Ramírez-Apan, Adrián L. Orjuela, Jorge Alí-Torres, Marcos Flores-Alamo, Simón Hernandez-Ortega, Patricia Cano-Sanchez and David Morales-Morales*



16848

Crystallography, DFT study and nature of the bonding in the series of AnO_2^{2+} acetates (An = U, Np, Pu)

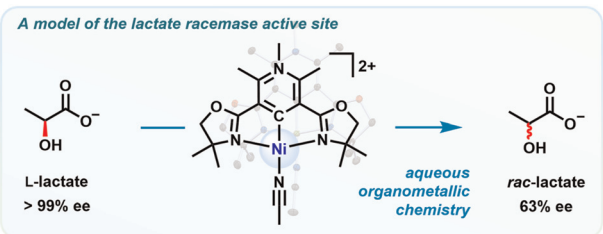
Anna D. Krot,* Mikhail S. Grigoriev, Ilia A. Pankin, Alexander A. Guda and Alexander M. Fedoseev



16857

Organometallic nickel NCN pincer complex promotes L-lactate racemization in water

Thomas D. Dow, Derek R. Kuno-Williams, Toby J. Woods and Yu Zhang*



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PAPERS

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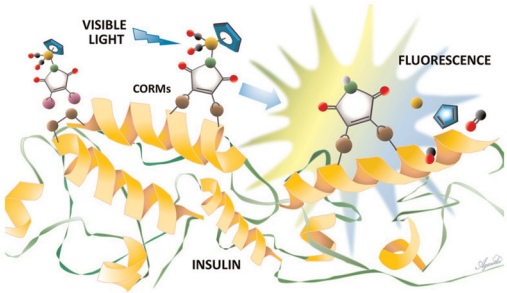
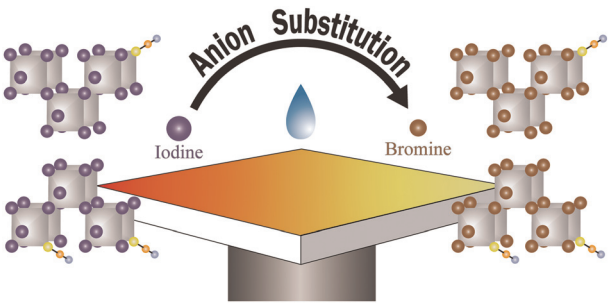


Metallocarbonyl bromomaleimide derivatives for thiol bioconjugation and disulfide bridging: spectroscopic and biological properties

Karolina Koprowska, Nathalie Fischer-Durand, Sylwia Michlewska, Magdalena Gapińska, Marika Grodzicka, Anna Makal, Joanna Krzeszczakowska, Anna Wrona-Piotrowicz, Laurent Lignières, Michèle Salmain and Bogna Rudolf*

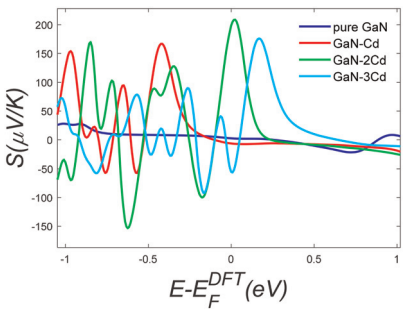
16876



Tunable optical properties in the $(110)_p$-oriented layered halide perovskite $FA_4Pb_2I_{7.5}(SCN)_{0.5}$ by Br substitution

Koki Matsushima, Takuya Ohmi, Wataru Taniguchi, Shoya Nagano, Tomoya Fukui, Takanori Fukushima, Muhammad Awais, Makhsud Saidaminov, Masaki Azuma and Takafumi Yamamoto*

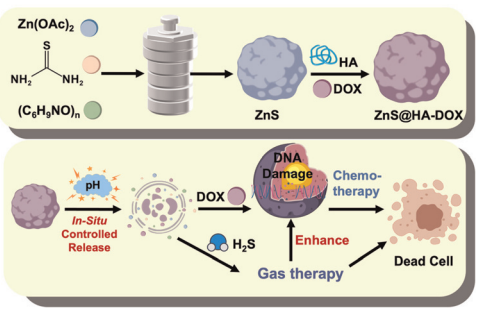
16882



Thermoelectric performance enhancement in cadmium-combined GaN nanosheets

Sameer Nawaf,* Alaa A. Al-Jobory, Anhar A. Ouda and Ruqayah A. Najm

16892



An *in situ* gas nanogenerator for pH-responsive controlled release and H_2S–chemo combined therapy *in vitro*

Lihua Wang, Xionghongcan Zhou, Zengyu Ye, Sha Li, Yayang Wu, Kaiyue Song,* Feng Zhao* and Xianglong Li*

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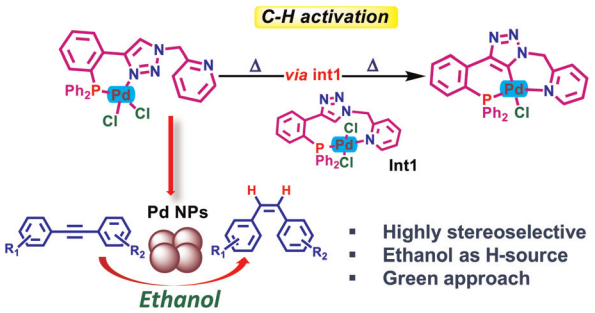
PAPERS

16900

Triazolyl–phosphine with pyridyl functionality: Pd^{II}/Pt^{II} complexes and selective transfer semi-hydrogenation of alkynes using ethanol as a hydrogen source

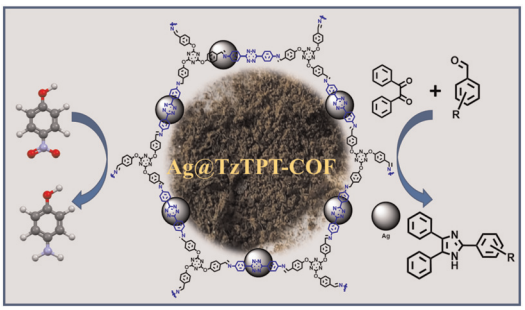
Bhupinder Kaur, Dipannita Saha and Maravanji S. Balakrishna*



16911

Intriguing catalytic activity of a silver-functionalized COF in the reduction of nitroaromatics and synthesis of biologically relevant imidazoles

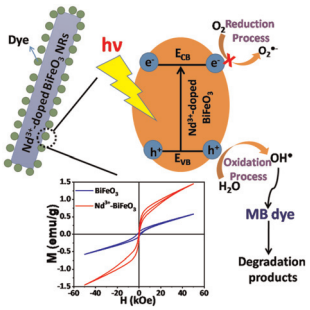
Shubham Kumar, Bharatkumar Z. Dholakiya and Ritambhara Jangir*



16924

Structural and functional enhancements in $BiFeO_3$ nanorods: the effect of Nd^{3+} doping on *R*3*c*–*Pnma* phase transition, magnetism, and photocatalysis

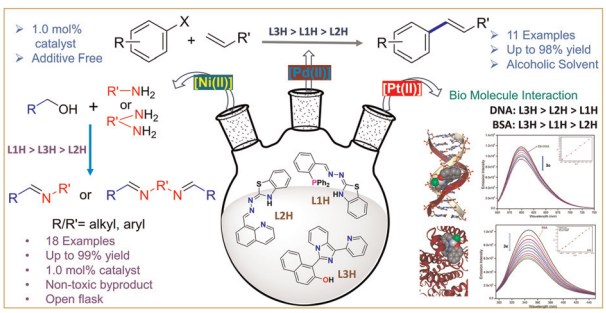
Sandeep Kumar Singh Patel,* Amit Kumar and Sandeep Kumar Chauhan



16939

Group 10 complexes of benzothiazolehydrazone- and imidazo[1,5-*a*]pyridine-based ligands: structural artistry, biophysical study, and catalytic activity

Amlan Ranjan Rayasingh and Vadivelu Manivannan*



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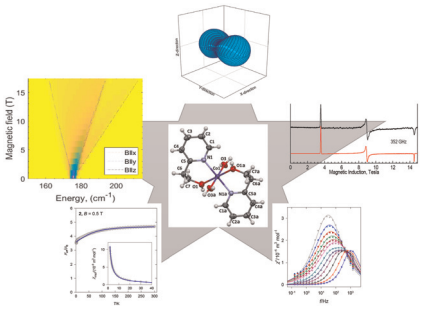
PAPERS

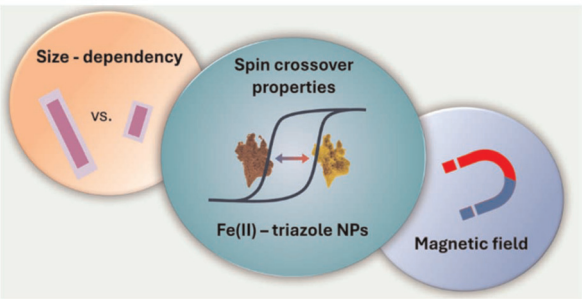
16955



Effect of the counter anion to slow magnetic relaxation of hexacoordinate Co(II) complexes

Magdalena Malik,* Alina Bieńko,* Roman Boča, Ján Titiš, Cyril Rajnák,* Anna Świtlicka, Dariusz C. Bieńko, Mykhaylo Ozerov and Andrew Ozarowski

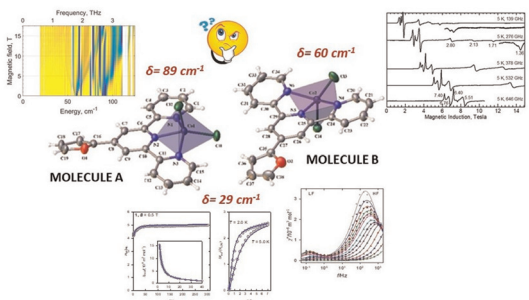
16966



Exploring the impact of magnetic field and nanoparticle size on the magnetic properties of Fe(II)–triazole spin-crossover nanoparticles

A. Pacanowska,* A. Regueiro, P. Czaja, A. Deptuch, M. Fitta and P. Konieczny*

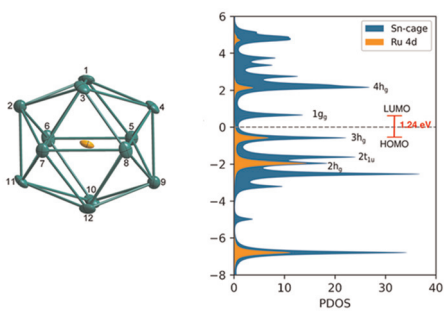
16973



Further insights into controlling the anisotropy of pentacoordinate Co(II) field-supported single-molecule magnets

Katarzyna Choroba, Barbara Machura,* Alina Bieńko,* Jacek Sawka, Dariusz C. Bieńko, Cyril Rajnák, Ján Titiš, Roman Boča, Mykhaylo Ozerov and Andrew Ozarowski

16986



Degrees of distortion: synthesis, structure and bonding in approximately icosahedral $[Ru@Sn_{12}]^{4-}$

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