

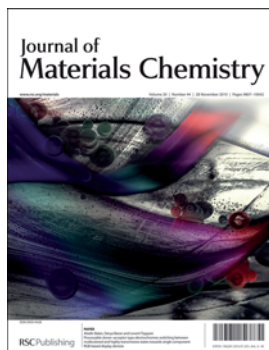
Journal of Materials Chemistry

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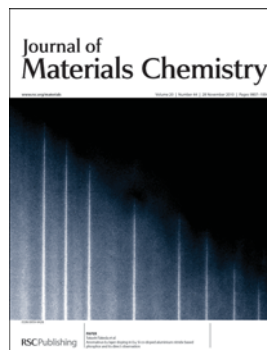
IN THIS ISSUE

ISSN 0959-9428 CODEN JMACEP 20(44) 9807–10042 (2010)



Cover

See A. Balan *et al.*, pp. 9861–9866.
Red, Green, Blue, Black,
Transparent... all these states can
now be achieved with a single
electrochromic polymer.
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Chem.*, 2010, **20**, 9861.



Inside cover

See T. Takeda *et al.*, pp. 9948–9953.
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Chem.*, 2010, **20**, 9948.

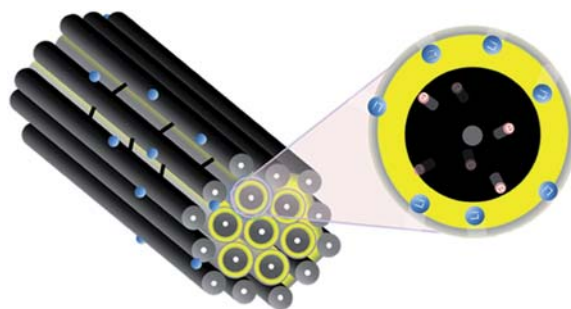
HIGHLIGHTS

9821

Advances in Li–S batteries

Xiulei Ji and Linda F. Nazar*

Li–S batteries represent one of the most promising energy storage systems for load levelling and transportation purposes. This article reviews their challenges and recently achieved progress in the area.

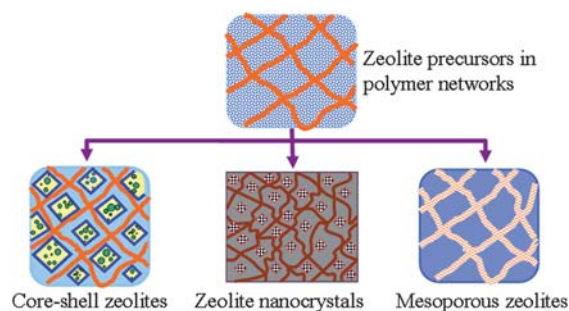


9827

Controlling zeolite structures and morphologies using polymer networks

Jianfeng Yao,* Yi Huang and Huanting Wang*

Functional three-dimensional polymer networks can be used to control the growth of zeolites with different structures and morphologies.



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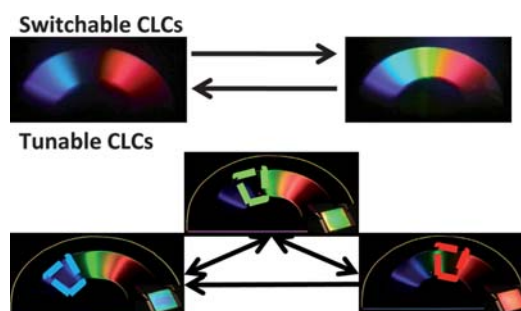
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FEATURE ARTICLE

9832

Dynamic color in stimuli-responsive cholesteric liquid crystalsTimothy J. White,* Michael E. McConney
and Timothy J. Bunning*

The use of cholesteric liquid crystals (CLCs) as dynamic optical materials for color switching or tuning is reviewed.

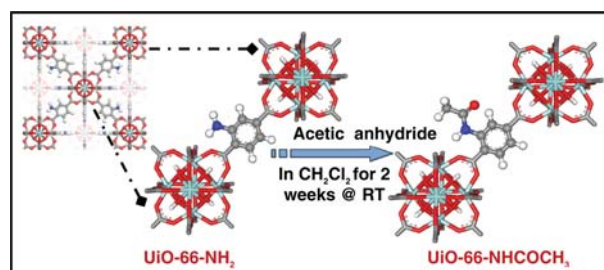


COMMUNICATIONS

9848

Post-synthetic modification of the metal–organic framework compound UiO-66Mathivathani Kandiah, Sandro Usseglio, Stian Svelle,
Unni Olsbye, Karl Petter Lillerud and Mats Tilset*

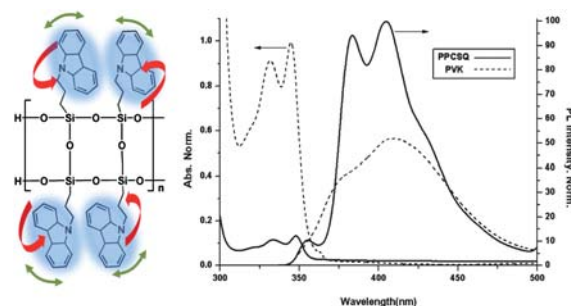
It is demonstrated that it is possible to perform covalent post-synthetic modifications of the UiO-66-NH₂ MOF by using four different acid anhydrides. FT-IR is employed to monitor the reactions, and the extent of reaction depends on the bulkiness of the anhydrides. For the smallest one, acetic anhydride, 100% conversion to UiO-66-NHCOCH₃ was observed.



9852

High photo- and electroluminescence efficiencies of ladder-like structured polysilsesquioxane with carbazole groupsSeung-Sock Choi, He Seung Lee, Seung Sang Hwang,
Dong Hoon Choi* and Kyung-Youl Baek*

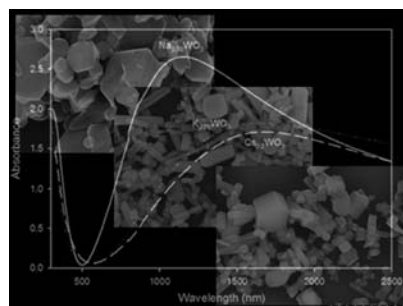
Ladder-like structured polysilsesquioxane with carbazole groups showed unexpected high photo- and electroluminescence efficiencies both in solution and solid states due to its rigid silicone ladder structures, which efficiently isolated the carbazole groups and thus suppressed their excimer formations by inter- and intramolecules.



9855

Thermal plasma synthesis of tungsten bronze nanoparticles for near infra-red absorption applicationsMarc Mamak, Sung Yeun Choi,* Urs Stadler,
Richard Dolbec, Maher Boulos and Srebri Petrov

The high throughput production of tungsten bronze nanoparticles with high purity and tunable composition was achieved by thermal plasma synthesis.





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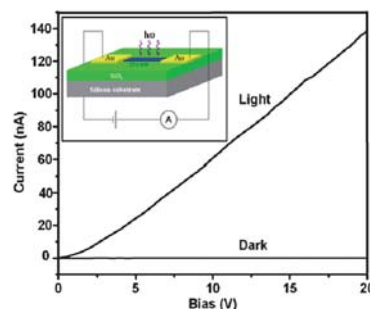
COMMUNICATIONS

9858

High performance ultraviolet photodetectors based on an individual Zn_2SnO_4 single crystalline nanowire

Yanjuan Zhang, Jianjun Wang, Hongfei Zhu, Hui Li, Li Jiang, Chunying Shu,* Wenping Hu and Chunru Wang*

Ultraviolet photodetectors based on an individual Zn_2SnO_4 nanowire with high “ON/OFF” current ratio, high response speed and excellent stability.



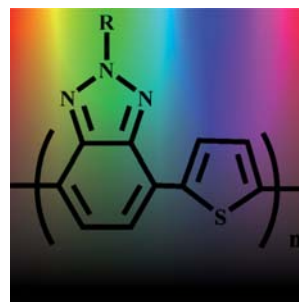
PAPERS

9861

Processable donor–acceptor type electrochromes switching between multicolored and highly transmissive states towards single component RGB-based display devices

Abidin Balan, Derya Baran and Levent Toppare*

Spray processable, p and n dopable polymers switching between multicolor and transparent states for single component RGB based display devices.



9867

Synthesis and characterization of tunable rainbow colored colloidal silver nanoparticles using single-nanoparticle plasmonic microscopy and spectroscopy

Tao Huang and Xiao-Hong Nancy Xu*

We report the synthesis and characterization of tunable rainbow colored colloidal Ag NPs at single NP resolution.

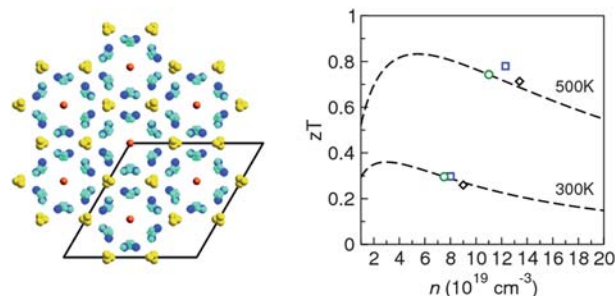


9877

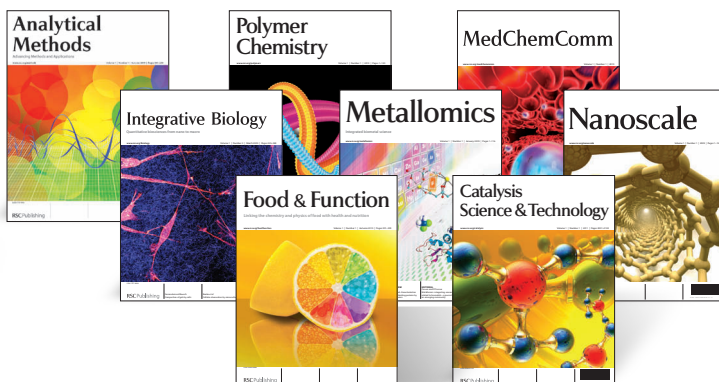
Composition and the thermoelectric performance of $\beta\text{-Zn}_4\text{Sb}_3$

Eric S. Toberer, Protima Rauwel, Sylvain Gariel, J. Taftø and G. Jeffrey Snyder*

High temperature thermoelectric properties of Zn_4Sb_3 are reported within the phase stability window, revealing the potential for improved performance at lower carrier concentrations.



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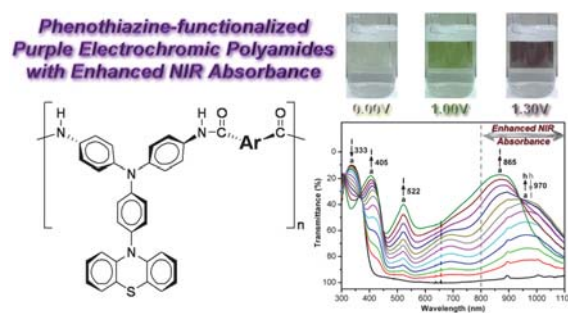
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9886

Enhanced near-infrared electrochromism in triphenylamine-based aramids bearing phenothiazine redox centers

Hung-Ju Yen and Guey-Sheng Liou*

A series of organosoluble polyamides based on *N*-phenothiazinylphenyl redox units were prepared and showed reversible electrochemical oxidation with enhanced NIR contrast and anodic green/purple electrochromic behaviors.

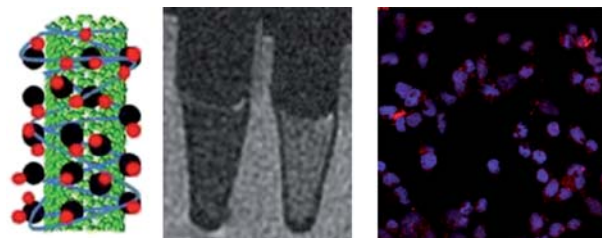


9895

Carbon nanotube-based magnetic-fluorescent nanohybrids as highly efficient contrast agents for multimodal cellular imaging

Bingdi Chen, Hui Zhang, Chuanxin Zhai, Ning Du, Chen Sun, Jingwen Xue, Deren Yang,* Hai Huang, Bo Zhang, Qiuping Xie and Yulian Wu*

Multifunctional carbon nanotubes based magnetic-fluorescent nanohybrids have been synthesized and act as highly efficient contrast agents for multimodal cellular imaging.

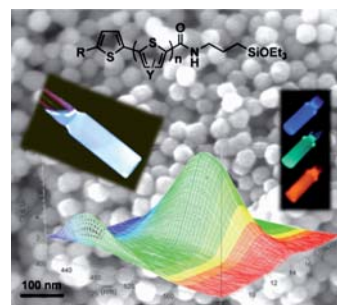


9903

Facile tuning from blue to white emission in silica nanoparticles doped with oligothiophene fluorophores

Manuela Melucci,* Massimo Zambianchi, Giovanna Barbarella, Ilse Manet, Marco Montalti, Sara Bonacchi, Enrico Rampazzo, Diana Cristina Rambaldi, Andrea Zattoni and Pierluigi Reschiglian

The synthesis of new oligothiophene-silica hybrid nanoparticles (TFsSiO₂NPs) is described. Formation of NPs characterized by almost pure white light emission was achieved through tailored co-assembly of TFs.

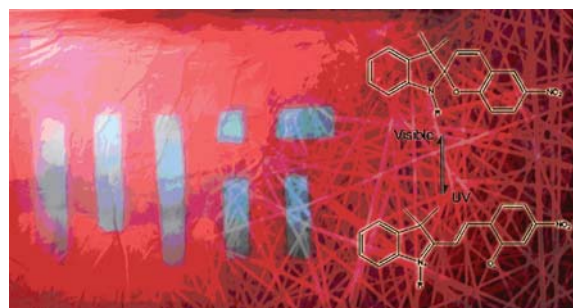


9910

Photo-response behavior of electrospun nanofibers based on spiropyran-cyclodextrin modified polymer

Frederico B. De Sousa, João D. T. Guerreiro, Minglin Ma, Daniel G. Anderson, Chester L. Drum, Rubén D. Sinisterra* and Robert Langer

Electrospun photochromic nanofibers based on modified cyclodextrin-spiropyran polymer with light controlled surface properties and kinetic isomerization rates.



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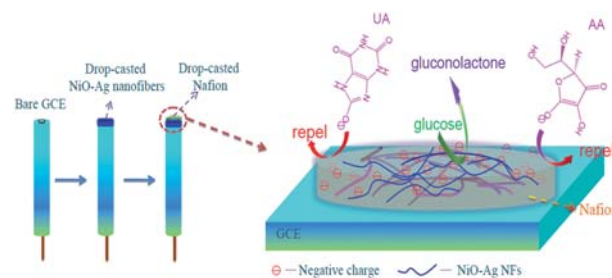
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9918

Preparation and characterization of NiO–Ag nanofibers, NiO nanofibers, and porous Ag: towards the development of a highly sensitive and selective non-enzymatic glucose sensor

Yu Ding, Ying Wang, Liang Su, Heng Zhang and Yu Lei*

Highly sensitive and selective NiO–Ag based non-enzymatic glucose sensors have been developed and show potential practical application.

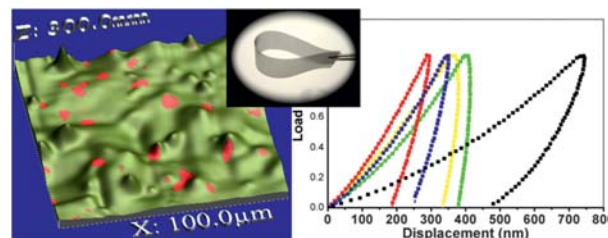


9927

Graphene oxide modified with PMMA via ATRP as a reinforcement filler

Gil Gonçalves, Paula A. A. P. Marques,* Ana Barros-Timmons, Igor Bdkin, Manoj K. Singh, Nazanin Emami and José Grácio

ATRP was used to graft PMMA chains from the surface of graphene oxide. PMMA composite films prepared with 1% (w/w) GPMMA gave the best mechanical properties. AFM proved to be an effective tool to analyse the surface filler distribution in polymer matrices.

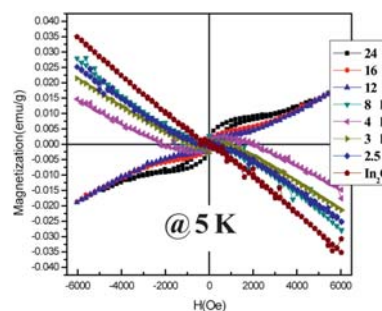


9935

Experimental observation of ferromagnetism evolution in nanostructured semiconductor InN

Bo Song, Kaixing Zhu, Jun Liu, Jikang Jian, Jiecai Han, Huiqiang Bao, Hui Li, Yu Liu, Hongbo Zuo, Wanyan Wang, Gang Wang, Xinghong Zhang, Songhe Meng, Wenjun Wang and Xiaolong Chen*

We observe a magnetic transition from diamagnetic to ferromagnetic in undoped InN with increase of nitridation time. It is speculated that increasing defects such as N vacancies are intrinsic causes.

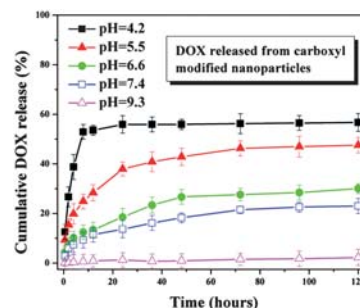


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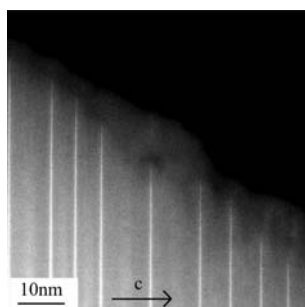
Surface functionalization of magnetic mesoporous silica nanoparticles for controlled drug release

Baisong Chang, Jia Guo, Congying Liu, Ji Qian and Wuli Yang*

Magnetic mesoporous silica nanoparticles were available to undergo a diversity of surface functionalization and thus presented the flexible ability to store and release hydrophilic/hydrophobic anticancer drugs.



9948

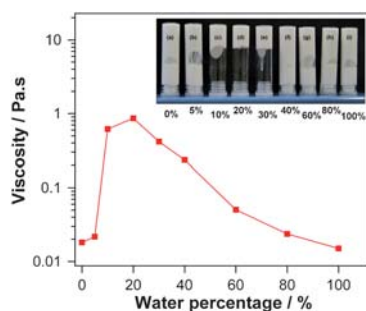


Anomalous Eu layer doping in Eu, Si co-doped aluminium nitride based phosphor and its direct observation

Takashi Takeda,* Naoto Hirosaki, Rong-Jun Xie, Koji Kimoto and Mitsuhiro Saito

HAADF-STEM image of Eu, Si co-doped AlN phosphor. Bright segments show Eu single layer occupation.

9954

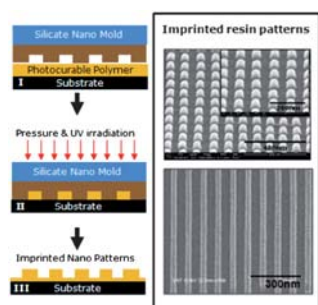


Anomalous rheological behavior in chemically modified TiO₂ colloidal pastes prepared for flexible dye-sensitized solar cells

Hasitha C. Weerasinghe, George V. Franks, Johan D. Plessis, George P. Simon and Yi-Bing Cheng*

The rheological behaviour of ethanol-based titania slurries under different treatments and the effect of such treatments on the interparticle connection of the prepared titania films have been extensively studied.

9962

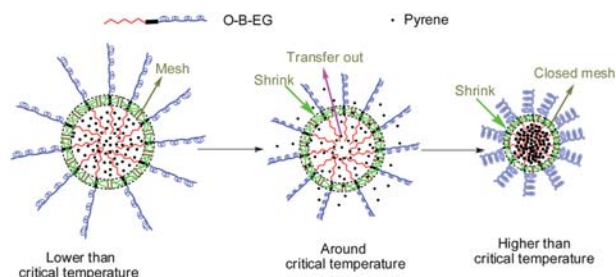


Non-sticky silicate replica mold by phase conversion approach for nanoimprint lithography applications

Sungjune Park, Hyun-Ha Park, Oc Hee Han, Seen Ae Chae, Duhyun Lee and Dong-Pyo Kim*

We have developed a transparent, non-sticky silicate nano mold with high mechanical strength and excellent releasing properties through a simple phase conversion process of polyvinylsilazane (PVSZ) replica mold.

9968



Morphology tailoring and temperature sensitivity control of waist cross-linked micelles and evaluation of their application as intelligent drug carriers

Conghui Yuan, Yiting Xu, Yifu Liao, Sujuan Lin, Ning He* and Lizong Dai*

A new type of temperature sensitive micelle stabilized with a waist cross-linked structure which switches the release of hydrophobic drugs from the interior core.

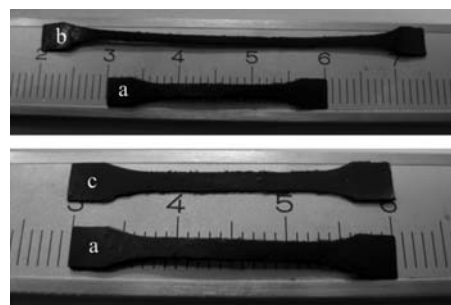
PAPERS

9976

Shape memory polyurethanes containing azo exhibiting photoisomerization function

Yaoming Zhang, Chao Wang, Xianqiang Pei, Qihua Wang* and Tingmei Wang

azoPU (sample A) showing shape memory effect at 75 °C: (a) initial state; (b) deformed state (stretched at 75 °C and fixed at 25 °C); (c) recovered state after heating in oven at 75 °C.

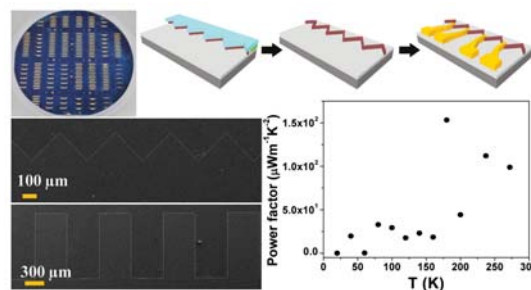


9982

Ultra-long bismuth telluride nanoribbons synthesis by lithographically patterned galvanic displacement

H. Jung, Y. Rheem, N. Chartuprayoon, J.-H. Lim, K.-H. Lee, B. Yoo, K.-J. Lee, Y.-H. Choa, P. Wei, J. Shi and N. V. Myung*

Wafer-scale synthesis of single semiconducting BiTe nanoribbons was demonstrated by Lithographically Patterned Galvanic Displacement with controlled composition and dimensions. Composition and size dependent material, electrical, and thermoelectrical properties were systematically investigated.

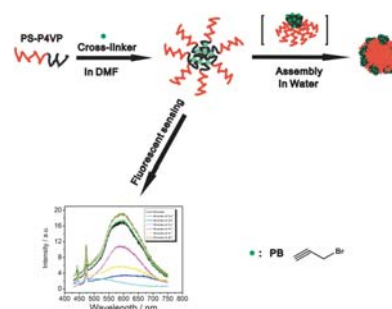


9988

Polymeric core-shell stars with a novel fluorescent, cross-linked and swollen core: Their efficient one-step preparation, further self-assembly into superparticles and application as a chemosensor

Ren Huang, Daoyong Chen* and Ming Jiang

Polymeric stars with a swollen fluorescent core which are responsive to some metallic ions and basic species were efficiently prepared.

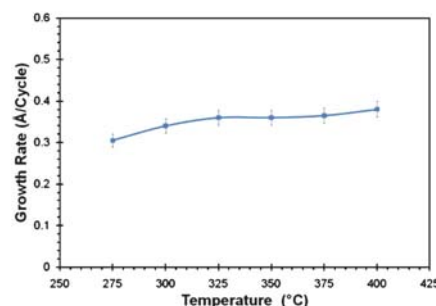


9995

Atomic layer deposition of CaB₂O₄ films using bis(tris(pyrazolyl)borate)calcium as a highly thermally stable boron and calcium source

Mark J. Saly, Frans Munnik and Charles H. Winter*

The atomic layer deposition growth of CaB₂O₄ films is demonstrated using CaTp₂ and water.



10001

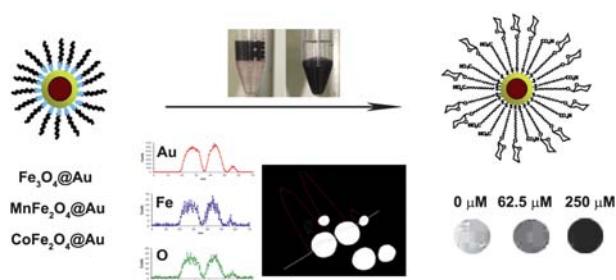


Monodispersed inorganic/organic hybrid spherical colloids: Versatile synthesis and their gas-triggered reversibly switchable wettability

Shaohua Liu, Guang Han, Mouhai Shu, Lu Han and Shunai Che*

Five types of highly monodisperse transition metal oxide/organic hybrid colloids of IVb (Ti, Zr, Hf) and Vb (Nb, Ta) group elements with gas-triggered reversibly switchable wettability were synthesized.

10010

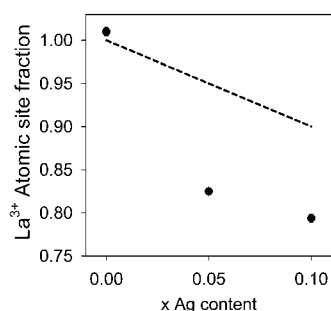


Water-soluble magnetic glyconanoparticles based on metal-doped ferrites coated with gold: Synthesis and characterization

Juan Gallo, Isabel García, Daniel Padro, Blanca Arnáiz and Soledad Penadés*

Novel water-soluble bimetallic XFe₂O₄@Au (X = Fe, Mn and Co) glyconanocrystals were prepared, characterised and tested as MRI contrast agents.

10021

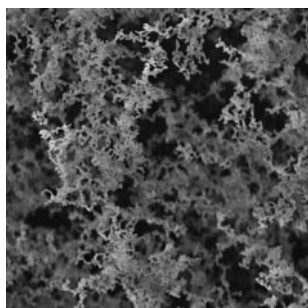


Effective Ag doping and resistance to sulfur poisoning of La-Mn perovskites for the catalytic flameless combustion of methane

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Samples with nominal composition La_{1-x}Ag_xMnO_{3±δ} with $x = 0; 0.05; 0.10$ were prepared by flame spray pyrolysis (FP) and by the so-called sol-gel citrate method (SG). TPR, XRD and EPR were used as the main characterisation tools to highlight the effect of Ag doping.

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Gas phase synthesis of titania with aerogel character and its application as a support in oxidation catalysis

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Aerogel-like TiO₂ has been prepared *via* aerosol synthesis and could be applied as new model systems in oxidation catalysis.