

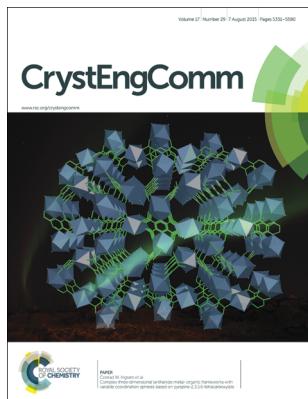
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Cover

See Conrad W. Ingram et al., pp. 5377–5388.
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Inside cover

See Huaidong Jiang et al., pp. 5372–5376. Image reproduced by permission of Huaidong Jiang from *CrystEngComm*, 2015, 17, 5372.

HIGHLIGHT

5341

Progress in the synthetic and functional aspects of chiral metal–organic frameworks

Kamal Kumar Bisht, Bhavesh Parmar, Yadagiri Rachuri, Amal Cherian Kathalikattil and Eringathodi Suresh*

In this highlight, the development towards the synthesis of chiral MOFs by direct and indirect methodologies, the structural features and applications of chiral MOFs with a handful of recent examples have been discussed.



COMMUNICATIONS

5357

New menthol polymorphs identified by flash scanning calorimetry

Yohann Corvis,* Andreas Wurm, Christoph Schick and Philippe Espeau

Menthol polymorphism screening by thermal microscopy in order to corroborate flash DSC results.



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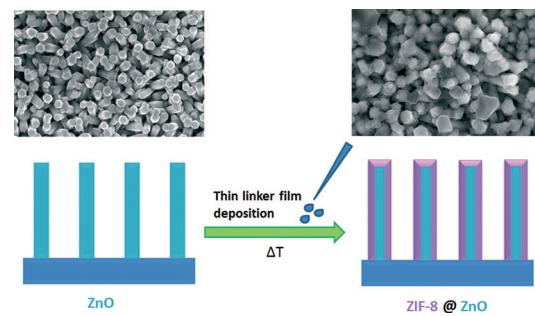
COMMUNICATIONS

5360

Facile formation of ZIF-8 thin films on ZnO nanorods

Hanán Al-Kutubi, Alla Dikhtierenko, Hamid Reza Zafarani, Ernst J. R. Sudhölter, Jorge Gascon and Liza Rassaei*

Thin films of ZIF-8 on ZnO nanorods were synthesized by casting a thin linker film followed by heating for less than an hour.

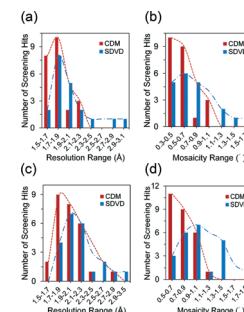


5365

A comparative study on the quality of protein crystals obtained using the cross-diffusion microbatch and sitting-drop vapor diffusion methods

Hai Hou, Bo Wang, Shan-Yang Hu, Jing-Zhang Wang, Peng-Fei Zhu, Yue Liu, Meng-Ying Wang and Da-Chuan Yin*

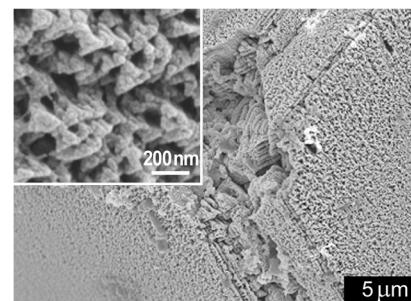
The protein crystals grown using the cross-diffusion microbatch method exhibited better quality than those grown using the sitting-drop vapor diffusion method.



5372

Hierarchical structures of self-assembled hybrid calcium carbonate: nucleation kinetic studies on biomimetic mineralization

Jiadong Fan, Yang Zhang, Nianjing Ji, Xiulan Duan, Hong Liu, Jiyang Wang and Huaidong Jiang*

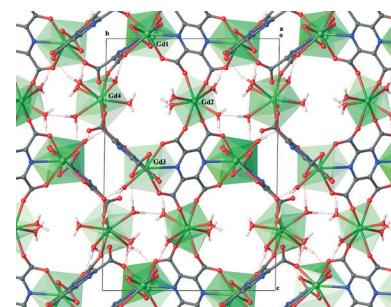
The mechanism of self-assembled CaCO_3 hierarchical structures was elucidated from the viewpoints of kinetically-driven nucleation and phosphatidylserine-mediated mineralization.

PAPERS

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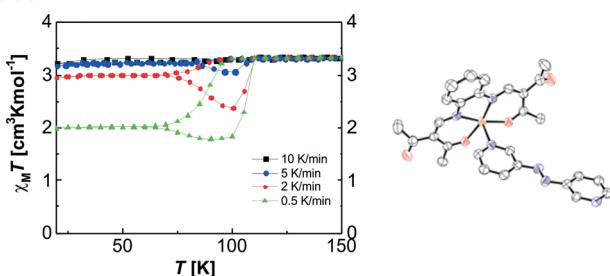
Complex three-dimensional lanthanide metal-organic frameworks with variable coordination spheres based on pyrazine-2,3,5,6-tetracarboxylate

Conrad W. Ingram,* Geoffrey Kibakaya, John Bacsa, Stephan R. Mathis, Alvin A. Holder, Varma H. Rambaran, Brandon Dennis, Esmeralda Castaneda, Julianne S. Robbins and Z. John Zhang

An open 3-D MOF with complex connectivity of multi-topic pyrazine-2,3,5,6-tetracarboxylate linker and $\text{Ln}^{(III)}$ ions.

PAPERS

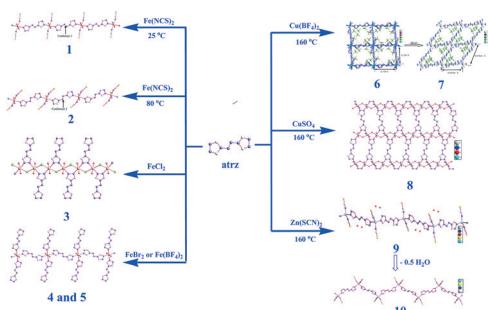
5389


1D iron(II) spin crossover coordination polymers with 3,3'-azopyridine – kinetic trapping effects and spin transition above room temperature

Sophie Schönfeld, Charles Lochenie, Peter Thoma and Birgit Weber*

Iron(II) 1D coordination polymers with 3,3'-azopyridine show differences in spin transition behaviour due to differences in the crystal packing.

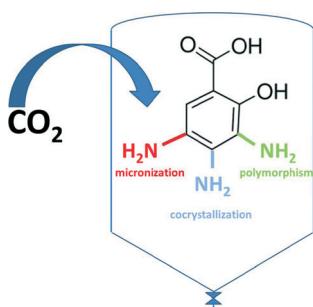
5396


A series of multi-dimensional metal–organic frameworks with *trans*-4,4'-azo-1,2,4-triazole: polymorphism, guest induced single-crystal-to-single-crystal transformation and solvatochromism

Bin Ding,* You You Wang, Shi Xin Liu, Xiang Xia Wu, Zhao Zhou Zhu, Jian Zhong Huo and Yuan Yuan Liu

In this work a series of coordination frameworks with the *trans*-4,4'-azo-1,2,4-triazole (atrz) ligand have been isolated.

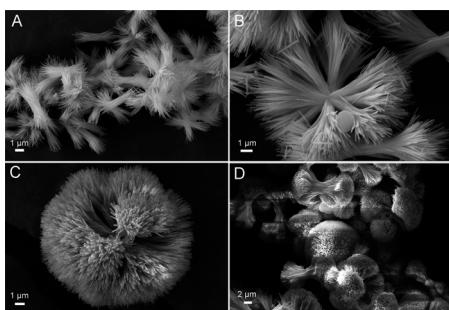
5410


Influence of isomerism on recrystallization and cocrystallization induced by CO₂ as an antisolvent

C. Harscoat-Schiavo,* C. Neurohr, S. Lecomte, M. Marchivie and P. Subra-Paternault

The position of the amine group in aminosalicylic acid has a significant impact not only on polymorph or cocrystal formation but also on the crystal shape during crystallization using CO₂ as an antisolvent.

5422


An effective route to the synthesis of carbonated apatite crystals with controllable morphologies and their growth mechanism

Juan Shen,* Bo Jin, Yamin Hu and Qiying Jiang

CHAp powders with controllable morphologies and sizes were synthesized using HMT as a hydroxide anion-generating agent in a phosphate-surplus solution.

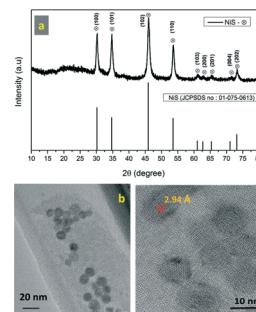
PAPERS

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Single-step synthesis and catalytic activity of structure-controlled nickel sulfide nanoparticles

Rajan Karthikeyan, Dheivasigamani Thangaraju, Natarajan Prakash and Yasuhiro Hayakawa*

Nanoparticle single-phase nickel sulfides such as NiS, NiS₂, Ni₃S₄, and Ni₇S₆ were prepared from elemental sulfur and nickel nitrate hexahydrate, using a temperature-controlled precursor injection method.

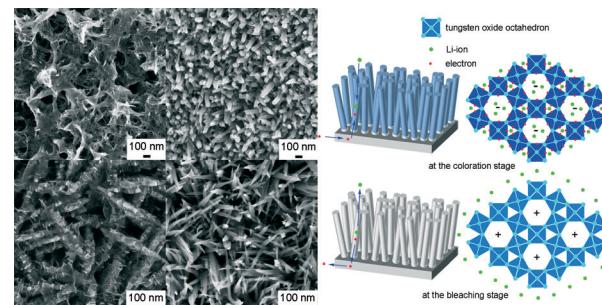


5440

Effects of morphology, size and crystallinity on the electrochromic properties of nanostructured WO₃ films

Feng Zheng, Wenkuan Man, Min Guo,* Mei Zhang and Qiang Zhen

Hydrothermal preparation of different morphologies of nanostructured WO₃ films and the electrochromic mechanism of the WO₃ nanorod arrays.

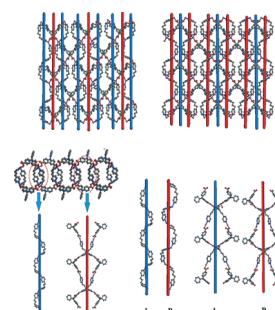


5451

Syntheses, characterization and properties of nine novel Zn(II) coordination polymers based on 4,4'-(phenylazanediyl)dibenzoic acid and various N-donor ligands

Lun Zhao,* Huadong Guo, Dong Tang and Min Zhang

An 2D sheet consists of two kind of 1D helical chains. The corresponding helical chains in adjoining layers exhibit the opposite handedness.

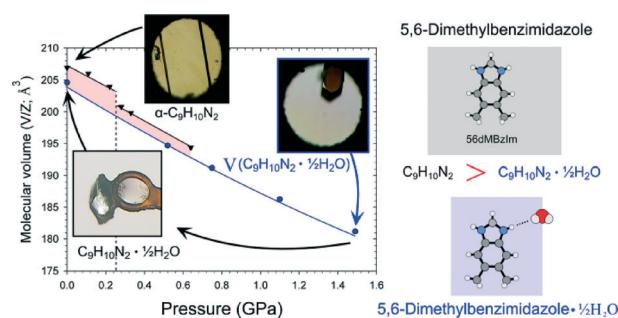


5468

Hydrate smaller than the anhydrate

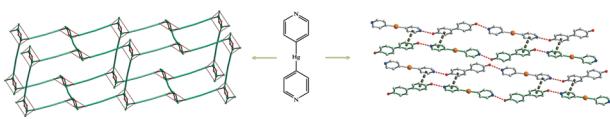
Witold Zieliński and Andrzej Katrusiak*

High pressure can be used for obtaining the hemihydrate of 5,6-dimethylbenzimidazole (dMBzIm·½H₂O), which has a smaller volume than the unsolvated 5,6-dimethylbenzimidazole (dMBzIm). This dMBzIm·½H₂O can be stored in normal conditions for months.



PAPERS

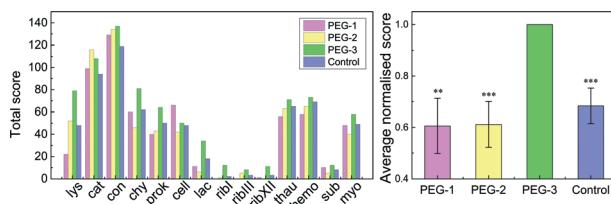
5474

**Bis(4-pyridyl)mercury – a new linear tecton in crystal engineering: coordination polymers and co-crystallization processes**

T. Mocanu, C. I. Raț, C. Maxim, S. Shova, V. Tudor, C. Silvestru* and M. Andruh*

Three new coordination polymers have been obtained using bis(4-pyridyl)mercury (py_2Hg) as a spacer: $[\text{Cu}(\text{Hmea})_2(\text{py}_2\text{Hg})](\text{ClO}_4)_2\cdot 2(\text{py}_2\text{Hg})$ (1), $[\text{Cu}_2(\text{pa})_2(\text{py}_2\text{Hg})(\text{ClO}_4)_2]\cdot 0.5(\text{py}_2\text{Hg})\cdot \text{H}_2\text{O}$ (2), and $[\text{Cu}_2(\text{pa})_2(\text{py}_2\text{Hg})_2](\text{BF}_4)_2$ (3) (Hmea = monoethanolamine; Hpa = propanolamine).

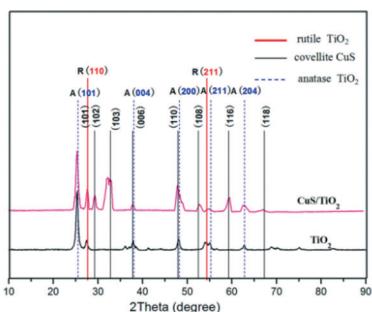
5488

**A protein crystallisation screening kit designed using polyethylene glycol as major precipitant**

Yue Liu, Xian-Fang Zhang, Chen-Yan Zhang, Yun-Zhu Guo, Si-Xiao Xie, Ren-Bin Zhou, Qing-Di Cheng, Er-Kai Yan, Ya-Li Liu, Xiao-Li Lu, Qin-Qin Lu, Hui-Meng Lu, Ya-Jing Ye and Da-Chuan Yin*

A protein crystallisation screening kit was designed through a step-by-step procedure. It showed significantly improved performance in crystallisation screening.

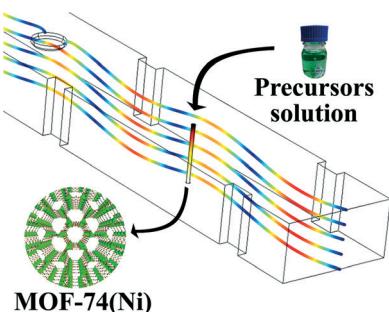
5496

**Controllable synthesis of CuS decorated TiO_2 nanofibers for enhanced photocatalysis**

Guohui Hou, Zhiqiang Cheng,* Lijuan Kang, Xiaojuan Xu, Fanli Zhang and Hongjia Yang

CuS decorated TiO_2 nanofibers were successfully prepared by the combination of electrospinning and hydrothermal processes.

5502

**Gas–liquid segmented flow microwave-assisted synthesis of MOF-74(Ni) under moderate pressures**

Gustavo H. Albuquerque, Robert C. Fitzmorris, Majid Ahmadi, Nick Wannenmacher, Praveen K. Thallapally, B. Peter McGrail and Gregory S. Herman*

A representation of the continuous flow microwave-assisted synthesis of the metal organic framework, MOF-74(Ni). Precursor solutions flow through a microwave nucleation zone leading to the formation of MOF-74(Ni).

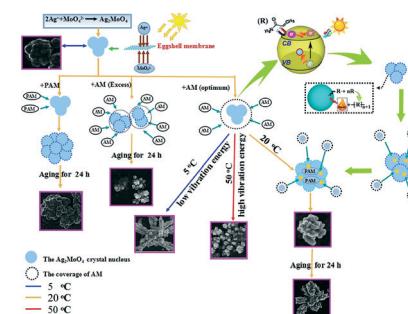
PAPERS

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Thermal perturbation nucleation and growth of silver molybdate nanoclusters by a dynamic template route

Hao Jiang, Jin-Ku Liu,* Jian-Dong Wang, Yi Lu and Xiao-Hong Yang

Silver molybdate (Ag_2MoO_4) nanoclusters were first prepared by a dynamic template route under 20 °C.

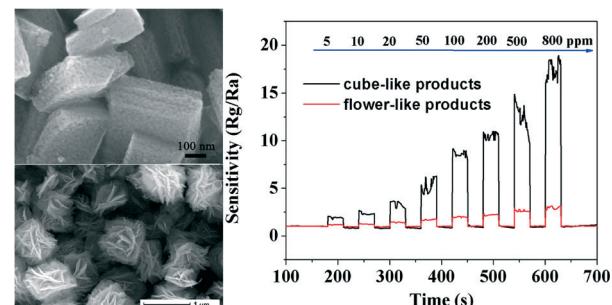


5522

Controlled synthesis and gas sensing properties of porous $\text{Fe}_2\text{O}_3/\text{NiO}$ hierarchical nanostructures

Xiaoping Shen,* Qiang Liu, Zhenyuan Ji, Guoxing Zhu, Hu Zhou and Kangmin Chen

Porous $\text{Fe}_2\text{O}_3/\text{NiO}$ hierarchical nanostructures with gas sensing properties are prepared by directly annealing the coordination polymer precursor $\text{Fe}(\text{3-Cpy})_2[\text{Ni}(\text{CN})_4]$.

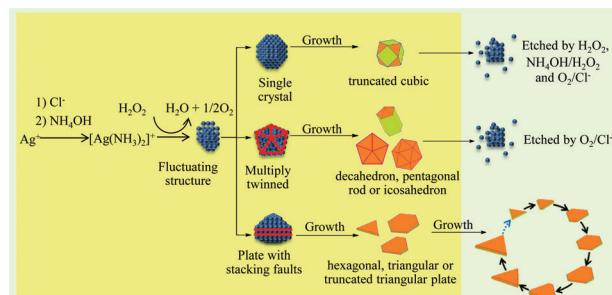


5530

Rapid fabrication of silver microplates under an oxidative etching environment consisting of O_2/Cl^- , $\text{NH}_4\text{OH}/\text{H}_2\text{O}_2$, and H_2O_2

Harnchana Gatemala, Prompong Pienpinijitham, Chuchaat Thammacharoen and Sanong Ekgasit*

Chloride ions are essential for creating an etching environment capable of selective dissolution of singly and multiply twinned crystals, while leaving plate structures unaffected.

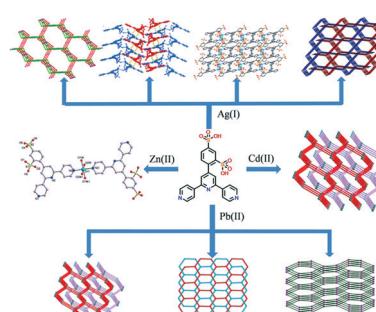


5538

Syntheses, structures, and properties of nine d¹⁰ or p-block coordination polymers based on a ligand containing both terpyridyl and sulfo groups

Li Zhang, Jia-Dan Zheng, Yi-Ting Chen, Sheng-Run Zheng,* Jun Fan and Wei-Guang Zhang*

Nine new compounds were synthesized from a terpyridine-based ligand containing sulfo groups, H₂DSPTP. The structural diversity, crystalline–amorphous–crystalline phase transition and the luminescence properties of selected compounds were explored.



PAPERS

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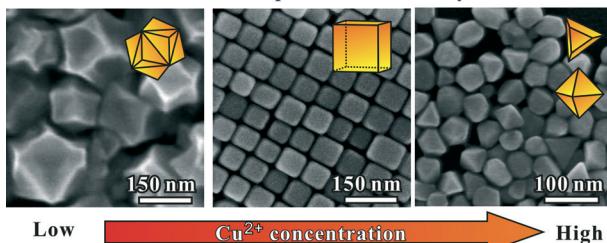
Fabrication of self-standing films consisting of enamel-like oriented nanorods using artificial peptide

Kazuki Aita, Yuya Oaki, Chikara Ohtsuki and Hiroaki Imai*

Self-standing enamel-like films consisting of c-axis-oriented hydroxyapatite nanorods were fabricated by a two-step controlled crystal growth method with the monolayer of a specific artificial peptide binding to the c face of hydroxyapatite.

5556

Under-Potential-Deposition Assisted Synthesis

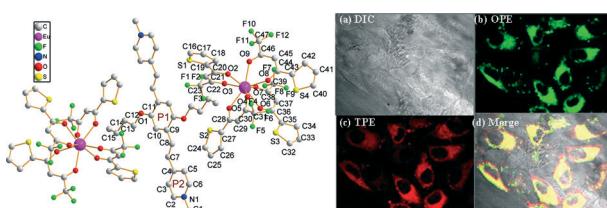


Cu²⁺ underpotential-deposition assisted synthesis of Au and Au-Pd alloy nanocrystals with systematic shape evolution

Lei Zhang, Qiaoli Chen, Zhiyuan Jiang, Zhaoxiong Xie* and Lansun Zheng

With the assistance of Cu²⁺ underpotential deposition on the Au surface, Au and Au-Pd nanocrystals with systematic shape evolution were successfully synthesized.

5562

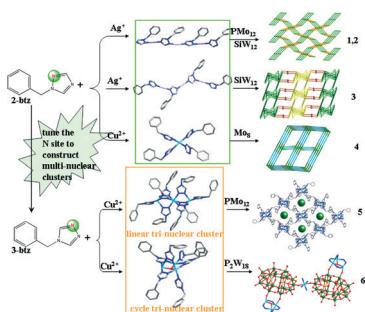


A-π-D-π-A pyridinium salts: synthesis, crystal structures, two-photon absorption properties and application to biological imaging

Zhaodi Liu, Fuying Hao, Huajie Xu, Hui Wang, Jieying Wu* and Yupeng Tian*

The relationship between the two-photon absorption (TPA) properties and the coplanarity of the cations of Li₂, L(BPh₄)₂ and L[Eu(TTA)₄]₂, was investigated. L[Eu(TTA)₄]₂ exhibits larger TPA cross-section and can be successful application in TPE microscopy.

5569



Subtly tuning one N site of benzyl-1H-triazole ligands to build mono-nuclear subunits and tri-nuclear clusters to modify polyoxometalates

Ai-Xiang Tian,* Ya-Li Ning, Jun Ying, Guo-Cheng Liu, Xue Hou, Tian-Jiao Li and Xiu-Li Wang*

By tuning N-donor sites of 1-benzyl-1H-triazole, four polyoxometalate (POM)-based compounds modified by mono-nuclear metal-organic subunits and two POM-based compounds containing linear and cycle-like tri-nuclear clusters have been obtained.