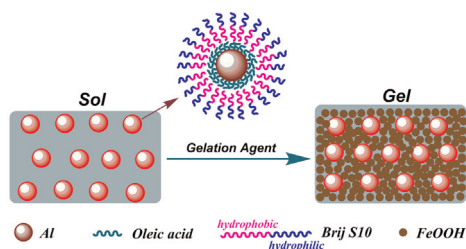


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Regular Articles

Tuning the reactivity of Al/Fe₂O₃ nanoenergetic materials via an approach combining soft template self-assembly with sol-gel process

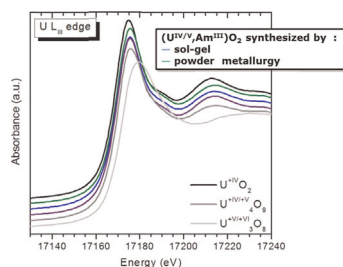
Tianfu Zhang, Zhen Wang, Guoping Li and Yunjun Luo
page 1



Modified aluminum (Al) nanoparticles with hydrophobic surface assembled into the Brij S10 micelle in Fe(III) sol, then the well dispersed system was transformed into Al/Fe₂O₃ nanoenergetic materials with high reactivity.

Comparative XRPD and XAS study of the impact of the synthesis process on the electronic and structural environments of uranium–americium mixed oxides

D. Prieur, F. Lebreton, P.M. Martin, M. Caisso, R. Butzbach, J. Somers and T. Delahaye
page 8

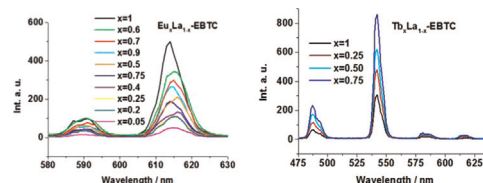


Formation of (U^{IV/V},Am^{III})O₂ solid solution by sol-gel and by powder metallurgy.

Regular Articles—Continued

Observation of divergent La³⁺ ion dilute effect in two series of 3-D fluorescent lanthanide-MOFs-based molecular alloys RE_xLa_{1-x}-EBTC (RE³⁺=Eu³⁺ or Tb³⁺; EBTC⁴⁻=1,1'-ethynebenzene-3,3',5,5'-etracarboxylate)

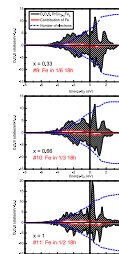
Lu Zhai, Wen-Wei Zhang, Xiao-Ming Ren and Jing-Lin Zuo
page 14



Two series of 3-D fluorescent lanthanide-MOFs-based molecular alloys RE_xLa_{1-x}-EBTC (RE³⁺=Eu³⁺ or Tb³⁺; EBTC⁴⁻=1,1'-ethynebenzene-3,3',5,5'-tetracarboxylate) have been successfully prepared by mixing Eu³⁺/Tb³⁺ and La³⁺ salts with the desired molar ratio in the starting material and showed photoluminescence property with divergent La³⁺ ion dilute effect.

Structural and magnetic properties of PrCo_{3-x}Fe_x by neutron powder diffraction and electronic structure investigations

K. Younsi, R. Bez, J.-C. Crivello, V. Paul-Boncour, K. Zehani and L. Bessais
page 19

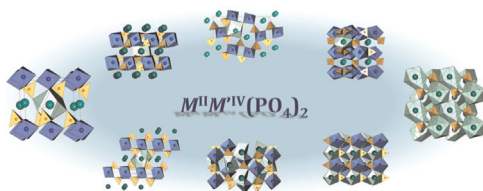


Total density of states (continuous black line, shaded area, left hand side scale), and number of electrons (dashed blue line, right hand side scale) of PrCo_{3-x}Fe_x with spin polarization; (a) $x = \frac{1}{3}$, (b) $x = \frac{1}{6}$ and (c) $x = 1$ with Fe occupying respectively $\frac{1}{6}$, $\frac{1}{3}$ and $\frac{1}{2}$ of 18h site. The white area limited by a red line corresponds to the only Fe contribution. The origin of the energy scale is located at the Fermi energy E_F .

Continued

Crystal chemistry of $M^{II}M^{IV}(PO_4)_2$ double monophosphates

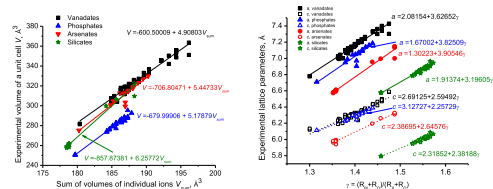
Damien Bregiroux, Karin Popa and Gilles Wallez
page 26



In this paper, the relationships between composition and crystal structure of $M^{II}M^{IV}(PO_4)_2$ compounds are established. A review of the various processes used for the synthesis of these compounds is also proposed, as well as their most reported properties.

Modeling the lattice parameters of zircon-type MXO_4 (M=divalent, trivalent or tetravalent metal, X=V, P, As, Si) crystals

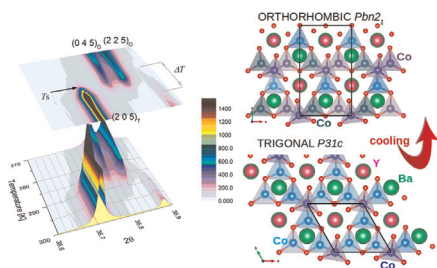
M.G. Brik, M. Bettinelli and E. Cavalli
page 49



Correlation between the experimental volume of a unit cell and sum of volumes of individual ions (left) and correlation between the experimental lattice constants and $\gamma = (R_M + R_O)/(R_X + R_O)$ ratio in the group of 109 considered MXO_4 crystals (right).

Structural study of Ni-substituted $YBaCo_{4-x}Ni_xO_7$ frustrated cobaltites

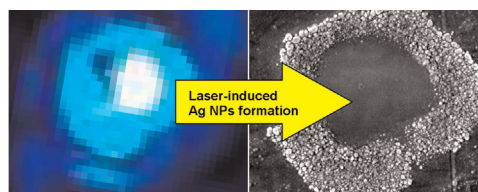
L.M. Torre, G. Aurelio, E. Granado and R.D. Sánchez
page 34



Thermal evolution of the diffractogram for a sample $YBaCo_{3.9}Ni_{0.1}O_{7.00}$ collected on cooling at the LNLS synchrotron source. The Bragg reflections were indexed in the trigonal $P31c$ and orthorhombic $Pbn2_1$ space groups above and below the transition temperature T_S , indicated with an arrow. The region of coexistence of both phases is indicated as ΔT . A projection along the c -axes for both crystal structures is shown on the right.

Structural features of silver-doped phosphate glasses in zone of femtosecond laser-induced modification

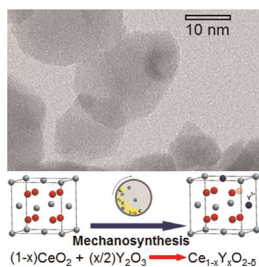
A.A. Vasileva, I.A. Nazarov, P.K. Olshin, A.V. Povolotskiy, I.A. Sokolov and A.A. Manshina
page 56



Formation of silver NPs on the surface of $0.5Ag_2O-0.4P_2O_5-0.1Nb_2O_5$ glass induced by CW laser irradiation.

Mechanosynthesis and structural characterization of nanocrystalline $Ce_{1-x}Y_xO_{2-\delta}$ ($x=0.1-0.35$) solid solutions

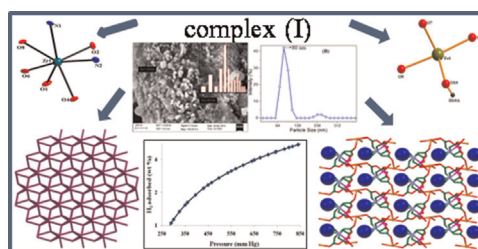
Martin Fabián, Bratislav Antić, Vladimír Girman, Milica Vučinić-Vasić, Aleksandar Kremenović, Shigeru Suzuki, Horst Hahn and Vladimír Šepelák
page 42



Mechanosynthesis of nanocrystalline $Ce_{1-x}Y_xO_{2-\delta}$ ($x=0.1-0.35$) solid solutions.

New water soluble heterometallic complex showing unpredicted coordination modes of EDTA

R.K. Mudsainiyan, A.K. Jassal and S.K. Chawla
page 61



The complex (I) crystallized with unexpected coordination modes of EDTA having 4-c, 16-c net with new topology and point symbol is $(3^6.4^5.5^3.3^6)$. TGA study and XRPD pattern proved its stability with high preference of H_2 uptake by complex.

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