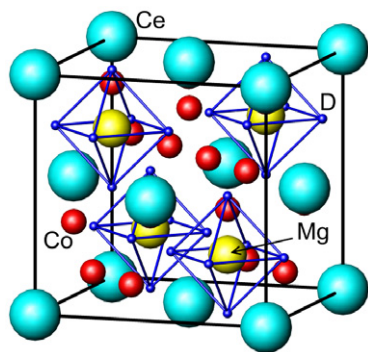


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### Regular Articles

#### New CeMgCo<sub>4</sub> and Ce<sub>2</sub>MgCo<sub>9</sub> compounds: Hydrogenation properties and crystal structure of hydrides

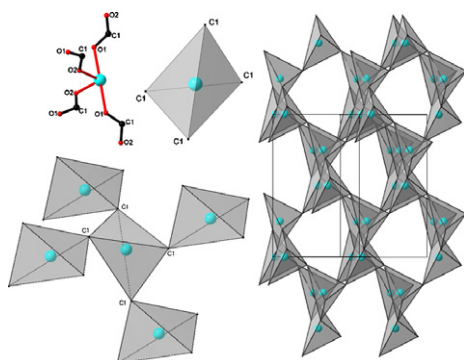
R.V. Denys, A.B. Riabov, R. Černý, I.V. Koval'chuk and I.Yu. Zavaliy  
page 1



Crystal structure of the  $\beta$ -CeMgCo<sub>4</sub>D<sub>4.2</sub> deuteride. Octahedra of D-sites around Mg atoms are shown.

#### The first 3D malonate bridged copper [Cu(O<sub>2</sub>C-CH<sub>2</sub>-CO<sub>2</sub>H)<sub>2</sub>·2H<sub>2</sub>O]: Structure, properties and electronic structure

A. Seguatni, M. Fakhfakh, L.S. Smiri, P. Gressier, F. Boucher and N. Jouini  
page 7

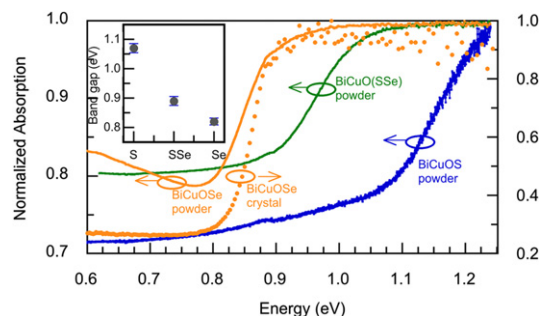


[Cu(O<sub>2</sub>C-CH<sub>2</sub>-CO<sub>2</sub>H)<sub>2</sub>·2H<sub>2</sub>O]: the first 3D hybrid organic-inorganic compound built up carboxyl groups. The network presents a diamond-like structure achieved via carboxyl.

### Regular Articles—Continued

#### Synthesis, structure, and optical properties of BiCuOCh (Ch=S, Se, and Te)

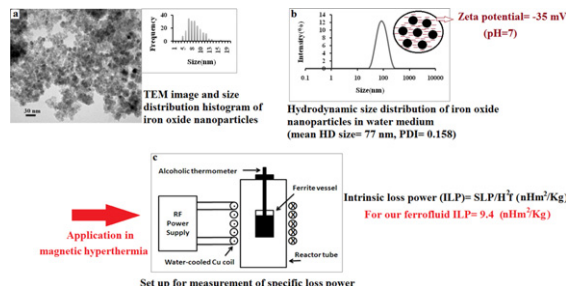
A.P. Richard, J.A. Russell, A. Zakutayev, L.N. Zakharov, D.A. Keszler and J. Tate  
page 15



IR absorption of BiCuOCh powders from diffuse reflection (left scale) and polished BiCuOSe single crystal from transmission (right scale). Spectra are normalized to the maximum absorption. Inset: band gap as a function of composition.

#### Synthesis of high intrinsic loss power aqueous ferrofluids of iron oxide nanoparticles by citric acid-assisted hydrothermal-reduction route

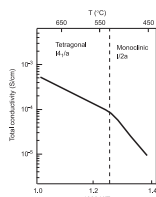
Behshid Behdadfar, Ahmad Kermanpur, Hojjat Sadeghi-Aliabadi, Maria del Puerto Morales and Morteza Mozaffari  
page 20



Monodispersed aqueous ferrofluids of iron oxide nanoparticles were synthesized by hydrothermal-reduction method with citric acid as reductant which is an efficient way to synthesize aqueous ferrofluids applicable in magnetic hyperthermia.

## Neutron diffraction study of the monoclinic to tetragonal structural transition in $\text{LaNbO}_4$ and its relation to proton mobility

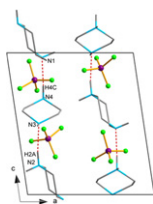
M. Huse, A.W.B. Skilbred, M. Karlsson, S.G. Eriksson, T. Norby, R. Haugsrud and C.S. Knee  
page 27



The structural phase transition from monoclinic fergusonite to tetragonal scheelite crystal structure clearly influences the proton conductivity of acceptor-doped  $\text{LaNbO}_4$  (see Figure). The present article attempts to explain why.

## Crystal structure and characterization of the novel $\text{NH}^+ \cdots \text{N}$ hydrogen bonded polar crystal $[\text{NH}_2(\text{CH}_2)_4\text{NH}][\text{BF}_4]$

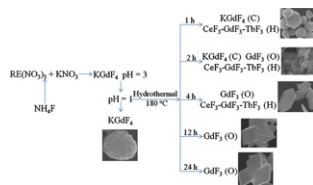
M. Wojtaś, A. Gągor, O. Czupiński, W. Medycki and R. Jakubas  
page 35



It must be emphasized that the titled compound represents the first organic-inorganic simple salt containing the single-protonated piperazinium cation which was studied by means of the wide variety of experimental techniques. A survey of Cambridge Structural Database (CSD version 5.32 (November 2010) & updates (May 2011)) for structure containing the piperazinium cations yields 248 compounds with the doubly protonated piperazinium(2+) cations and only eight compounds with the singly protonated piperazinium(+) cations. Among these structures only one is the hybrid organic-inorganic material. This is piperazinium nitrate characterized structurally. The crystal packing of  $[\text{NH}_2(\text{CH}_2)_4\text{NH}][\text{BF}_4]$ , phase IV. The dashed lines stand for the hydrogen bonds. The hydrogen bonds to  $\text{BF}_4$  groups are not included for the picture quality.

## Synthesis, phase composition modification, and optical properties of $\text{Ce}^{3+}/\text{Tb}^{3+}$ activated $\text{KGdF}_4$ and $\text{GdF}_3$ submicrocrystals

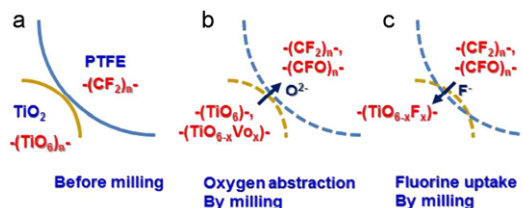
Chunyan Cao, Hyun Kyoung Yang, Byung Kee Moon, Byung Chun Choi, Jung Hyun Jeong and Kwang Ho Kim  
page 45



Schematic illustration for the phase composition modification from the  $\text{Ce}^{3+}/\text{Tb}^{3+}$  doped  $\text{KGdF}_4$  to the  $\text{Ce}^{3+}/\text{Tb}^{3+}$  doped  $\text{GdF}_3$  with multimorphologies and different sizes. (C presents cubic phase, H presents hexagonal phase, and O presents orthorhombic phase.)

## Introduction of oxygen vacancies and fluorine into $\text{TiO}_2$ nanoparticles by co-milling with PTFE

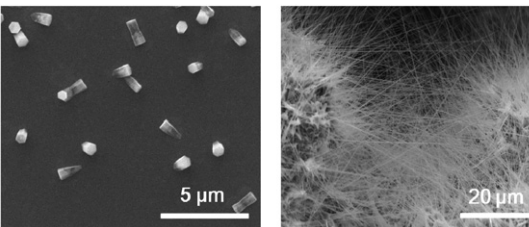
Mamoru Senna, Vladimir Šepelák, Jianmin Shi, Benjamin Bauer, Armin Feldhoff, Vincent Laporte and Klaus-Dieter Becker  
page 51



Scheme of the reaction processes: (a) pristine mixture, (b) oxygen abstraction from  $\text{TiO}_2$  and (c) fluorine migration from PTFE to  $\text{TiO}_2$ .

## Facilitating $\text{ZnO}$ nanostructure growths by making seeds for self-catalytic reactions

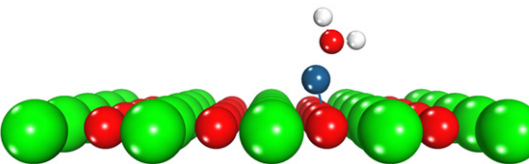
Liang Yin and Choongho Yu  
page 58



(Left panel)  $\text{ZnO}$  seeds from  $\text{ZnCl}_2$  after thermal annealing at  $500\text{ }^\circ\text{C}$  for 5 min, (right panel) dense  $\text{ZnO}$  nanowires grown from Zn foils with  $\text{ZnCl}_2$  coating after thermal annealing at  $700\text{ }^\circ\text{C}$  for 60 min.

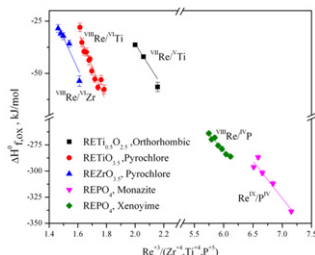
## Atomic Pt and molecular $\text{H}_2\text{O}$ adsorptions on $\text{SrTiO}_3$ with and without Nb-doping: Electron trapping center and mediating roles of Pt in charge transfer from semiconductor to water

Wei Wei, Ying Dai, Meng Guo, Yandong Ma and Baibiao Huang  
page 64



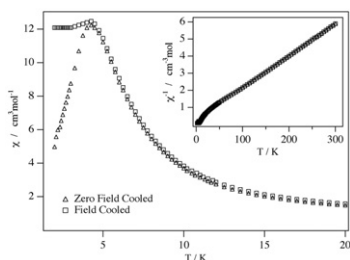
Pt mediates the charge transfer from  $\text{SrTiO}_3$  to  $\text{H}_2\text{O}$  and can improve the efficiency of photocatalytic water splitting.

**Formation enthalpies and heat capacities of rear earth titanates:  $RE_2TiO_5$  ( $RE = La, Nd$  and  $Gd$ )**  
Shmuel Hayun and Alexandra Navrotsky  
*page 70*



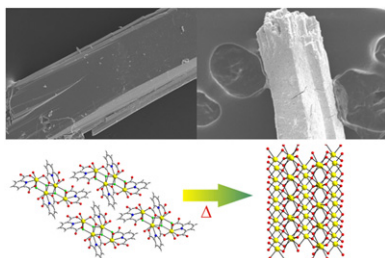
Normalized enthalpy of formation for one  $RE^{3+}$  cation from the oxides for several  $RE$  ternary oxide systems *vs.* the cation radius ratio  $R_A/R_B$  ( $A = RE, B = Ti, Zr, P$ ). All the  $RE$  ternary oxide systems are stable relative to constituent oxides, with increasing stability as  $R_A/R_B$  increases. The Roman numerals above the cations represent the coordination number.

**Structural chemistry and spin-glass behaviour of  $Nd_{18}Li_8Fe_4TiO_{39}$**   
Nirawat Thammajak, Peter D. Battle,  
Fernande Grandjean, Gary J. Long and Silvia Ramos  
*page 75*



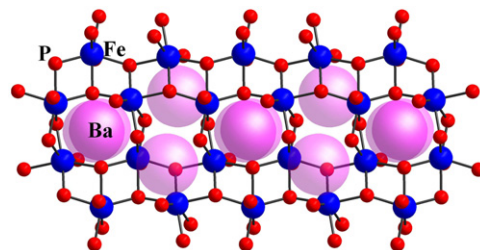
$Nd_{18}Li_8Fe_4TiO_{39}$  undergoes a transition to a spin-glass state at 4.25(K) K.

**$Bi[NC_5H_3(CO_2)_2](OH_2)_x F$  ( $x = 1$  and  $2$ ): New one-dimensional Bi-coordination materials—Reversible hydration and topotactic decomposition to  $\alpha-Bi_2O_3$**   
Hye Rim Jeon, Dong Woo Lee and Kang Min Ok  
*page 83*



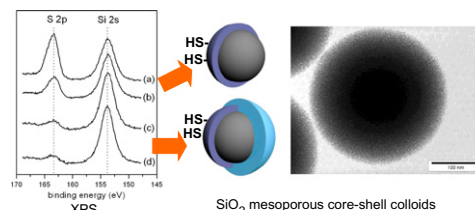
Calcination of the  $Bi[NC_5H_3(CO_2)_2](OH_2)_x F$  single crystals at  $800^\circ C$  results in the  $\alpha-Bi_2O_3$  rods that maintain the original morphology of the crystals.

**Investigation on pseudosymmetry, twinning and disorder in crystal structure determinations:  $Ba(H_2O)M_2^{III}[PO_3(OH)]_4$  ( $M = Fe, V$ ) as examples**  
Wei Sun, Ya-Xi Huang, Yuanming Pan and Jin-Xiao Mi  
*page 89*



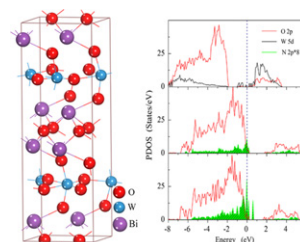
$Ba(H_2O)M_2^{III}[PO_3(OH)]_4$  ( $M = Fe, V$ ) varies in space group from  $P2_1$  to  $P2_1/c$ , arising from ordered to disordered distributions of  $Ba^{2+}$  and  $H_2O$  in the cavities.

**Organized thiol functional groups in mesoporous core shell colloids**  
Martín H. Marchena, Mara Granada, Andrea V. Bordoni,  
María Joselevich, Horacio Troiani, Federico J. Williams  
and Alejandro Wolosiuk  
*page 97*



Mesoporous core shell  $SiO_2$  colloids with organized thiol groups.

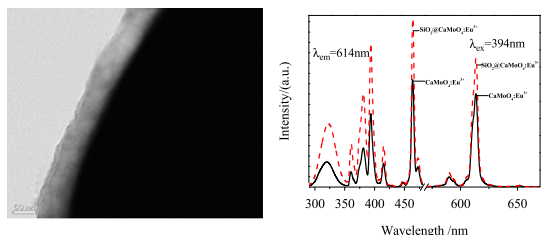
**Effects of oxygen vacancy and N-doping on the electronic and photocatalytic properties of  $Bi_2MO_6$  ( $M = Mo, W$ )**  
Kangrong Lai, Wei Wei, Yingtao Zhu, Meng Guo,  
Ying Dai and Baibiao Huang  
*page 103*



The oxygen vacancy in  $Bi_2WO_6$  serves as a trapping center of photogenerated electrons. Nitrogen-doping improves the separation of photogenerated electron-hole pairs. Moreover, band gaps decrease obviously with doping concentration increasing.

## Luminescence properties of core-shell structured $\text{SiO}_2@ \text{CaMoO}_4:\text{Eu}^{3+}$ phosphor

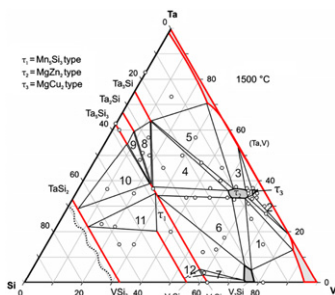
Xiaoxia Ju, Xueming Li, Yuling Yang, Wulin Li, Chuanyu Tao and Wenlin Feng  
page 109



A  $\text{SiO}_2$  nano-layer with thickness of 60 nm and good uniformity was successfully coated on the surface of  $\text{CaMoO}_4:\text{Eu}^{3+}$  phosphor. This coating greatly increases luminescent intensity of the phosphor.

## The system Ta–V–Si: Crystal structure and phase equilibria

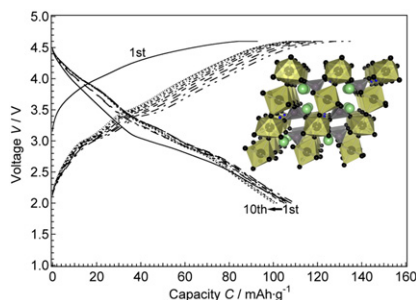
A.U. Khan, P. Broz, H.Y. Niu, J. Bursik, A. Grytsiv, X.-Q. Chen, G. Gierster and P. Rogl  
page 114



Phase relations have been evaluated for the Ta–V–Si system at 1500 and 1200 °C.

## Synthesis, crystal structure, and electrode characteristics of $\text{LiMnPO}_4(\text{OH})$ cathode for lithium batteries

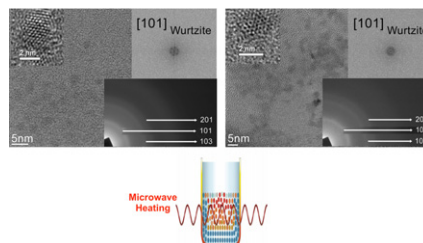
Yang Yang, Masaaki Hirayama, Masao Yonemura and Ryoji Kanno  
page 124



Tavorite-type material  $\text{LiMnPO}_4(\text{OH})$  shows lithium intercalation at an average voltage of 3.4 V (vs. Li) after a phase transition during the first charge–discharge.

## Microwave-assisted low temperature synthesis of wurtzite ZnS quantum dots

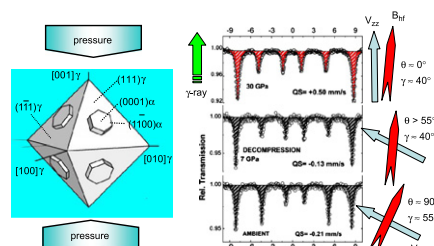
Robina Shahid, Muhammet S. Toprak and Mamoun Muhammed  
page 130



Microwave assisted synthesis of wurtzite ZnS quantum dots (QDs) have been achieved in controlled reaction at temperature as low as 150 °C. The synthesis was performed in different microwave absorbing solvents with multisource or single source precursors for very short reaction periods due to effective heating with microwaves.

## Pressure response of vacancy ordered maghemite ( $\gamma\text{-Fe}_2\text{O}_3$ ) and high pressure transformed hematite ( $\alpha\text{-Fe}_2\text{O}_3$ )

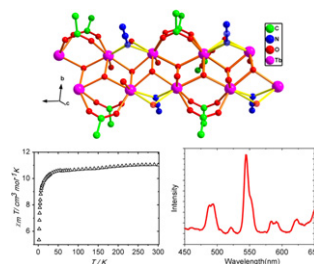
Giovanni Hearne and Vittoria Pischedda  
page 134



Pressure instigated topotactic transformation of vacancy ordered  $\gamma\text{-Fe}_2\text{O}_3 \rightarrow \alpha\text{-Fe}_2\text{O}_3$ . There is restricted spin ( $B_{\text{hf}}$ ) reorientation in the new pressure transformed hematite due to entrapped vacancies. The change in direction of  $V_{\text{zz}}$  signifies a distortion of the  $\text{FeO}_6$  octahedral local environment.

## Versatile lanthanide-azide complexes with azide/ carboxylate/hydroxy mixed bridged chain exhibiting magnetic and luminescent properties

Hai-Chao Wang, Min Xue, Qian Guo, Jiong-Peng Zhao, Fu-Chen Liu and Joan Ribas  
page 143

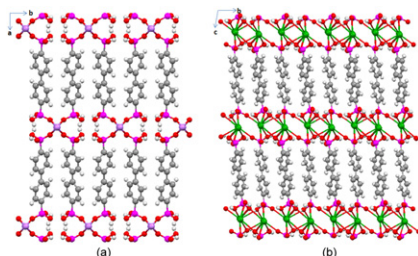


Two new 1D lanthanide-azide complexes,  $[\text{Ln}_2(\text{N}_3)(\text{isonic})_2(\text{OH})_3(\text{Hisonic})(\text{H}_2\text{O})_n]$  ( $\text{Ln} = \text{Yb}^{\text{III}}$  for **1** and  $\text{Tb}^{\text{III}}$  for **2**, isonic = isonicotinate), were synthesized by hydrothermal reaction and exhibit interesting magnetism and fluorescence properties.

### Structural differences of metal biphenylenebisphosphonate with change in the alkali metal

Tiffany L. Kinnibrugh, Nancy Garcia and Abraham Clearfield

page 149

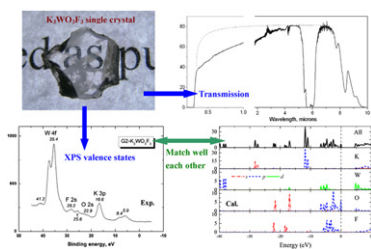


Two of five metal biphenylenebisphosphonate structures (lithium (a) and cesium (b)) are presented. Each compound is a potential Bronsted acid catalyst, where three of the original four protons are retained from the biphenylenebisphosphonic acid.

### Exploration on anion ordering, optical properties and electronic structure in $K_3WO_3F_3$ elpasolite

V.V. Atuchin, L.I. Isaenko, V.G. Kesler, Z.S. Lin, M.S. Molokeyev, A.P. Yelissev and S.A. Zhurkov

page 159

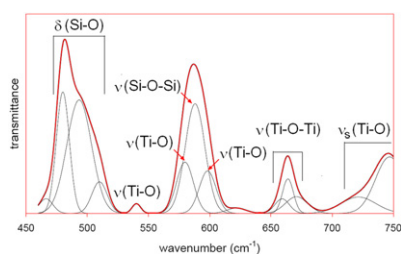


Using the cm-size  $K_3WO_3F_3$  crystal (left upper), the transmission spectrum (right upper) and XPS valence electronic states (left lower) were measured, agreed with the *ab initio* results (right lower).

### Synthesis and crystal chemical evolution of fresnoite powders

Chui L. Wong, S. Madhavi, N. Phonthammachai and Timothy J. White

page 165

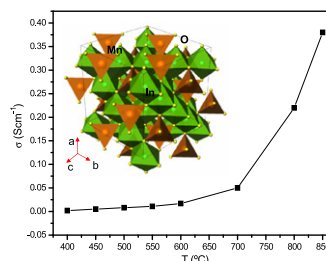


The Pechini synthesis of  $(Ba, Sr)_2TiSi_2O_8$  titano-silicate fresnoites delivers finely divided precursors for applications as diverse as solid electrolytes and photocatalysis that exploit the unique Ti-O and Si-O bonding and structural morphology of these materials.

### Why $MnIn_2O_4$ spinel is not a transparent conducting oxide?

M.J. Martínez-Lope, M. Retuerto, C. de la Calle, Florence Porcher and J.A. Alonso

page 172



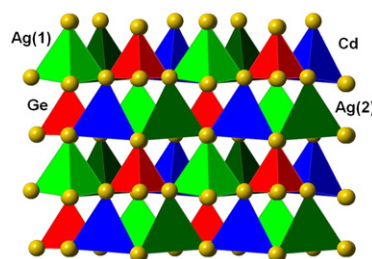
From NPD data the crystallographic formula  $(Mn_{0.924(2)}In_{0.076(2)})_8a(In_{1.804(2)}Mn_{0.196(2)})_{16d}O_4$ , shows a slight degree of inversion,  $\lambda = 0.08$  and a certain In deficiency. The presence of Mn ions, able to adopt mixed oxidation states, localize the charges that, otherwise, would be delocalized in the spinel conduction band;

the presence of localized  $Mn^{2+}$  and  $Mn^{3+}$  ions provides the characteristic brown color.

### Cation ordering and physicochemical characterization of the quaternary diamond-like semiconductor $Ag_2CdGeS_4$

Carl D. Brunetta, William C. Minsterman III, Charles H. Lake and Jennifer A. Aitken

page 177

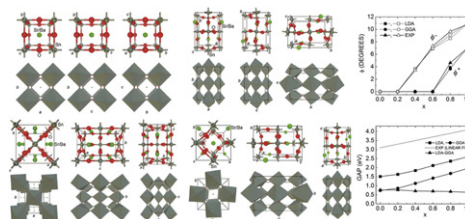


The structure of the diamond-like semiconductor  $Ag_2CdGeS_4$  has been solved and refined in the orthorhombic noncentrosymmetric space group  $Pna2_1$ . A view down the *a*-axis shows that all  $MS_4$  tetrahedra are pointing in the same direction along the *c*-axis. The structure can be derived from that of lonsdaleite.

### Structural and electronic properties of $Sr_xBa_{1-x}SnO_3$ from first principles calculations

E. Moreira, J.M. Henriques, D.L. Azevedo, E.W.S. Caetano, V.N. Freire and E.L. Albuquerque

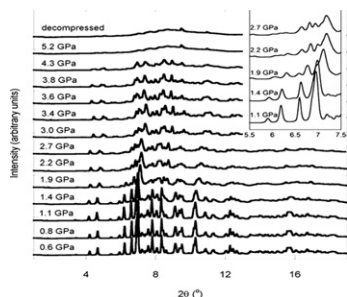
page 186



Continued

### In-situ non-ambient X-ray diffraction studies of indium tungstate

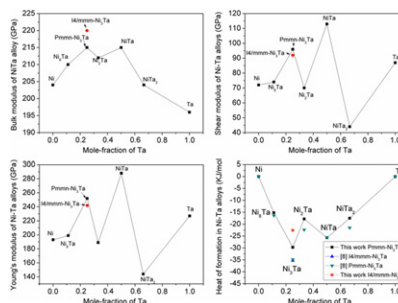
Tamam I. Baiz, Christophe P. Heinrich, Nathan A. Banek, Boris L. Vivekens and Cora Lind  
page 195



Variable pressure X-ray diffraction patterns of  $\text{In}_2\text{W}_3\text{O}_{12}$  collected in a diamond anvil cell. A phase transition is clearly observed between 2.2 and 2.7 GPa, followed by irreversible amorphization.

### First-principles studies of Ni-Ta intermetallic compounds

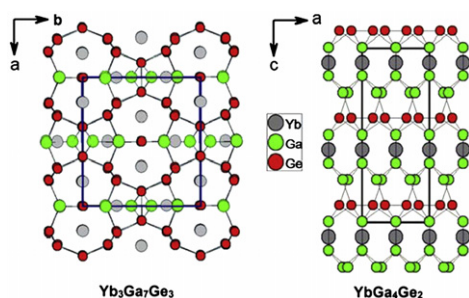
Yi Zhou, Bin Wen, Yunqing Ma, Roderick Melnik and Xingjun Liu  
page 211



Mechanical properties and formation heats of Ni-Ta intermetallic compounds are discussed in detail in this paper.

### The polygallides: $\text{Yb}_3\text{Ga}_7\text{Ge}_3$ and $\text{YbGa}_4\text{Ge}_2$

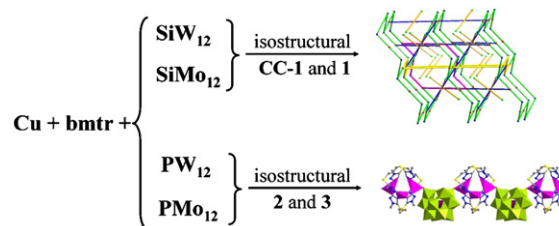
Sebastian C. Peter, Christos D. Malliakas, Heinze Nakotte, Karunakar Kothapilli, Sudhindra Rayaprol, Arthur J. Schultz and Mercouri G. Kanatzidis  
page 200



The compounds  $\text{Yb}_3\text{Ga}_7\text{Ge}_3$  and  $\text{YbGa}_4\text{Ge}_2$  are obtained from reactions of Yb and Ge in excess liquid gallium.

### Effect of the Keggin anions on assembly of $\text{Cu}^{\text{I}}$ -bis(tetrazole) thioether complexes containing multinuclear $\text{Cu}^{\text{I}}$ -cluster

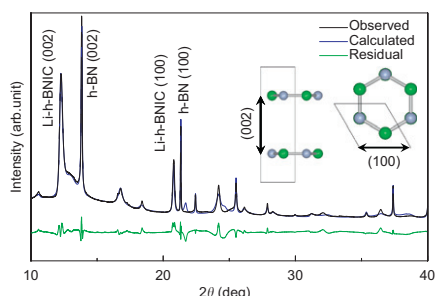
Xiu-Li Wang, Qiang Gao, Ai-Xiang Tian, Hai-Liang Hu and Guo-Cheng Liu  
page 219



Three new complexes based on different Keggin anions and multinuclear  $\text{Cu}^{\text{I}}$ -cluster have been synthesized under hydrothermal conditions. The Keggin polyanions with different central heteroatoms play a key role.

### Structural analysis of Li-intercalated hexagonal boron nitride

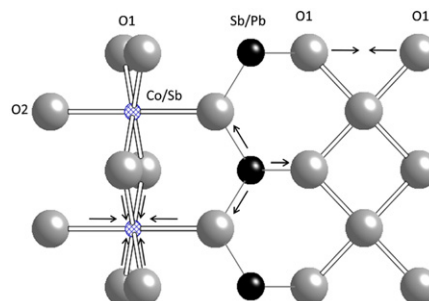
A. Sumiyoshi, H. Hyodo and K. Kimura  
page 208



XRD pattern fitting of the sample and schematic view of host h-BN lattice.

### Structural and magnetic characterisation of $\text{CoSb}_2\text{O}_4$ , and the substitution of $\text{Pb}^{2+}$ for $\text{Sb}^{3+}$

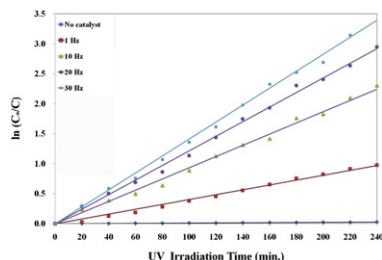
Benjamin P. de Laune and Colin Greaves  
page 225



Structural changes on substitution of  $\text{Pb}^{2+}$  ions for  $\text{Sb}^{3+}$  ions in  $\text{CoSb}_2\text{O}_4$ .

## Structure–property correlation in epitaxial (2 0 0) rutile films on sapphire substrates

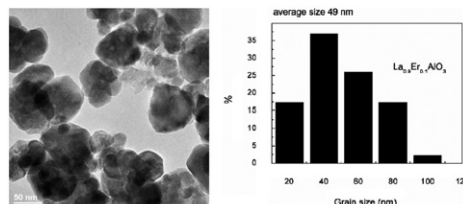
M.R. Bayati, Sh. Joshi, R. Molaei, R.J. Narayan and J. Narayan  
page 231



In this report, epitaxial rutile  $\text{TiO}_2$  thin films were deposited by PLD process under various deposition rates (frequencies) and their physical and chemical properties, especially photocatalytic performance, were investigated. It was found that photocatalytic efficiency improves when frequency increases. This behavior was mainly related to formation of point defects which enhance the charge separation.

## Low-temperature synthesis, luminescence and phonon properties of Er and/or Dy doped $\text{LaAlO}_3$ nanopowders

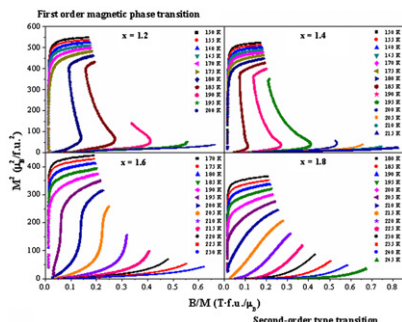
Mirosław Mączka, Esmeralda Mendoza-Mendoza, Antonio F. Fuentes, Karol Lemański and Przemysław Dereń  
page 249



TEM image of  $\text{La}_{0.9}\text{Er}_{0.1}\text{AlO}_3$  (left panel) and histogram showing the particle size distribution (right panel).

## Magnetic properties and magnetocaloric effect in $\text{La}_{0.7}\text{Nd}_{0.3}\text{Fe}_{13-x}\text{Si}_x$ compounds

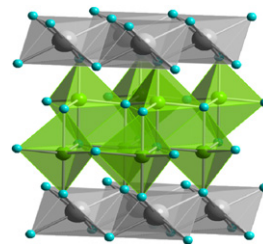
S. Mican and R. Tetean  
page 238



Transition from a first-order to a second-order magnetic phase transition at  $T_C$  on  $\text{La}_{0.7}\text{Nd}_{0.3}\text{Fe}_{13-x}\text{Si}_x$ .

## Substitutions into the trigonal bipyramidal site of $\text{InGaCuO}_4$

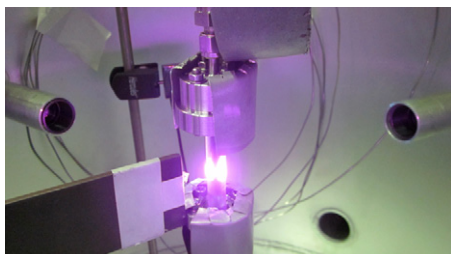
Rosa Grajczyk, Krishnendu Biswas, Romain Berthelot, Jun Li, A.W. Sleight and M.A. Subramanian  
page 258



Solid solutions of  $\text{InM}\text{Cu}_{1-x}\text{Mg}_x\text{O}_4$  ( $M = \text{Ga}^{3+}, \text{Al}^{3+}$ ) have been synthesized and analyzed with powder X-ray and neutron diffraction, dielectric and magnetism measurements. A shift in the lattice parameters that cannot be explained by the change in ionic radii is addressed through a study of the trigonal bipyramidal site.

## The hydrogenation of $\text{Dy}_5\text{Pd}_2$ followed by *in situ* methods

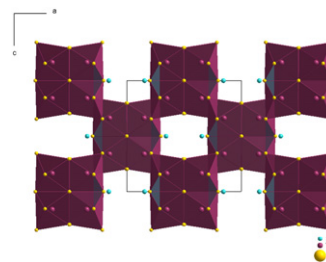
H. Kohlmann, E. Talik and T.C. Hansen  
page 244



The hydrogenation of  $\text{Dy}_5\text{Pd}_2$  is being followed by *in situ* neutron diffraction.

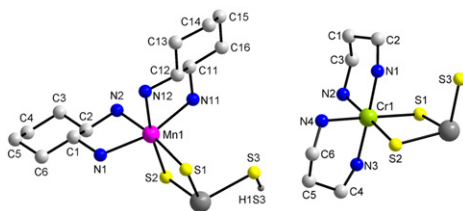
## Two new ternary lanthanide antimony chalcogenides: $\text{Yb}_4\text{Sb}_2\text{S}_{11.25}$ and $\text{Tm}_4\text{Sb}_2\text{Se}_{11.68}$ containing chalcogenide $\text{Q}^{2-}$ and dichalcogenide $(\text{Q}_2)^{2-}$ anions

Jean-Marie Babo and Thomas E. Albrecht-Schmitt  
page 264



The crystal structure of  $\text{Yb}_4\text{Sb}_2\text{S}_{11}$  viewed along the  $[0\ 1\ 0]$ .

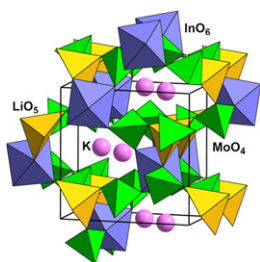
**The thioantimonate anion  $\text{SbS}_3^{3-}$  acting as ligand: Syntheses, crystal structures and selected properties of  $[\text{Mn}(1,2\text{-chxn})_2\text{SbS}_3\text{H}]$  and  $[\text{Cr}(1,3\text{-dap})_2\text{SbS}_3]$**   
 B. Seidlhofer, V. Spetzler, C. Näther and W. Bensch  
 page 269



The two new compounds  $[\text{Mn}(1,2\text{-chxn})_2\text{SbS}_3\text{H}]$  and  $[\text{Cr}(1,3\text{-dap})_2\text{SbS}_3]$  contain the  $\text{SbS}_3^{3-}$  anion acting as bidentate ligand.

**Phase formation in the  $\text{Li}_2\text{MoO}_4\text{-K}_2\text{MoO}_4\text{-In}_2(\text{MoO}_4)_3$  system and crystal structures of new compounds  $\text{K}_3\text{InMo}_4\text{O}_{15}$  and  $\text{LiK}_2\text{In}(\text{MoO}_4)_3$**

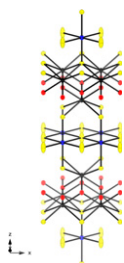
Klara M. Khal'baeva, Sergey F. Solodovnikov, Elena G. Khaikina, Yuliya M. Kadyrova, Zoya A. Solodovnikova and Olga M. Basovich  
 page 276



Exploring the  $\text{Li}_2\text{MoO}_4\text{-K}_2\text{MoO}_4\text{-In}_2(\text{MoO}_4)_3$  system showed its partial non-quasibinarity and revealed new compounds  $\text{K}_3\text{InMo}_4\text{O}_{15}$  (isotypic to  $\text{K}_3\text{FeMo}_4\text{O}_{15}$ ) and  $\text{LiK}_2\text{In}(\text{MoO}_4)_3$  which were structurally studied. An open framework of the latter is formed by vertex-shared  $\text{MoO}_4$  tetrahedra,  $\text{InO}_6$  octahedra and  $\text{LiO}_5$  tetragonal pyramids.

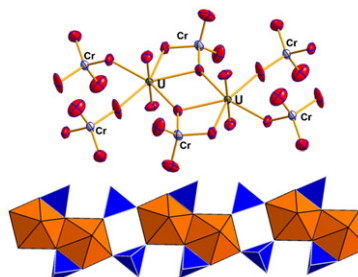
**Synthesis and structural characterization of the new compound  $\text{U}_2\text{Er}_2\text{O}_2\text{S}_3$  and the evidence for the old compound  $\text{U}_2\text{ErO}_2\text{S}_3$**

Adam D. Raw and James A. Ibers  
 page 282



The structure of  $\text{U}_2\text{Er}_2\text{O}_2\text{S}_3$  U/Er, black; Er, blue; O, red; S, yellow.

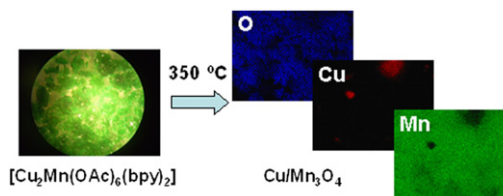
**Syntheses and crystal structures of two novel alkaline uranyl chromates  $A_2(\text{UO}_2)(\text{CrO}_4)_2$  ( $A = \text{Rb}, \text{Cs}$ ) with bidentate coordination mode of uranyl ions by chromate anions**  
 Oleg I. Siidra, Evgeny V. Nazarchuk and Sergey V. Krivovichev  
 page 286



Uranyl chromate chain with monodentate and bidentate coordination mode of uranyl cations by  $\text{CrO}_4$  tetrahedra in  $\text{Cs}_2(\text{UO}_2)(\text{CrO}_4)_2$ .

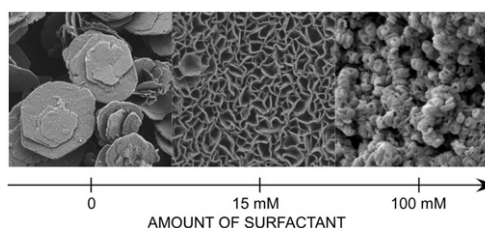
**Surface characterization of  $\text{ZnO}/\text{ZnMn}_2\text{O}_4$  and  $\text{Cu}/\text{Mn}_3\text{O}_4$  powders obtained by thermal degradation of heterobimetallic complexes**

Joël Barrault, Valeriya G. Makhankova, Oleksiy V. Khavryuchenko, Vladimir N. Kozozay and Philippe Ayrault  
 page 291



From the selective transformation of heterometallic (Zn–Mn or Cu–Mn) carboxylate complexes, it was possible to get either well defined spinel  $\text{ZnMn}_2\text{O}_4$  over zinc oxide or well dispersed copper particles surrounded by a manganese oxide ( $\text{Mn}_3\text{O}_4$ ) in a core-shell like structure.

**Platelets to rings: Influence of sodium dodecyl sulfate on Zn–Al layered double hydroxide morphology**  
 Ceren Yilmaz, Ugur Unal and Havva Yagci Acar  
 page 295



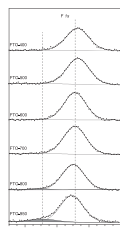
Dependence of ZnAl LDH Morphology on SDS concentration.



## Study of surface fluorination of photocatalytic TiO<sub>2</sub> by thermal shock method

Tien Khoa Le, Delphine Flahaut, Dominique Foix, Sylvie Blanc, Huu Khanh Hung Nguyen, Thi Kieu Xuan Huynh and Hervé Martinez

page 300

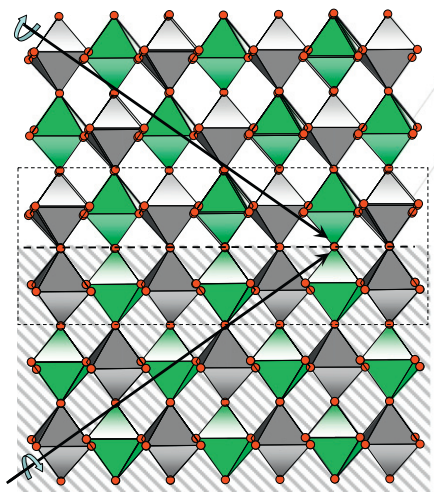


The influence of fluorination on the surface of TiO<sub>2</sub> by thermal shock method at several temperatures has been investigated by following the evolution of the F1s spectra obtained by X-ray photoelectron spectroscopy. The blank peaks are assigned to the chemisorbed fluoride ions on the samples surface and the filled peaks to fluorine atoms in oxygenated environment of solid solution TiO<sub>2-x</sub>F<sub>x</sub>, which is originated from the substitution of F ions for O ions in the TiO<sub>2</sub> lattice.

## Response of intergrown microstructure to an electric field and its consequences in the lead-free piezoelectric bismuth sodium titanate

Yun Liu, Lasse Norén, Andrew J. Studer, Ray L. Withers, Yiping Guo, Yongxiang Li, Hui Yang and Jian Wang

page 309

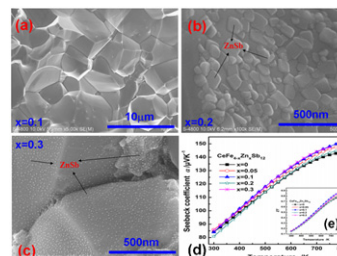


The intergrown microstructure at very fine scales within the R3c rhombohedral phase matrix of BNT, originating from octahedral tilt twinning disorder, will increase with respect to an external field.

## Enhanced thermoelectric performance in zinc substituted p-type filled skutterudites CeFe<sub>4-x</sub>Zn<sub>x</sub>Sb<sub>12</sub>

Gangjian Tan, Shanyu Wang, Han Li, Yonggao Yan and Xinfeng Tang

page 316



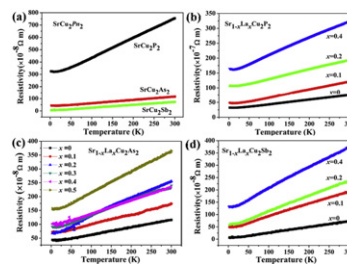
(a)–(c) ZnSb nanoinclusions emerge when Zn exceeds its solubility limit. (d), (e) The introduction of Zn boosts the Seebeck coefficient and thus enhances the ZT value.

## Rapid Communication

## Synthesis, physical properties and electronic structure of Sr<sub>1-x</sub>La<sub>x</sub>Cu<sub>2</sub>Pn<sub>2</sub> (Pn = P, As, Sb)

Mingsheng Qin, Chongyin Yang, Yaoming Wang, Zhongtian Yang, Ping Chen and Fuqiang Huang

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Sr<sub>1-x</sub>La<sub>x</sub>Cu<sub>2</sub>Pn<sub>2</sub> (Pn = P, As, Sb) show metal-like conducting behavior and no superconductive transition was observed from 300 K down to 2 K.

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