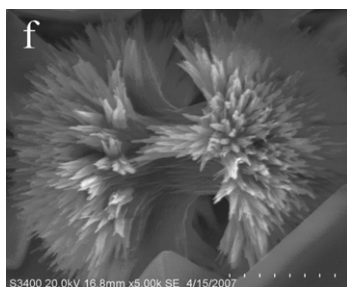


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### Regular Articles

#### Biomimetic synthesis of aragonite superstructures using hexamethylenetetramine

Long Chen, Fangzhi Huang, Shikuo Li, Yuhua Shen, Anjian Xie, Jian Pan, Yaping Zhang and Yan Cai  
page 2825

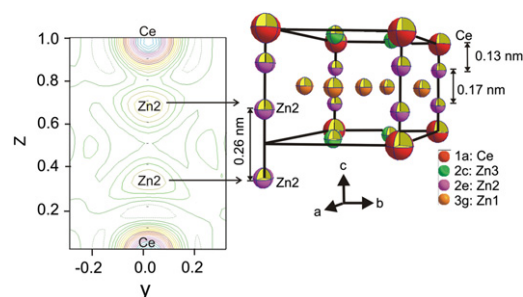


The well-defined aragonite hierarchical superstructures are formed using hexamethylenetetramine in aqueous solution.

### Regular Articles—Continued

#### The system Ce–Zn–B at 800 °C

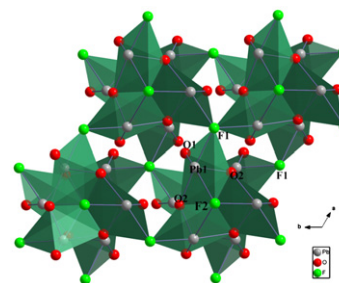
Z. Malik, O. Sologub, G. Giester and P. Rogl  
page 2840



Existence of low temperature modification  $\alpha\text{CeZn}_7$  ( $\text{Ce}_{1-x}\text{Zn}_{5+2x}$ ;  $x \sim 0.33$ ) of  $\text{Ce}_2\text{Zn}_{17}$  has been verified up to 750 °C that is attributed with the  $\text{TbCu}_7$  type.

#### Synthesis, crystal structure and optical properties of the new lead fluoride borate— $\text{Pb}_2\text{BO}_3\text{F}$

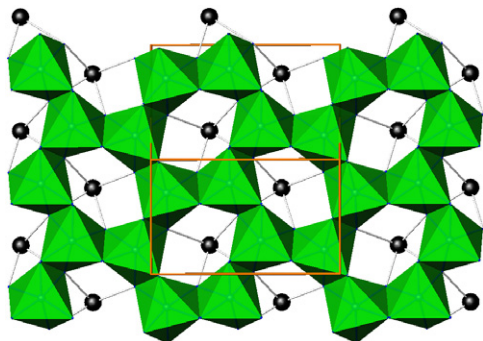
Wenwu Zhao, Shilie Pan, Jian Han, Jiyong Yao, Yun Yang, Junjie Li, Min Zhang, Lian Han Zhang and Yin Hang  
page 2849



The Pb atoms are in the five coordination environments bonded to three O atoms and two F atoms to make up the distorted  $\text{PbO}_3\text{F}_2$  polyhedra. Every six  $\text{PbO}_3\text{F}_2$  polyhedra are connected by one F(1) atom to form the symmetrical structure, and then the distortion of the  $\text{PbO}_3\text{F}_2$  polyhedra is offset.

#### Phase stability of some actinides with brannerite structure at high pressures

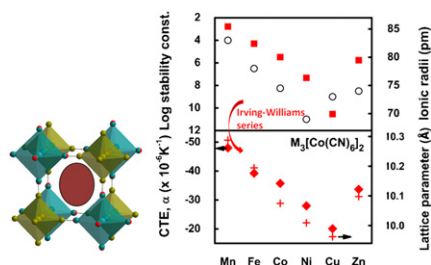
F.X. Zhang, M. Lang, Zhenxian Liu and R.C. Ewing  
page 2834



Actinide-bearing compounds with brannerite structure and their analog  $\text{CeTi}_2\text{O}_6$  are not stable at high pressure. They were amorphized after  $\sim 20$  GPa and a minor pressure-induced phase transition or decomposition process was always observed before amorphization.

## Thermal expansion in 3d-metal Prussian Blue Analogs—A survey study

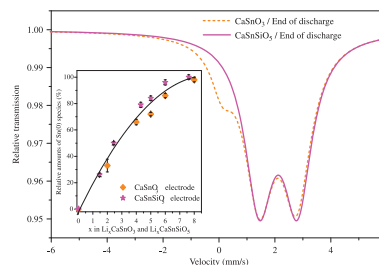
Sourav Adak, Luke L. Daemen, Monika Hartl, Darrick Williams, Jennifer Summerhill and Heinz Nakotte  
page 2854



The structure of Prussian Blue analogs (PBAs) consists of two types of metal centered octahedral units connected by cyanide ligand. Lattice and interstitial water molecules are present in these framework structures. All the PBAs of the  $M_3[\text{Co}(\text{CN})_6]_2 \cdot n\text{H}_2\text{O}$  family show negative thermal expansion (NTE) behavior. The lattice parameters and magnitude of NTE correlates inversely with the Irving-Williams series of metal complex stability.

## Original electrochemical mechanisms of $\text{CaSnO}_3$ and $\text{CaSnSiO}_5$ as anode materials for Li-ion batteries

M. Mouyane, M. Womes, J.C. Jumas, J. Olivier-Fourcade and P.E. Lippens  
page 2877



$^{119}\text{Sn}$  Mössbauer spectra at the end of the first discharge of  $\text{CaSnO}_3$  (dashed line) and  $\text{CaSnSiO}_5$  (solid line) anodes for Li-ion batteries. Inset shows that relative amounts of Sn(0) based alloys formed during the first discharge are similar for  $\text{CaSnO}_3$  and  $\text{CaSnSiO}_5$  pristine materials.

## Layered double hydroxide/polyethylene terephthalate nanocomposites. Influence of the intercalated LDH anion and the type of polymerization heating method

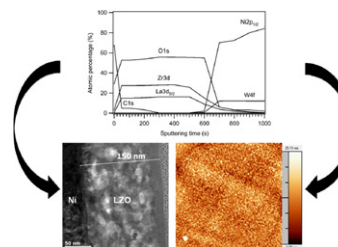
M. Herrero, S. Martínez-Gallegos, F.M. Labajos and V. Rives  
page 2862



Conventional and microwave heating routes were used to prepare PET-LDH (polyethylene terephthalate-layered double hydroxide) composites with 1–10 wt% LDH by *in situ* polymerization. To enhance the compatibility between PET and the LDH, terephthalate or dodecyl sulphate was previously intercalated into the LDH. The microwave process improves the dispersion and the thermal stability of nanocomposites due to the interaction of the microwave radiation and the dipolar properties of EG and the homogeneous heating.

## Thick lanthanum zirconate buffer layers from water-based precursor solutions on Ni-5%W substrates

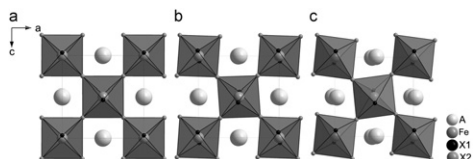
Vyshnavi Narayanan, Petra Lommens, Klaartje De Buysser, Ruben Hühne and Isabel Van Driessche  
page 2887



Thick LZO buffer layers from water-based precursor solutions were synthesized and their crystallinity, microstructure and buffer layer action were studied. The buffer layer action of the LZO layer was substantial to restrict the Ni penetration within 30 nm of a 140 nm thick film.

## Synthesis and characterization of the $\text{La}_{1-x}\text{Sr}_x\text{FeO}_{3-\delta}$ system and the fluorinated phases $\text{La}_{1-x}\text{Sr}_x\text{FeO}_{3-x}\text{F}_x$

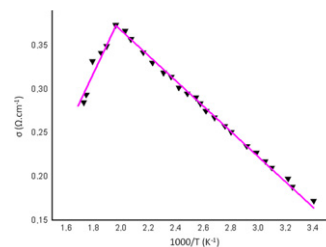
Oliver Clemens, Melanie Kuhn and Robert Haberkorn  
page 2870



The crystal structures of the perovskites  $\text{La}_{1-x}\text{Sr}_x\text{FeO}_{3-x}\text{F}_x$  for  $x = 0.8$  (a),  $0.5$  (b) and  $0.1$  (c).

## Synthesis, structural and electrical characterizations of $\text{DySr}_5\text{Ni}_{2.4}\text{Cu}_{0.6}\text{O}_{12-\delta}$

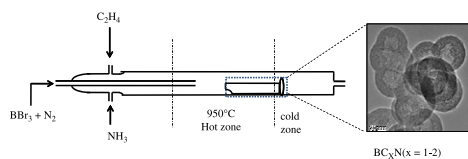
S. Hamdi, S. Ouni, H. Chaker, J. Rohlicek and R. Ben Hassen  
page 2897



$\text{DySr}_5\text{Ni}_{2.4}\text{Cu}_{0.6}\text{O}_{12-\delta}$  exhibits a semi-conducting behaviour over the whole temperature range  $294\text{--}579 \text{ K}$  with a conductivity maximum of  $0.4 \text{ S cm}^{-1}$  at  $510 \text{ K}$ .

## Synthetic approaches to borocarbonitrides, $BC_xN$ ( $x=1-2$ )

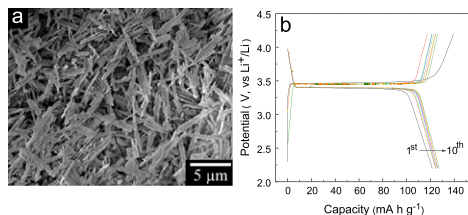
Nitesh Kumar, Kalyan Raidongia, Abhishek K. Mishra, Umesh V. Waghmare, A. Sundaresan and C.N.R. Rao  
page 2902



Vapor phase synthesis of  $BC_xN$  ( $x=1-2$ ) by the reaction of  $BBr_3$ , ethylene and ammonia leads to the formation of pan-like structure.

## A general solution-chemistry route to the synthesis $LiMPO_4$ ( $M=Mn, Fe, \text{ and } Co$ ) nanocrystals with [010] orientation for lithium ion batteries

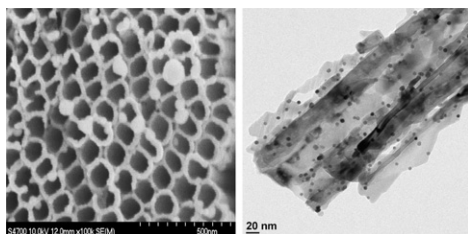
Jing Su, Bing-Qing Wei, Jie-Peng Rong, Wen-Yan Yin, Zhi-Xia Ye, Xian-Qing Tian, Ling Ren, Min-Hua Cao and Chang-Wen Hu  
page 2909



A general and efficient solvothermal strategy has been developed for the preparation of lithium transition metal phosphate microstructures under solvothermal conditions in the presence of PVP.

## Preparation of Pt deposited nanotubular $TiO_2$ as cathodes for enhanced photoelectrochemical hydrogen production using seawater electrolytes

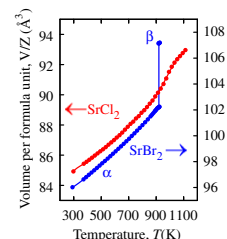
Wonsik Nam, Seichang Oh, Hyunku Joo and Jaekyung Yoon  
page 2920



On the basis of photoelectrochemical hydrogen production, 0.2 wt% Pt/ $TiO_2$  was observed to exhibit the best performance among the various Pt/ $TiO_2$  cathodes with natural seawater. In comparison of hydrogen evolution rate with various seawater electrolytes, 0.2 wt% Pt/ $TiO_2$  was found to show the better performance as cathode with the concentrated seawater electrolytes obtained from membrane.

## High temperature crystal structures and superionic properties of $SrCl_2$ , $SrBr_2$ , $BaCl_2$ and $BaBr_2$

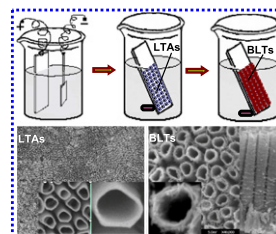
Stephen Hull, Stefan T. Norberg, Istaq Ahmed, Sten G. Eriksson and Chris E. Mohn  
page 2925



Anomalous behaviour of the lattice expansion of  $SrCl_2$  at temperatures of  $\sim 1000$  K is associated with the gradual transition to a superionic phase, whilst  $SrBr_2$  undergoes a first-order structural transition ( $\beta \rightarrow \alpha$ ) to a fluorite-structured superionic phase at 920(3) K.

## $TiO_2$ nanorods branched on fast-synthesized large clearance $TiO_2$ nanotube arrays for dye-sensitized solar cells

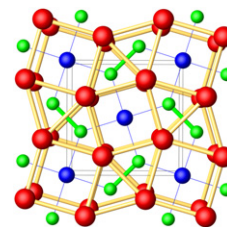
Anzheng Hu, Haina Li, Zhiyong Jia and Zhengcai Xia  
page 2936



The schematic diagram of synthesis process for LTAs and BLTs is on the above and the corresponding FESEM images of obtained photoanodes samples are shown below.

## Synthesis, structural characterization and magnetic properties of $RE_2MgGe_2$ ( $RE = \text{rare-earth metal}$ )

Nian-Tzu Suen, Paul H. Tobash and Svilen Bobev  
page 2941



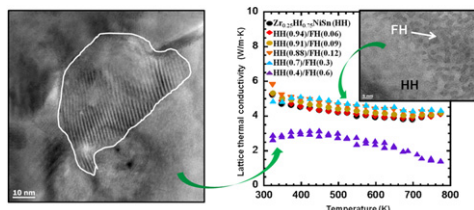
The structure of  $RE_2MgGe_2$  ( $RE = Y, Nd, Sm, Gd-Tm, Lu$ ) can be best viewed as 2-dimensional slabs of Mg and Ge atoms (anionic sub-lattice), and layers of rare-earth metal atoms (cationic sub-lattice) between them. Within this description, one should consider the Ge-Ge dumbbells (formally  $Ge_2^{6-}$ ), interconnected with square-planar Mg atom as forming flat  $[MgGe_2]$  layers ( $z=0$ ), stacked along the  $c$ -axis with the layers at  $z=1/2$ , made of rare-earth metal cations (formally  $RE^{3+}$ ).

Continued

**Thermal and electronic charge transport in bulk nanostructured  $Zr_{0.25}Hf_{0.75}NiSn$  composites with full-Heusler inclusions**

Julien P.A. Makongo, Dinesh K. Misra, James R. Salvador, Nathan J. Takas, Guoyu Wang, Michael R. Shabetai, Aditya Pant, Pravin Paudel, Ctirad Uher, Kevin L. Stokes and Pierre F.P. Poudeu

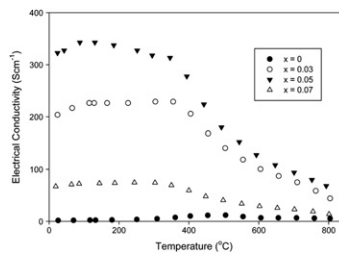
page 2948



Large reduction in the lattice thermal conductivity of bulk nanostructured half-Heusler/full-Heusler ( $Zr_{0.25}Hf_{0.75}NiSn$ / $Zr_{0.25}Hf_{0.75}Ni_2Sn$ ) composites, obtained by solid-state diffusion at 1073 K of elemental Ni into vacant sites of the half-Heusler structure, arising from the formation of regions of spinodally decomposed HH and FH phases with a spatial composition modulation of  $\sim 2$  nm.

**Synthesis, structure and conductivity of sulfate and phosphate doped  $SrCoO_3$**

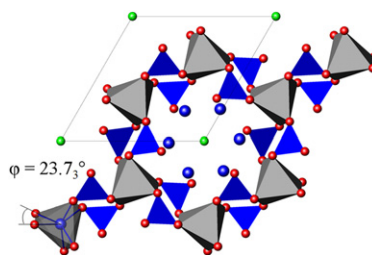
C.A. Hancock, R.C.T. Slade, J.R. Varcoe and P.R. Slater  
page 2972



Phosphate/sulfate doping in  $SrCoO_{3-y}$  leads to a structural change to a 3C-perovskite framework, with an accompanying large increase in conductivity.

**Apatite metaprisism twist angle ( $\varphi$ ) as a tool for crystallochemical diagnosis**

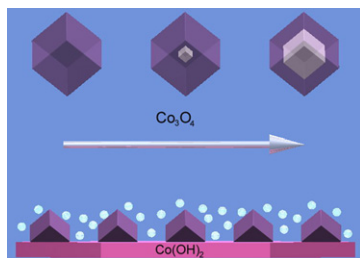
S.C. Lim, Tom Baikie, Stevin S. Pramana, Ron Smith and T.J. White  
page 2978



$[A^I]_4[A^{II}]_6(BO_4)_6X_2$  apatites can flexibly accommodate numerous cationic, metalloid and anionic substitutions. Using a combination of new refinements and published structures, this paper reviews correlations between substituent type and framework adaptation through adjustment of the  $A^I O_6$  metaprisism twist angle,  $\varphi$ .

**Topotactic synthesis of  $Co_3O_4$  nanoboxes from  $Co(OH)_2$  nanoflakes**

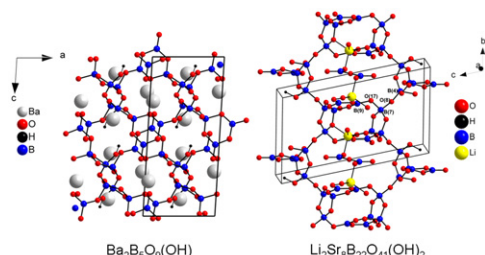
Li Tian, Kelong Huang, Younian Liu and Suqin Liu  
page 2961



The formation mechanism of  $Co_3O_4$  nanoboxes can be expressed as epitaxial growth of  $Co_3O_4$  nanocubes from  $\beta-Co(OH)_2$  nanoflakes due to a topotactic transformation and hollowing process owing to Ostwald ripening.

**Crystal structures of the novel hydrated borates  $Ba_2B_5O_9(OH)$ ,  $Sr_2B_5O_9(OH)$  and  $Li_2Sr_8B_{22}O_{41}(OH)_2$**

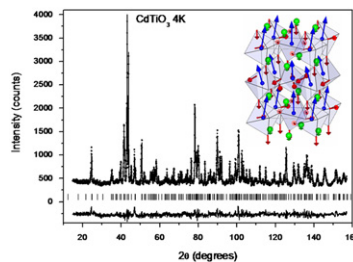
Colin McMillen, Carla Heyward, Henry Giesber and Joseph Kolis  
page 2966



Novel hydrated borate structures.

**The ferroelectric phase of  $CdTiO_3$ : A powder neutron diffraction study**

Brendan J. Kennedy, Qingdi Zhou and Maxim Avdeev  
page 2987

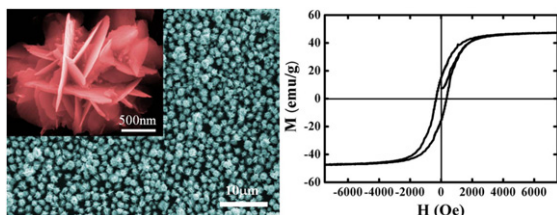


The structure of three phases of  $CdTiO_3$  have been refined using high resolution powder neutron diffraction data. This involved the preparation of samples enriched in  $^{114}Cd$ . Cooling perovskite-type  $CdTiO_3$  to 4 K results in a ferroelectric phase in  $Pna2_1$ .

**Fabrication of monodispersed nickel flower-like architectures via a solvent-thermal process and analysis of their magnetic and electromagnetic properties**

Jing Kong, Wei Liu, Fenglong Wang, Xinzhen Wang, Liqiang Luan, Jiurong Liu, Yuan Wang, Zijun Zhang, Masahiro Itoh and Ken-ichi Machida

page 2994

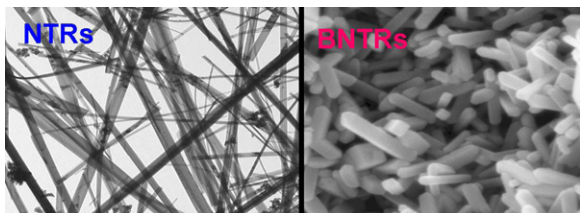


Monodispersed Ni flower-like architectures composed of nano-flakes were synthesized through a facile solvent-thermal process. The Ni architectures exhibited a large coercivity and enhanced electromagnetic wave absorption in GHz.

**Boron and nitrogen-codoped TiO<sub>2</sub> nanorods: Synthesis, characterization, and photoelectrochemical properties**

Xiaosong Zhou, Feng Peng, Hongjuan Wang and Hao Yu

page 3002

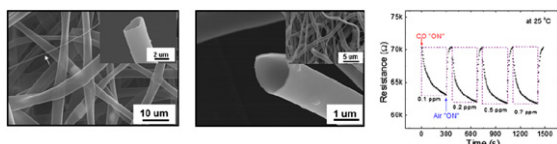


Boron and nitrogen codoped TiO<sub>2</sub> nanorods (BNTRs) were synthesized using TiN. The BNTRs showed a higher photocatalytic activity and a bigger photocurrent than N-TiO<sub>2</sub> nanorods (NTRs) under visible light irradiation.

**Micro- and nano-scale hollow TiO<sub>2</sub> fibers by coaxial electrospinning: Preparation and gas sensing**

Jin Zhang, Sun-Woo Choi and Sang Sub Kim

page 3008

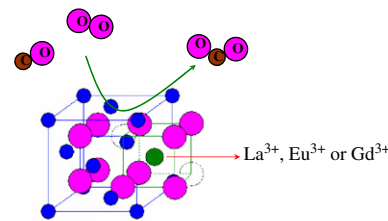


Microstructures of as-prepared and calcined hollow TiO<sub>2</sub> fibers prepared by the electrospinning technique with a coaxial needle. Dynamic response at various CO concentrations for the sensor fabricated with the hollow TiO<sub>2</sub> fibers.

**Structural and catalytic properties of lanthanide (La, Eu, Gd) doped ceria**

W.Y. Hernández, O.H. Laguna, M.A. Centeno and J.A. Odriozola

page 3014

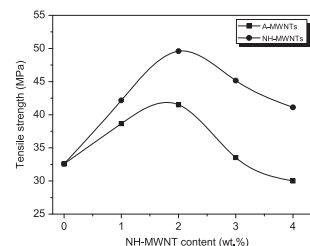


In this work, Ce<sub>0.9</sub>M<sub>0.1</sub>O<sub>2-δ</sub> mixed oxides (M=La, Eu and Gd) were synthesized by coprecipitation. Independent of the dopant cation, the obtained solids maintain the F-type crystalline structure, characteristic of CeO<sub>2</sub> (fluorite structure) without phase segregation. The ceria lattice expands depending on the ionic radii of the dopant cation, as indicated by X-ray diffraction studies. This effect also agrees with the observed shift of the F<sub>2g</sub> Raman vibrational mode. The presence of the dopant cations in the ceria lattice increases the concentration of structural oxygen vacancies and the reducibility of the redox pair Ce<sup>4+</sup>/Ce<sup>3+</sup>. All synthesized materials show higher catalytic activity for the CO oxidation reaction than that of bare CeO<sub>2</sub>, being Eu-doped solid the one with the best catalytic performances despite of its lower surface area.

**Influence of amine-grafted multi-walled carbon nanotubes on physical and rheological properties of PMMA-based nanocomposites**

Ki-Seok Kim and Soo-Jin Park

page 3021

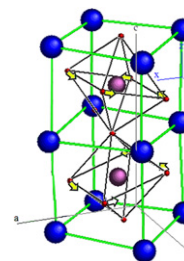


This describes the increase of mechanical properties in NH-MWNTs-g-PMMA hybrid composites with different NH-MWNT contents.

**Raman and structural characterization of LuAlO<sub>3</sub>**

Alberto Casu and Pier Carlo Ricci

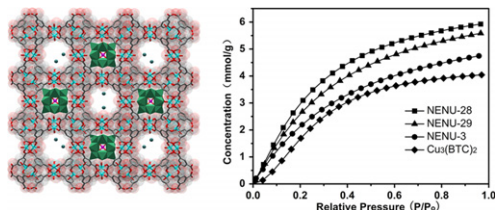
page 3028



Raman active mode in LuAP crystal.

**Adsorption of volatile organic compounds in porous metal–organic frameworks functionalized by polyoxometalates**

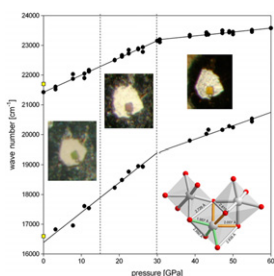
Feng-Ji Ma, Shu-Xia Liu, Da-Dong Liang, Guo-Jian Ren, Feng Wei, Ya-Guang Chen and Zhong-Min Su  
page 3034



The adsorption behavior of volatile organic compounds in porous metal–organic frameworks functionalized by polyoxometalates has been systematically evaluated.

**Structural and electronic evolution of Cr<sub>2</sub>O<sub>3</sub> on compression to 55 GPa**

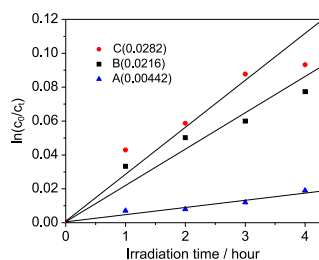
Przemyslaw Dera, Barbara Lavina, Yue Meng and Vitali B. Prakapenka  
page 3040



New synchrotron single-crystal x-ray diffraction experiments to 55 GPa in Ne and He complemented by measurements of optical absorption spectra show no indication of the earlier reported monoclinic distortion at 15–30 GPa, but indicate evidence of two discontinuous transitions of electronic or magnetic nature, most likely associated with a change in the magnetic ordering and charge transfer. The compression mechanism established from single crystal refinements indicates much smaller distortion of the Cr<sup>3+</sup> coordination environment than was previously assumed.

**Synthesis of large surface area nano-sized BiVO<sub>4</sub> by an EDTA-modified hydrothermal process and its enhanced visible photocatalytic activity**

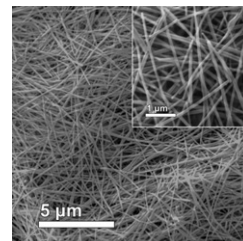
Wanting Sun, Mingzheng Xie, Liqiang Jing, Yunbo Luan and Honggang Fu  
page 3050



High visible active nano-sized BiVO<sub>4</sub> photocatalyst with large surface area is successfully synthesized, which is attributed to the chelating role of EDTA group inhibiting the growth of BiVO<sub>4</sub> crystallites.

**Scalable synthesis and characterization of cobalt sodium tartrate nanowires with adjustable diameters**

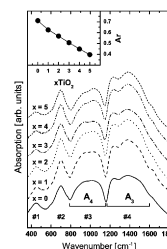
Lan Chen, Shaochun Tang, Sascha Vongehr, Kun Hu and Xiangkang Meng  
page 3055



Cobalt sodium tartrate nanowires with smooth surfaces are synthesized hydrothermally. Their narrowly distributed diameters decrease with reaction time after initial two hours and are controllable from 80 to 250 nm.

**The role of TiO<sub>2</sub> in the B<sub>2</sub>O<sub>3</sub>–Na<sub>2</sub>O–PbO–Al<sub>2</sub>O<sub>3</sub> glass system**

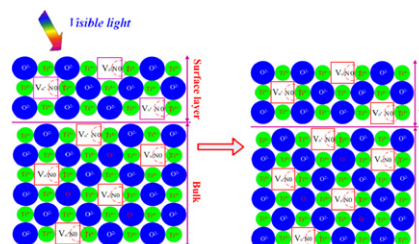
N.C.A. de Sousa, M.T. de Araujo, C. Jacinto, M.V.D. Vermelho, N.O. Dantas, C.C. Santos and I. Guedes  
page 3062



Behavior of the relative integrated intensity of the IR bands,  $A_r = A_4/A_3$ , as TiO<sub>2</sub> content increases. A decrease of 45% of  $A_r$  indicates that the number of BO<sub>4</sub> groups is decreasing due to the BO<sub>4</sub>→BO<sub>3</sub> back conversion.

**ESR study on the visible photocatalytic mechanism of nitrogen-doped novel TiO<sub>2</sub>**

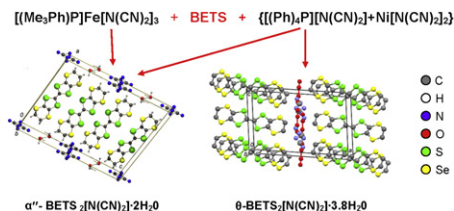
**Synergistic effect of two kinds of oxygen vacancies**  
Jiwei Zhang, Zhensheng Jin, Caixia Feng, Laigui Yu, Jingwei Zhang and Zhijun Zhang  
page 3066



Synergistic action is realized between  $(V_o^{\bullet})_{\text{bulk}}$  and  $(V_o^{\bullet})_{\text{surf}}$  in the presence of active structures  $(V_o^{\bullet})_{\text{bulk}}\text{-NO-Ti}$  and  $(V_o^{\bullet})_{\text{surf}}\text{-NO-Ti}$ .

**The first BETS radical cation salts with dicyanamide anion: Crystal growth, structure and conductivity study**

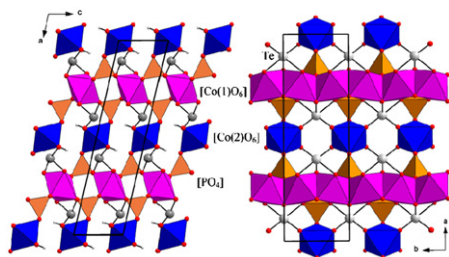
N.D. Kushch, L.I. Buravov, A.N. Chekhlov, N.G. Spitsina, P.P. Kushch, E.B. Yagubskii, E. Herdtweck and A. Kobayashi  
page 3074



We studied electrochemical oxidation of BETS donor in the presence of simple and/or complex dicyanamides of transition metals (Ni, Fe, Mn) as electrolytes. New conducting salts  $\alpha'$ -BETS<sub>2</sub>[N(CN)<sub>2</sub>]·2H<sub>2</sub>O and  $\theta$ -BETS<sub>2</sub>[N(CN)<sub>2</sub>]·3.8H<sub>2</sub>O have been synthesized and characterized.

**Synthesis, crystal structure and magnetic properties of the open framework compound Co<sub>3</sub>Te<sub>2</sub>O<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>(OH)<sub>4</sub>**

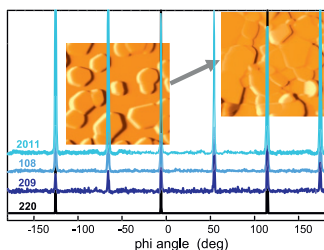
Iwan Zimmermann, Reinhard K. Kremer and Mats Johansson  
page 3080



The new compound Co<sub>3</sub>Te<sub>2</sub>O<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>(OH)<sub>4</sub> has been synthesized using hydrothermal techniques. It crystallizes in the monoclinic space group *C2/m*. Building blocks are [Co(1)O<sub>6</sub>], [TeO<sub>3</sub>(OH)<sub>2</sub>], [PO<sub>4</sub>] and [Co(2)O<sub>2</sub>(OH)<sub>4</sub>]. The magnetic susceptibility shows two antiferromagnetic transitions at 21 K and 4 K, respectively.

**Oriented SrFe<sub>12</sub>O<sub>19</sub> thin films prepared by chemical solution deposition**

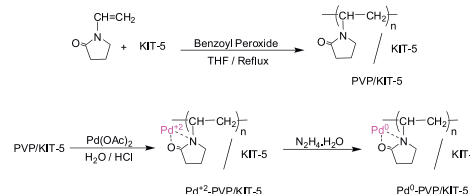
Josef Buršík, Ivo Drbohlav, Zdeněk Frait, Karel Knížek, Radomír Kužel and Karel Kouřil  
page 3085



XRD and AFM patterns of SrFe<sub>12</sub>O<sub>19</sub> thin film epitaxially grown on SrTiO<sub>3</sub>(111) single crystal using seeding layer templating.

**Synthesis and characterization of Pd-poly(N-vinyl-2-pyrrolidone)/KIT-5 nanocomposite as a polymer-inorganic hybrid catalyst for the Suzuki-Miyaura cross-coupling reaction**

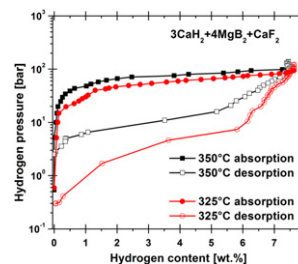
Roozbeh Javad Kalbasi and Neda Mosaddegh  
page 3095



Pd-poly(N-vinyl-2-pyrrolidone)/KIT-5 was prepared as an organic-inorganic hybrid catalyst for the Suzuki-Miyaura reaction. The stability of the catalyst was excellent and could be reused 8 times in the Suzuki-Miyaura reaction.

**Sorption and desorption properties of a CaH<sub>2</sub>/MgB<sub>2</sub>/CaF<sub>2</sub> reactive hydride composite as potential hydrogen storage material**

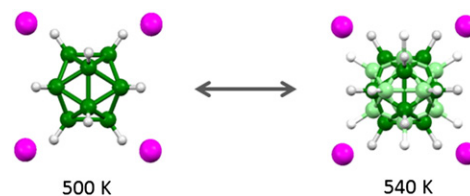
K. Suarez Alcantara, U. Boesenberg, O. Zavorotynska, J. Bellosta von Colbe, K. Taube, M. Baricco, T. Klassen and M. Dornheim  
page 3104



PCI of 3CaH<sub>2</sub>+4MgB<sub>2</sub>+CaF<sub>2</sub> reactive hydride composite at 325 °C and 350 °C. Open marks: dehydrogenation, closed marks: hydrogenation.

**Evidence of a transition to reorientational disorder in the cubic alkali-metal dodecahydro-closo-dodecaborates**

Nina Verdal, Hui Wu, Terrence J. Udovic, Vitalie Stavila, Wei Zhou and John J. Rush  
page 3110

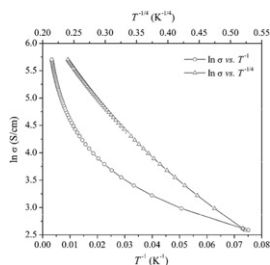


Cs<sub>2</sub>B<sub>12</sub>H<sub>12</sub> undergoes an order-disorder phase transition near 529 K. Similar transitions are observed for K<sub>2</sub>B<sub>12</sub>H<sub>12</sub> and Rb<sub>2</sub>B<sub>12</sub>H<sub>12</sub>.

Continued

## Synthesis, structure and physical properties of reduced barium titanate $\text{Ba}_2\text{Ti}_{13}\text{O}_{22}$

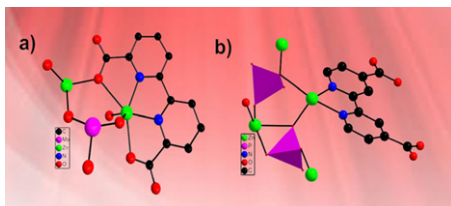
Kunimitsu Kataoka, Norihito Kijima, Hiroshi Hayakawa, Akira Iyo, Ken-ichi Ohshima and Junji Akimoto  
page 3117



Temperature dependence of the electrical conductivity of  $\text{Ba}_2\text{Ti}_{13}\text{O}_{22}$ . A plot of  $\ln \sigma$  versus  $T^{-1}$  is shown by open circles, and a plot of  $\ln \sigma$  versus  $T^{-1/4}$  is shown by open triangles.

## Two multi-dimensional frameworks constructed from zinc coordination polymers with pyridine carboxylic acids

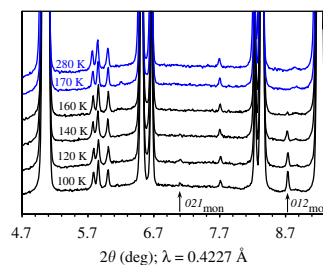
Yuanyuan Guo, Pengtao Ma, Jingping Wang and Jingyang Niu  
page 3121



Two new transition metal coordination polymers, namely,  $[\text{Zn}_2(\text{H}_2\text{O})\text{L}_1(\text{MoO}_4)]_n$  (**1**),  $[\text{Zn}_4(\text{PO}_4)_2\text{L}_2(\text{H}_2\text{O})]_n$  (**2**) ( $\text{H}_2\text{L}_1 = 2,2'$ -bipyridine-6,6'-dicarboxylic acid,  $\text{H}_2\text{L}_2 = 2,2'$ -bipyridine-4,4'-dicarboxylic acid) have been hydrothermally synthesized. **1** represents a 2-D sheet structure while **2** represents 3-D network.

## Low-temperature structural phase transition in synthetic libethenite $\text{Cu}_2\text{PO}_4\text{OH}$

Alexei A. Belik, Panče Naumov, Jungeun Kim and Shunsuke Tsuda  
page 3128



Fragments of experimental synchrotron X-ray powder diffraction patterns of  $\text{Cu}_2\text{PO}_4\text{OH}$  between 100 and 280 K. Arrows show additional reflections that appear below 160 K in the monoclinic  $P2_1/n$  phase.

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