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CONTENTS

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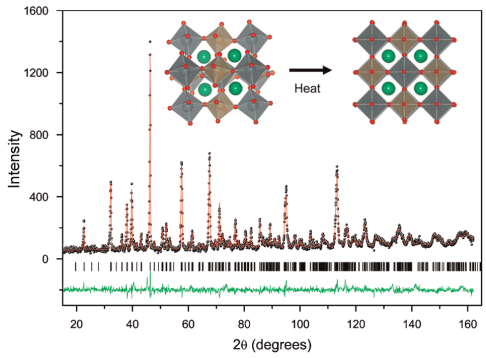
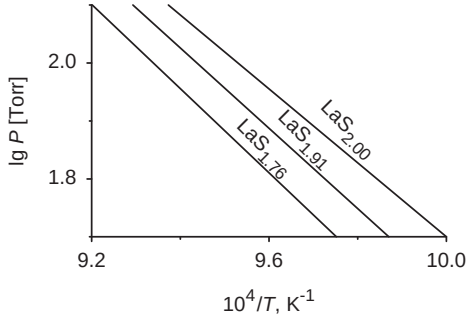
Regular Articles

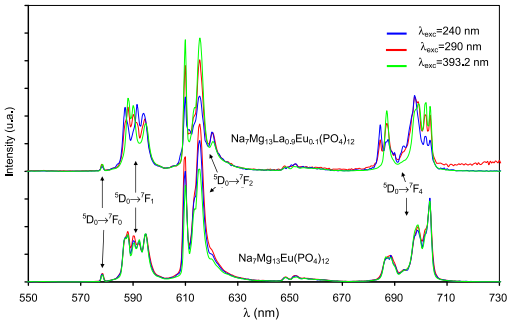


Sr_2YTaO_6 undergoes a sequence of phase transitions upon heating associated with the removal of the tilting of the octahedral. The number of defects in the structure is sensitive to the preparative conditions.

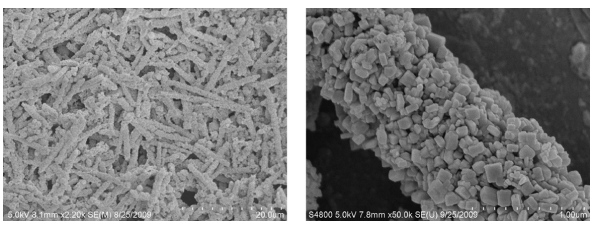


The p_S–T stability fields for La-polysulfides in the concentration range between LaS_2 and La_2S_3.

Regular Articles—Continued

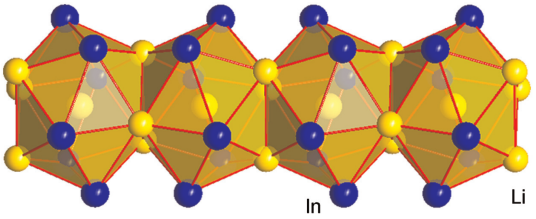


Emission spectra of $Na_7Mg_{13}Eu(PO_4)_{12}$ and $Na_7Mg_{13}La_{0.9}Eu_{0.1}(PO_4)_{12}$ compounds for λ_{exc} = 240, 290 and 393.2 nm.



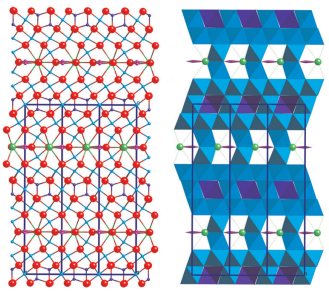
Nanoparticles-assembled $BiFeO_3$ microrods were successfully prepared via a polymer-directed solvothermal route and characterized by XRD, EDS, FT-IR, ICP-AES and SEM.

Intermetallic and metal-rich phases in the system Li–Ba–In–N
Volodymyr Smetana, Grigori V. Vajenine, Lorenz Kienle, Viola Duppel and Arndt Simon
Page 1767



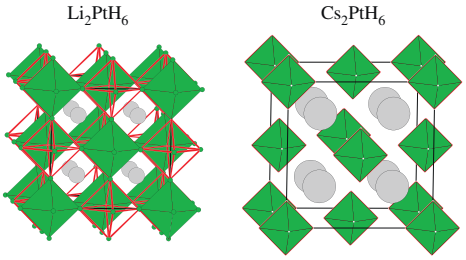
One-dimensional chain of face-sharing centered icosahedra in $BaLi_{2.1}In_{1.9}$.

Characterizing CA_2 and CA_6 using ELNES
A. Altay, C.B. Carter, P. Rulis, W.-Y. Ching, I. Arslan and M.A. Gülgün
Page 1776



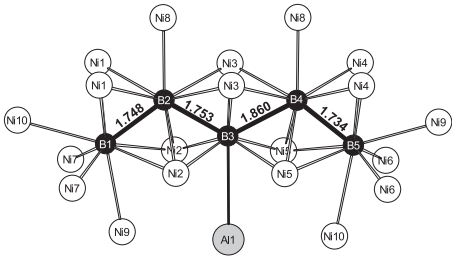
Projection of the CA_2 structure viewed in the [010] direction. Green atoms represent the Ca^{2+} ions and blue atoms represent the Al^{3+} ions. Two unit cells are outlined.

Synthesis of Li_2PtH_6 using high pressure: Completion of the homologous series A_2PtH_6 (A = alkali metal)
Kati Puhakainen, Emil Stoyanov, Michael J. Evans, Kurt Leinenweber and Ulrich Häussermann
Page 1785



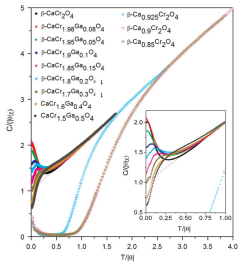
Li_2PtH_6, the missing start member of the complex metal hydride series A_2PtH_6 (A = alkali metal) has been prepared by high pressure hydrogenation. In contrast to the heavier homologues, PtH_6^{2-} octahedral units in Li_2PtH_6 are not well separated and H atoms form a substructure closely corresponding to that of O atoms in cubic perovskite.

Synthesis and crystal structures of the new metal-rich ternary borides $Ni_{12}AlB_8$, $Ni_{12}GaB_8$ and $Ni_{10.6}Ga_{0.4}B_6$—examples for the first B_5 zig-zag chain fragment
Martin Ade, Dominik Kotzott and Harald Hillebrecht
Page 1790



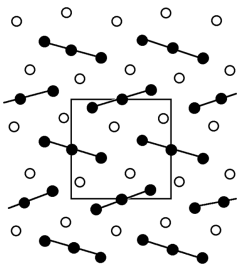
Pentameric B_5-units are longest fragments of a B–B zig-zag chain ever characterized in a boride. They are found in the structures of $Ni_{12}AlB_8$ and $Ni_{12}GaB_8$. The compounds are formed on annealing boron-rich τ-borides like $Ni_{20}AlB_{14}$.

Divergent effects of static disorder and hole doping in geometrically frustrated β-$CaCr_2O_4$
S.E. Dutton, C.L. Broholm and R.J. Cava
Page 1798



Scaled plot of the temperature dependence of the inverse susceptibility for β-$CaCr_{2-2x}Ga_{2x}O_4$ (closed symbols) and β-$Ca_{1-y}Cr_2O_4$ (open symbols). Data sets depicted in the same color contain equivalent amounts of Cr^{3+}.

Magnetic properties of linear trimers in fluoride analogs of tetragonal tungsten bronze
Yaw-Shun Hong, William O.J. Boo and Daniell L. Mattern
Page 1805

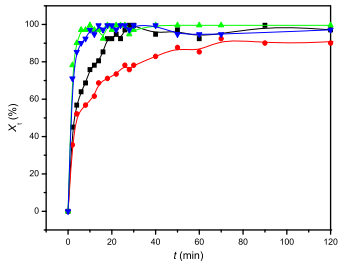


Five fluoride analogs of Tetragonal Tungsten Bronze ($KZnTiF_6$, $KZnVF_6$, $KVScF_6$, $KCrScF_6$, and $KMnScF_6$) underwent M^{2+}–M^{3+} ionic ordering below 100 K, providing linear trinuclear complexes of their respective paramagnetic ions.

Synthesis and release behavior of composites of camptothecin and layered double hydroxide

Lun Dong, Li Yan, Wan-Guo Hou and Shao-Jie Liu

Page 1811

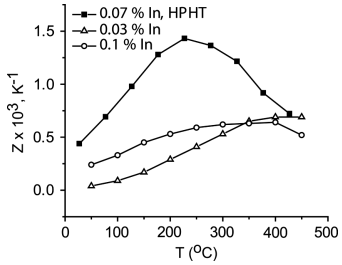


A simple method, reconstruction of calcinated LDHs in an organic–water medium containing drug, was developed to intercalate non-ionic and poorly water-soluble camptothecin into the gallery of LDHs.

Thermoelectric properties of HPHT sintered In-doped $Pb_{0.5}Sn_{0.5}Te$

Yongkwan Dong, Abds-Sami Malik and Francis J. DiSalvo

Page 1817

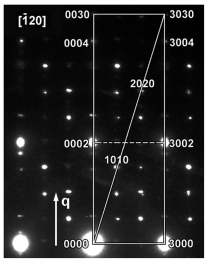


A twofold improvement in thermoelectric figure of merit (ZT) is achieved for HPHT sintered In-doped $Pb_{0.5}Sn_{0.5}Te$, when compared to the conventionally sintered materials of similar composition reported in the literature.

The local structure and composition of $Ba_4Nb_2O_9$-based oxycarbonates

Jana Bezjak, Artem M. Abakumov, Aleksander Rečnik, Marjeta Maček Kržmanc, Boštjan Jančar and Danilo Suvorov

Page 1823

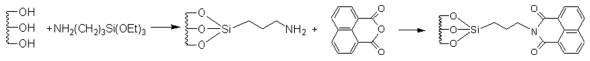


The composition and the local crystal structure of generally known α-$Ba_4Nb_2O_9$ was studied. The compound is hydrated oxycarbonate with the composition of $Ba_4Nb_2O_{8.8}(CO_3)_{0.2} \cdot 0.1\,H_2O$. It has a composite incommensurately modulated structure consisting of two mutually interacting subsystems, i.e., $[Ba]\infty$ and the $[(Nb,\square)O_3]\infty$ subsystem.

Post-treatment and characterization of novel luminescent hybrid bimodal mesoporous silicas

Yuzhen Li, Jihong Sun, Xia Wu, Li Lin and Lin Gao

Page 1829

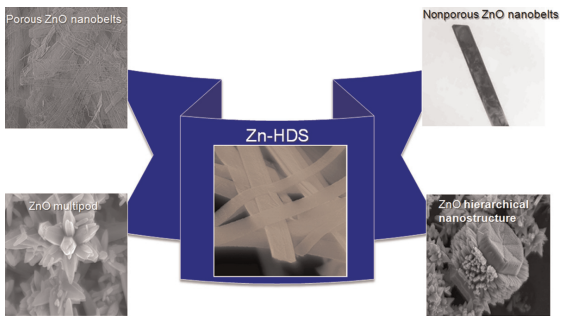


A novel luminescent hybrid bimodal mesoporous silicas was synthesized via modification and then grafting with 1, 8-Naphthalic anhydride, which would be strong potential application in the photoluminescent fields.

Synthesis of porous and nonporous ZnO nanobelt, multipod, and hierarchical nanostructure from Zn-HDS

Eue-Soon Jang, Jung-Hee Won, Young-Woon Kim, Zhen Cheng and Jin-Ho Choy

Page 1835

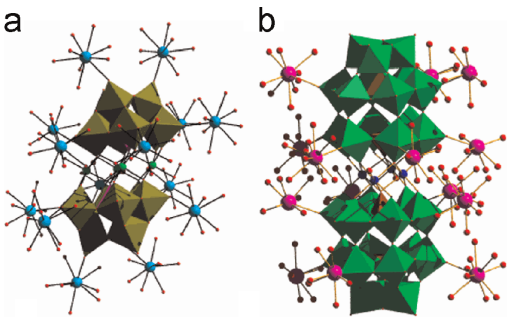


Porous and nonporous ZnO nanobelts, multipod, and hierarchical nanostructure were successfully synthesized from Zn based hydroxyl double salts by hydrothermal reaction.

Two 3D networks based on sandwich-type polyoxometalate units linked by Sr–O clusters: Synthesis, structure, and magnetic property

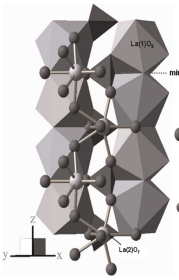
Yang Yu, Bai-Bin Zhou, Kai Yu and Yu-Nan Zhang

Page 1841



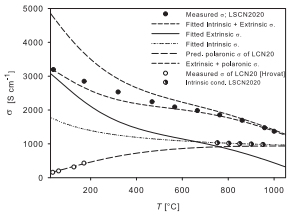
Two compounds based on Keggin(a) and Wells–Dawson(b) polyoxometalates modified by 14 Sr–O clusters.

Eu^{3+} luminescence in $La_5Si_2BO_{13}$ with apatite related structure and magnetic studies in $Ln_5Si_2BO_{13}$ (Ln = Gd, Dy)
S. Asiri Naidu, U.V. Varadaraju and B. Raveau
Page 1847



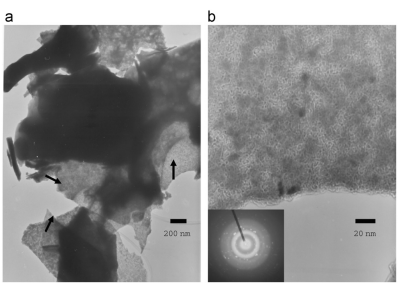
In $La_5Si_2BO_{13}$, the La(1)O_9 polyhedra share faces, the La(2)O_7 polyhedra are connected through corners and La(2)O_7 and La(1)O_9 polyhedra are connected to each other by edge sharing along '*z*'-axis.

Defect structure, electronic conductivity and expansion of properties of $(La_{1-x}Sr_x)_sCo_{1-y}Ni_yO_{3-\delta}$
Per Hjalmarsson, Martin Søgaard and Mogens Mogensen
Page 1853



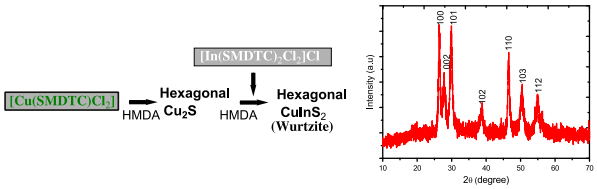
Electronic conductivity as function of temperature for $(La_{0.8}Sr_{0.2})_{0.99}Co_{0.8}Ni_{0.2}O_{3-\delta}$. A model with metallic like conductivity for the extrinsic p-type charge carrier (due to Sr substitution) and small polaron conductivity for intrinsic charge carriers (due to Co spin transitions) was found to best describe the total conductivity.

Magneto-thermal and dielectric properties of biferroic $YCrO_3$ prepared by combustion synthesis
A. Durán, A.M. Arévalo-López, E. Castillo-Martínez, M. García-Guaderrama, E. Moran, M.P. Cruz, F. Fernández and M.A. Alario-Franco
Page 1863



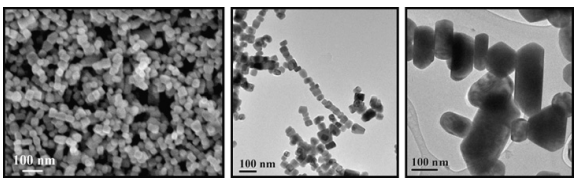
Combustion method: An alternative route for synthesized a new family of multiferroics. Amorphous agglomerates of nano-sized particles of $YCrO_3$ compounds.

Facile synthesis of nanocrystalline wurtzite Cu–In–S by amine-assisted decomposition of precursors
Pulakesh Bera and Sang Il Seok
Page 1872



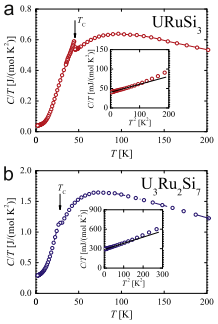
Phase-pure ternary wurtzite Cu–In–S nanocrystals have been synthesized by a simple amine-assisted decomposition of mixed precursor complexes derived from S-methyl dithiocarbazate (SMDTC) at a relatively low temperature.

Shape-controlled solvothermal synthesis of bismuth subcarbonate nanomaterials
Gang Cheng, Hanmin Yang, Kaifeng Rong, Zhong Lu, Xianglin Yu and Rong Chen
Page 1878



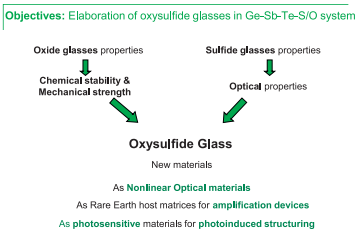
Different bismuth subcarbonate ($(BiO)_2CO_3$) nanostructures were successfully synthesized by a simple solvothermal method. It was found that the solvents and precursors have an influence on the morphologies of $(BiO)_2CO_3$ nanostructures.

Crystal structure and physical properties of the novel ternary intermetallics $URuSi_{3-x}$ and $U_3Ru_2Si_7$
M. Pasturel, A.P. Pikul, M. Potel, T. Roisnel, O. Tougait, H. Noël and D. Kaczorowski
Page 1884



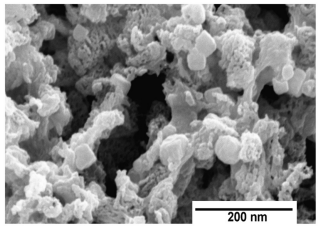
Thermal dependence of the specific heat of the novel intermetallics $URuSi_3$ and $U_3Ru_2Si_7$. The arrows mark temperatures of ferro- or ferrimagnetic phase transitions.

Processing and characterization of new oxy-sulfo-telluride glasses in the Ge–Sb–Te–S–O system
C. Smith, J. Jackson, L. Petit, C. Rivero-Baleine and K. Richardson
Page 1891



In this paper, we discuss our most recent findings on the processing and characterization of new ChG glasses prepared with small levels of Te, melted either with TeO_2 or Sb_2O_3 powders. We explain how these new oxy-sulfo-telluride glasses are prepared and we correlate the physical, thermal and optical properties of the investigated glasses to the structure changes induced by the addition of oxygen in the Ge–Sb–S–Te glass network.

Chemical synthesis of mesoporous CuO from a single precursor: Structural, optical and electrical properties
Swarup Kumar Maji, Nillohit Mukherjee, Anup Mondal, Bibhutosh Adhikary and Basudeb Karmakar
Page 1900



FESEM image of the mesoporous CuO prepared from $Cu(OOCPh)_2$ Lut_2 complex.

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