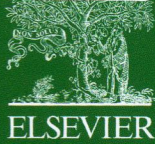


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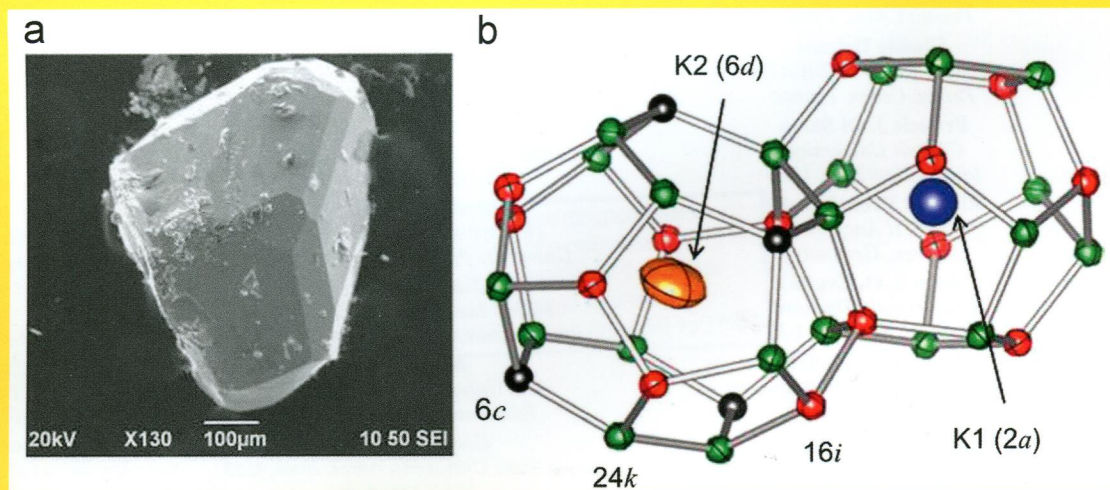
W. TREMEL

S.J. CLARKE

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IN THIS ISSUE:

Structural characterization and low-temperature physical properties of p-type single-crystal $K_8Ga_{8.5}Sn_{37.5}$ grown by self-flux method



Stevce Stefanoski, Yongkwan Dong and George S. Nolas

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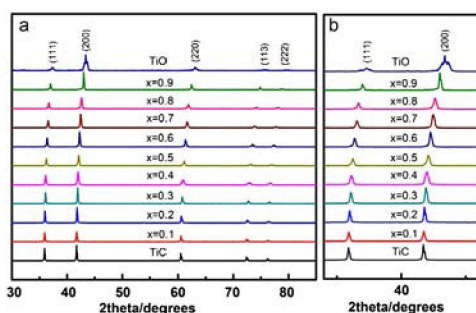
Abstracted/indexed in BioEngineering Abstracts, Chemical Abstracts, Coal Abstracts, Current Contents/Physics, Chemical, & Earth Sciences, Engineering Index, Research Alert, SCISEARCH, Science Abstracts, and Science Citation Index. Also covered in the abstract and citation database SciVerse SCOPUS®. Full text available on SciVerse ScienceDirect®.

Regular Articles

Structural studies of $\text{TiC}_{1-x}\text{O}_x$ solid solution by Rietveld refinement and first-principles calculations

Bo Jiang, Na Hou, Shanyan Huang, Gege Zhou, Jungang Hou, Zhanmin Cao and Hongmin Zhu

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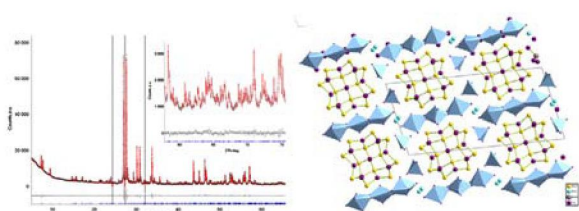


XRD of series of titanium oxycarbides ($\text{TiC}_{1-x}\text{O}_x$, $0 \leq x \leq 1$) solid solution prepared by adjusting the proportion of TiO in the starting material.

Cobalt-doped $\text{Bi}_{26}\text{Mo}_{10}\text{O}_{69}$: Crystal structure and conductivity

Z.A. Mikhailovskaya, E.S. Buyanova, S.A. Petrova, M.V. Morozova, V.M. Zhukovskiy, R.G. Zakharov, N.V. Tarakina and I.F. Berger

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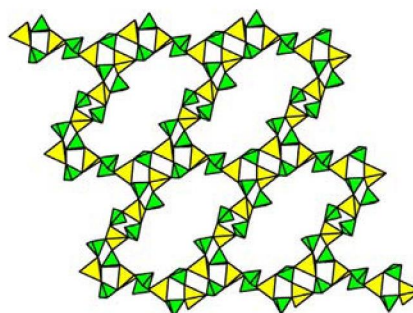
Measured and calculated diffraction spectra for $\text{Bi}_{12.8}\text{Co}_{0.2}\text{Mo}_5\text{O}_{34 \pm \delta}$ and projection of the $\text{Bi}_{12.8}\text{Co}_{0.2}\text{Mo}_5\text{O}_{34 \pm \delta}$ crystal structure onto the ac plane.

Regular Articles—Continued

Synthesis and characterization of three-layered zinc phosphites containing *tert*-octylamine molecules with template and ligand roles

Chih-Min Wang, Cheng-Wei Chiu, Hsiu-Mei Lin and Kwang-Hwa Lii

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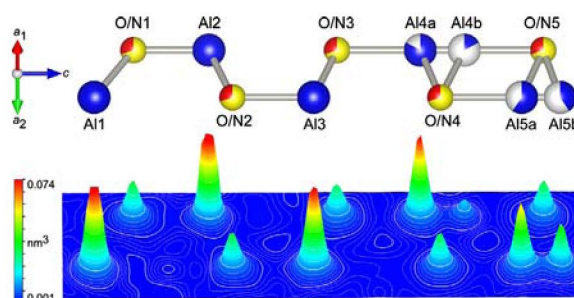


The first layered metal phosphite with large 20-ring windows, $(\text{C}_8\text{H}_{17}\text{NH}_3)_4\text{Zn}_3(\text{HPO}_3)_5 \cdot 3\text{H}_2\text{O}$ (1), sandwiched by water molecules and protonated *tert*-octylamine molecules.

Electron density distribution and crystal structure of $27R\text{-Al}_9\text{O}_3\text{N}_7$

Toru Asaka, Hiroki Banno, Shiro Funahashi, Naoto Hirosaki and Koichiro Fukuda

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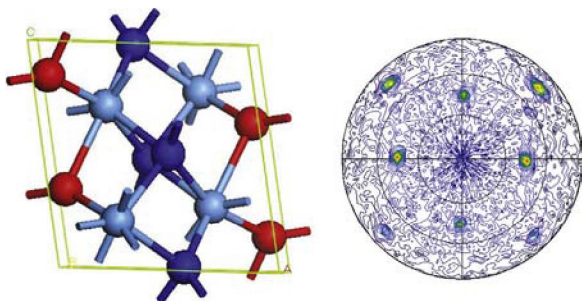
A bird's eye view of electron densities up to 50% (0.074 nm^{-3}) of the maximum on the plane parallel to (110) with the corresponding atomic arrangements of $\text{Al}_9\text{O}_3\text{N}_7$.

Continued

Growth of single crystalline TaON on yttria-stabilized zirconia (YSZ)

Junguang Tao, J.W. Chai, L.M. Wong, Z. Zhang, J.S. Pan and S.J. Wang

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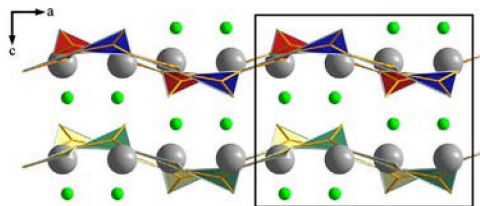


Structure of single crystalline β -TaON and its diffraction pole figure.

High-pressure synthesis and characterization of the first cerium fluoride borate $\text{CeB}_2\text{O}_4\text{F}$

Ernst Hinteregger, Klaus Wurst, Martina Tribus and Hubert Huppertz

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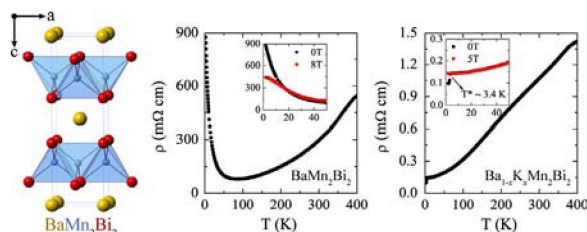


A new rare-earth fluoride borate $\text{CeB}_2\text{O}_4\text{F}$ could be synthesized under high-pressure/high-temperature conditions of 0.9 GPa and 1450 °C in a Walker-type multi-anvil apparatus. The crystal structure represents a new structure type in the class of rare-earth fluoride borates. The structure exhibits a 9+1 coordinated cerium ion, one three-fold coordinated fluoride ion and a one-dimensional chain of $[\text{BO}_3]^{3-}$ groups. A closer view on the ac -plane shows an interesting wave-like modulation of the borate chains.

Crystals, magnetic and electronic properties of a new ThCr_2Si_2 -type BaMn_2Bi_2 and K-doped compositions

Bayrammurad Saparov and Athena S. Sefat

page 32

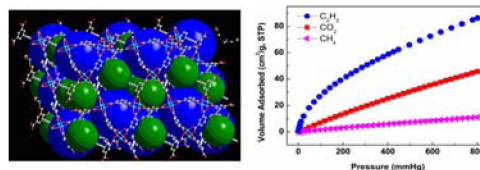


Local moment antiferromagnet BaMn_2Bi_2 , the first bismuthide with ThCr_2Si_2 structure, turns metallic upon K-doping.

A microporous metal-organic framework with butynylene functionality for selective gas sorption

Lifeng Wang, Lu Zhai, Xiaoming Ren and Wenwei Zhang

page 53

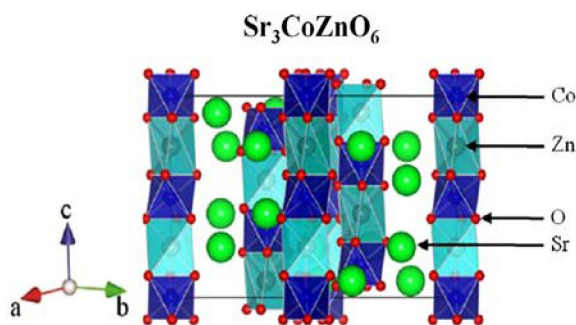


A microporous metal-organic framework with butynylene groups, $\{[\text{Cu}_2(\text{BBTC})(\text{H}_2\text{O})_2] \cdot 2\text{DMSO} \cdot 4\text{H}_2\text{O}\}_n$, exhibits higher gas selective sorption towards $\text{C}_2\text{H}_2/\text{CH}_4$ and CO_2/CH_4 at room temperature with a selectivity of 5.7 and 4.1, respectively.

Crystal structure and magnetic properties and Zn substitution effects on the spin-chain compound $\text{Sr}_3\text{Co}_2\text{O}_6$

Xia Wang, Yanfeng Guo, Ying Sun, Yoshihiro Tsujimoto, Yoshitaka Matsushita and Kazunari Yamaura

page 40

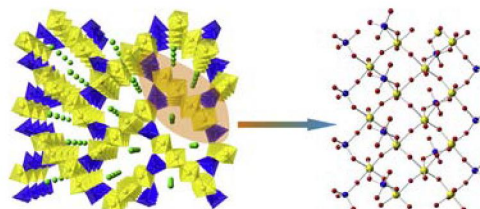


Crystal structure of the spin-chain compound $\text{Sr}_3\text{Co}_2\text{O}_6$ synthesized at 6 GPa. Zn atoms preferably occupy the trigonal prism sites rather than the octahedral sites. As a result, the compound is much magnetically isotropic.

$\text{K}[\text{AsW}_2\text{O}_9]$, the first member of the arsenate-tungsten bronze family: Synthesis, structure, spectroscopic and non-linear optical properties

Evgeny V. Alekseev, Olivier Felbinger, Shijun Wu, Thomas Malcherek, Wulf Depmeier, Giuseppe Modolo, Thorsten M. Gesing, Sergey V. Krivovichev, Evgeny V. Suleimanov, Tatiana A. Gavrilova, Lev D. Pokrovsky, Alexey M. Pugachev, Nikolay V. Surovtsev and Victor V. Atuchin

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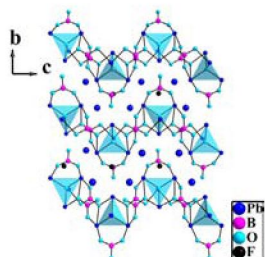


$\text{K}[\text{AsW}_2\text{O}_9]$, the first member of arsenate-tungsten bronze family exhibit new three dimensional structure type, significant thermal stability and NLO properties.

Syntheses, crystal structures, and optical properties of $\text{Pb}_6\text{B}_3\text{O}_{10}\text{X}$ ($\text{X} = \text{F}, \text{Cl}, \text{Br}$)

Lingyun Dong, Shilie Pan, Hongping Wu, Xin Su, Hongwei Yu, Ying Wang, Zhaohui Chen, Zhenjun Huang and Zhihua Yang

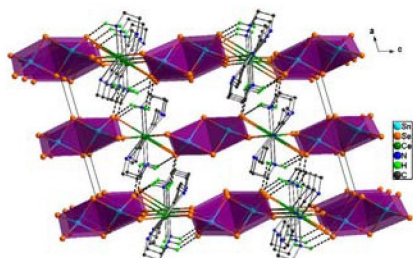
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Complexation of Sn_2Se_6 with lanthanide(III) centers influenced by ethylene polyamines: Solvothermal syntheses, crystal structures, and optical properties of lanthanide selenidostannates

Chunying Tang, Fang Wang, Ruihong Chen, Wenqing Jiang, Yong Zhang and Dingxian Jia

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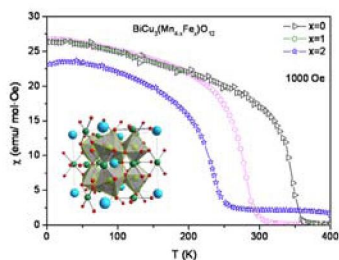


New lanthanide complexes concerning the Sn_2Se_6 ligand were solvothermally prepared, and the effect of ethylene polyamines on the complexation of Sn_2Se_6 with Ln(III) centers are observed.

High-pressure synthesis and characterization of $\text{BiCu}_3(\text{Mn}_{4-x}\text{Fe}_x)\text{O}_{12}$ ($x = 0, 1.0, 2.0$) complex perovskites

P. Kayser, M.J. Martínez-Lope, J.A. Alonso, J. Sánchez-Benítez and M.T. Fernández

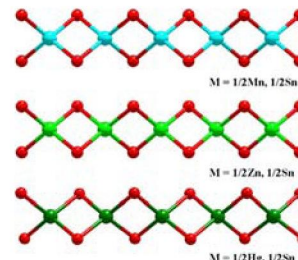
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Solvothermal syntheses of three new one-dimensional ternary selenidostannates: $[\text{DBNH}][\text{M}_{1/2}\text{Sn}_{1/2}\text{Se}_2]$ ($\text{M} = \text{Mn}, \text{Zn}, \text{Hg}$)

Wei-Wei Xiong, Pei-Zhou Li, Tian-Hua Zhou, Yanli Zhao, Rong Xu and Qichun Zhang

page 86

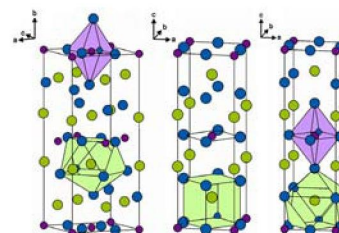


Three new one-dimensional ternary selenidostannates, $[\text{DBNH}][\text{M}_{1/2}\text{Sn}_{1/2}\text{Se}_2]$ ($\text{M} = \text{Mn}$ (1), Zn (2), Hg (3); $\text{DBN} = 1,5$ -diazabicyclo[4.3.0]non-5-ene), have been synthesized under solvothermal condition.

Thermodynamic study of orthorhombic T^x and tetragonal T' lanthanum cuprate, La_2CuO_4

K.I. Lilova, R. Hord, L. Alff, B. Albert and A. Navrotsky

page 91

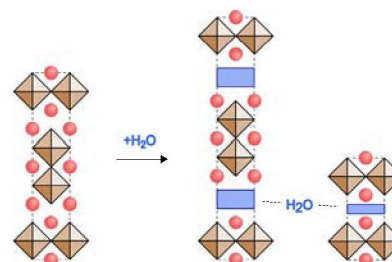


Crystal structure of T^x (orthorhombic), T' and T (tetragonal) modifications of La_2CuO_4 (left to right). The space group for orthorhombic T^x is $Cmce$ and $I4/mmm$ for both T' and T structures; copper cations are presented as small purple, lanthanum as large blue and oxygen as large green circles.

Stability of Ruddlesden–Popper-structured oxides in humid conditions

M. Lehtimäki, H. Yamauchi and M. Karppinen

page 95



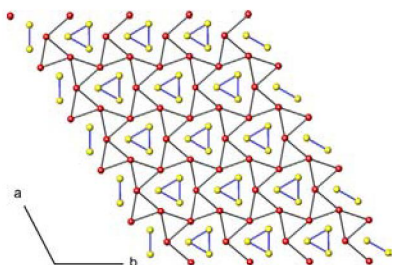
Many of the Ruddlesden–Popper-structured $\text{A}_3\text{B}_2\text{O}_{7-8}$ oxides readily react with water via intercalation reactions. Three possible factors affecting the water intercalation are identified: oxygen content of the phase, ionic radius of cation A and valence state of cation B . The resultant layered water-derivative phases can be categorised into two groups, depending on the crystal symmetry of the phase.

Continued

Complex long-range magnetic ordering in the Mn-bearing dugganite $\text{Pb}_3\text{TeMn}_3\text{P}_2\text{O}_{14}$

H.J. Silverstein, A.Z. Sharma, K. Cruz-Kan, H.D. Zhou, A. Huq, R. Flacau and C.R. Wiebe

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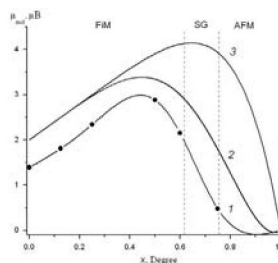


Two geometrically frustrated cationic substructures of the langasites and dugganites have profound effects on the magnetism of these compounds. In $\text{Pb}_3\text{TeMn}_3\text{P}_2\text{O}_{14}$, Mn^{2+} ($S = 5/2$) isolated trinuclear units are shown in yellow, while the red distorted kagomé network is nonmagnetic. (For interpretation of the references to color the reader is referred to the web version of this article.)

The study of magnetic phase diagram of $\text{Fe}_{1-x}\text{Zn}_x\text{Cr}_2\text{S}_4$ solid solutions

T.G. Aminov, D.I. Kiryankin, G.G. Shabunina and V.M. Novotortsev

page 123

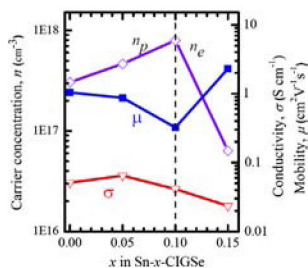


Saturation magnetic moment of the solid solutions $\text{Fe}_{1-x}\text{Zn}_x\text{Cr}_2\text{S}_4$ at $T = 5$ K: 1—experimental curve; 2—theoretical curve on [15]; 3—theoretical curve on [16].

A $p \rightarrow n$ transition for Sn-doped $\text{Cu}(\text{In,Ga})\text{Se}_2$ bulk materials

Mehrdad Monsefi and Dong-Hau Kuo

page 108

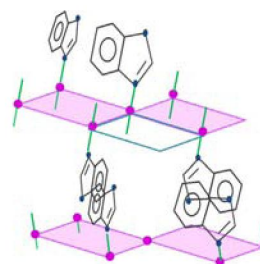


The controls in defect type and electrical properties of $\text{Cu}(\text{In,Ga})\text{Se}_2$ by doping Sn^{4+} on the In^{3+} site.

Intermolecular interactions between imidazole derivatives intercalated in layered solids. Substituent group effect

M. González, A.A. Lemus-Santana, J. Rodríguez-Hernández, C.I. Aguirre-Velez, M. Knobel and E. Reguera

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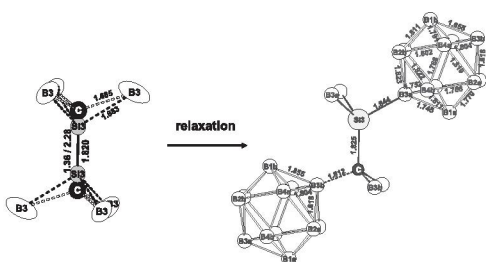


In the interlayers region imidazole derivative molecules are oriented according to their dipolar and quadrupolar interactions and minimizing the steric impediment.

Synthesis, crystal structure and properties of $\text{Mg}_3\text{B}_{36}\text{Si}_9\text{C}$ and related rare earth compounds $\text{RE}_{3-x}\text{B}_{36}\text{Si}_9\text{C}$ ($\text{RE} = \text{Y, Gd-Lu}$)

Thilo Ludwig, Alexis Padiaditakis, Vanessa Sagawe and Harald Hillebrecht

page 113

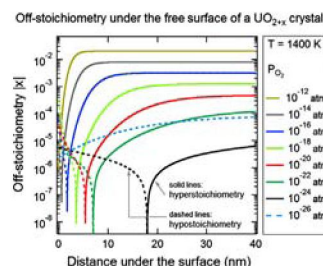


Single crystals of the new boridesilicide $\text{Mg}_3\text{B}_{36}\text{Si}_9\text{C}$ were obtained from the elements in a Si-melt. Besides B_{12} -icosahedra and ethan-like Si_8 -units it contains a disordered SiC -dumbbell. Correct distances were obtained by relaxation calculation based on the X-ray data.

Defect disorder in UO_2

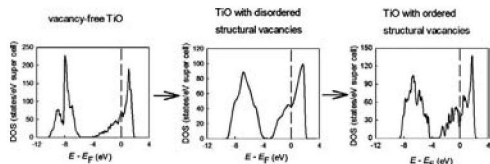
A.-R. Hassan, Anter El-Azab, Clarissa Yablinsky and T. Allen

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Vacancies in ordered and disordered titanium monoxide: Mechanism of B1 structure stabilization

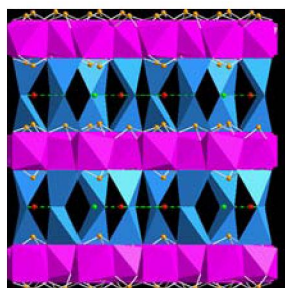
M.G. Kostenko, A.V. Lukoyanov, V.P. Zhukov and A.A. Rempel
page 146



Changes in total DOS of titanium monoxide when going from vacancy-free TiO to TiO with disordered structural vacancies and to TiO with ordered structural vacancies.

Solid-state synthesis, structure and properties of a novel open-framework cadmium selenite bromide:

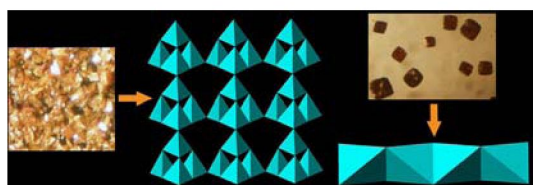
[Cd₁₀(SeO₃)₈Br₄] · HBr · H₂O
 Wen-Tong Chen, Ming-Sheng Wang, Guan-E Wang, Hui-Fen Chen and Guo-Cong Guo
page 153



A metal selenite halide has been synthesized and features a 3-D open-framework structure, composing edge-shared CdO₈ decahedra and pillars of edge-sharing pentahedra. UV-vis, TG-DSC and luminescent measurements are also reported.

Polymorphism and optical properties in [NH₄][InSe₂]

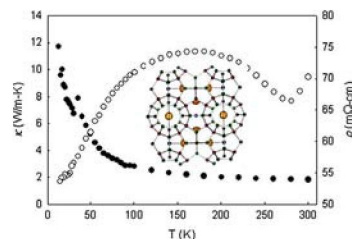
Sarah J. Ewing, David I. Woodward, Anthony V. Powell and Paz Vaquero
page 159



Two polymorphic forms of [NH₄][InSe₂], which are yellow and red, have been prepared and their optical properties investigated.

Structural characterization and low-temperature physical properties of p-type single-crystal K₈Ga_{8.5}Sn_{37.5} grown by self-flux method

Stevce Stefanoski, Yongkwan Dong and George S. Nolas
page 166



Single-crystal K₈Ga_{8.5}Sn_{37.5} was synthesized via a double-flux method where Ga and Sn were used as fluxes. Large disorder for K inside the larger polyhedra in the crystal structure of K₈Ga_{8.5}Sn_{37.5} was observed. Measurements of the electronic properties indicate p-type conduction with the onset of minority charge carrier conduction at temperatures above 270 K.

The Y_{5-x}Mg_{24+x}(1.08(4) ≤ x ≤ 1.30(1)) series and a ternary derivative Ce_{6.9}Y_{12.5(7)}Mg_{92.2}: A comparison of their crystal and electronic structures

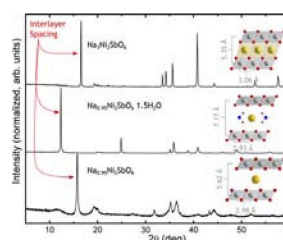
Tae-Soo You, Yaho Jung, Mi-Kyung Han and Gordon J. Miller
page 170



Reported is the Mg-rich intermetallic compounds Y_{5-x}Mg_{24+x} series adopting the cubic α-Mn type structure and its complex ternary derivative Ce_{6.9}Y_{12.5}Mg_{92.2} crystallized in a defect Sm₁₁Cd₄₅ type structure with a nearly twice larger lattice parameter than those of the Y_{5-x}Mg_{24+x} series. Electronic structure calculations show nearly free electron like behavior, but with a distinctive pseudogap in the density of states curve for the ternary system.

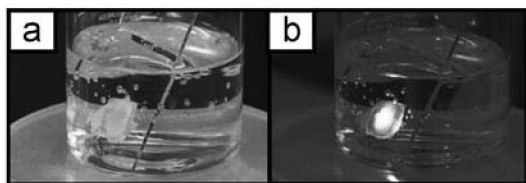
Structure and properties of Na_xM₂SbO₆ · yH₂O, M = Co (III), Ni(III) honeycomb oxyhydrates

J.H. Roudebush and R.J. Cava
page 178



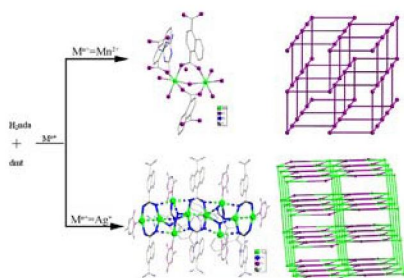
Powder diffraction patterns of Na₃Ni₂SbO₆, Na_{0.95}Ni₂SbO₆ · 1.5H₂O and Na_{0.95}Ni₂SbO₆. Each pattern has been normalized in intensity. Cartoons depict the change in layer separation with hydration and give the approximate distances between layers and Ni atoms.

Optical and structural stability of blue SrO:Eu²⁺ phosphor
 Keiji Komatsu, Atsushi Nakamura, Shigeo Ohshio, Ikumi Toda, Hiroyuki Muramatsu and Hidetoshi Saitoh
page 186



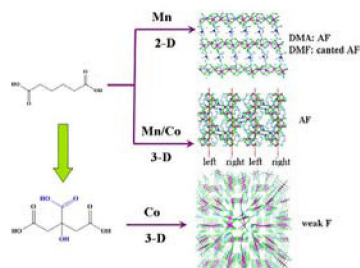
Obtained 8-coordinated SrO:Eu²⁺ phosphor exhibit strong blue luminescence in distilled water.

Two new coordination polymers constructed by naphthalene-1,4-dicarboxylic acid and 2,4-diamino-6-methyl-triazine
 Yamin Li, Changyu Xiao, Xudong Zhang, Yanhui Xu, Junrui Li, Huijie Lun and Qi Chen
page 190



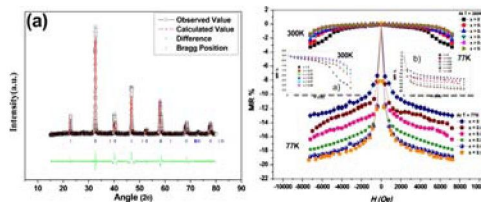
Two new transition metal coordination complexes 1–2 have been hydrothermally synthesized and characterized by single-crystal X-ray diffraction, IR spectra, elemental analysis thermogravimetric analysis (TGA).

Five new Mn(II)/Co(II) coordination polymers constructed from flexible multicarboxylate ligands with varying magnetic properties
 Sui-Jun Liu, Yong-Fei Zeng, Xin Hu, Li Xue, Song-De Han, Ji-Min Jia and Tong-Liang Hu
page 197



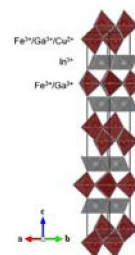
Five new Mn(II)/Co(II) coordination polymers display 2-D/3-D structures containing 1-D carboxylate-metal chains or wheel clusters. Magnetic analyses reveal that they show antiferromagnetic, canted antiferromagnetic and weak ferromagnetic behaviors, respectively.

Magnetic, transport and magnetoresistance behavior of Ni doped La_{0.67}Sr_{0.33}Mn_{1-x}Ni_xO₃ (0.00 ≤ x ≤ 0.09) system
 Maneesha Gupta, R.K. Kotnala, Wasi Khan, Ameer Azam and A.H. Naqvi
page 205



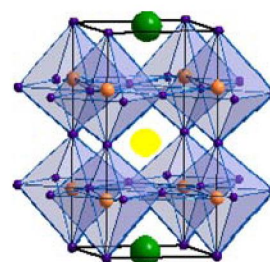
The magnetic, electrical and magnetoresistance behavior of Nickel doped La_{2/3}Sr_{1/3}Mn_{1-x}Ni_xO₃ (0.00 ≤ x ≤ 0.09) samples have been studied systematically.

Structural and magnetic investigation of In₂Fe_{2-x}Ga_xCuO₇
 Rosa Graczyk, Adam Chan, A.P. Ramirez and M.A. Subramanian
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Solid solution of In₂Fe_{2-x}Ga_xCuO₇ has been synthesized and analyzed with powder X-ray diffraction and DC magnetic susceptibility studies. The magnetic ground state has been investigated through cation substitution and compared to that of InFe_{1-x}Ga_xCuO₄.

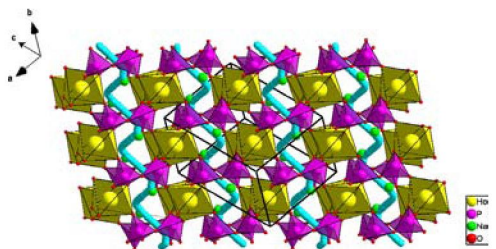
Synthesis, crystal structure and properties of SmBaCo_{2-x}Fe_xO_{5+δ}
 N.E. Volkova, L.Ya. Gavrilova, V.A. Cherepanov, T.V. Aksenova, V.A. Kolotygin and V.V. Kharton
page 219



Five new Mn(II)/Co(II) coordination polymers display 2-D/3-D structures containing 1-D carboxylate-metal chains or wheel clusters. Magnetic analyses reveal that they show antiferromagnetic, canted antiferromagnetic and weak ferromagnetic behaviors, respectively.

Ionic conduction, bond valence analysis of structure–property relationships of NaHoP₂O₇

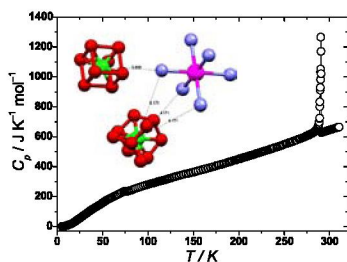
Anis Béjaoui, Karima Horchani-Naifer and Mokhtar Férid
page 224



Schematic representation of the structural arrangement of NaHoP₂O₇ shows the sodium conduction pathway along the [0 1 0] direction.

Phase polymorphism of novel [Ru(NH₃)₆](ClO₄)₃— Comparison with [Ru(NH₃)₆](BF₄)₃. Part II

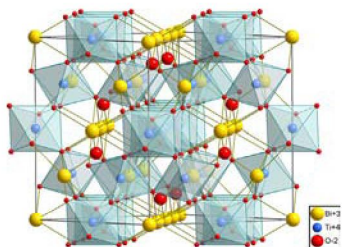
Diana Dołęga, Edward Mikuli, Natalia Górska, Akira Inaba, Krystyna Holderna-Natkaniec and Wojciech Nitek
page 233



Molar heat capacities obtained for [Ru(NH₃)₆](ClO₄)₃ at temperatures between 5 and 310 K. Molecular structure of [Ru(NH₃)₆]³⁺ and two types of ClO₄⁻ varying in dynamic disorder at 293 K.

Bismuth iron titanate pyrochlores: Thermostability, structure and properties

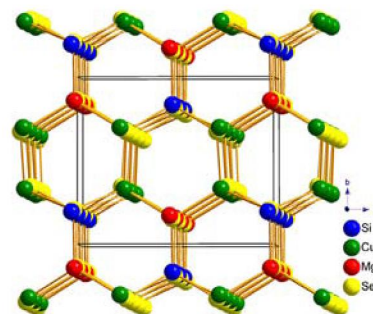
I.V. Piir, M.S. Koroleva, Yu.I. Ryabkov, D.A. Korolev, N.V. Chezhina, V.G. Semenov and V.V. Panchuk
page 245



The ideal crystal structure of pyrochlore A₂B₂O₆O' (A—Bi³⁺, Fe³⁺; B—Ti⁴⁺, Fe³⁺).

Synthesis, structure, and optical properties of the quaternary diamond-like compounds I₂–II–IV–VI₄ (I = Cu; II = Mg; IV = Si, Ge; VI = S, Se)

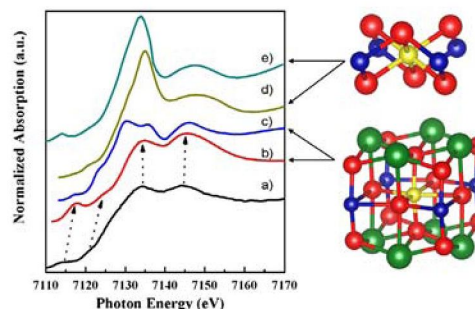
Bin-Wen Liu, Ming-Jian Zhang, Zhong-Yan Zhao, Hui-Yi Zeng, Fa-Kun Zheng, Guo-Cong Guo and Jin-Shun Huang
page 251



Three new diamond-like compounds, Cu₂MgSiS₄, Cu₂MgGeS₄, and Cu₂MgSiSe₄, have been synthesized. All the three compounds crystallize in the space group *Pmm*2₁ and all atoms are tetrahedrally coordinated.

Local structure of Fe in Fe-doped misfit-layered calcium cobaltite: An X-ray absorption spectroscopy study

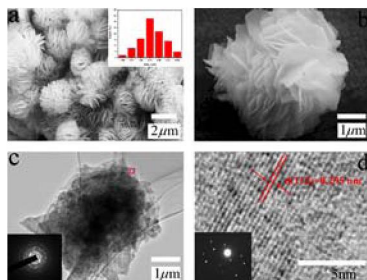
Natkrita Prasertsopha, Supree Pinitsoontorn, Atipong Bootchanont, Pinit Kidkhunthod, Pornjuk Srepusharawoot, Teerasak Kamwanna, Vittaya Amornkitbamrung, Ken Kurosaki and Shinsuke Yamanaka
page 257



The Fe *K*-edge XANES spectra of: (a) experimental result in comparison to the simulated spectra when Fe atoms were substituted in the RS layer; (b) with magnetic moment; (c) without magnetic moment, and in the CoO₂ layer; (d) with magnetic moment and (e) without magnetic moment.

Controllable synthesis and down-conversion properties of flower-like NaY(MoO₄)₂ microcrystals via polyvinylpyrrolidone-mediated

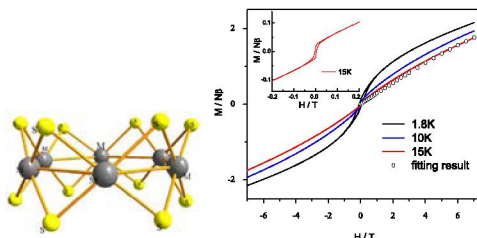
Han Lin, Xiaohong Yan and Xiangfu Wang
page 266



Low and high-magnification SEM images demonstrate the perfect flower-like NaY(MoO₄)₂ prepared in the presence of PVP; Detailed TEM and HRTEM images further manifest the single-crystalline feature.

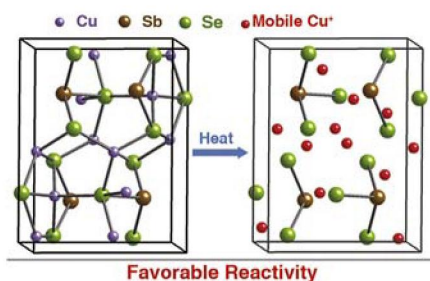
Two molecular wheels 12-MC-6 complexes: Synthesis, structure and magnetic property of [Co(μ₂-SEt)₂]₆ and [Fe(μ₂-SEt)₂]₆

Jing Wang, Fangfang Jian, Baoxin Huang and Zhengshuai Bai
page 272



Insight into the mechanism of Sb promoted Cu(In,Ga)Se₂ formation

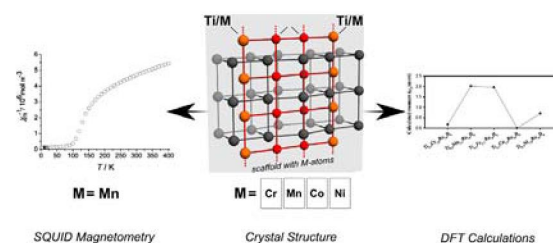
Yong Xiang, Xiaokun Zhang and Shu Zhang
page 278



Cu₃SbSe₃ mobile phase is likely the key species to promote the formation of Cu(In,Ga)Se₂, and significantly promoting effect by Sb is also found in the synthesis of Cu(In,Ga)Se₂ nanocrystals.

Scaffolds of magnetically active 3d metals in the valence electron controlled borides Ti_{9-x}M_{2+x}Ru₁₈B₈ (M = Cr–Ni; x = 0.5–1): Structural, electronic and magnetic properties

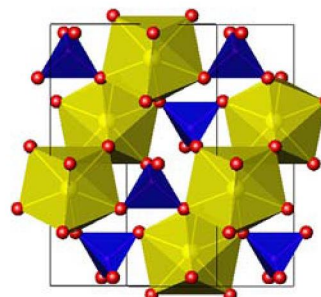
Christian Goerens, Jakoah Brgoch, Gordon J. Miller and Boniface P.T. Fokwa
page 283



The crystal structures of the new phases (M = Cr, Mn, Co, Ni) are confirmed by Rietveld refinement of powder diffraction data and single crystal X-ray diffraction (for M = Co) to contain beside the M-ladder also M/Ti-chains. Similar to the series Ti₉M₂Ru₁₈B₈, the crystal structure of the new phases are mainly stabilized by the heteroatomic Ru–B and Ru–Ti bonds that remain nearly constant throughout the series, whereas the M-containing bonds vary significantly with varying valence electron count. An experimental finding confirmed and even extended by COHP bonding analyses. In addition, the DOS analyses of the M-elements reveal the development of magnetic moments for the M = Mn, Ni cases but not for M = Co. Indeed, Ti₈Co₃Ru₁₈B₈ was found experimentally to be a paramagnet and ferrimagnetic ordering below 120 K is found for M = Mn.

Fergusonite-type CeNbO_{4+δ}: Single crystal growth, symmetry revision and conductivity

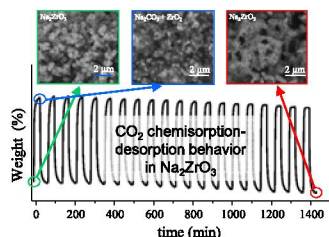
Ryan D. Bayliss, Stevin S. Pramana, Tao An, Fengxia Wei, Christian L. Kloc, Andrew J.P. White, Stephen J. Skinner, Timothy J. White and Tom Baikie
page 291



Large fergusonite-type CeNbO₄ crystals were prepared for the first time in a floating zone mirror furnace. Crystal growth in an argon atmosphere yielded a single phase monoclinic CeNbO₄, as confirmed by selected area electron diffraction, powder and single crystal X-ray diffraction. The structure was determined in the standard space group setting C12/c1 (No. 15), rather than the commonly adopted I12/a1. AC impedance spectroscopy found CeNbO₄ single crystals showed lower conductivity compared to CeNbO_{4+δ} confirming interstitial oxygen can penetrate through fergusonite and is responsible for the higher conductivity associated with these oxides.

Cyclic CO₂ chemisorption–desorption behavior of Na₂ZrO₃: Structural, microstructural and kinetic variations produced as a function of temperature

Lorena Martínez-diCruz and Heriberto Pfeiffer
page 298



A CO₂ chemisorption–desorption analysis was performed in the Na₂ZrO₃–CO₂ system. Different cyclic experiments were performed between 500 and 800 °C and the results showed high CO₂ chemisorption efficiencies. Nevertheless the Na₂ZrO₃ composition and microstructure evolved during the cycles.

Uniform Cu₂Cl(OH)₃ hierarchical microspheres: A novel adsorbent for methylene blue adsorptive removal from aqueous solution

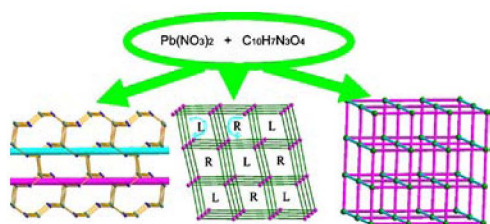
Wei Wei, Pin Gao, Jimin Xie, Sekai Zong, Henglv Cui and Xuejie Yue
page 305



The single-crystalline hierarchical Cu₂Cl(OH)₃ spheres can be prepared for the first time by using a template-free process through freeze-drying. Meanwhile, the hierarchical spheres exhibited high adsorption capacity to methylene blue.

Three Pb^{II} coordination polymers based on 2-(pyridin-2-yl)-1H-imidazole-4,5-dicarboxylic acid: Syntheses, crystal structures, and fluorescent properties

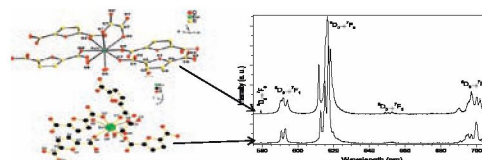
Xiao-Yang Yu, Rui Xin, Wei-Ping Gao, Na Wang, Xiao Zhang, Yan-Yan Yang and Xiao-Shu Qu
page 314



Three 3D lead compounds based on 2-(pyridin-2-yl)-1H-imidazole-4,5-dicarboxylic acid have been hydrothermally synthesized. Four new coordination modes of the organic ligand are first reported.

Synthesis and characterization of polymorphs of photoluminescent Eu(III)-(2,5-furandicarboxylic acid, oxalic acid) MOFs

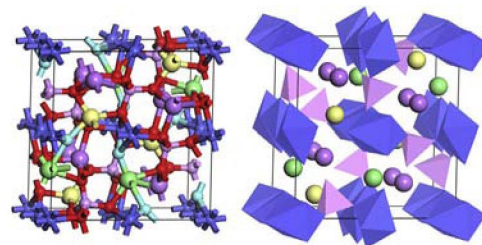
Fa-Nian Shi, Duarte Ananias, Ting-Hai Yang and João Rocha
page 321



Exploring metal organic framework polymorphism in the system Eu(H₂O)₂(fdc)(ox)_{0.5}·(H₂O)_n (fdc²⁻ = 2,5-furandicarboxylate, ox²⁻ = oxalate) for tuning light emission.

Lithium transition metal fluorophosphates (Li₂CoPO₄F and Li₂NiPO₄F) as cathode materials for lithium ion battery from atomistic simulation

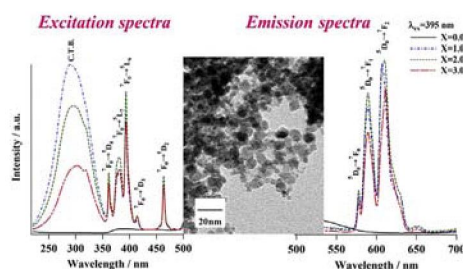
Sanghun Lee and Sung Soo Park
page 329



Lithium transition metal fluorophosphates (Li₂CoPO₄F and Li₂NiPO₄F).

Luminescent nanocrystals in the rare-earth niobate–zirconia system formed via hydrothermal method

Masanori Hirano and Hayato Dozono
page 335



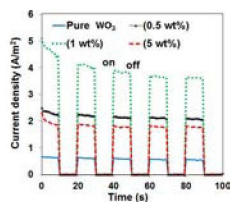
This graphical abstract shows the excitation and emission spectra and a transmission electron microscopy image of nanocrystals (with composition based on the rare-earth niobates (Ln₃NbO₇, Ln = Y, Eu) and zirconia (ZrO₂) that were composed of 50 mol% Ln₃NbO₇ and 50 mol% ZrO₂) formed via hydrothermal route.

Continued

MWCNT/WO₃ nanocomposite photoanode for visible light induced water splitting

Samira Yousefzadeh, Ali Reyhani, Naimeh Naseri and Alireza Z. Moshfegh

page 341

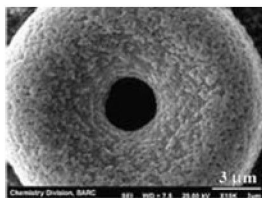


Photocurrent density versus time at constant potential (0.7 V) for the WO₃ films containing different MWCNT weight percentages annealed at 400 °C under 1000 Wm⁻² visible photo-illumination.

Bismuth(III) dialkyldithiophosphates: Facile single source precursors for the preparation of bismuth sulfide nanorods and bismuth phosphate thin films

Jasmine B. Biswal, Shivram S. Garje, Jitendra Nuwad and C.G.S. Pillai

page 348

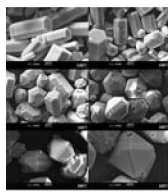


Solvothermal decomposition of bismuth(III) dialkyldithiophosphates in ethylene glycol gave Bi₂S₃ nanoparticles, whereas aerosol assisted chemical vapor deposition of these single source precursors deposited Bi₂P₄O₁₃ thin films.

Morphology control of open-framework zinc phosphate Zn₄(H₃O)(NH₄)₃(PO₄)₄ via microwave-assisted technique

Ling Ding, Yu Song, Wei Yang, Run-Miao Xue, Shang-Ru Zhai and Qing-Da An

page 356

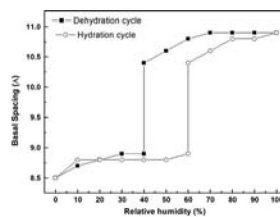


Zinc phosphates with variable morphologies can be obtained by simply tuning the microwave-heating temperatures.

Synthesis and reversible hydration behavior of the thiosulfate intercalated layered double hydroxide of Zn and Al

S. Radha, Wolfgang Milius, Josef Breu and P. Vishnu Kamath

page 362



Basal spacing evolution of the thiosulfate ion intercalated [Zn–Al] LDH during one complete hydration–dehydration cycle as a function of relative humidity.

Study of Mg_xCd_{1-x}O applying density functional theory: Stability, structural phase transition and electronic properties

K.B. Joshi, U. Paliwal, K.L. Galav, D.K. Trivedi and T. Bredow

page 367

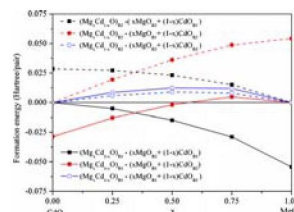
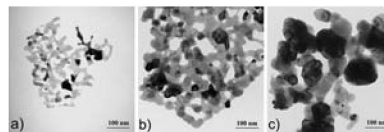


Diagram reveals trends in formation energy while mixing B2-MgO with B1-CdO to form B1-Mg_xCd_{1-x}O. Formation energies obtained from mixing isostructural and nonisostructural components are also shown.

Influence of surface and finite size effects on the structural and magnetic properties of nanocrystalline lanthanum strontium perovskite manganites

Pavel Žvátora, Miroslav Veverka, Pavel Veverka, Karel Knížek, Karel Závěta, Emil Pollert, Vladimír Král, Graziella Goglio, Etienne Duguet and Ondřej Kaman

page 373



Evolution of the particle size with annealing temperature in the nanocrystalline La_{0.70}Sr_{0.30}MnO_{3+δ} phase.

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