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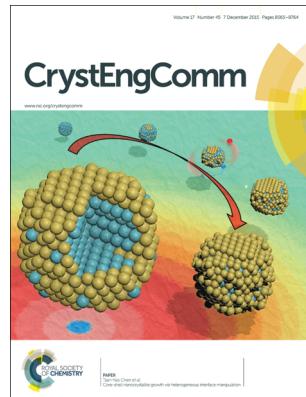
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ISSN 1466-8033 CODEN CRECF4 17(45) 8565–8764 (2015)



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See Pascal Van Der Voort,
Veronique Van Speybroeck et al.,
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Inside cover

See Tsan-Yao Chen et al.,
pp. 8623–8631.
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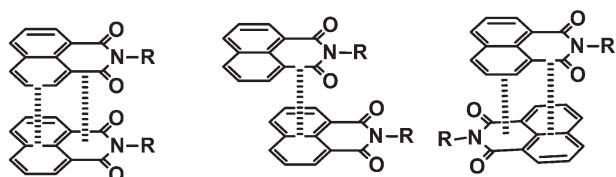
HIGHLIGHT

8575

Cyclic aromatic imides as a potential class of molecules for supramolecular interactions

Jayanta K. Nath and Jubaraj B. Baruah*

Prospects of stacking interactions of imides beneficial to generation of new soft materials are projected by analysing examples of primary building blocks that provide a basis for understanding at the molecular level.



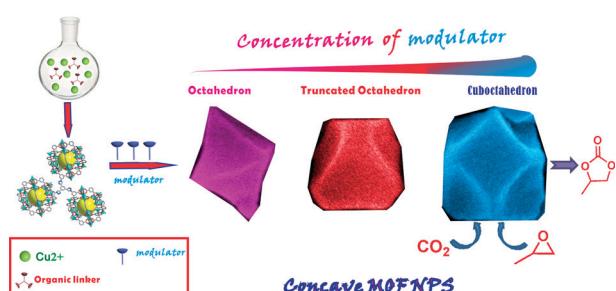
COMMUNICATIONS

8596

Controlled synthesis of concave cuboctahedral nitrogen-rich metal–organic framework nanoparticles showing enhanced catalytic activation of epoxides with carbon dioxide

Xiguang Han, Xiao-Jun Wang, Pei-Zhou Li, Ruqiang Zou,* Menghuan Li and Yanli Zhao*

Nitrogen-rich metal–organic framework nanoparticles with an unusual concave cuboctahedral morphology are prepared, exhibiting high catalytic efficiency.



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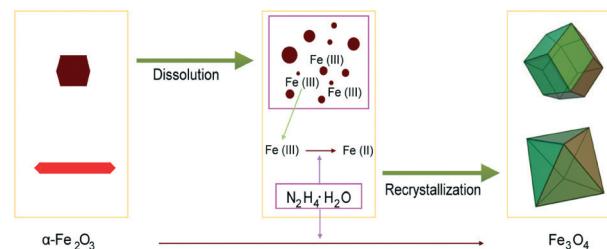


COMMUNICATIONS

8602

A solvothermal transformation of $\alpha\text{-Fe}_2\text{O}_3$ nanocrystals to Fe_3O_4 polyhedrons

Liqiao Chen,* Qingfeng Xiong, Wenlin Li, Junpeng Li and Xuan Yu

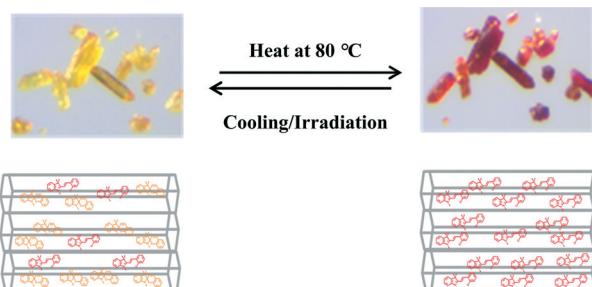
The transformation process of $\alpha\text{-Fe}_2\text{O}_3$ to cubic Fe_3O_4 through “dissolution–reduction–recrystallization”.

8607

Pseudo crystalline state thermochromic and reverse-photochromic reactivity of spiroindolinobenzopyran upon encapsulation into Zn-MOF-74

U. G. Randika Lalmali and Champika V. Hettiarachchi*

Drastic changes observed in chromic properties of an unsubstituted spiroindolinobenzopyran encapsulated into a MOF lattice are reported.



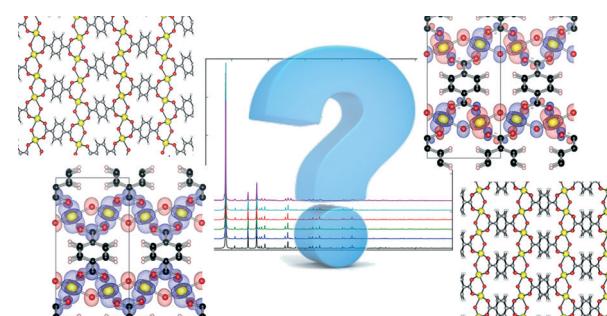
PAPERS

8612

Fine-tuning the theoretically predicted structure of MIL-47(V) with the aid of powder X-ray diffraction

Thomas Bogaerts, Louis Vanduyfhuyse, Danny E. P. Vanpoucke, Jelle Wieme, Michel Waroquier, Pascal Van Der Voort* and Veronique Van Speybroeck*

The structural characterization of complex crystalline materials can be simplified by closely comparing theoretical and experimental diffraction patterns.

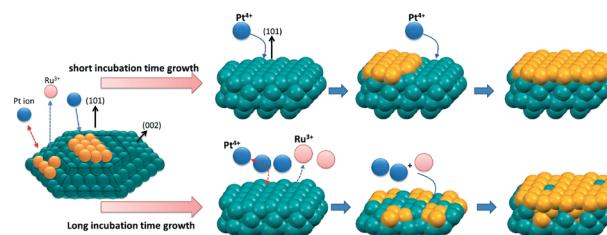


8623

Core-shell nanocrystallite growth via heterogeneous interface manipulation

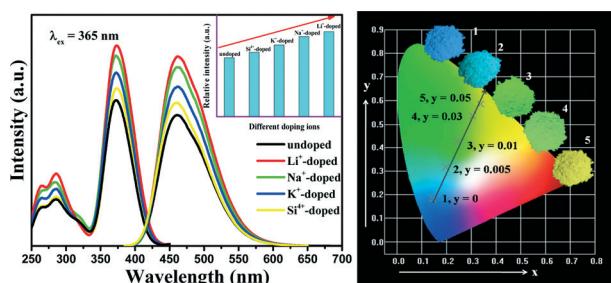
Po-Wei Yang, Yu-Ting Liu, Shu-Ping Hsu, Kuan-Wen Wang, U-Ser Jeng, Tsang-Lang Lin and Tsan-Yao Chen*

In the case of short incubation times, the Pt atoms are directly distributed atop the core crystal. For long incubation times, a PtRu alloyed layer forms prior to the deposition of the Pt shell crystal in Ru core–PtRu alloy–Pt rich shell NCs.



PAPERS

8632

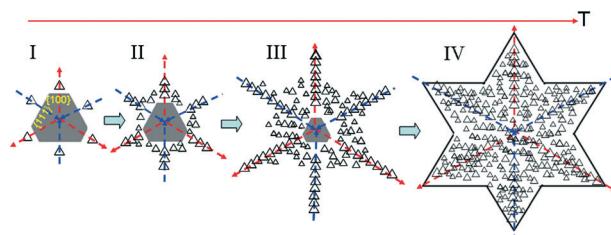


Improved optical photoluminescence by charge compensation and luminescence tuning in $\text{Ca}_6\text{Ba}(\text{PO}_4)_4\text{O}:\text{Ce}^{3+}, \text{Eu}^{2+}$ phosphors

Mingyue Chen, Zhiguo Xia* and Quanlin Liu

Enhanced, color-tunable luminescence and the related mechanism for $\text{Ca}_6\text{Ba}(\text{PO}_4)_4\text{O}:\text{Ce}^{3+}, \text{Eu}^{2+}$ phosphors have been discussed.

8639

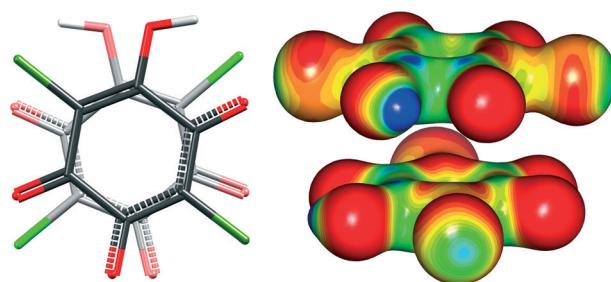


Interplay mechanism between secondary phase particles and extended dislocations in CdZnTe crystals

Yadong Xu,* Ningbo Jia, Yihui He, Rongrong Guo, Yaxu Gu and Wanqi Jie

Te-rich secondary phase dissociation dominates the volume variation during isothermal annealing, which results in the activation of dislocation glide and climb systems and, simultaneously, the diffusion of Te interstitials (Te_i).

8645

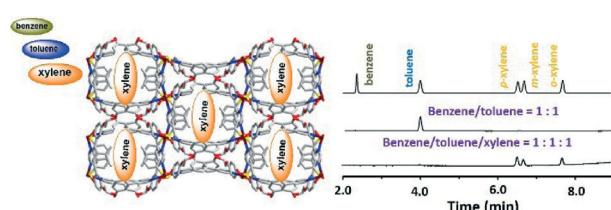


A polar/ π model of interactions explains face-to-face stacked quinoid rings: a case study of the crystal of potassium hydrogen chloranilate dihydrate

Krešimir Molčanov,* Jernej Stare, Biserka Kojić-Prodić, Claude Lecomte, Slimane Dahaoui, Christian Jelsch,* Emmanuel Wenger, Ana Šantić and Bartosz Zarychta

The nature of interactions between face-to-face stacked quinoid rings with delocalised pi-systems with short interplanar distance, is analyzed by experimental and theoretical methods.

8657



Reversible adsorption and separation of volatile aromatics based on a porous $\text{Cd}(\text{II})$ MOF

Lei Wang, Qi-Kui Liu, Xin Chu, Hong Pan, Neng-Xiu Zhu, Jian-Ping Ma, Jian-Cheng Ren* and Yu-Bin Dong*

A porous $\text{Cd}(\text{II})$ MOF which is able to effectively separate volatile benzene/toluene/xylene is reported.

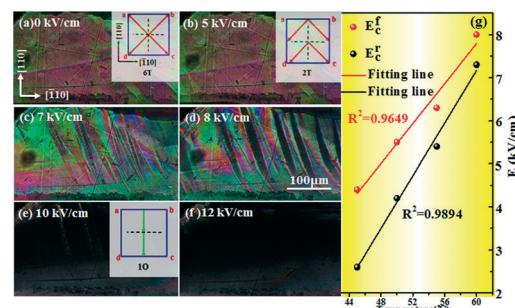
PAPERS

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Temperature and electric field induced phase transition in [110]_C-oriented 0.63Pb(Mg_{1/3}Nb_{2/3})O₃-0.37PbTiO₃ single crystals

Wenhui He, Qiang Li, Nengneng Luo, Yiling Zhang and Qingfeng Yan*

Temperature-dependent domain configurations were studied for both unpoled and poled [110]_C-oriented 0.63Pb(Mg_{1/3}Nb_{2/3})O₃-0.37PbTiO₃ (PMN-0.37PT) single crystals by polarized light microscopy (PLM).



8671

EBSD measurements of phlogopite glass ceramics

Wolfgang Wisniewski* and Christian Rüssel

Conventional fluorophlogopite glass ceramics are analyzed by EBSD. A twinning relationship is observed throughout the entire microstructure.

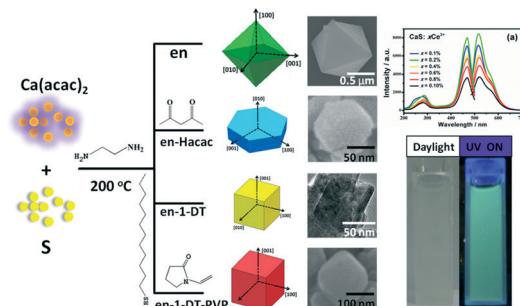


8676

One-step structure-directing approach to Ce³⁺-doped CaS luminescent micro-nanocrystals

Zhongxian Qiu, Hongzhou Lian, Tingting Luo, Jian Fan, Xuechao Cai, Ziyong Cheng, Mengmeng Shang, Shixun Lian* and Jun Lin*

A non-aqueous, low-temperature, surfactant-ligand co-assisted solvothermal technique is proposed for the synthesis of shape- and size-controlled CaS:Ce³⁺ luminescent micro-nanocrystals.

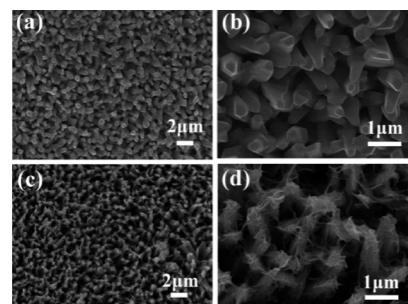


8683

Synthesis of hierarchical ZnO/ZnFe₂O₄ nanoforests with enhanced gas-sensing performance toward ethanol

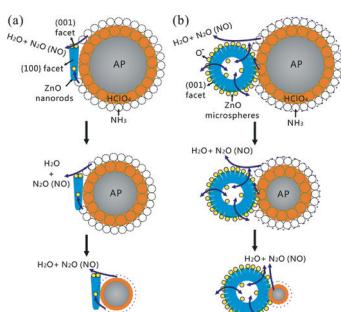
Jian Ma, Yixin Cai, Xiaowei Li, Shiting Yao, Yang Liu, Fengmin Liu* and Geyu Lu*

Hierarchical ZnO/ZnFe₂O₄ nanoforests with ZnO backbones and ZnFe₂O₄ nanosheets were successfully prepared by a facile two-step process.



PAPERS

8689

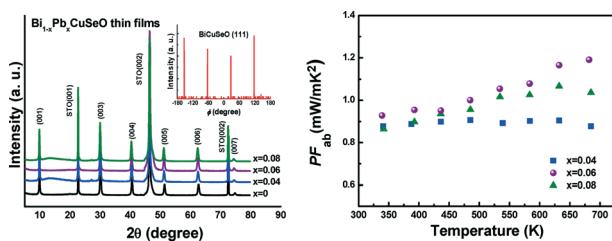


Hierarchical ZnO hollow microspheres with exposed (001) facets as promising catalysts for the thermal decomposition of ammonium perchlorate

Shouqin Tian,* Neng Li, Dawen Zeng,* Haitao Li, Gen Tang, Aimin Pang, Changsheng Xie and Xiujian Zhao

Hierarchical porous ZnO hollow microspheres assembled from nanorods with exposed (001) facets on their external surface exhibited better catalytic activity for the thermal decomposition of ammonium perchlorate (AP) than the dispersed ZnO nanorods.

8697

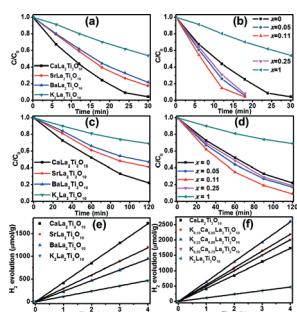


Epitaxial growth and thermoelectric properties of c-axis oriented $\text{Bi}_{1-x}\text{Pb}_x\text{CuSeO}$ single crystalline thin films

Xiaolin Wu, Jiang-Long Wang, Hongrui Zhang, Shufang Wang,* Shengjun Zhai, Yaguang Li, Dogheche Elhadji and Guangsheng Fu*

Enhanced thermoelectric performance of c-axis oriented $\text{Bi}_{1-x}\text{Pb}_x\text{CuSeO}$ single crystalline thin films.

8703

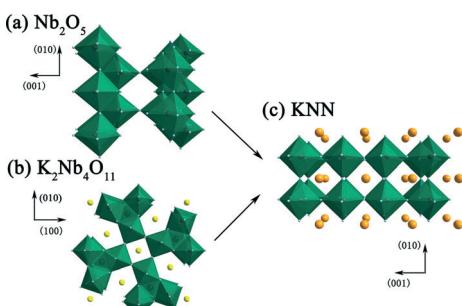


Tailoring the photocatalytic activity of layered perovskites by opening the interlayer vacancy via ion-exchange reactions

Yingqi Wang, Xiaofang Lai, Xujie Lü,* Yanting Li, Qinglong Liu, Jianhua Lin and Fuqiang Huang*

The photocatalytic activity of the layered perovskite $\text{K}_2\text{La}_2\text{Ti}_3\text{O}_{10}$ was regulated by an ion-exchange reaction with a series of cations – Ca^{2+} , Sr^{2+} , and Ba^{2+} . The underlying mechanism of the improved performance and an effective model for designing the photocatalyst were discussed.

8710



The effects of precursors on the morphology and microstructure of potassium sodium niobate nanorods synthesized by molten salt synthesis

Luying Luo, Chao Chen, Hang Luo, Ye Zhang, Kechao Zhou and Dou Zhang*

The effects of Nb_2O_5 and $\text{K}_2\text{Nb}_4\text{O}_{11}$ precursors on the morphology, composition, and piezoelectric properties of potassium sodium niobate (KNN) nanorods were investigated.

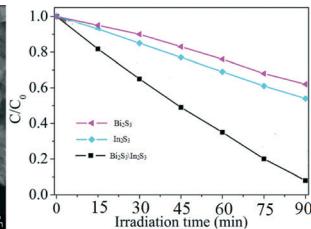
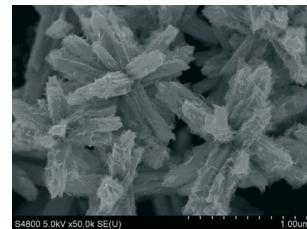
PAPERS

8720

One-step synthesis of a hierarchical Bi_2S_3 nanoflower\In₂S₃ nanosheet composite with efficient visible-light photocatalytic activity

Yajie Chen, Guohui Tian,* Qixin Guo, Rong Li, Taoran Han and Honggang Fu*

Hierarchical Bi₂S₃ nanoflower\In₂S₃ nanosheet composites were prepared and showed excellent visible-light photocatalytic activity.

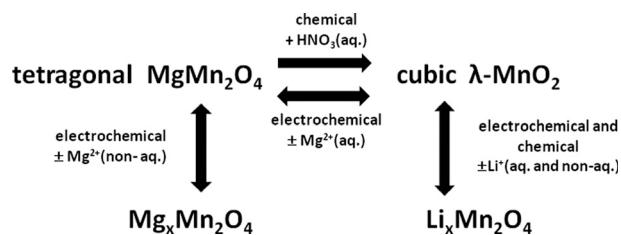


8728

Electrochemical and chemical insertion/deinsertion of magnesium in spinel-type MgMn₂O₄ and lambda-MnO₂ for both aqueous and non-aqueous magnesium-ion batteries

M. Cabello, R. Alcántara,* F. Nacimiento, G. Ortiz, P. Lavela and J. L. Tirado

A veritable magnesium-ion battery is described. Magnesium-ion can be reversibly extracted from MgMn₂O₄ and reversibly inserted into lambda-MnO₂.

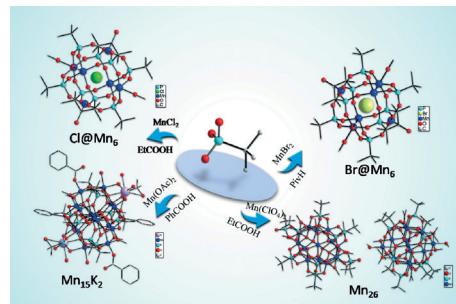


8736

Synthesis, crystal structures and magnetic properties of a family of manganese phosphonate clusters with diverse structures

Jin-ying Liu, Cheng-bing Ma, Hui Chen and Chang-neng Chen*

Four manganese clusters containing *tert*-butylphosphonate ligands with diverse structures have been synthesized and characterized.

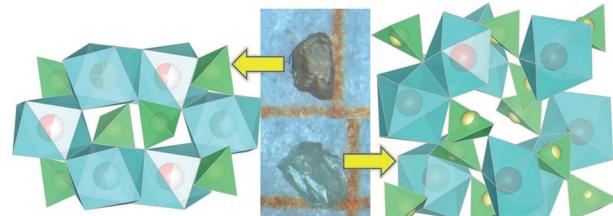


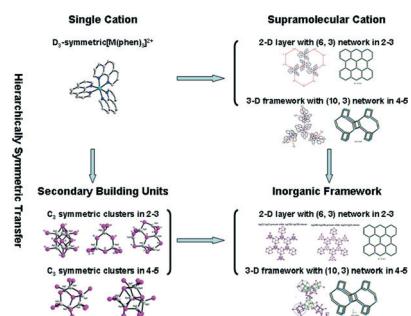
8746

Effect of high bismuth deficiency on structure and oxide ion conductivity of a Bi_{0.55}MoO₄ single crystal

Yang Zhang, Hengjiang Cong, Nianjing Ji, Jian Liu, Xiulan Duan, Jing Li, Wenwu Cao, Jiyang Wang and Huaidong Jiang*

We report, for the first time, the ionic conductivity properties of two polymorphic structures of bismuth molybdates: Bi_{0.55}MoO₄ and Bi₂(MoO₄)₃.





Hierarchical symmetry transfer and flexible charge matching in five $[M(phen)_3]^{2+}$ directed iodoargentates with 1 to 3D frameworks

Tanlai Yu, Yangbo Fu, Yilin Wang, Pengfei Hao, Junju Shen and Yunlong Fu*

Five D_3 -symmetric $[M(phen)_3]^{2+}$ directed iodoargentates have been synthesized and structural analysis shows an interesting hierarchical symmetry transfer in 2–5 and a subtle interference effect from the bulky solvent molecules in 1.