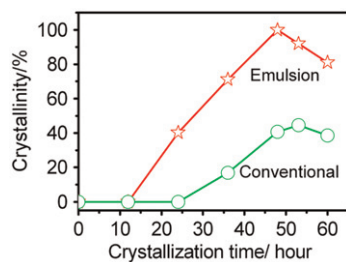


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Regular Articles

Rapid crystallization and morphological adjustment of zeolite ZSM-5 in nonionic emulsions

Ying Zhang and Chao Jin
page 1

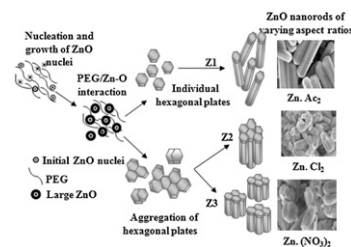


The nonionic emulsion synthesis allows rapid crystallization and morphological adjustment of zeolite ZSM-5 compared with the conventional hydrothermal synthesis.

Regular Articles—Continued

Tuning the aspect ratio of hydrothermally grown ZnO by choice of precursor

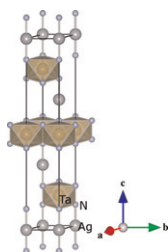
N. Rajeswari Yogamalar and Arumugam Chandra Bose
page 12



The study investigates the effect of Zn^{2+} ions derived from various zinc sources ($Zn \cdot Ac_2$, $Zn \cdot Cl_2$ and $Zn \cdot (NO_3)_2$) on the formation of one dimensional ZnO nanostructures with tunable aspect ratio.

Silver delafossite nitride, $AgTaN_2$?

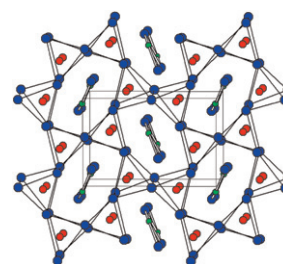
Akira Miura, Michael Lowe, Brian M. Leonard, Chinmayee V. Subban, Yuji Masubuchi, Shinichi Kikkawa, Richard Dronskowski, Richard G. Hennig, Héctor D. Abruña and Francis J. DiSalvo
page 7



A delafossite silver nitride, $AgTaN_2$, was synthesized from $NaTaN_2$ by a cation-exchange reaction using a $AgNO_3-NH_4NO_3$ flux. It contains N–Ag–N linear bonding.

Ternary rare-earth bismuthides RE_5SiBi_2 and RE_5GeBi_2 ($RE = La-Nd, Gd-Er$): Stabilization of the β - Yb_5Sb_3 -type structure through tetrel substitution

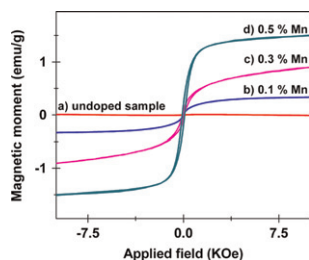
Stephen D. Barry, Andriy V. Tkachuk, Haiying Bie, Peter E.R. Blanchard and Arthur Mar
page 21



Tetrel (Si or Ge) and Bi atoms are arranged in an ordered manner in the β - Yb_5Sb_3 -type structure adopted by RE_5TlBi_2 .

Anomalous magnetic behavior in the transition metal ions doped Cu₂O flower-like nanostructures

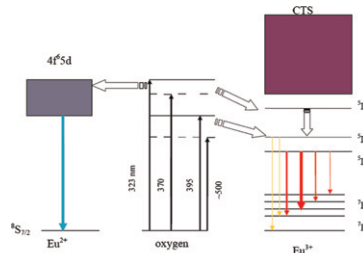
Asar Ahmed and Namdeo S. Gajbhiye
page 30



Room temperature ferromagnetic behavior was observed in the Cu₂O nanoflowers doped with Fe, Co, Ni and Mn ions. Cation deficiencies formed due to dopant ions were possibly responsible for ferromagnetism.

Synthesis and spectral characteristics of Sr₂Y₈(SiO₄)₆O₂: Eu polycrystals

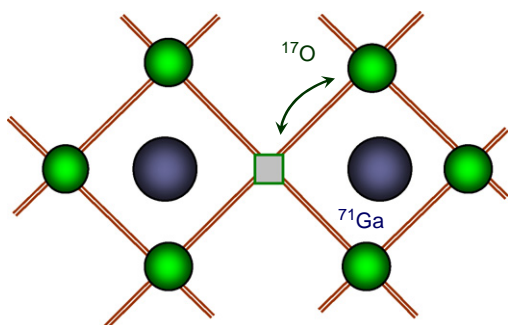
M.G. Zuev, A.M. Karpov and A.S. Shkvarin
page 52



The scheme of nonradiative transfer over of energy of excitation from oxygen vacancies to ions Eu²⁺ and Eu³⁺ in Sr₂Y₈(SiO₄)₆O₂: Eu phosphors.

Vacancy ordering and oxygen dynamics in oxide ion conducting La_{1-x}Sr_xGa_{1-x}Mg_xO_{3-x} ceramics: ⁷¹Ga, ²⁵Mg and ¹⁷O NMR

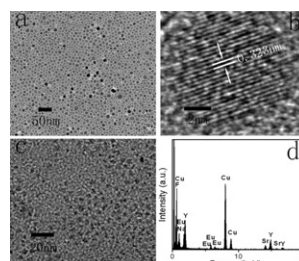
A. Buzlukov, A. Trokiner, V. Kozhevnikov, S. Verkhovskii, A. Yakubovsky, I. Leonidov, A. Gerashenko, A. Stepanov, I. Baklanova and A. Tankeyev
page 36



Up to 700 K the vacant oxygen sites are near Ga but not near Mg.

Tunable photoluminescence of NaYF₄:Eu nanocrystals by Sr²⁺ codoping

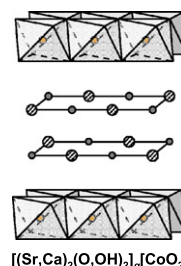
Guofeng Wang and Qing Peng
page 59



(a) TEM and (b) HRTEM images of NaYF₄:Sr(30%)/Eu(10%) nanocrystals. (c) TEM image of NaYF₄:Sr(70%)/Eu(10%) nanocrystals. (d) EDXA pattern of NaYF₄:Sr(30%)/Eu(10%) nanocrystals.

Ca-for-Sr substitution in the thermoelectric [(Sr,Ca)₂(O,OH)₂]_q[CoO₂] misfit-layered cobalt-oxide system

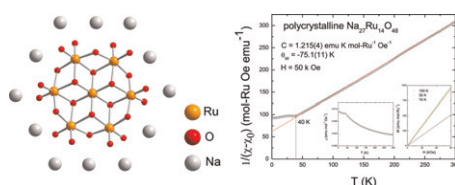
Hisao Yamauchi, Lassi Karvonen, Takayuki Egashira, Yoshiaki Tanaka and Maarit Karppinen
page 64



In the misfit-layered [(Sr_{1-x}Ca_x)₂(O,OH)₂]_q[CoO₂] (0.0 ≤ x ≤ 0.2) system the x = 0 phase has a commensurate match between the two layer blocks (i.e. q = 0.5), while isovalent Ca-for-Sr substitution induces lattice misfit (i.e. q > 0.5). At the same time Seebeck coefficient gets increased. Simultaneous increase in resistivity however outweighs this benefit, and accordingly the thermoelectric power factor is decreased.

Na₂₇Ru₁₄O₄₈: A new mixed-valence sodium ruthenate with magnetic heptameric plaquettes

J.M. Allred, L.M. Wang, P. Khalifah and R.J. Cava
page 44

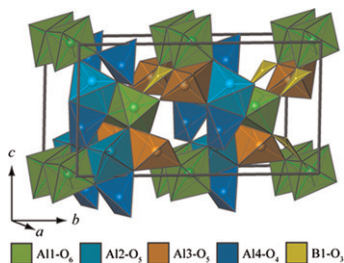


The basic building block in Na₂₇Ru₁₄O₄₈ is a heptameric plaquette. Magnetic susceptibility data indicate the presence of antiferromagnetic correlations.

Crystal-chemistry of mullite-type aluminoborates $Al_{18}B_4O_{33}$ and Al_5BO_9 : A stoichiometry puzzle

Martin Fisch, Thomas Armbruster, Daniel Rentsch, Eugen Libowitzky and Thomas Pettke

page 70

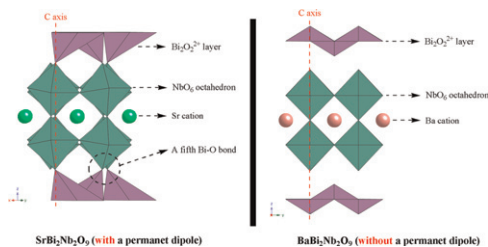


A chemical composition of $Al_{18}B_4O_{33} = Al_{4.91}B_{1.09}O_9 = 9Al_2O_3 : 2B_2O_3$ has been assumed for mullite-type aluminoborate with Al_5BO_9 structure. However, samples prepared by different routes showed compositions close to $5Al_2O_3 : B_2O_3$.

Synthesis, structures and photocatalytic activities of microcrystalline $ABi_2Nb_2O_9$ ($A = Sr, Ba$) powders

Weiming Wu, Shijing Liang, Xiaowei Wang, Jinhong Bi, Ping Liu and Ling Wu

page 81

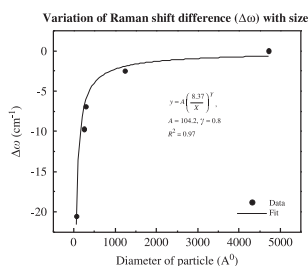


Aurivillius-type $ABi_2Nb_2O_9$ ($A = Sr, Ba$) photocatalysts were successfully synthesized by a citrate complex method. $SrBi_2Nb_2O_9$ and $BaBi_2Nb_2O_9$ showed different photocatalytic performances in the redox reaction of methyl orange (MO) under UV-light ($\lambda = 254$ nm), due to the different crystal structures of $ABi_2Nb_2O_9$ ($A = Sr, Ba$).

Cation distribution and particle size effect on Raman spectrum of $CoFe_2O_4$

P. Chandramohan, M.P. Srinivasan, S. Velmurugan and S.V. Narasimhan

page 89

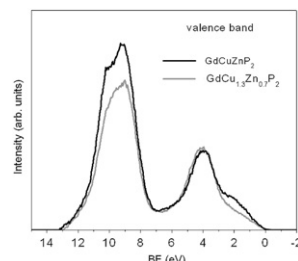


Variation of Raman shift difference ($\Delta\omega$) with size.

Crystal and electronic structures of $CaAl_2Si_2$ -type rare-earth copper zinc phosphides $RECuZnP_2$ ($RE = Pr, Nd, Gd-Tm, Lu$)

Peter E.R. Blanchard, Stanislav S. Stoyko, Ronald G. Cavell and Arthur Mar

page 97

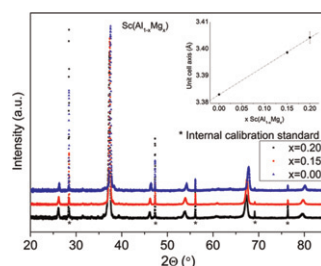


The absence of a band gap in the semimetallic quaternary rare-earth phosphides $RECuZnP_2$ permits the formation of a solid solution such as $GdCu_xZn_{2-x}P_2$ through hole-doping of the valence band.

Fully reversible hydrogen absorption and desorption reactions with $Sc(Al_{1-x}Mg_x)$, $x = 0.0, 0.15, 0.20$

Martin Sahlberg, Claudia Zlotea, Michel Latroche and Yvonne Andersson

page 104

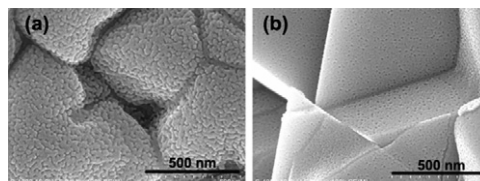


XRD pattern of $Sc(Al_{1-x}Mg_x)$. From the top: $x = 0, 0.15, 0.20$. The hydrogen absorption properties were studied by thermal desorption spectroscopy, pressure-composition-isotherms and scanning electron microscopy techniques.

Enhanced thermoelectric performance and novel nanopores in $AgSbTe_2$ prepared by melt spinning

Baoli Du, Han Li, Jingjing Xu, Xinfeng Tang and Ctirad Uher

page 109

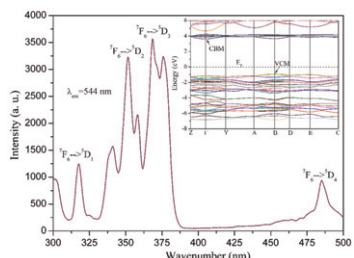


Representative nanostructure of $AgSbTe_2$ sample (a) ribbons obtained after melt spinning (b) bulk $AgSbTe_2$ material obtained after spark plasma sintering.

Continued

Structure, thermal stability and properties of $\text{Li}_3\text{Sc}(\text{BO}_3)_2$

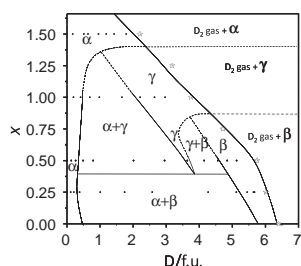
G.M. Cai, X.M. Tao, L.M. Su, F. Zheng, D.Q. Yi, X.L. Chen and Z.P. Jin
page 115



The metal-orthoborate framework of an $\text{Li}_3\text{Sc}(\text{BO}_3)_2$ is build up from ScO_6 octahedra connected to each other by sharing common edges, corners and faces of BO_3 units and LiO_4 groups. Large band gap of about 4.4 eV made Tb^{3+} -doped $\text{Li}_3\text{Sc}(\text{BO}_3)_2$ exhibits excellent photoluminescence property, given potential applications in phosphor-converted white light-emitting diodes.

Investigation of modification of hydrogenation and structural properties of LaNi_5 intermetallic compound induced by substitution of Ni by Pd

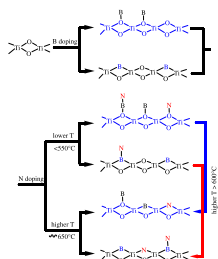
J. Prigent, J.-M. Joubert and M. Gupta
page 123



Phase diagram of the system $\text{LaNi}_{5-x}\text{Pd}_x\text{-D}_2$ (absorption) at 25 °C and 25 bar.

Effect of nitrogen-doping temperature on the structure and photocatalytic activity of the B,N-doped TiO_2

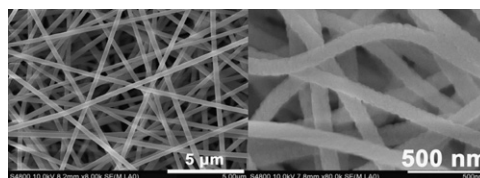
Xiaosong Zhou, Feng Peng, Hongjuan Wang, Hao Yu and Jian Yang
page 134



The changes of photocatalytic activity of B,N- TiO_2 with variable nitrogen doping temperatures are attributed to the transformation of surface structure and oxygen vacancies, and the Ti-O-B-N structure plays a vital role in photocatalytic activity under visible light irradiation.

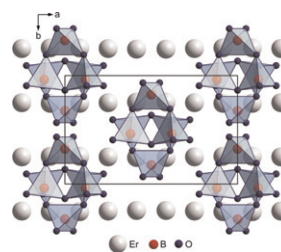
One-dimensional $\text{GdVO}_4:\text{Ln}^{3+}$ ($\text{Ln} = \text{Eu}, \text{Dy}, \text{Sm}$) nanofibers: Electrospinning preparation and luminescence properties

Xue Li, Min Yu, Zhiyao Hou, Guogang Li, Ping'an Ma, Wenxin Wang, Ziyong Cheng and Jun Lin
page 141



The crystal structure of $\pi\text{-ErBO}_3$: New single-crystal data for an old problem

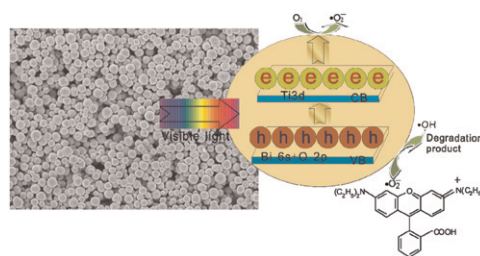
Almut Pitscheider, Reinhard Kaindl, Oliver Oeckler and Hubert Huppertz
page 149



The first satisfying single-crystal structure determination of $\pi\text{-ErBO}_3$ sheds light on the extensively discussed structure of π -orthoborates. The application of light pressure during the solid state synthesis yielded in high-quality crystals, due to pressure-induced crystallization.

Bismuth titanate pyrochlore microspheres: Directed synthesis and their visible light photocatalytic activity

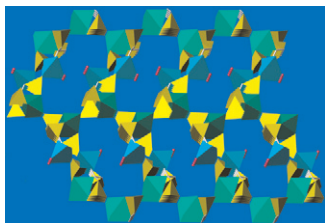
Jungang Hou, Shuqiang Jiao, Hongmin Zhu and R.V. Kumar
page 154



Bismuth titanate pyrochlore microspheres were synthesized by a facile hydrothermal process without the use of any surfactant or template, and the effects of concentration of OH^- on the diameter of microspheres, growth mechanism and photocatalytic properties were investigated.

Syntheses, structures, thermal stabilities and luminescence of two new 3D zinc phosphonates

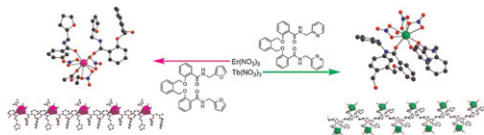
Ruibiao Fu, Shengmin Hu and Xintao Wu
page 159



Two new zinc phosphonates with 3D open-framework consisting of 1D channels and blue or purple emission behave thermally stable up to 300 and 350 °C under air atmosphere, respectively.

Crystal structures and luminescent properties of lanthanide nitrate coordination polymers with structurally related amide type bridging podands

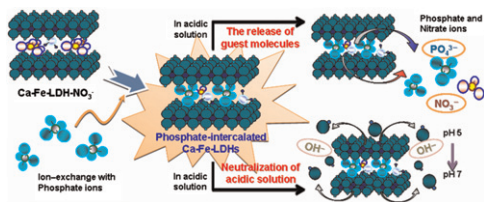
Qing Wang, Xuhuan Yan, Hongrui Zhang, Weisheng Liu, Yu Tang and Minyu Tan
page 164



Two one-dimensional lanthanide coordination polymers were assembled by two structurally related bridging podands, and the effects of the structures on luminescent properties of the solid Tb(III) nitrate complexes were investigated.

Phosphate-intercalated Ca-Fe-layered double hydroxides: Crystal structure, bonding character, and release kinetics of phosphate

Myong A. Woo, Tae Woo Kim, Mi-Jeong Paek, Hyung-Wook Ha, Jin-Ho Choy and Seong-Ju Hwang
page 171

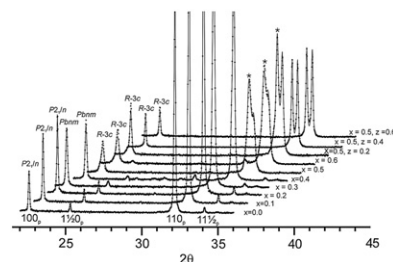


We synthesized phosphate-intercalated Ca-Fe-LDH materials that can act as bifunctional inorganic vectors for the slow release of phosphate fertilizer and also the neutralization of acid soil. Fitting analysis based on kinetic models indicated a heterogeneous diffusion process of phosphates and a distinct dependence of release rate on the charge of phosphates.

Phase formation, crystal structures and magnetic properties of perovskite-type phases in the system



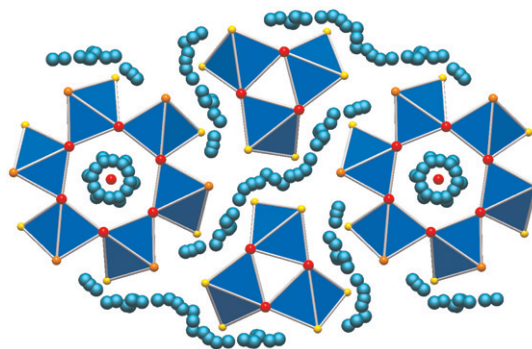
S. Shafeie, J. Grins, S.Ya. Istomin, L. Karvonen, S.A. Chen, T.H. Chen, J.M. Chen, A. Weidenkaff, M. Karppinen, T. Sirtl and G. Svensson
page 177



XRPD patterns for perovskite compounds along the lines $\text{La}_2\text{Co}(\text{Mg}_x\text{Ti}_{1-x})\text{O}_6$ and $\text{La}_2\text{Co}_{1+z}(\text{Mg}_{0.5}\text{Ti}_{0.5})_{1-z}\text{O}_6$.

$\text{Cu}_{22}\text{Bi}_{12}\text{S}_{21}\text{Cl}_{16}$ —A mixed conductor with fast one-dimensional copper(I) ion transport

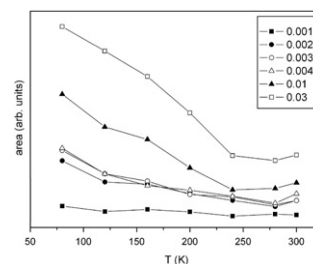
Andreas Heerwig, Rotraut Merkle, Joachim Maier and Michael Ruck
page 191



Copper cations easily move through the rigid tubular crystal structure of $\text{Cu}_{22}\text{Bi}_{12}\text{S}_{21}\text{Cl}_{16}$.

Intrinsic magnetism in Fe doped SnO_2 nanoparticles

S. Sambasivam, Byung Chun Choi and J.G. Lin
page 199



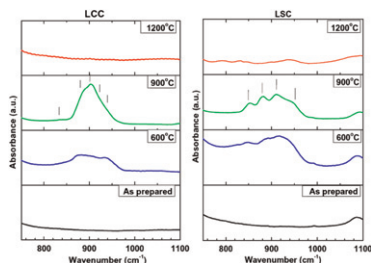
The ESR spectra reveal that the nature of Fe in $\text{Sn}_{1-x}\text{Fe}_x\text{O}_2$ samples is isolated rhombic Fe^{3+} -ion in rutile phase and the Fe content ($x=0.01$ and 0.03), an extra spin-pumping is observed below 250 K.

Continued

Effects of calcination on microscopic and mesoscopic structures in Ca- and Sr-doped nano-crystalline lanthanum chromites

Himal Bhatt, J. Bahadur, M.N. Deo, S. Ramanathan, K.K. Pandey, D. Sen, S. Mazumder and Surinder M. Sharma

page 204



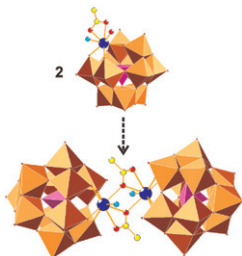
Dopant chromates evolve as intermediate phases during calcination of Ca- and Sr-doped nano-crystalline lanthanum chromites at intermediate temperatures, around 900 °C, evident from infrared spectroscopy. Such an event results in a modification of the microscopic and mesoscopic structures.

A new series of lanthanoid containing Keggin-type germanotungstates with acetate chelators:

$\{[Ln(CH_3COO)GeW_{11}O_{39}(H_2O)]_2\}^{12-}$ $\{Ln = Eu^{III}, Gd^{III}, Tb^{III}, Dy^{III}, Ho^{III}, Er^{III}, Tm^{III}, \text{ and } Yb^{III}\}$

Firasat Hussain, Stefan Sandriesser, Manfred Speldrich and Greta R. Patzke

page 214



A new series of acetate-chelated lanthanoid containing germanotungstates $\{[Ln(CH_3COO)GeW_{11}O_{39}(H_2O)]_2\}^{12-}$ ($Ln = Eu$ to Yb) is available from a convenient one-pot reaction. The influence of the lanthanide contraction on the structural properties is discussed and the magnetic properties of the Gd-representative are investigated in detail.

Author inquiries

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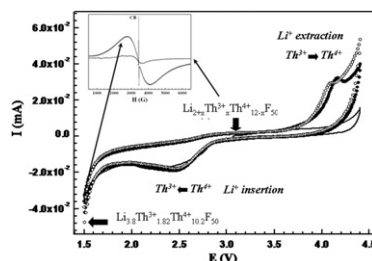
For a full and complete Guide for Authors, please go to: <http://www.elsevier.com/locate/jssc>

Journal of Solid State Chemistry has no page charges.

Stabilization of Th³⁺ ions into mixed-valence thorium fluoride

Marc Dubois, Belto Dieudonné, Adel Mesbah, Pierre Bonnet, Malika El-Ghozzi, Guillaume Renaudin and Daniel Avignant

page 220



Electrochemical insertion of Li⁺ ions into mixed-valence III/IV thorium fluoride and EPR spectra for the raw and inserted compounds.