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1.

Accession number: 20153601231874

Title: **Optical performance improvement of GaN/AlN quantum dots via a two-step grown caplayer**

Authors: Qi, Zhiqiang[1] ; Li, Senlin[1] ; Sun, Shichuang[1] ; Huang, Xuhua[1] ; Li, Yang[1] ; Zhang, Wei[1] ; Ye, Wei[1] ; Dai, Jiangnan[1] ; Tian, Yu[2] ; Fang, Yanyan[1] ✉ ; Chen, Changqing[1] ✉

Author affiliation:
[1] Wuhan National Laboratory for Optoelectronics, School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan; PR, China
[2] School of Physics and Information Engineering, Jianghan University, Wuhan; PR, China

Corresponding author: Fang, Yanyan

Source title: Journal of Alloys and Compounds

Abbreviated source title: J Alloys Compd

Volume: 651

Issue date: December 5, 2015

Publication year: 2015

Pages: 673-678

Language: English

ISSN: 09258388

CODEN: JALCEU

Document type: Journal article (JA)

Publisher: Elsevier Ltd

Abstract: A two-step growth technique consisting of a low temperature pulsed atomic layer epitaxy (PALE) method and high temperature PALE method has been employed to deposit the AlN caplayer over GaN quantum dots (QDs). The results show that the photoluminescence intensity of GaN QDs with this two-step grown caplayer has been

overall enhanced significantly and most enhancement occurs at the lower energy side compared with that of the GaN QDs with low temperature one-step grown AlN caplayer, which is mainly due to the decreased defects of the AlN caplayer and the preferential wetting layer carrier transportation to larger QDs. © 2015 Elsevier B.V. All rights reserved.

Number of references:	24
Main heading:	Semiconductor quantum dots
Controlled terms:	Gallium nitride - Metallorganic chemical vapor deposition - Nanocrystals - Photoluminescence - Temperature
Uncontrolled terms:	AlN - Carrier transportation - GaN QDs - GaN/AlN quantum dots - Photoluminescence intensities - Pulsed-atomic layer epitaxies - Two-step - Two-step growth technique
Classification code:	641.1 Thermodynamics - 714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics - 761 Nanotechnology - 802.2 Chemical Reactions - 804.2 Inorganic Compounds
DOI:	10.1016/j.jallcom.2015.08.021
Database:	Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

2.

Accession number:	20153101078594
Title:	**Rapid and environmentally-friendly extraction of carotenoids from Blakesleatrispora**
Authors:	Wang, Hong-Bo[1] ; Zhang, Li-Wei[2] ; Luo, Jun[2] ; Yu, Long-Jiang[2] ✉
Author affiliation:	[1] School of Life Sciences, Hubei Province Engineering Research Center for Legume Plants, Jianghan University, Wuhan, China [2] Department of Biotechnology, Institute of Resource Biology and Biotechnology, College of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China
Corresponding author:	Yu, Long-Jiang
Source title:	Biotechnology Letters
Abbreviated source title:	Biotechnol. Lett.
Volume:	37
Issue:	11
Issue date:	November 29, 2015
Publication year:	2015
Pages:	2173-2178
Language:	English

ISSN: 01415492

E-ISSN: 15736776

CODEN: BILED3

Document type: Journal article (JA)

Publisher: Kluwer Academic Publishers

Abstract: Objective: A rapid and environmentally-friendly method of carotenoid extraction from Blakeslea trispora was performed using low-pressure steam explosion for cell disruption and ethyl lactate for the extraction. Results: Response surface methodology determined the optimal extraction conditions to obtain the maximum carotenoid yield. These optimal conditions consisted of low-pressure steam explosion at 0.2 MPa for 4.4 min, followed by extraction with ethyl lactate at a ratio of 1:25 at 39 °C for 45 min. Optimal technology was used, and the total carotenoid yield reached 95.6 %. Conclusion: In contrast to previously methods, the time-consuming drying process was eliminated and the extraction time was significantly decreased. Ethyl lactate is an environmentally-friendly solvent with low toxicity in this method. © 2015, Springer Science+Business Media Dordrecht.

Number of references: 18

Main heading: Extraction

Controlled terms: Pigments

Uncontrolled terms: Blakeslea trispora - Carotenoid - Environmentally friendly solvents - Ethyl lactate - Extraction conditions - Optimal technology - Response surface methodology - Steam explosion

DOI: 10.1007/s10529-015-1920-3

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

3.

Accession number: 20154601537661

Title: **Microencapsulation of diglycidyl 1,2-cyclohexanedicarboxylate by in situ polymerization: Preparation and characterization**

Authors: Wang, Hai-Ping[1] ✉; Li, Meng-Qiang[1] ; Guo, Chang[1] ; Hu, Si-Qian[1]

Author affiliation: [1] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, School of Chemical and Environmental Engineering, Jianghan University, Wuhan, China

Corresponding author: Wang, Hai-Ping

Source title: E-Polymers

Abbreviated source title: E-Polymers

Volume: 15

Issue: 6

Issue date: November 1, 2015

Publication year: 2015

Pages: 377-383

Language: English

E-ISSN: 16187229

Document type: Journal article (JA)

Publisher: European Polymer Federation

Abstract: Microcapsules containing a glycidyl ester-type epoxy resin were successfully synthesized by in situ polymerization, with poly (melamine-urea-formaldehyde) as the shell material and diglycidyl 1,2-cyclohexanedicarboxylate (DGCHD) as the core substance. Scanning electron microscopy was performed to investigate the surface morphology and shell wall thickness of the microcapsule. The fabrication, diameters and thermal decomposition behavior of the resultant microcapsules were studied by means of Fourier transform infrared spectroscopy, laser particle size analysis, and thermogravimetric analysis (TGA), respectively. Results indicated that the highest loading of DGCHD in the as-prepared microcapsules was about 89.1 wt.% and that the mean diameter of the capsules was in the range of 50-130 μm, which can be adjusted by changing the feeding mass ratio of the core/shell material and emulsifying rate, respectively. TGA results showed that the microencapsulated DGCHD degraded in two distinguishable stages. © 2015 by De Gruyter.

Number of references: 30

Main heading: Urea formaldehyde resins

Controlled terms: Characterization - Decomposition - Emulsification - Encapsulation - Epoxy resins - Formaldehyde - Fourier transform infrared spectroscopy - Metabolism - Microencapsulation - Particle size - Particle size analysis - Polymerization - Scanning electron microscopy - Thermogravimetric analysis - Urea

Uncontrolled terms: Core/shell materials - diglycidyl 1,2-cyclohexanedicarboxylate - In-situ polymerization - Laser particle size analysis - Melamine urea formaldehydes - Microcapsules - Shell wall thickness - Thermal decomposition behavior

Classification code: 801 Chemistry - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.1 Organic Compounds - 813.2 Coating Materials - 815.1.1 Organic Polymers - 815.2 Polymerization - 951 Materials Science

DOI: 10.1515/epoly-2015-0027

Database: Compendex

Compendex references: YES

4.

Accession number: 20154201387413

Title: **A polytetrafluoroethylene porous membrane and dimethylhexadecylamine quaternized poly (vinyl benzyl chloride) composite membrane for intermediate temperature fuel cells**

Authors: Cao, Yuan-Cheng[1, 2] ; Xu, Chenxi[3] ; Zou, Linling[1, 2] ; Scott, Keith[4] ; Liu, Jiyan[1, 2]

Author affiliation:
[1] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China
[2] Flexible Display Materials and Technology Co-Innovation Centre of Hubei Province, Jianghan University, Wuhan, China
[3] School of Materials Science and Engineering, Hefei University of Technology, Hefei; Anhui, China
[4] School of Chemical Engineering and Advanced Materials, University of Newcastle, United Kingdom

Corresponding author: Cao, Yuan-Cheng

Source title: Journal of Power Sources

Abbreviated source title: J Power Sources

Volume: 294

Issue date: October 30, 2015

Publication year: 2015

Pages: 691-695

Language: English

ISSN: 03787753

CODEN: JPSODZ

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: A composite material for phosphoric acid (PA) loaded membrane was prepared using a porous polytetrafluoroethylene (PTFE) thin film. N, N-Dimethylhexadecylamine partially quaternized poly (vinyl benzyl chloride) ($qPVBzCl^-$) was synthesized as the substrate for the phosphoric acid loaded polymer membrane. SEM observation indicated that the pores were filled with the $qPVBzCl^-$. The maximum PA loading level was calculated to be 4.67-5.12 per repeat unit on average. TGA results showed that resultant composite membrane was stable in the intermediate temperature from 100 °C to 200 °C. The composite membrane tensile stress was 56.23 MPa, and the Young's Modulus was 0.25 GPa, and the fractured elongation was 23%. The conductivity of the composite membrane after the PA addition (H3PO4@PTFE/qPVBzCl^{-}) increased from 0.085 S cm^{-1}to 0.11 S cm^{-1}from 105 °C to 180 °C. The peak power density of the H2/O2at 175 °C under low humidity condition (<1%) for H3PO4@PTFE/qPVBzCl^{-}membranes was 360 mW cm^{-2}. © 2015 Elsevier B.V. All rights reserved.

Number of references:	16
Main heading:	Membranes
Controlled terms:	Chlorine compounds - Composite membranes - Elastic moduli - Fuel cells - Ionomers - Phosphoric acid - Polytetrafluoroethylenes
Uncontrolled terms:	Intermediate temperatures - Intermediate-temperature fuel cells - Low humidity conditions - Peak power densities - Polytetrafluoroethylene (PTFE) - Ptfe porous membranes - Quaternary ammonium - Vinyl-benzyl chlorides
Classification code:	702.2 Fuel Cells - 804.2 Inorganic Compounds - 815.1.1 Organic Polymers - 951 Materials Science
DOI:	10.1016/j.jpowsour.2015.06.113
Database:	Compendex

5.

Accession number:	20153801283319
Title:	**Constructed Single-Crystal Rutile TiO<inf>2</inf> Cluster and Plasmon Synergistic Effect for Dye-Sensitized Solar Cells**
Authors:	Yu, Wenjing[1] ; Sun, Weiwei[1] ; Liu, Yumin[2] ; Mehnane, Hadja Fatima[1] ; Liu, Haimin[1] ; Zhang, Kun[1] ; Cai, Bo[1] ; Liu, Wei[1] ✉; Guo, Shishang[1] ✉; Zhao, Xing-Zhong[1] ✉
Author affiliation:	[1] School of Physics and Technology, Key Laboratory of Artificial Micro, Nano-structure of Ministry of Education, Wuhan University, Wuhan, China [2] In Institute for Interdisciplinary Research (IIR), Jianghan University, Wuhan; Hubei, China
Corresponding author:	Liu, Wei
Source title:	Electrochimica Acta
Abbreviated source title:	Electrochim Acta

Volume: 180

Issue date: October 20, 2015

Publication year: 2015

Pages: 705-711

Language: English

ISSN: 00134686

CODEN: ELCAAV

Document type: Journal article (JA)

Publisher: Elsevier Ltd

Abstract: We demonstrate a method for incorporating plasmon metallic nanoparticles in hierarchical rutile TiO<inf>2</inf> clusters (RTC) assembled from single-crystal nanospindles. The RTC could efficiently improve the diffusion of the photoelectrons, which can be ascribed to the improvement of the connectivity by bridging the neighbouring microflowers through the single-crystal nanospindles. But not all the nanospindles are tightly interconnected, hence organic colloid has been prepared for post-treatment of the device based on RTC by the generation of TiO<inf>2</inf> nanoparticles. When added into Au nanoparticles, localized electric fields can be produced, because Au can excite dye molecules more intensively than incident far-field light. The surface plasmon synergistic effect had been investigated by Uv-vis absorption spectrum of Au@ organic colloid and the relative change of the IPCE. As a result, the cell based on RTC exhibits an overall conversion efficiency of 7.68%, indicating a 17% promotion compared with that derived from commercial P25 (6.58%) which could be ascribed to faster electron transfer of single-crystal nanospindles. With the Au nanoparticles incorporation in RTC, the device achieves a conversion efficiency of 9.15%, resulting in a 11% increase compared to the RTC device post-treated by organic colloid without Au nanoparticles (8.24%), which is attributed to the surface plasmon synergistic of Au nanoparticles.

Number of references: 33

Main heading: Gold

Controlled terms: Absorption spectroscopy - Colloids - Conversion efficiency - Dye-sensitized solar cells - Electric fields - Electron transitions - Nanoparticles - Oxide minerals - Plasmons - Single crystals - Solar cells - Ultraviolet spectroscopy

Uncontrolled terms: Electron transfer - Fast electron transfer - Metallic nanoparticles - Overall conversion efficiency - Rutile TiO - Surface plasmons - Synergistic effect - UV-VIS absorption spectra

Classification code: 525.5 Energy Conversion Issues - 547.1 Precious Metals - 615.2 Solar Power - 701.1 Electricity: Basic Concepts and Phenomena - 708 Electric and Magnetic Materials - 711.1 Electromagnetic Waves in Different Media - 712.1 Semiconducting Materials - 741 Light, Optics and Optical Devices - 761 Nanotechnology - 801

Chemistry - 801.3 Colloid Chemistry - 804.2 Inorganic Compounds - 933 Solid State Physics - 933.1 Crystalline Solids

DOI: 10.1016/j.electacta.2015.09.004

Database: Compendex

6.

Accession number: 20153701257193

Title: **Coupling effects of Au-decorated core-shell β-NaYF<inf>4</inf>:Er/Yb@SiO<inf>2</inf> microprisms in dye-sensitized solar cells: Plasmon resonance versus upconversion**

Authors: Liu, Yumin[1, 2] ✉; Xia, Yu[2] ; Jiang, Yun[2] ; Zhang, Minli[2] ; Sun, Weiwei[3] ; Zhao, Xing-Zhong[1, 3] ✉

Author affiliation:
[1] Institute for Interdisciplinary Research (IIR), Jianghan University, Wuhan, China
[2] Key Laboratory of Optoelectronic Chemical Materials, Devices of Ministry of Education, Jianghan University, Wuhan, China
[3] Key Laboratory of Artificial Micro/Nano Structures, Ministry of Education, Wuhan University, Wuhan, China

Corresponding author: Liu, Yumin

Source title: Electrochimica Acta

Abbreviated source title: Electrochim Acta

Volume: 180

Issue date: October 20, 2015

Publication year: 2015

Pages: 394-400

Language: English

ISSN: 00134686

CODEN: ELCAAV

Document type: Journal article (JA)

Publisher: Elsevier Ltd

Abstract: We synthesized highly uniform Au-decorated core-shell β-NaYF<inf>4</inf>:Er/Yb@SiO<inf>2</inf> microprisms and investigated its coupling effects on the performance of dye-sensitized solar cells (DSCs). The incorporation of upconversion phosphors (UCPs) and localized surface plasmon resonance (LSPR) arising from Au nanoparticles (AuNPs) was beneficial to achieve a higher photocurrent and power conversion efficiency of the devices. Furthermore, the contribution and interaction between upconversion and LSPR on the performance of DSCs were identified by UV-vis

spectroscopy, upconversion fluorescence spectroscopy, and J-V characterization under different simulated illuminations. The presence of AuNPs increased the optical absorption of dye molecules in the visible region, but decreased the emission of UCPs. Thorough analysis showed that the energy of upconversion emission was transferred to the upconversion induced LSPR of AuNPs, that resulted from the incorporation between the SPR band of AuNPs and a matched emission bands of UCPs. These results validated the advantages of incorporation between upconversion and LSPR for DSC applications and revealed the underlying enhancement mechanism. © 2015 Elsevier Ltd. All rights reserved.

Number of references: 36

Main heading: Dye-sensitized solar cells

Controlled terms: Electromagnetic wave absorption - Erbium - Fluorescence spectroscopy - Gold - Light absorption - Plasmons - Resonance - Shells (structures) - Solar cells - Surface plasmon resonance - Ultraviolet visible spectroscopy

Uncontrolled terms: Coupling effect - Enhancement mechanism - Localized surface plasmon resonance - Power conversion efficiencies - Up-conversion - Up-conversion emission - Upconversion fluorescence - Upconversion phosphors

Classification code: 408.2 Structural Members and Shapes - 547.1 Precious Metals - 547.2 Rare Earth Metals - 615.2 Solar Power - 701 Electricity and Magnetism - 711 Electromagnetic Waves - 712.1 Semiconducting Materials - 741.1 Light/Optics - 741.3 Optical Devices and Systems

DOI: 10.1016/j.electacta.2015.08.144

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

7.

Accession number: 20154501504377

Title: **A membrane disdrometer based on membrane vibration**

Authors: Lu, Junhui[1] ; Yang, Zhihong[1] ; Wang, Jianqiang[2]

Author affiliation:
[1] School of Physics and Information Engineering, Jianghan University, Wuhan, China
[2] State Key Laboratory of Automotive Safety and Energy, Tsinghua University, Beijing, China

Source title: Measurement Science and Technology

Abbreviated source title: Meas. Sci. Technol.

Volume: 26

Issue: 11

Issue date: October 14, 2015

Publication year: 2015

Article number: 115103

Language: English

ISSN: 09570233

E-ISSN: 13616501

CODEN: MSTCEP

Document type: Journal article (JA)

Publisher: Institute of Physics Publishing

Abstract: Raindrop sizes were indirectly determined through the distinctive vibrations and sounds that occur when raindrops of different sizes impact on a membrane. The relationships between diameter, raindrop kinetic momentum, membrane deflection, and impact force were analyzed. Membrane deflection and vibration models were created, and the optimum membrane diameter and thickness were identified. A prototype membrane disdrometer was developed on the basis of these findings. The relationship between raindrop size and membrane vibration sound pressure was determined experimentally. The fundamental parameter of raindrop size recognition was used. The test results indicate that raindrops 0.4-2.0 mm in diameter can be detected by the proposed membrane disdrometer, and 50 raindrops per second in a zone area of 28.3 cm^2can be detected in natural rain. © 2015 IOP Publishing Ltd.

Number of references: 30

Main heading: Membranes

Controlled terms: Drops

Uncontrolled terms: Different sizes - Disdrometers - Kinetic momentum - Membrane deflections - Membrane vibrations - Raindrop sizes - Sound pressures - Vibration model

Classification code: 951 Materials Science

DOI: 10.1088/0957-0233/26/11/115103

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

8.

Accession number: 20154601535247

Title: **Large-scale R2R fabrication of piezoresistive films (Ni/PDMS) with enhanced through thickness electrical and thermal properties by applying a magnetic field**

Authors:

Chen, Yuwei[1, 2] ; Guo, Yuanhao[1] ; Batra, Saurabh[1] ; Unsal, Emre[1] ; Wang, Enmin[1] ; Wang, Yanping[2] ; Liu, Xueqing[3] ; Wang, Yimin[2] ; Cakmak, Miko[1]

Author affiliation:
[1] Polymer Engineering Department, University of Akron, Akron; OH, United States
[2] State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai, China
[3] Key Laboratory of Optoelectronic Chemical Material and Devices of Ministry of Education, Jianghan University, Wuhan, China

Corresponding author: Cakmak, Miko

Source title: RSC Advances
Abbreviated source title: RSC Adv.
Volume: 5
Issue: 112
Issue date: October 9, 2015
Publication year: 2015
Pages: 92071-92079
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry

Abstract: The first successful development of a roll to roll (R2R) process that applies an external magnetic field to orient and organize magnetic nanoparticles along nanocolumns in the thickness direction of thin films to obtain high electrical and thermal conductivities in the thickness direction is reported. Utilizing a R2R machine that includes an in-line electromagnet, we orient and organize Ni nanoparticles in nanocolumns inside a flexible poly (dimethylsiloxane) matrix. In these films, the nanocolumns of Ni particles point in the magnetic field/thickness direction which leads to enhancement of the electrical and thermal conductivity in the thickness direction while maintaining optical transparency as the space between the nanocolumns is depleted of nanoparticles facilitating unimpeded light transmission. Exhibiting piezoresistivity, the electrical conductivity in these films increases by as much as 7 orders under moderate pressures. The thermal conductivity of the aligned composite films filled with 14 vol% Ni flakes was found to increase to 50 times the conductivity of the polymer matrix, or 13 times the conductivity of the non-aligned composite with the same concentration. This R2R method facilitates the manufacture of unique films with enhanced functional properties in the thickness

	direction to be used in a range of applications including Z direction heat spreaders, transparent switches, privacy protection screens and piezoresistive sensors. © The Royal Society of Chemistry.
Number of references:	47
Main heading:	Composite films
Controlled terms:	Filled polymers - Light transmission - Magnetic fields - Magnetism - Nanomagnetics - Nanoparticles - Nickel - Polymer films - Polymer matrix composites - Thermal conductivity - Thermal conductivity of solids - Thin films
Uncontrolled terms:	Electrical conductivity - External magnetic field - Functional properties - Magnetic nano-particles - Optical transparency - Piezo-resistive sensors - Roll to roll processes (R2R) - Thickness direction
Classification code:	548.1 Nickel - 641.1 Thermodynamics - 701.2 Magnetism: Basic Concepts and Phenomena - 741.1 Light/Optics - 761 Nanotechnology - 815.1 Polymeric Materials - 933 Solid State Physics - 951 Materials Science
DOI:	10.1039/c5ra17005b
Database:	Compendex Compilation and indexing terms, © 2015 Elsevier Inc.
Compendex references:	YES

9.

Accession number:	20152400931893
Title:	**One-step electroplating 3D template with gradient height to enhance micromixing in microfluidic chips**
Authors:	He, Weiqi[1] ; Xiao, Jingrong[1] ; Zhang, Zhengtao[1] ; Zhang, Weiying[1] ; Cao, Yiping[1] ; He, Rongxiang[1] ✉; Chen, Yong[1, 2] ✉
Author affiliation:	[1] Institute for Interdisciplinary Research, Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China [2] Département de Chimie, Ecole Normale Supérieure, 24 Rue Lhomond, Paris Cedex 05, France
Corresponding author:	He, Rongxiang
Source title:	Microfluidics and Nanofluidics
Abbreviated source title:	Microfluid. Nanofluid.
Volume:	19
Issue:	4
Issue date:	October 1, 2015

Publication year: 2015

Pages: 829-836

Language: English

ISSN: 16134982

E-ISSN: 16134990

Document type: Journal article (JA)

Publisher: Springer Verlag

Abstract: A cost-effective method that used electroplating to fabricate a 3D polydimethylsiloxane (PDMS) passive micromixer was developed in this work. The mixer fabrication process characteristics were as follows: The chip design was transferred to indium tin oxide (ITO) glass via photolithography; the ITO glass was vertically immersed in a nickel electroplating solution; and the ITO glass was raised up by controlling by the syringe pump, while electroplating was in progress. In this method, the height of the mixing structure could increase gradient from 15 to 30 μm. Compared with a flat structure, this structure could increase mixing efficiency by at least 10 %. The mixing efficiency with this 3D microstructure can reach more than 80 %. This 3D microstructure fabrication method can be easily integrated with other PDMS functional structures for future point-of-care diagnostic applications because of the advantages of this technique. © 2015, Springer-Verlag Berlin Heidelberg.

Number of references: 45

Main heading: ITO glass

Controlled terms: Cost effectiveness - Electroplating - Electroplating solutions - Fabrication - Metallographic microstructure - Microchannels - Microfluidics - Microstructure - Mixers (machinery) - Mixing - Photolithography - Silicones - Tin oxides

Uncontrolled terms: 3D fabrication - 3D microstructure fabrications - Cost-effective methods - Micro-mixing - Nickel electroplating - One-step electroplating - Point of care diagnostic - Polydimethylsiloxane PDMS

DOI: 10.1007/s10404-015-1607-z

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

10.

Accession number: 20152300916277

Title: **Microporous polymer electrolyte based on PVDF/PEO star polymer blends for lithium ion batteries**

Authors:

	Deng, Fangli[1] ; Wang, Xiaoen[1] ; He, Dan[2] ; Hu, Ji[1] ; Gong, Chunli[1] ; Ye, Yun Sheng[1] ; Xie, Xiaolin[1] ; Xue, Zhigang[1]
Author affiliation:	[1] Key Laboratory for Large-Format Battery Materials and Systems, Ministry of Education, School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan, China [2] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, School of Chemical and Environmental Engineering, Jianghan University, Wuhan, China
Corresponding author:	Xue, Zhigang
Source title:	Journal of Membrane Science
Abbreviated source title:	J. Membr. Sci.
Volume:	491
Issue date:	October 01, 2015
Publication year:	2015
Pages:	82-89
Language:	English
ISSN:	03767388
E-ISSN:	18733123
CODEN:	JMESDO
Document type:	Journal article (JA)
Publisher:	Elsevier
Abstract:	A novel microporous polymer electrolyte (MPE) based on poly (vinylidene fluoride) (PVDF)/poly (ethylene oxide) (PEO) star polymer was prepared by a phase inversion technique. The effects of PEO chain length of star polymer and temperature on ionic conductivity of MPE were investigated. The results showed that the ionic conductivity increased generally with the chain length of star polymer arms without any abrupt change. Effects of star polymer mass fraction on electrolyte uptake and leakage were also discussed. The distribution of holes and connectivity was improved with star polymer mass fraction increased, thus resulted in a high ionic conductivity (3.03×10⁻³Scm⁻¹) exhibited at room temperature. Moreover, the electrochemical stability window was observed above 5.0V (vs. Li/Li⁺). All these results showed that this MPE could be served as a good candidate for lithium ion batteries. © 2015 Elsevier B.V.
Number of references:	50
Main heading:	Polyelectrolytes
Controlled terms:	Chain length - Chains - Copolymers - Electric batteries - Electrolytes - Ethylene - Ionic conductivity - Ions - Lithium -

Lithium alloys - Lithium compounds - Lithium-ion batteries - Microporosity - Polymer blends

Uncontrolled terms: Electrochemical stabilities - Ethylene oxides - Microporous polymers - Phase inversion techniques - Poly (vinylidene fluoride) (PVDF) - Room temperature - Star polymers

Classification code: 549.1 Alkali Metals - 602.1 Mechanical Drives - 702 Electric Batteries and Fuel Cells - 702.1 Electric Batteries - 801 Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics

DOI: 10.1016/j.memsci.2015.05.021

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

11.

Accession number: 20153801286892

Title: **Facile synthetic route towards shape-controlled anatase titania with tailored facets for lithium-ion batteries**

Authors: Jiang, Yun[1, 2] ; Xia, Yu[1, 2] ; Zhang, Minli[1, 2] ; Sun, Weiwei[3] ; Liu, Yumin[1, 2] ✉; Zhao, Xing-Zhong[1, 3]

Author affiliation:

[1] Institute for Interdisciplinary Research (IIR), Jianghan University, Wuhan, China

[2] Key Laboratory of Optoelectronic Chemical Materials, Devices of Ministry of Education, Jianghan University, Wuhan, China

[3] Key Laboratory of Artificial Micro, Nano Structures of Ministry of Education, Wuhan University, Wuhan, China

Corresponding author: Liu, Yumin

Source title: Materials Letters

Abbreviated source title: Mater Lett

Volume: 161

Issue date: September 8, 2015

Publication year: 2015

Pages: 491-494

Language: English

ISSN: 0167577X

E-ISSN: 18734979

CODEN: MLETDJ

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: We demonstrate a facile approach to synthesize shape-controlled anatase titania with tailored facets via the employment of 3-aminopropyltrimethoxysilane (APTMS) as shape-tunable and capping agent. The as-synthesized anatase TiO<inf>2</inf> nanorods was highly crystalline and exposed with {001} and {100} facets. The LIBs based on these highly crystalline TiO<inf>2</inf> nanorods with tailored facets reveals significant improvement in high-rate capacity and cycling performance. More importantly, this methodology enable the industrial application of anatase titania as anode materials for LIBs without high temperature annealing process. © 2015 Elsevier B.V.All rights reserved.

Number of references: 18

Main heading: Lithium-ion batteries

Controlled terms: Anodes - Crystalline materials - Electric batteries - Lithium alloys - Lithium compounds - Nanocrystalline materials - Nanocrystals - Nanorods - Secondary batteries - Titanium dioxide

Uncontrolled terms: 3-aminopropyltrimethoxysilane - Anatase titania - Cycling performance - Energy storage and conversions - High-rate capacities - High-temperature annealing - Shape control - Tailored facets

Classification code: 549.1 Alkali Metals - 702.1 Electric Batteries - 702.1.2 Secondary Batteries - 761 Nanotechnology - 802.1 Chemical Plants and Equipment - 804.2 Inorganic Compounds - 933 Solid State Physics - 933.1 Crystalline Solids

DOI: 10.1016/j.matlet.2015.09.027

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

12.

Accession number: 20154401483125

Title: **Influence of a magnetic field on laser-produced Sn plasma**

Authors: Lan, H.[1, 3] ; Wang, X.B.[2] ✉; Chen, H.[1] ; Zuo, D.L.[2] ; Lu, P.X.[2]

Author affiliation:
[1] School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China
[2] Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China
[3] School of Physics and Information Engineering, Jianghan University, Wuhan, China

Source title: Plasma Sources Science and Technology

Abbreviated source title: Plasma Sources Sci Technol

Volume: 24

Issue: 5

Issue date: September 4, 2015

Publication year: 2015

Article number: 055012

Language: English

ISSN: 09630252

E-ISSN: 13616595

CODEN: PSTEEU

Document type: Journal article (JA)

Publisher: Institute of Physics Publishing

Abstract: The effects of an external magnetic field on Nd:YAG laser-produced Sn plasma have been investigated. The characteristics of ion debris from Sn plasma, emission spectra, and EUV radiation have been studied by the time-of-flight method and the optical emission spectroscopy. Our results show that the ion kinetic energies of the plume species can be effectively reduced with a modest magnetic field of 0.6 T. With the presence of a magnetic field, the spectral intensities of Sn I and Sn II show significant enhancement and the electron density of plasma is about 2 times higher. We have not found any influence of magnetic field on the characteristics of EUV emissions. © 2015 IOP Publishing Ltd.

Number of references: 24

Main heading: Magnetoplasma

Controlled terms: Carrier concentration - Debris - Electron density measurement - Electron temperature - Emission spectroscopy - Ions - Kinetic energy - Laser produced plasmas - Magnetic field effects - Magnetic fields - Magnetism - Neodymium lasers - Optical emission spectroscopy - Tin

Uncontrolled terms: Emission spectrums - EUV emissions - External magnetic field - Influence of magnetic field - Ion kinetic energy - ND : YAG lasers - Spectral intensity - Time of Flight methods

Classification code: 546.2 Tin and Alloys - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 744.4 Solid State Lasers - 744.9 Laser Applications - 941.4 Optical Variables Measurements

DOI: 10.1088/0963-0252/24/5/055012

Database: Compendex

Compendex references: YES

13.

Accession number:	20154101378090
Title:	**Temporal Trends and Pattern Changes of Short- and Medium-Chain Chlorinated Paraffins in Marine Mammals from the South China Sea over the Past Decade**
Authors:	Zeng, Lixi[1, 2, 3] ; Lam, James C. W.[1] ✉; Wang, Yawei[3, 4] ; Jiang, Guibin[3] ; Lam, Paul K. S.[1] ✉
Author affiliation:	[1] State Key Laboratory in Marine Pollution, Research Centre for the Oceans and Human Health, Shenzhen Key Laboratory for Sustainable Use of Marine Biodiversity, City University of Hong Kong, Kowloon, Hong Kong [2] School of Chemistry and Chemical Engineering, University of Chinese Academy of Sciences, Beijing, China [3] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China [4] Institute of Environment and Health, Jianghan University, Wuhan, China
Corresponding author:	Lam, James C. W.
Source title:	Environmental Science and Technology
Abbreviated source title:	Environ. Sci. Technol.
Volume:	49
Issue:	19
Issue date:	September 3, 2015
Publication year:	2015
Pages:	11348-11355
Language:	English
ISSN:	0013936X
E-ISSN:	15205851
CODEN:	ESTHAG
Document type:	Journal article (JA)
Publisher:	American Chemical Society
Abstract:	Temporal trends of short- (SCCPs) and medium-chain chlorinated paraffins (MCCPs) were examined in blubber samples of 50 finless porpoises (Neophocaena phocaenoides) and 25 Indo-Pacific humpback dolphins (Sousa chinensis) collected from the South China Sea between 2004 and 2014. Elevated levels of SCCPs and MCCPs were detected in all blubber samples of both cetacean species. Concentrations of SCCPs ranged from 280 to 3900 $ng\cdot g^{-1}$dry weight (dw) in porpoises and from 430 to 9100 $ng\cdot g^{-1}$dw in dolphins, while concentrations of MCCPs ranged from 320 to 8600 $ng\cdot g^{-1}$dw in porpoises and from 530 to 23 000 $ng\cdot g^{-1}$dw in dolphins.

Significantly higher concentrations were present in dolphins than porpoises due to their exposure levels in their living habitats. Strongly linear correlations existed between SCCPs and MCCPs, but there were no significant concentration differences between the genders of the two cetacean species in the same sampling year. Significantly temporal increasing trends of ΣSCCPs and ΣMCCPs have been observed in both porpoise and dolphin samples over the past decade, which reflect the influence of histories of production and usage on the bioaccumulation of CPs in marine mammals in China. An apparent temporal shift trend from SCCPs to MCCPs was also observed in CP accumulation profiles. Complex environmental fractionation from localized sources in the study region via atmospheric transport, oceanic/offshore water transport, and trophic transfer have resulted in different CP accumulation levels and homologue patterns in the two cetacean species. This is the first report of systematic temporal trends of SCCPs and MCCPs in marine mammals. © 2015 American Chemical Society.

Number of references: 45

Main heading: Mammals

Controlled terms: Atmospheric movements - Biochemistry - Chains - Dolphins (structures) - Paraffins

Uncontrolled terms: Accumulation profiles - Atmospheric transport - Finless porpoise - Humpback dolphins - Linear correlation - Localized source - Medium-chain chlorinated paraffins - Trophic transfer

Classification code: 407.1 Maritime Structures - 443.1 Atmospheric Properties - 602.1 Mechanical Drives - 801.2 Biochemistry

DOI: 10.1021/acs.est.5b02473

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

14.

Accession number: 20153601235768

Title: **Erratum to: Rapid and environmentally-friendly extraction of carotenoids from Blakeslea trispora(Biotechnology Letters, (2015), DOI 10.1007/s10529-015-1920-3)**

Authors: Wang, Hong-Bo[1] ; Zhang, Li-Wei[2] ; Luo, Jun[2] ; Yu, Long-Jiang[2]

Author affiliation:

[1] School of Life Sciences, Hubei Province Engineering Research Center for Legume Plants, Jianghan University, Wuhan, China

[2] Department of Biotechnology, Institute of Resource Biology and Biotechnology, College of Life Science and Technology, Huazhong University of Science and Technology, Wuhan, China

Corresponding author: Yu, Long-Jiang

Source title:	Biotechnology Letters
Abbreviated source title:	Biotechnol. Lett.
Volume:	37
Issue:	11
Issue date:	September 2, 2015
Publication year:	2015
Pages:	2179-2180
Language:	English
ISSN:	01415492
E-ISSN:	15736776
CODEN:	BILED3
Document type:	Journal article (JA)
Publisher:	Kluwer Academic Publishers
DOI:	10.1007/s10529-015-1923-0
Database:	Compendex

15.

Accession number:	20152300907596
Title:	**Evolution of ppm amount of Ru(III) complexes for effective living radical polymerization of MMA**
Authors:	Chen, Xiangxiong[1] ; Nguyen, Thi Thuy Duong[1] ; Khan, Mohd Yusuf[1, 2] ; Xia, Likai[1] ; He, Dan[1, 3] ; Lee, Seung Woo[1] ✉; Noh, Seok Kyun[1] ✉
Author affiliation:	[1] Precision Polymerization Research Lab, School of Chemical Engineering, Yeungnam University, Gyeongsan, Gyeongbuk, Korea, Republic of [2] Center of Excellence in Nanotechnology (CENT), King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia [3] Key Laboratory of Optoelectronic Chemical Materials, Devices of Ministry of Education, School of Chemical and Environmental Engineering, Jianghan University, Wuhan, China
Corresponding author:	Lee, Seung Woo
Source title:	Journal of Polymer Science, Part A: Polymer Chemistry
Abbreviated source title:	J Polym Sci Part A
Volume:	53

Issue: 17

Issue date: September 1, 2015

Publication year: 2015

Pages: 1961-1965

Language: English

ISSN: 0887624X

E-ISSN: 10990518

CODEN: JPACEC

Document type: Journal article (JA)

Publisher: John Wiley and Sons Inc., P.O.Box 18667, Newark, NJ 07191-8667, United States

Abstract: Three half-metallocene ruthenium(III) complexes, [(Cp∗RuCl<inf>2</inf>)PPh<inf>2</inf>R] (R = C<inf>6</inf>H<inf>4</inf>-OCH<inf>3,</inf>C<inf>6</inf>H<inf>5,</inf> and C<inf>5</inf>H<inf>5</inf>N were prepared. These Ru(III) complexes polymerized MMA successfully via ATRP in the absence of any reducing agent or free radical initiator. All of three complexes produced a linear relationship between ln[M<inf>n</inf>]<inf>0</inf>/[M<inf>n</inf>] versus the reaction time and the living properties through a linear increase in molecular weight versus conversion. Especially, well-defined PMMA and high initiation efficiency were obtained in the presence of 10 ppm catalysts. © 2015 Wiley Periodicals, Inc.

Number of references: 30

Main heading: Atom transfer radical polymerization

Controlled terms: Acrylic monomers - Catalysts - Esters - Free radical reactions - Free radicals - Initiators (explosives) - Living polymerization - Organometallics - Polymerization - Polymers - Pulse position modulation - Ruthenium - Ruthenium compounds - Transition metals

Uncontrolled terms: Free radical initiators - Initiation efficiency - Linear relationships - Living radical polymerization - Phosphorus ligands - Ruthenium complexes (III) - Transition metal chemistry

Classification code: 404.1 Military Engineering - 531 Metallurgy and Metallography - 547.1 Precious Metals - 716 Telecommunication; Radar, Radio and Television - 802.2 Chemical Reactions - 804 Chemical Products Generally - 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.2 Polymerization

DOI: 10.1002/pola.27671

Database: Compendex

YES

Compendex references:

16.

Accession number: 20153701268841

Title: **Electrochemical-reduction-assisted assembly of ternary Ag nanoparticles/polyoxometalate/graphene nanohybrids and their activity in the electrocatalysis of oxygen reduction**

Authors: Liu, Rongji[1] ; Xian, Zhaowei[2] ; Zhang, Shuangshuang[1, 3] ; Chen, Chunhua[2] ✉; Yang, Zhihua[2] ; Li, Hang[4] ; Zheng, Wanquan[4] ; Zhang, Guangjin[1] ✉; Cao, Hongbin[1] ✉

Author affiliation:
[1] Key Laboratory of Green Process and Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing, China
[2] Key Laboratory of Optoelectronic Chemical Materials, Devices of Ministry of Education, College of Chemical and Environmental Engineering, Jianghan University, Wuhan, China
[3] University of Chinese Academy of Sciences, Beijing, China
[4] Jianghan University Institute for Interdisciplinary Research, Wuhan, China

Corresponding author: Chen, Chunhua

Source title: RSC Advances

Abbreviated source title: RSC Adv.

Volume: 5

Issue: 91

Issue date: August 24, 2015

Publication year: 2015

Pages: 74447-74456

Language: English

E-ISSN: 20462069

CODEN: RSCACL

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: The green, facile, electrochemical-reduction-assisted assembly of ternary Ag nanoparticles (NPs)@polyoxometalate (POM)/reduced graphene oxide (rGO) is reported. The POM served as an electrocatalyst and bridging molecule. Characterization using transmission electron microscopy (TEM), X-ray photoelectron spectroscopy (XPS), X-ray diffraction (XRD), Raman and FT-IR spectroscopy analysis, etc., was performed and verified the structure of the prepared nanohybrids of Ag NPs@POM/rGO. The density and size of the Ag NPs on the rGO can be simply tuned by changing the concentration of Ag⁺. Most importantly, it is interesting to find that the ternary Ag NPs@POM/rGO nanohybrids showed much better electrocatalytic activities towards the oxygen reduction reaction than binary Ag NPs@POM and POM/rGO nanohybrids, and a direct four-electron transfer pathway was observed because of the synergistic effect of the Ag NPs and rGO. The electrocatalytic performance of Ag NPs@POM/rGO depended on the loading amount of Ag NPs, and 30% Ag NPs@POM/rGO showed the best electrocatalytic performance. © The Royal Society of Chemistry 2015.

Number of references: 61

Main heading: Silver

Controlled terms: Electrocatalysis - Electrocatalysts - Electrolytic reduction - Graphene - High resolution transmission electron microscopy - Metal nanoparticles - Nanoparticles - Nanostructured materials - Reduction - Transmission electron microscopy - X ray diffraction - X ray photoelectron spectroscopy

Uncontrolled terms: Electrocatalytic activity - Electrocatalytic performance - Electrochemical reductions - FTIR spectroscopy - Oxygen Reduction - Oxygen reduction reaction - Polyoxometalates - Synergistic effect

Classification code: 547.1 Precious Metals - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 931.3 Atomic and Molecular Physics

DOI: 10.1039/c5ra12556a

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

17.

Accession number: 20153101096688

Title: **Enhanced chemotherapy efficacy by co-delivery of shABCG2 and doxorubicin with a pH-responsive charge-reversible layered graphene oxide nanocomplex**

Authors: He, Yuling[1] ; Zhang, Lifen[1] ✉; Chen, Zhenzhen[1] ; Liang, Yong[2] ; Zhang, Yushun[1] ; Bai, Yanli[3] ; Zhang, Jing[3] ; Li, Yanfeng[1]

Author affiliation:

[1] State Key Laboratory of Applied Organic Chemistry, Key Laboratory of Nonferrous Metals Chemistry and Resources Utilization of Gansu Province, College of Chemistry and Chemical Engineering, Lanzhou University, Lanzhou, China

[2] Key Laboratory of Optoelectronic Chemical Materials and Devices of the Ministry of Education, School of Medicine, Institute of Environment and Health, Jianghan University, Wuhan, China

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Corresponding author: Zhang, Lifen

Source title: Journal of Materials Chemistry B

Abbreviated source title: J. Mater. Chem. B

Volume: 3

Issue: 31

Issue date: August 21, 2015

Publication year: 2015

Pages: 6462-6472

Language: English

ISSN: 20507518

E-ISSN: 2050750X

CODEN: JMCBDV

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: In this study, we constructed a layered graphene oxide (GO) nanocomplex with pH-responsive charge-reversible chitosan-aconitic anhydride (CS-Aco), biocompatible polyethylene glycol (PEG) and low molecular weight polyethylenimine (PEI). This was employed as a novel delivery system for intracellular pH-triggered DOX and short hairpin RNA (shRNA) controlled release and synergistic therapy. The nanocomplex GO-PEI-PEG/DOX/CS-Aco/PEI/shRNA exhibited high drug and shRNA loading, and good stability at physiological pH. In an acid pH environment, the negatively charged CS-Aco layer hydrolyzed into positively charged chitosan, causing the shielding layers of the nanocomposite to loosen. The disassembled GO-PEI-PEG/DOX and chitosan efficiently ruptured the endosome, significantly facilitating the release of DOX and PEI/shRNA into the cytoplasm, and then the shRNA disassembled rapidly because of its weak electrostatic interactions with the short PEI chains. Consequently, GO-PEI-PEG/DOX/CS-Aco/PEI/shRNA exhibited excellent shABCG2 and DOX co-delivery efficiency in HepG2 cells, which was better than that of GO/DOX and the non-charge-reversible GO-PEI-PEG/DOX/CS-Car/PEI/shRNA nanocomplex. Furthermore, this novel nanocomplex had high efficiency in silencing ABCG2 expression, and exhibited a significant synergistic efficacy in chemotherapy. © 2015 The Royal Society of Chemistry.

Number of references: 31

Main heading: Graphene

Controlled terms: Biocompatibility - Chemotherapy - Chitin - Chitosan - Cytology - pH

Uncontrolled terms:

Controlled release - Delivery systems - Intracellular pH - Low molecular weight - Negatively charged - Polyethylenimines - Positively charged - Short hairpin RNA (shRNA)

Classification code: 461 Bioengineering and Biology - 761 Nanotechnology - 801.1 Chemistry, General - 804 Chemical Products Generally - 804.1 Organic Compounds

DOI: 10.1039/c5tb00923e

Database: Compendex

18.

Accession number: 20153501208313

Title: **Toward Full Spectrum Speciation of Silver Nanoparticles and Ionic Silver by On-Line Coupling of Hollow Fiber Flow Field-Flow Fractionation and Minicolumn Concentration with Multiple Detectors**

Authors: Tan, Zhi-Qiang[1] ; Liu, Jing-Fu[1, 2] ✉ ; Guo, Xiao-Ru[1] ; Yin, Yong-Guang[1] ; Byeon, Seul Kee[3] ; Moon, Myeong Hee[3] ; Jiang, Gui-Bin[1, 2]

Author affiliation:
[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China
[2] Institute of Environment and Health, Jianghan University, Wuhan, China
[3] Department of Chemistry, Yonsei University, Seoul, Korea, Republic of

Corresponding author: Liu, Jing-Fu

Source title: Analytical Chemistry

Abbreviated source title: Anal. Chem.

Volume: 87

Issue: 16

Issue date: August 18, 2015

Publication year: 2015

Pages: 8441-8447

Language: English

ISSN: 00032700

E-ISSN: 15206882

CODEN: ANCHAM

Document type: Journal article (JA)

Publisher: American Chemical Society

Abstract:	The intertransformation of silver nanoparticles (AgNPs) and ionic silver (Ag(I)) in the environment determines their transport, uptake, and toxicity, demanding methods to simultaneously separate and quantify AgNPs and Ag(I). For the first time, hollow fiber flow field-flow fractionation (HF5) and minicolumn concentration were on-line coupled together with multiple detectors (including UV-vis spectrometry, dynamic light scattering, and inductively coupled plasma mass spectrometry) for full spectrum separation, characterization, and quantification of various Ag(I) species (i.e., free Ag(I), weak and strong Ag(I) complexes) and differently sized AgNPs. While HF5 was employed for filtration and fractionation of AgNPs (>2 nm), the minicolumn packed with Amberlite IR120 resin functioned to trap free Ag(I) or weak Ag(I) complexes coming from the radial flow of HF5 together with the strong Ag(I) complexes and tiny AgNPs (<2 nm), which were further discriminated in a second run of focusing by oxidizing >90% of tiny AgNPs to free Ag(I) and trapped in the minicolumn. The excellent performance was verified by the good agreement of the characterization results of AgNPs determined by this method with that by transmission electron microscopy, and the satisfactory recoveries (70.7-108%) for seven Ag species, including Ag(I), the adduct of Ag(I) and cysteine, and five AgNPs with nominal diameters of 1.4 nm, 10 nm, 20 nm, 40 nm, and 60 nm in surface water samples. © 2015 American Chemical Society.
Number of references:	45
Main heading:	Silver
Controlled terms:	Amino acids - Flow fields - Fractionation - High resolution transmission electron microscopy - Light scattering - Liquid chromatography - Mass spectrometry - Metal nanoparticles - Nanoparticles - Radial flow - Social networking (online) - Spectrometry - Surface waters - Transmission electron microscopy
Uncontrolled terms:	Amberlite IR-120 - Full spectrum - Hollow-fiber flow field-flow fractionation - Multiple detectors - On-line coupling - Silver nanoparticles - Silver nanoparticles (AgNps) - UV-Vis spectrometry
Classification code:	444.1 Surface Water - 461 Bioengineering and Biology - 547.1 Precious Metals - 631.1 Fluid Flow, General - 723 Computer Software, Data Handling and Applications - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 802.3 Chemical Operations
DOI:	10.1021/acs.analchem.5b01827
Database:	Compendex

19.

Accession number:	20152100879175

Title: **General Strategy to Construct Hierarchical TiO<inf>2</inf> Nanorod Arrays coupling with Plasmonic Resonance for Dye-sensitized Solar Cells**

Authors: Yumin, Liu[1, 2] ✉; Minli, Zhang[2] ; Yun, Jiang[2] ; Yu, Xia[2] ; Weiwei, Sun[3] ; Xing-Zhong, Zhao[1, 3] ✉

Author affiliation:
[1] Institute for Interdisciplinary Research (IIR), Jianghan University, Wuhan, China
[2] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China
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Corresponding author: Yumin, Liu

Source title: Electrochimica Acta
Abbreviated source title: Electrochim Acta
Volume: 173
Issue date: August 10, 2015
Publication year: 2015
Pages: 483-489
Language: English
ISSN: 00134686
CODEN: ELCAAV
Document type: Journal article (JA)
Publisher: Elsevier Ltd

Abstract: We demonstrate a general strategy to construct hierarchical TiO<inf>2</inf> nanorod arrays (HTNRs) coupling with plasmon resonant metallic nanoparticles for dye-sensitized solar cells (DSCs). The electron transfer and interfacial recombination process have been optimized via the construction of photoanodes. Moreover, localized electric fields produced by the introduction of Au nanoparticles could excite dye molecules more effectively than the incident far-field light, resulting in further enhancement of light adsorption and photocurrent generation of DSCs. The synergistic effect of surface plasmon resonance (SPR) and constructed HTNRs has been investigated by optical spectroscopy, J-V, IPCE, EIS and OCVD measurements. An evidently improvement in energy conversion efficiency of the devices beyond 25% has been achieved via the cooperation of constructed HTNRs and SPR effects in DSCs. © 2015 Elsevier Ltd. All rights reserved. © 2015 Elsevier Ltd. All rights reserved.

Number of references: 29

Main heading:	Dye-sensitized solar cells
Controlled terms:	Electric fields - Gold - Nanoparticles - Nanorods - Plasmons - Resonance - Solar cells - Surface plasmon resonance
Uncontrolled terms:	Coupling effect - Nano-rod arrays - Optical spectroscopy - Photo -anodes - Photocurrent generations - Plasmon resonant metallic nanoparticles - Plasmonic resonances - Recombination process
Classification code:	547.1 Precious Metals - 615.2 Solar Power - 701 Electricity and Magnetism - 701.1 Electricity: Basic Concepts and Phenomena - 708 Electric and Magnetic Materials - 711 Electromagnetic Waves - 712.1 Semiconducting Materials - 761 Nanotechnology - 933 Solid State Physics
DOI:	10.1016/j.electacta.2015.05.102
Database:	Compendex Compilation and indexing terms, © 2015 Elsevier Inc.
Compendex references:	YES

20.

Accession number:	20153201119357
Title:	**Controlled Assembly of Gold Nanostructures on a Solid Substrate via Imidazole Directed Hydrogen Bonding for High Performance Surface Enhance Raman Scattering Sensing of Hypochlorous Acid**
Authors:	Sun, Jiefang[3] ; Liu, Rui[1] ; Tang, Jijun[3] ; Zhang, Zongmian[1] ; Zhou, Xiaoxia[1] ; Liu, Jingfu[1, 2] ✉
Author affiliation:	[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, P.O. Box 2871, Beijing, China [2] Institute of Environment and Health, Jianghan University, Wuhan, China [3] State Key Laboratory of Toxicology and Medical Countermeasures, Institute of Pharmacology and Toxicology, Academy of Military Medical Sciences, Beijing, China
Corresponding author:	Liu, Jingfu
Source title:	ACS Applied Materials and Interfaces
Abbreviated source title:	ACS Appl. Mater. Interfaces
Volume:	7
Issue:	30
Issue date:	August 5, 2015
Publication year:	2015
Pages:	16730-16737

Language: English

ISSN: 19448244

E-ISSN: 19448252

Document type: Journal article (JA)

Publisher: American Chemical Society

Abstract: Here, we report an efficient and facile method for constructing plasmonic gold nanostructures with controlled morphology on a Si wafer and its use as a surface enhanced Raman scattering (SERS) reporting system for specific detection of HClO. To achieve this substrate, the core gold nanoparticles (AuNPs, ∼100 nm) with a monolayer of 4-mercaptoimidazole (MI) ligands were covalently linked to a thiol-derived Si wafer (MI-AuNPs@SH-Si). Taking advantage of the intermolecular NH···N hydrogen bond (HB) provided by the neighboring imidazole moiety, multiple satellite AuNPs (∼12 nm) decorated with both MI and a Raman reporter are assembled around the core MI-AuNPs at pH 5.0. The uniform morphology of the AuNP-based nanostructures on the Si wafer offer a high density of hot spots with good SERS performance for detecting HClO. The fast oxidation of the imidazole moieties by HClO causes HB destruction and therefore separation of the satellite AuNPs from the core AuNPs, which gives rise to SERS signal damping of the chip that is employed for HClO analysis. This simple and cost-effective method is highly selective for HClO over common interferences and several reactive oxygen/nitrogen species, and enabled rapid analysis at concentrations as low as 1.2 μmol L⁻¹. The present approach is applied to analyze water and human serum samples with satisfactory results. (Figure Presented). © 2015 American Chemical Society.

Number of references: 39

Main heading: Surface scattering

Controlled terms: Cost effectiveness - Fiber optic sensors - Gold - Hydrogen bonds - Metal nanoparticles - Nanoparticles - Nanostructures - Raman scattering - Silicon - Silicon wafers - Substrates - Wafer bonding

Uncontrolled terms: Controlled morphology - Cost-effective methods - Gold Nanoparticles - Gold nanostructures - High performance surfaces - Hypochlorous acids - imidazole - Surface enhanced Raman Scattering (SERS)

Classification code: 461 Bioengineering and Biology - 547.1 Precious Metals - 712.1.1 Single Element Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 741.1 Light/Optics - 741.1.2 Fiber Optics - 761 Nanotechnology - 801 Chemistry - 801.4 Physical Chemistry - 912.3 Operations Research - 931 Classical Physics; Quantum Theory; Relativity

DOI: 10.1021/acsami.5b04449

Database: Compendex

21.

Accession number: 20152200883256

Title: **Bi<inf>2</inf>S<inf>3</inf> microflowers assembled from one-dimensional nanorods with a high photoresponse**

Authors: Tian, Yu[1] ✉; Ding, Tao-tao[2] ; Zhu, Xiao-long[1] ; Tu, Ya-fang[1] ; Zheng, Guang[1]

Author affiliation:
[1] School of Physics and Information Engineering, Jianghan University, Wuhan; Hubei, China
[2] Wuhan National Laboratory for Optoelectronics, School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China

Corresponding author: Tian, Yu

Source title: Journal of Materials Science

Abbreviated source title: J Mater Sci

Volume: 50

Issue: 16

Issue date: August 4, 2015

Publication year: 2015

Pages: 5443-5449

Language: English

ISSN: 00222461

E-ISSN: 15734803

CODEN: JMTSAS

Document type: Journal article (JA)

Publisher: Kluwer Academic Publishers

Abstract: In this paper, Bi<inf>2</inf>S<inf>3</inf> microflowers have been successfully synthesized via a facile one-pot hydrothermal method and characterized by X-ray diffraction, field emission scanning electron microscopy, transmission electron microscopy, energy-dispersive X-ray analysis, and X-ray photoelectron spectroscopy. Then the Bi<inf>2</inf>S<inf>3</inf> microflowers were deposited on patterned ITO glass substrates by dip-coating to fabricate photodetectors. The photoresponse properties using Bi<inf>2</inf>S<inf>3</inf> microflowers as a representative system show a significantly enhanced conductivity and the current–voltage characteristic exhibit ca. 1.7 orders of magnitude larger than the dark current. The response and decay times are estimated to be ~227 and 880 ms, respectively, indicating that flower-like Bi<inf>2</inf>S<inf>3</inf> may be an excellent candidate for high-speed and high-sensitivity photoelectrical switches and light-sensitive devices. © 2015, Springer Science+Business Media New York.

Number of references: 37

Main heading: X ray photoelectron spectroscopy

Controlled terms: Electron microscopy - Energy dispersive X ray analysis - Field emission microscopes - ITO glass - Nanorods - Scanning electron microscopy - Substrates - Transmission electron microscopy - X ray analysis - X ray diffraction

Uncontrolled terms: Enhanced conductivity - Field emission scanning electron microscopy - Glass substrates - High sensitivity - Hydrothermal methods - Orders of magnitude - Sensitive devices - Voltage characteristics

DOI: 10.1007/s10853-015-9089-7

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

22.

Accession number: 20151700787566

Title: **Performance improvement of conventional and inverted polymer solar cells with hydrophobic fluoropolymer as nonvolatile processing additive**

Authors: Yu, Lu[1] ; Li, Cong[1] ; Li, Qiuxiang[1] ; Wang, Fuzhi[1] ; Lin, Jun[1] ; Liu, Jiyan[2] ; Hu, Siqian[2] ; Zheng, Hua[3] ; Tan, Zhan'Ao[1] ✉

Author affiliation:

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Corresponding author: Tan, Zhan'Ao

Source title: Organic Electronics: physics, materials, applications

Abbreviated source title: Org. Electron.: phys. mater. appl.

Volume: 23

Issue date: August 1, 2015

Publication year: 2015

Pages: 99-104

Language: English

ISSN: 15661199

CODEN: OERLAU

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: The morphology of the photoactive layer critically affects the performance of the bulk heterojunction polymer solar cells (PSCs). To control the morphology, we introduced a hydrophobic fluoropolymer polyvinylidene fluoride (PVDF) as nonvolatile additive into the P3HT:PCBM active layer. The effect of PVDF on the surface and the bulk morphology were investigated by atomic force microscope and transmission electron microscopy, respectively. Through the repulsive interactions between the hydrophilic PCBM and the hydrophobic PVDF, much more uniform phase separation with good P3HT crystallinity is formed within the active layer, resulting enhanced light harvesting and improved photovoltaic performance in conventional devices. The PCE of the conventional device can improve from 2.40% to 3.07% with PVDF additive. The PVDF distribution within the active layer was investigated by secondary ion mass spectroscopy, confirming a bottom distribution of PVDF. Therefore, inverted device structure was designed, and the PCE can improve from 2.81% to 3.45% with PVDF additive. Our findings suggest that PVDF is a promising nonvolatile processing additive for high performance polymer solar cells.

Number of references: 38

Main heading: Solar cells

Controlled terms: Atomic force microscopy - Fluorine compounds - Fluorine containing polymers - Heterojunctions - Hydrophobicity - Mass spectrometry - Morphology - Phase separation - Polymers - Secondary ion mass spectrometry - Transmission electron microscopy

Uncontrolled terms: High performance Polymer solar cells - Inverted device structures - Inverted polymer solar cells - Non-volatile - Polymer solar cell (PSCs) - Polymer Solar Cells - Polyvinylidene fluorides - Secondary ion mass spectroscopy

Classification code: 615.2 Solar Power - 641.1 Thermodynamics - 714.2 Semiconductor Devices and Integrated Circuits - 741.3 Optical Devices and Systems - 801 Chemistry - 804.1 Organic Compounds - 815.1 Polymeric Materials - 931.2 Physical Properties of Gases, Liquids and Solids

DOI: 10.1016/j.orgel.2015.04.012

Database: Compendex

Compendex references: YES

23.

Accession number: 20153101079689

Title: **Polybenzimidazole-crosslinked poly(vinylbenzyl chloride) with quaternary 1,4-diazabicyclo (2.2.2) octane groups as high-performance anion exchange membrane for fuel cells**

Authors: Lu, Wangting[1, 2] ; Zhang, Geng[2, 3] ; Li, Jin[2] ; Hao, Jinkai[2, 4] ; Wei, Feng[1] ; Li, Wenhui[1] ; Zhang, Jiying[1] ; Shao, Zhi-Gang[2] ; Yi, Baolian[2]

Author affiliation:

[1] Institute for Interdisciplinary Research, Jianghan University, Wuhan, China

[2] Fuel Cell System and Engineering Research Group, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, 457 Zhongshan Road, Dalian, China

[3] Department of Chemistry, College of Science, Huazhong Agricultural University, Wuhan, China

[4] University of Chinese Academy of Sciences, 19A Yuquan Road, Beijing, China

Corresponding author: Shao, Zhi-Gang

Source title: Journal of Power Sources

Abbreviated source title: J Power Sources

Volume: 296

Issue date: July 25, 2015

Publication year: 2015

Pages: 204-214

Article number: 21489

Language: English

ISSN: 03787753

CODEN: JPSODZ

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: Abstract Development of anion exchange membrane (AEM) with high conductivity, good dimensional stability, desirable toughness and long life-time simultaneously is still a challenge for the practical application of AEM fuel cells. Herein, a novel AEM (denoted as PBI-c-PVBC/OH) is fabricated by applying polybenzimidazole (PBI) and 1,4-diazabicyclo (2.2.2) octane (DABCO) as the macromolecular crosslinker and quaternizing reagent for poly (vinylbenzyl chloride) (PVBC), respectively. With the aid of crosslinking by PBI, PBI-c-PVBC/OH exhibits good flexibility and strength both in dry and water-saturated state. Moreover, high hydroxide conductivity (>25 mS cm⁻¹ at room temperature) and low swelling ratio (~13%) is obtained, especially the swelling ratio nearly does not increase with temperature. The membrane is also advanced for the superior chemical stability in alkaline environment due to the stable polymer backbone and ionic conductive group (only one nitrogen atom in a DABCO molecule is quaternized). Furthermore, a peak power density of 230 mW cm⁻² at 50 °C is obtained on the H<inf>2</inf>/O<inf>2</inf> fuel cell using PBI-c-PVBC/OH, and the membrane presents high durability both in the constant current and continuous open circuit voltage testing. Therefore, it is considered that the PBI crosslinking together with DABCO quaternization can be regarded as a promising strategy in the development of AEM for fuel cells. © 2015 Published by Elsevier B.V.

Number of references: 58

Main heading: Alkaline fuel cells

Controlled terms: Alkalinity - Chemical stability - Convergence of numerical methods - Crosslinking - Durability - Fuel cells - Gas fuel purification - Ion exchange membranes - Ions - Membranes - Open circuit voltage

Uncontrolled terms: 1,4-diazabicyclo (2.2.2) octane - Anion exchange membrane - Anion exchange membranes (AEM) - Anion-exchange membrane fuel cells - Cross linked membranes - Hydroxide conductivities - Poly(vinylbenzyl chloride) - Polybenzimidazole

Classification code: 421 Strength of Building Materials; Mechanical Properties - 521 Fuel Combustion and Flame Research - 522 Gas Fuels - 701.1 Electricity: Basic Concepts and Phenomena - 702.2 Fuel Cells - 801 Chemistry - 801.1 Chemistry, General - 802.1 Chemical Plants and Equipment - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 921.6 Numerical Methods - 951 Materials Science

DOI: 10.1016/j.jpowsour.2015.07.048

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

24.

Accession number: 20153401202092

Title: **Structural evolution analysis and cold-crystallization kinetics of spherical crystals in poly(trimethylene terephthalate) film using Raman spectroscopy**

Authors: Hu, Chenglong[1, 2] ; Chen, Shaoyun[1] ; Zhang, Weihong[3] ; Xie, Fangyan[3] ; Chen, Jian[3] ; Chen, Xudong[2]

Author affiliation:

[1] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China

[2] Key Laboratory for Polymeric Composite and Functional Materials, School of Chemistry and Chemical Engineering, Sun

Yat-sen University, Guangzhou, China

[3] Instrumental Analysis and Research Center, Sun Yat-sen University, Guangzhou, China

Corresponding author: Chen, Shaoyun

Source title: Soft Matter

Abbreviated source title: Soft Matter

Volume: 11

Issue: 34

Issue date: July 24, 2015

Publication year: 2015

Pages: 6866-6871

Language: English

ISSN: 1744683X

E-ISSN: 17446848

CODEN: SMOABF

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: Dynamic processes and the structural evolution of cold-crystallized poly(trimethylene terephthalate) (PTT) film were investigated using Raman spectroscopy. Raman scattering of C=O stretching vibration was related to the molecular chain movement and structure evolution in PTT during cold crystallization. In particular, information about each phase of crystallization, including induction, nucleation, nucleus growth, and secondary crystallization, was thoroughly revealed. The experimental results indicated that the kinetic parameters measured by the Raman method were in good agreement with those obtained by differential scanning calorimetry (DSC) and infrared spectroscopy. The blue-shifted C=O stretching vibration resulting from the crystallization process is a popular phenomenon and may therefore have many potential applications in a wide range of areas. © The Royal Society of Chemistry 2015.

Number of references: 29

Main heading: Raman spectroscopy

Controlled terms: Crystallization kinetics - Differential scanning calorimetry - Infrared spectroscopy - Stretching

Uncontrolled terms: Cold crystallization - Crystallization process - Poly(trimethylene terephthalate) - Secondary crystallization - Spherical crystal - Stretching vibrations - Structural evolution - Structure evolution

Classification code: 535.2 Metal Forming - 741.1 Light/Optics - 801 Chemistry - 933 Solid State Physics

DOI: 10.1039/c5sm01605c

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

25.

Accession number: 20153501214431
Article in Press

Title: **Photocurrent enhancement in hybrid cadmium sulfide/conjugated polyaniline nanofiber composites by introducing iodine**

Authors: Hu, Chenglong[1] ; Chen, Shaoyun[1] ; Peng, Sha[1] ; Liu, Xueqing[1] ; Liu, Jiyan[1]

Author affiliation: [1] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan 430056, China

Corresponding author: Chen, Shaoyun

Source title: Applied Surface Science

Abbreviated source title: Appl Surf Sci

Issue date: July 20, 2015

Publication year: 2015

Language: English

ISSN: 01694332

CODEN: ASUSEE

Document type: Article in Press

Publisher: Elsevier

Abstract: In this paper, the effect of iodine on the photocurrent of conjugated polymer/inorganic semiconductor nanocomposites is investigated. Via a redox process, iodine nanoparticles are coated on the surface of highly active nanofiber of conjugated polyaniline (PANI), forming an electron donor (i.e., I<inf>2</inf>@PANI). After subsequent incorporation of CdS nanoparticles (serving as electron acceptors), the photocurrent of the I<inf>2</inf>@PANI-CdS system is greatly enhanced as compared to that of the PANI-CdS hybrid. This obvious enhancement is due to the fact that the existence of I<inf>2</inf> causes significant improvement in the charge transfer, which has favorable penetration ability into the porous semiconductor film, fast charge transfer and relatively slow recombination with injected photoelectrons. As a result, the total concentration of charge carriers in the CdS nanoparticles may increase as compared to that in bulk CdS. As a result, the photocurrent of CdS in I<inf>2</inf>@PANI-CdS nanocomposites is remarkably enhanced. © 2015.

Main heading: Cadmium sulfide

Controlled terms: Charge transfer - Conjugated polymers - Iodine - Nanocomposites - Nanofibers - Nanoparticles - Photocurrents - Polyaniline

Uncontrolled terms: CdS - Electron acceptor - Penetration ability - Photocurrent enhancement - Polyaniline nanofibers - Polyanilines (PAni) - Porous semiconductors - Semiconductor nanocomposite

Classification code: 708 Electric and Magnetic Materials - 741.1 Light/Optics - 761 Nanotechnology - 802.2 Chemical Reactions - 804 Chemical Products Generally - 815.1.1 Organic Polymers - 933 Solid State Physics

DOI: 10.1016/j.apsusc.2015.08.145

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

26.

Accession number: 20153901313549

Title: **Poly(ethylene oxide)-based electrolytes for lithium-ion batteries**

Authors: Xue, Zhigang[1] ✉; He, Dan[2] ; Xie, Xiaolin[1] ✉

Author affiliation: [1] Key Laboratory for Large-Format Battery Materials and Systems, Ministry of Education, School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan, China

[2] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, School of Chemical and Environmental Engineering, Jianghan University, Wuhan, China

Corresponding author: Xue, Zhigang

Source title: Journal of Materials Chemistry A

Abbreviated source title: J. Mater. Chem. A

Volume: 3

Issue: 38

Issue date: July 17, 2015

Publication year: 2015

Pages: 19218-19253

Language: English

ISSN: 20507488

E-ISSN: 20507496

CODEN: JMCAET

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: Poly(ethylene oxide) (PEO) based materials are widely considered as promising candidates of polymer hosts in solid-state electrolytes for high energy density secondary lithium batteries. They have several specific advantages such as high safety, easy fabrication, low cost, high energy density, good electrochemical stability, and excellent compatibility with lithium salts. However, the typical linear PEO does not meet the production requirement because of its insufficient ionic conductivity due to the high crystallinity of the ethylene oxide (EO) chains, which can restrain the ionic transition due to the stiff structure especially at low temperature. Scientists have explored different approaches to reduce the crystallinity and hence to improve the ionic conductivity of PEO-based electrolytes, including blending, modifying and making PEO derivatives. This review is focused on surveying the recent developments and issues concerning PEO-based electrolytes for lithium-ion batteries. This journal is © The Royal Society of Chemistry 2015.

Number of references: 627

Main heading: Lithium-ion batteries

Controlled terms: Blending - Electric batteries - Electrolytes - Ethylene - Ionic conductivity - Lithium - Lithium alloys - Lithium compounds - Low temperature production - Polyethylene oxides - Solid electrolytes - Temperature

Uncontrolled terms: Electrochemical stabilities - High crystallinity - High energy densities - Ionic transition - Poly (ethylene oxide) (PEO) - Production requirements - Secondary lithium battery - Solid-state electrolyte

Classification code: 549.1 Alkali Metals - 641.1 Thermodynamics - 644.4 Cryogenics - 702 Electric Batteries and Fuel Cells - 702.1 Electric Batteries - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 815.1.1 Organic Polymers - 933 Solid State Physics

DOI: 10.1039/c5ta03471j

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

27.

Accession number: 20152801030705

Title: **Occurrence of organochlorine pesticides in the environmental matrices from King George Island, west Antarctica**

Authors: Zhang, Qinghua[1, 2] ✉; Chen, Zhaojing[1] ; Li, Yingming[1] ; Wang, Pu[1] ; Zhu, Chaofei[1] ; Gao, Guanjun[1] ; Xiao, Ke[1] ; Sun, Huizhong[1] ; Zheng, Shucheng[1] ; Liang, Yong[2, 3] ; Jiang, Guibin[1]

Author affiliation: [1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China

[2] Institute of Environment and Health, Jianghan University, Wuhan, China

[3] School of Medicine, Jianghan University, Wuhan, China

Corresponding author: Zhang, Qinghua

Source title: Environmental Pollution

Abbreviated source title: Environ. Pollut.

Volume: 206

Issue date: July 11, 2015

Publication year: 2015

Pages: 142-149

Language: English

ISSN: 02697491

E-ISSN: 18736424

CODEN: ENPOEK

Document type: Journal article (JA)

Publisher: Elsevier Ltd

Abstract: Antarctica is considered as a final sink of many persistent organic pollutants (POPs). This work aims to investigate the levels, distributions and potential sources of organochlorine pesticides (OCPs) with HRGC/HRMS technique. Twenty-three OCPs were measured in various environmental matrices from King George Island, west Antarctica. The total concentrations (Σ<inf>23</inf>OCPs) were at quite low levels, ranging 93.6-1260 pg g⁻¹ dry weight (dw) in soil and sediment, 223-1053 pg g⁻¹ dw in moss and 373-812 pg g⁻¹ dw in lichen. Hexachlorobenzene (HCB), dichloro-diphenyl-trichloroethane (DDT) and its metabolites (especially p,p′-DDE) and hexachlorocyclohexanes (HCHs) were the main contaminants in all samples. Lower α-HCH/γ-HCH and higher p,p′-DDE/p,p′-DDT ratios compared with the technical products indicated long-range atmospheric transport (LRAT) of recent lindane and aged technical DDT. Significant dependence of many OCPs concentrations on total organic carbon (TOC) was observed. Apart from LRAT, local biotic activities could also contribute and influence the spatial distribution of the contaminants. © 2015 Elsevier Ltd.

Number of references: 53

Main heading: Organic pollutants

Controlled terms: Atmospheric movements - Carbon - Organic carbon - Pesticides - Soils - Vegetation

Uncontrolled terms: Antarctica - Environmental matrixes - Hexachlorocyclohexanes - Hrgc/hrms - Long-range atmospheric transports - Organochlorine pesticides - Persistent organic pollutants - Total Organic Carbon

Classification code: 443.1 Atmospheric Properties - 483.1 Soils and Soil Mechanics - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds - 821 Agricultural Equipment and Methods; Vegetation and Pest Control

DOI: 10.1016/j.envpol.2015.06.025

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

28.

Accession number: 20152701006019

Title: **Mono-nuclear and Hexa-nuclear Iron(III) Compounds Based on Phenol-Pyrazole Ligand: Synthesis, Crystal Structure and Magnetic Properties**

Authors: Tong, Jia-Ping[1] ✉; Xu, Xue-Jun[1] ; Yang, De-Jun[1] ; Yu, Fan[2] ; Li, Bao[3] ✉

Author affiliation:

[1] Lab of Munitions Chemistry, College of Xiangyang Noncommissioned Officers, Xiangyang, China

[2] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan; Hubei, China

[3] School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan; Hubei, China

Corresponding author: Tong, Jia-Ping

Source title: Journal of Inorganic and Organometallic Polymers and Materials

Abbreviated source title: J. Inorg. Organomet. Polym. Mater.

Volume: 25

Issue: 6

Issue date: July 3, 2015

Publication year: 2015

Pages: 1380-1385

Language: English

ISSN: 15741443

E-ISSN: 15741451

Document type: Journal article (JA)

Publisher: Springer New York LLC

Abstract: Reactions of 3-(2-hydroxy-5-methylphenyl)pyrazole (H2Meppz) with different iron salts and bases in solutions lead to compounds [Fe (HMeppz)2Cl] (1) and [Na3Fe6O(OH)7(Meppz)6] (2). These two compounds are then structurally characterized. In mono-nuclear

complex 1, iron(III) ion has a square-pyramidal geometry. The mono-nuclear units are further inter-connected by the hydrogen bonds between the N–H of pyrazole ring and the halogen of neighboring molecule to form ladder-like 1D chain. In contrast, substituting the chloride salt with acetate salt, a hexa-nuclear iron(III) cluster 2 is obtained. In 2, the octa-hedral iron ions are interacted with eachother by the hydroxyl bridges, and stabilized by the fully deprotonated Meppz^{2-}ligands. In addition, the magnetic properties of compound 2 had been investigated. Magnetic analysis indicates the presence of antiferromagnetic interactions within the Fe6cluster. © 2015, Springer Science+Business Media New York.

Number of references: 32

Main heading: Iron compounds

Controlled terms: Chelation - Chlorine compounds - Crystal structure - Hydrogen bonds - Iron - Ligands - Magnetic properties - Magnetism - Metal ions

Uncontrolled terms: Antiferro-magnetic interactions - Hexa-nuclear - Magnetic analysis - Neighboring molecules - Nuclear complex - Pyrazole ligands - Pyrazoles - Square-pyramidal geometry

DOI: 10.1007/s10904-015-0250-1

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

29.

Accession number: 20152400927247

Title: **Differential accumulation and elimination behavior of perfluoroalkyl acid isomers in occupational workers in a manufactory in China**

Authors: Gao, Yan[1] ; Fu, Jianjie[1] ; Cao, Huiming[1] ; Wang, Yawei[1, 2] ✉; Zhang, Aiqian[1] ✉; Liang, Yong[2, 3, 4] ; Wang, Thanh[5] ; Zhao, Chunyan[6] ; Jiang, Guibin[1]

Author affiliation:

[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Post Office Box 2871, Beijing, China

[2] Institute of Environment and Health, Ministry of Education, Jianghan University, Wuhan, China

[3] School of Medicine, Ministry of Education, Jianghan University, Wuhan, China

[4] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China

[5] MTM Research Center, School of Science and Technology, Örebro University, Örebro, Sweden

[6] School of Pharmacy, Lanzhou University, Lanzhou, China

Corresponding author: Wang, Yawei

Source title: Environmental Science and Technology

Abbreviated source title: Environ. Sci. Technol.

Volume: 49

Issue: 11

Issue date: June 2, 2015

Publication year: 2015

Pages: 6953-6962

Language: English

ISSN: 0013936X

E-ISSN: 15205851

CODEN: ESTHAG

Document type: Journal article (JA)

Publisher: American Chemical Society

Abstract: In this study, serum and urine samples were collected from 36 occupational workers in a fluorochemical manufacturing plant in China from 2008 to 2012 to evaluate the body burden and possible elimination of linear and branched perfluoroalkyl acids (PFAAs). Indoor dust, total suspended particles (TSP), diet, and drinking water samples were also collected to trace the occupational exposure pathway to PFAA isomers. The geometric mean concentrations of perfluorooctanesulfonate (PFOS), perfluorooctanoate (PFOA), and perfluorohexanesulfonate (PFHxS) isomers in the serum were 1386, 371, and 863 ng mL⁻¹, respectively. The linear isomer of PFOS, PFOA, and PFHxS was the most predominant PFAA in the serum, with mean proportions of 63.3, 91.1, and 92.7% respectively, which were higher than the proportions in urine. The most important exposure routes to PFAA isomers in the occupational workers were considered to be the intake of indoor dust and TSP. A renal clearance estimation indicated that branched PFAA isomers had a higher renal clearance rate than did the corresponding linear isomers. Molecular docking modeling implied that linear PFOS (n-PFOS) had a stronger interaction with human serum albumin (HSA) than branched isomers did, which could decrease the proportion of n-PFOS in the blood of humans via the transport of HSA. © 2015 American Chemical Society.

Number of references: 48

Main heading: Isomers

Controlled terms: Body fluids - Dust - Plants (botany) - Potable water

Uncontrolled terms: Drinking water samples - Human serum albumins - Manufacturing plant - Occupational exposure - Perfluoroalkyl acids - Perfluorooctane sulfonates - Perfluorooctanoate - Total suspended particles

Classification code: 444 Water Resources - 451.1 Air Pollution Sources - 461.2 Biological Materials and Tissue Engineering - 461.9 Biology - 801 Chemistry - 801.2 Biochemistry - 804 Chemical Products Generally

DOI: 10.1021/acs.est.5b00778

Database: Compendex

30.

Accession number: 20151000597413

Title: **A capillary based chemiluminscent multi-target immunoassay**

Authors: Cao, Yuan-Cheng[1]

Author affiliation: [1] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China

Corresponding author: Cao, Yuan-Cheng

Source title: Journal of Fluorescence

Abbreviated source title: J Fluoresc

Volume: 25

Issue: 3

Issue date: May 1, 2015

Publication year: 2015

Pages: 563-568

Language: English

ISSN: 10530509

CODEN: JOFLEN

Document type: Journal article (JA)

Publisher: Springer New York LLC

Abstract: Renewed interest in capillary format immunoassays has lead to increasingly costly and complex approaches to preparation and readout. This study describes a simple multi-target method based on a capillary platform using horseradish peroxidase (HRP) labelled IgG to visualize an antibody antigen complex. When goat-anti-human IgG was employed as the probe and human IgG as target, the system allowed detection of target to less than 1 ng/mL using a standard detection approach. The capillaries were read visually or with a commercial grade CCD camera. Multi-target detection was demonstrated using a model system of rat-anti-mouse, goat-anti-human and mouse-anti-rat IgG. These probes were encoded to different locations in the capillary, providing a simple inexpensive approach to achieve multi-target assays. © 2015 Springer Science+Business Media New York.

Number of references: 29

Main heading: Antigens

Controlled terms: Assays - CCD cameras - Immunology - Mammals - Probes - Rats

Uncontrolled terms: Antibody-antigen - Capillary format - Commercial grade - Detection approach - Diagnostic capillary - Horseradish peroxidase - Multi-target detection - Sandwich assays

DOI: 10.1007/s10895-015-1535-z

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

31.

Accession number: 20153801295480

Article in Press

Title: **Chemical structure evolution of char during the pyrolysis of cellulose**

Authors: Xin, Shanzhi[1, 2] ; Yang, Haiping[1] ; Chen, Yingquan[1] ; Yang, Mingfa[1] ; Chen, Lei[1] ; Wang, Xianhua[1] ; Chen, Hanping[1]

Author affiliation:

[1] State Key Laboratory of Coal Combustion, Huazhong University of Science and Technology, Wuhan 430074, China

[2] Hubei Key Laboratory of Industrial Fume and Dust Pollution Control, Jianghan University, Wuhan 430056, China

Corresponding author: Yang, Haiping

Source title: Journal of Analytical and Applied Pyrolysis

Abbreviated source title: J Anal Appl Pyrolysis

Issue date: April 24, 2015

Publication year: 2015

Language: English

ISSN: 01652370

CODEN: JAAPDD

Document type: Article in Press

Publisher: Elsevier

Abstract: The formation and evolution of chemical structure of char during cellulose (ash-free) pyrolysis were investigated using two-dimensional infrared correlation spectroscopy combined with Raman spectroscopy. The initial temperature at which water evolved chemically from cellulose pyrolysis is around 200. °C. The cleavage of intra- and inter-molecular hydrogen bonds (H-bonds) and the subsequent dehydration were the primary reactions as temperature below 300. °C, among which intra-molecular dehydration was the predominated reaction. However, dehydration occurred principally inter-molecularly along with decarbonylation, ring-opening and aromatization at temperature over 300. °C. The concentration of carbonyl, conjugated olefin, ether and aromatic structure increased significantly at the expense of glycosidic bond, pyran ring and hydroxyl groups diminishing in the residual char. The oligosaccharides, aliphatic hydrocarbons and aromatics were bonded through the ether linkage to form a disordered three-dimensional network. Dehydration was almost accomplished at 430. °C and smallest aromatic clusters grafted with oxygenated groups underwent significant deoxygenation and condensation at 430-650. °C. The predominant reaction shifted from deoxygenation toward dehydrogenation as the temperature exceeded 650. °C and the char was highly aromatic with large aromatic systems composed of over six fused ring structures. The study provides insightful details into the initial stage of cellulose degradation. © 2015 Elsevier B.V.

Main heading: Cracking (chemical)

Controlled terms: Aromatic compounds - Aromatization - Cellulose - Chemical reactions - Dehydration - Ethers - Hydrogen bonds - Molecular structure - Pyrolysis - Structure (composition)

Uncontrolled terms: Aliphatic hydrocarbons - Aromatic structures - Char - Correlation spectroscopy - Formation and evolutions - H-bonds - Predominant reactions - Three-dimensional networks

Classification code: 801.4 Physical Chemistry - 802.2 Chemical Reactions - 804.1 Organic Compounds - 815.1.1 Organic Polymers - 951 Materials Science

DOI: 10.1016/j.jaap.2015.09.002

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

32.

Accession number: 20151800801335

Title: **Computation and simulation of the structural characteristics of the kidney urea transporter and behaviors of urea transport**

Authors: Wang, Zhe[1] ; Yu, Tao[1, 2] ; Sang, Jian-Ping[1, 2] ✉; Zou, Xian-Wu[1] ; Yan, Chengfei[3] ; Zou, Xiaoqin[3] ✉

Author affiliation: [1] Department of Physics, Wuhan University, Wuhan, China

	[2] Department of Physics, Jianghan University, Wuhan, China [3] Department of Physics and Astronomy, Informatics Institute, University of Missouri, Columbia; MO, United States
Corresponding author:	Sang, Jian-Ping
Source title:	Journal of Physical Chemistry B
Abbreviated source title:	J Phys Chem B
Volume:	119
Issue:	16
Issue date:	April 23, 2015
Publication year:	2015
Pages:	5124-5131
Language:	English
ISSN:	15206106
E-ISSN:	15205207
CODEN:	JPCBFK
Document type:	Journal article (JA)
Publisher:	American Chemical Society
Abstract:	Urea transporters are a family of membrane proteins that transport urea molecules across cell membranes and play important roles in a variety of physiological processes. Although the crystal structure of bacterial urea channel dvUT has been solved, there lacks an understanding of the dynamics of urea transport in dvUT. In this study, by using molecular dynamics simulations, Monte Carlo methods, and the adaptive biasing force approach, we built the equilibrium structure of dvUT, calculated the variation in the free energy of urea, determined the urea-binding sites of dvUT, gained insight into the microscopic process of urea transport, and studied the water permeability in dvUT including the analysis of a water chain in the pore. The strategy used in this work can be applied to studying transport behaviors of other membrane proteins. © 2015 American Chemical Society.
Number of references:	40
Main heading:	Urea
Controlled terms:	Binding sites - Biological membranes - Cell membranes - Crystal structure - Cytology - Free energy - Metabolism - Molecular dynamics - Monte Carlo methods - Proteins
Uncontrolled terms:	Adaptive biasing forces - Equilibrium structures - Microscopic process - Molecular dynamics simulations - Physiological process - Structural characteristics - Transport behavior - Water permeability
Classification code:	

461.2 Biological Materials and Tissue Engineering - 641.1 Thermodynamics - 801.2 Biochemistry - 801.4 Physical Chemistry - 804.1 Organic Compounds - 922.2 Mathematical Statistics

DOI: 10.1021/jp511300u

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

33.

Accession number: 20151500730393

Title: **Hierarchical donut-shaped LiMn2O4 as an advanced cathode material for lithium-ion batteries with excellent rate capability and long cycle life**

Authors: Sun, Weiwei[1] ; Liu, Huiqin[1] ; Peng, Tao[1] ; Liu, Yumin[2] ; Bai, Gongxun[3] ; Kong, Sen[1] ; Guo, Shishang[1] ✉; Li, Meiya[1] ✉; Zhao, Xing-Zhong[1] ✉

Author affiliation:

[1] School of Physics and Technology, Key Laboratory of Artificial Micro- and Nano-structure of Ministry of Education, Wuhan University, Wuhan, China

[2] Institute for Interdisciplinary Research (IIR), Jianghan University, Wuhan; Hubei, China

[3] Department of Applied Physics, Hong Kong Polytechnic University, Hong Kong, Hong Kong

Corresponding author: Guo, Shishang

Source title: Journal of Materials Chemistry A

Abbreviated source title: J. Mater. Chem. A

Volume: 3

Issue: 15

Issue date: April 21, 2015

Publication year: 2015

Pages: 8165-8170

Language: English

ISSN: 20507488

E-ISSN: 20507496

CODEN: JMCAET

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: Porous micrometer-sized architecture that consists of aggregated single-crystalline nanoparticles is critical for LiMn2O4 to achieve good rate capacity and cycling stability, since it can increase the contact area between the electrolyte/electrode and shorten the transport paths for electrons and lithium ions. In this paper, hierarchical porous donut-shaped LiMn2O4 comprising aggregated single-crystalline nanoparticles has been successfully fabricated with MnO2 nanosheet coated polystyrene spheres as a precursor and characterized in terms of structure and performance as the cathode for lithium ion batteries. The charge/discharge tests show that the as-obtained donut-shaped LiMn2O4 exhibits excellent rate capability and high-rate cyclic stability. Surprisingly, even at a high charge/discharge rate of 10 C, the battery yields a capacity retention of over 95% after 500 cycles. The superior performance of the synthesized product can be attributed to its intrinsic structure: porous donut-shaped LiMn2O4 consisting of well-connected single-crystalline nanoparticles. The interpenetrating nanoparticle reduces the path of Li ion diffusion and increases the number of reaction sites for lithium insertion/extraction; the pores provide void space to buffer the volume changes during high-rate charge/discharge. © The Royal Society of Chemistry 2015.

Number of references: 35

Main heading: Lithium-ion batteries

Controlled terms: Aggregates - Cathodes - Crystalline materials - Electric batteries - Electrodes - Ions - Lithium - Lithium alloys - Lithium compounds - Manganese oxide - Nanoparticles - Secondary batteries - Synthesis (chemical)

Uncontrolled terms: Capacity retention - Cath-ode materials - Charge/discharge test - Hierarchical porous - High charge/discharge rates - Intrinsic structures - Polystyrene spheres - Structure and performance

Classification code: 406 Highway Engineering - 549.1 Alkali Metals - 702.1 Electric Batteries - 702.1.2 Secondary Batteries - 704.1 Electric Components - 708 Electric and Magnetic Materials - 761 Nanotechnology - 801 Chemistry - 802.2 Chemical Reactions - 804 Chemical Products Generally - 933 Solid State Physics - 933.1 Crystalline Solids

DOI: 10.1039/c5ta00752f

Database: Compendex

34.

Accession number: 20151600765847

Title: **A bottom-up approach to dual shape-memory effects**

Authors: Wang, Juan[1] ; Li, Jin[1] ; Li, Na[1] ; Guo, Xiaolong[2] ; He, Liu[1] ; Cao, Xuan[3] ; Zhang, Weiying[1] ; He, Rongxiang[1] ✉; Qian, Zhiyong[4] ✉; Cao, Yiping[1, 2] ✉; Chen, Yong[1, 5]

Author affiliation:
[1] Flexible Display Materials and Technology Co-Innovation Center of Hubei, Institute for Interdisciplinary Research, China
[2] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China
[3] School of Advanced Materials and Nanotechnology, Xidian University, Xian, China
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Corresponding author: He, Rongxiang

Source title: Chemistry of Materials
Abbreviated source title: Chem. Mater.
Volume: 27
Issue: 7
Issue date: April 14, 2015
Publication year: 2015
Pages: 2439-2448
Language: English
ISSN: 08974756
E-ISSN: 15205002
CODEN: CMATEX
Document type: Journal article (JA)
Publisher: American Chemical Society

Abstract: This study demonstrates how to successfully bridge the gap between nanoscale shape-memory function and macroscale motion using a bottom-up approach. This was achieved by first fabricating a photoswitchable surface-molecular-imprinted layer-by-layer (LbL) film capable of memorizing the shape and size of template molecules when illuminated. This photoswitch was built on the fundamental supramolecular interaction between an α-cyclodextrin-modified template acting as a photosocket and an azobenzene-modified poly (acrylic acid) photoplug. Corresponding patterns applied by cover-printing and wet photolithography were used to illustrate the stability of the binding sites; a simple and clean method was developed for removing the template-dye by UV irradiation. A functional fusion of nanoimprints and macroscopic materials was subsequently established by applying LbL coating technology to poly(d,l-lactic acid) (PDLLA) modified to have a shape-memory effect. Macroscopic changes in shape were found to cause deformation of recognition cavities in terms of their shape and size, thereby enabling

us to visualize the effect of the specific adsorption behavior toward template-dye on a patterned PDLLA sheet. The rapid swelling and surface erosion of PDLLA also revealed that an increase in the number of deposited layers can significantly affect the interfacial properties of both the substrate and LbL film. It is believed that such novel designs and methods should prove useful for the development of multifunctional biomaterials. © 2015 American Chemical Society.

Number of references: 45

Main heading: Shape memory effect

Controlled terms: Binding sites - Biological materials - Biomaterials - Deposition - Lactic acid - Mechanical variables measurement - Photolithography

Uncontrolled terms: Coating technologies - Interfacial property - Layer-by-layer films - Macroscopic materials - Poly(acrylic acid) - Poly(D ,L-lactic acid) - Shape memory functions - Supramolecular interactions

Classification code: 461.2 Biological Materials and Tissue Engineering - 462.5 Biomaterials (including synthetics) - 714.2 Semiconductor Devices and Integrated Circuits - 801.2 Biochemistry - 804.1 Organic Compounds - 813.1 Coating Techniques - 943.2 Mechanical Variables Measurements - 951 Materials Science

DOI: 10.1021/cm504527w

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

35.

Accession number: 20153101099278
Article in Press

Title: **Quantum dots encoded Au coated polystyrene bead arranged micro-channel for multiplex arrays**

Authors: Cao, Yuan-Cheng[1, 2] ; Wang, Zhan[3] ; Yang, Runyu[1] ; Zou, Linling[1, 2] ; Zhou, Zhen[1] ; Mi, Tie[4] ; Shi, Hong[1]

Author affiliation:

[1] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan 430056, P. R. China

[2] Flexible Display Materials and Technology Co-Innovation Centre of Hubei Province, Jianghan University, Wuhan 430056, P. R. China

[3] Department of Chemical and Environmental Engineering, Wuhan Polytechnic University, Wuhan, Hubei Province, 430023, P. R. China

[4] Hubei Key Laboratory of Industrial Fume and Dust Pollution Control, Jianghan University, Wuhan 430056, P. R. China

Corresponding author: Zou, Linling

Source title: Talanta

Abbreviated source title: Talanta

Issue date: March 24, 2015

Publication year: 2015

Language: English

ISSN: 00399140

CODEN: TLNTA2

Document type: Article in Press

Publisher: Elsevier

Abstract: This paper describes a promising micro-channel multiplex immunoassay method based on the quantum dots encoded beads which requires micro-volume sample. Briefly, Au nanoparticles coated polystyrene (PS) beads were prepared and Quantum dots (QDs) were employed to encode 4 types of the PS beads by different emission wavelength QDs and various intensities. Different coding types of the beads were immobilized with different antibodies on the surface and BSA was used to block the unsatisfied sites. The antibody linked beads were then arranged in the 150μm diameter optical capillary where the specific reactions took place before the detections. Results showed that the antibody on the Au coated surface maintains the bioactivity for the immunoreactions. Using this system, the fluorescent intensity was linear with analyte concentration in the range of 1×10⁻⁷-1×10⁻⁵ mg/mL (RSD<5%, 4 repeats) and the lower detection limit reached 5×10⁻⁸ mg/mL. It was proved to be a promising approach for the future miniaturization analytical devices. © 2015 Elsevier B.V.

Main heading: Semiconductor quantum dots

Controlled terms: Analytic equipment - Antibodies - Bioassay - Biochips - Fluorescence - Gold - Microarrays - Multiplexing - Nanocrystals - Polystyrenes

Uncontrolled terms: Analyte concentration - Capillary immunoassay - Emission wavelength - Fluorescent analysis - Fluorescent intensity - Lower detection limit - Multiplex immunoassays - Optical capillary

Classification code: 461 Bioengineering and Biology - 547.1 Precious Metals - 714.2 Semiconductor Devices and Integrated Circuits - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 741.1 Light/Optics - 761 Nanotechnology - 801 Chemistry - 815.1.1 Organic Polymers

DOI: 10.1016/j.talanta.2015.06.030

Database: Compendex

36.

Accession number: 20152100869227
Article in Press

Title: **New insights into the primary phototransformation of acetaminophen by UV/H<inf>2</inf>O<inf>2</inf>: Photo-Fries rearrangement versus hydroxyl radical induced hydroxylation**

Authors: Feng, Shixiang[1] ; Zhang, Xu[1] ; Liu, Yanxiang[2]

Author affiliation: [1] School of Resources and Environmental Science, Wuhan University, Wuhan, 430079, PR China
[2] School of Chemical and Environmental Engineering, Jianghan University, Wuhan, 430056, PR China

Corresponding author: Zhang, Xu

Source title: Water Research

Abbreviated source title: Water Res.

Issue date: February 22, 2015

Publication year: 2015

Language: English

ISSN: 00431354

E-ISSN: 18792448

CODEN: WATRAG

Document type: Article in Press

Publisher: Elsevier Ltd

Abstract: The phototransformation of acetaminophen (APAP) by UV/H<inf>2</inf>O<inf>2</inf> in deionized water and sewage treatment plant (STP) effluents was studied systematically by a combination of analysis of the reaction intermediates and kinetic study. 1-(2-amino-5-hydroxyphenyl)ethanone (P1) and the reported N-(3,4-dihydroxyphenyl)acetamide (P2) were identified as the main transformation intermediates during the transformation of APAP by UV/H<inf>2</inf>O<inf>2</inf>. There was no influence of OH on the formation kinetics of P1, while its decay was promoted. The formation and decay kinetics of P2 were accelerated by increases in the concentration of OH. The second-order rate constants for the reaction of OH with APAP, P1, and P2 were 3.9×10⁹, 8.1×10⁹, and 4.7×10⁹M⁻¹s⁻¹, respectively. The kinetic study indicated that the main transformation of APAP also included transformation to 1,4-hydroquinone, although the accumulated concentration of 1,4-hydroquinone was quite low. The presence of anions (Cl⁻, HCO3-/CO32-, NO2-/NO3-), humic acid, commercial drug components or adjuvants, and dissolved organic matters in STP effluents not only changed the transformation kinetics of APAP, but

also altered the distribution of the intermediates. The kinetics and pathway of APAP transformation in STP effluent were markedly different from those in deionized water. © 2015 Elsevier Ltd.

Main heading: Effluents

Controlled terms: Biological materials - Deionized water - Enzyme kinetics - Hydroxylation - Kinetic theory - Kinetics - Mechanisms - Nitrogen compounds - Rate constants - Reaction intermediates - Sewage treatment plants - Water treatment

Uncontrolled terms: 1 ,4 hydroquinones - Acetaminophen - Dissolved organic matters - Fries rearrangement - Photo-Fries - Phototransformations - Second-order rate constants - Transformation kinetics

Classification code: 445.1 Water Treatment Techniques - 452.2 Sewage Treatment - 452.3 Industrial Wastes - 461.2 Biological Materials and Tissue Engineering - 601.3 Mechanisms - 802.2 Chemical Reactions - 804 Chemical Products Generally - 931 Classical Physics; Quantum Theory; Relativity - 931.1 Mechanics

DOI: 10.1016/j.watres.2015.05.008

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

37.

Accession number: 20153601236476

Article in Press

Title: **Structure and Piezoelectric Properties of Lead-Free Na<inf>0.5</inf>Bi<inf>0.5</inf>TiO<inf>3</inf> Nanofibers Synthesized by Electrospinning**

Authors: Zhou, Di[1] ; Zhou, Youhua[1] ; Tian, Yu[1] ; Tu, Yafang[1] ; Zheng, Guang[1] ; Gu, Haoshuang[2]

Author affiliation:

[1] School of Physics and Information Engineering, Jianghan University, Wuhan 430056, China

[2] Hubei Collaborative Innovation Centre for Advanced Organic Chemical Materials, Faculty of Physics and Electronic Science, Hubei University, Wuhan 430062, China

Corresponding author: Zheng, Guang

Source title: Journal of Materials Science and Technology

Abbreviated source title: J. Mater. Sci. Technol.

Issue date: January 26, 2015

Publication year: 2015

Language: English

ISSN: 10050302

CODEN: JSCTEQ

Document type: Article in Press

Publisher: Chinese Society of Metals

Abstract: Lead-free Na<inf>0.5</inf>Bi<inf>0.5</inf>TiO<inf>3</inf> (NBT) nanofibers with the perovskite structure were prepared by the electrospinning method. The nanofibers were about 200-300 nm in diameter and up to several hundred microns in length. The crystal structures and morphologies of the nanofibers were characterized by X-ray diffraction (XRD), Raman spectroscopy, scanning electron microscopy (SEM), and transmission electron microscopy (TEM). The effective piezoelectric property of individual NBT nanofiber was examined by piezoresponse force microscopy (PFM). The NBT nanofibers crystallized in pure perovskite phase after annealing above 700 °C in air and comprised a great number of fine particles with size of 60-80 nm. In addition, the electromechanical energy conversion models for NBT nanofibers were built and demonstrated high voltage output as high as several millivolts. Such a result qualifies NBT nanofibers as a promising candidate for lead-free electromechanical conversion devices. © 2015.

Main heading: Nanofibers

Controlled terms: Electromechanical devices - Electron microscopy - Electrospinning - High resolution transmission electron microscopy - Perovskite - Piezoelectricity - Scanning electron microscopy - Scanning probe microscopy - Sodium - Spinning (fibers) - Transmission electron microscopy - X ray diffraction

Uncontrolled terms: Electromechanical conversion - Electromechanical energy - Electrospinning method - Perovskite structures - Piezoelectric - Piezoelectric property - Piezoresponse force microscopy - Sodium bismuth titanate

Classification code: 549.1 Alkali Metals - 601 Mechanical Design - 701.1 Electricity: Basic Concepts and Phenomena - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 812.1 Ceramics - 819.3 Fiber Chemistry and Processing - 933 Solid State Physics - 933.1.1 Crystal Lattice

DOI: 10.1016/j.jmst.2015.07.019

Database: Compendex

38.

Accession number: 20144700230680

Title: **Fabrication of bifacial wafer-scale silicon nanowire arrays with ultra-high aspect ratio through controllable metal-assisted chemical etching**

Authors: Liu, Yumin[1, 2] ; Sun, Weiwei[3] ; Jiang, Yun[2] ; Zhao, Xing-Zhong[1, 3]

Author affiliation:
[1] Institute for Interdisciplinary Research (IIR), Jianghan University, Wuhan, China
[2]

Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China

[3] School of Physics and Technology, Wuhan University, Wuhan, China

Corresponding author: Liu, Yumin

Source title: Materials Letters

Abbreviated source title: Mater Lett

Volume: 139

Issue date: January 15, 2015

Publication year: 2015

Pages: 437-442

Language: English

ISSN: 0167577X

CODEN: MLETDJ

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: Bifacial wafer-scale silicon nanowire arrays have been prepared through controllable deposition and metal-assisted chemical etching. Highly uniform silicon nanowire arrays with ultra-high aspect ratio have been obtained on both sides of the silicon wafer. The effects of Ag, HF, and H2O2 on the formation mechanism have been systematically investigated. The results indicated that the influence of H2O2 on the length of silicon nanowires, the surface density of arrays and the thickness of silicon wafer is more obvious than that of HF. Furthermore, the relationship between the length of silicon nanowires and the molar ratio of HF/H2O2 has been investigated. It demonstrated that the length of silicon nanowires is proportional to ρ when the concentration of HF in the etchant is constant, but in inversely proportion to ρ when the concentration of H2O2 is constant, where ρ is defined as [HF]/ ([HF]+ [H2O2]). This strategy will be beneficial and revelatory for fabrication of bifacial solar cells based on this wafer-scale silicon nanowire arrays.

Number of references: 17

Main heading: Silicon wafers

Controlled terms: Aspect ratio - Etching - Microstructure - Nanowires - Semiconductor materials - Silicon

Uncontrolled terms: Bifacial solar cells - Formation mechanism - Metal-assisted chemical etching - Molar ratio - Silicon nanowire arrays - Silicon nanowires - Surface density - Wafer-scale

Classification code: 531 Metallurgy and Metallography - 712.1 Semiconducting Materials - 712.1.1 Single Element Semiconducting Materials -

761 Nanotechnology - 933 Solid State Physics - 943 Mechanical and Miscellaneous Measuring Instruments - 951 Materials Science

DOI: 10.1016/j.matlet.2014.10.084

Database: Compendex

39.

Accession number: 20152300921991

Title: **Magnetically separable Cu2O/chitosan-Fe3O4nanocomposites: Preparation, characterization and visible-light photocatalytic performance**

Authors: Cao, Chunhua[1, 2] ; Xiao, Ling[1] ✉; Chen, Chunhua[2] ; Cao, Qihua[1]

Author affiliation:
[1] School of Resource and Environmental Science, Wuhan University, Wuhan, China
[2] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China

Corresponding author: Xiao, Ling

Source title: Applied Surface Science

Abbreviated source title: Appl Surf Sci

Volume: 333

Issue date: April 1, 2015

Publication year: 2015

Pages: 110-118

Language: English

ISSN: 01694332

CODEN: ASUSEE

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: A novel magnetically-separable visible-light-induced photocatalyst, Cu2O/chitosan-Fe3O4nanocomposite (Cu2O/CS-Fe3O4NC), was prepared via a facile one-step precipitation-reduction process by using magnetic chitosan chelating copper ions as precursor. The structure and properties of Cu2O/CS-Fe3O4NCs were characterized by XRD, FT-IR, SEM, HRTEM, SAED, EDS, BET, VSM, XPS and UV-vis/DRS. The photocatalytic activity of Cu2O/CS-Fe3O4NCs was evaluated by decolorization of reactive brilliant red X-3B (X-3B) under visible light irradiation. The characterization results indicated that Cu2O/CS-Fe3O4NCs exhibited relatively large specific surface areas and special dimodal pore structure because Cu2O was wrapped in chitosan matrix embedded with

Fe3O4nanoparticles. The tight combination of magnetic Fe3O4and semiconductor Cu2O through chitosan made the nanocomposites show good superparamagnetism and photocatalytic activity. It was found that X-3B could be decolorized more efficiently in acidic media than in neutral or alkaline media. The decolorization of X-3B was ascribed to the synergistic effect of photocatalysis and adsorption. Cu2O/CS-Fe3O4NCs could be easily separated from the solution by an external magnet, and the decolorization rates of X-3B were still above 87% after five reaction cycles, indicating that Cu2O/CS-Fe3O4NCs had excellent reusability and stability. © 2015 Elsevier B.V. All rights reserved.

Number of references: 42

Main heading: Light

Controlled terms: Chitin - Chitosan - Magnetic separation - Magnetism - Metal ions - Nanocomposites - Photocatalysis - Photocatalysts - Reaction rates - Reusability

Uncontrolled terms: Cuprous oxide - Large specific surface areas - Photocatalytic activities - Photocatalytic performance - Reactive brilliant red X-3B - Structure and properties - Visible light - Visible-light irradiation

Classification code: 531.1 Metallurgy - 701.2 Magnetism: Basic Concepts and Phenomena - 741.1 Light/Optics - 761 Nanotechnology - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 933 Solid State Physics

DOI: 10.1016/j.apsusc.2015.02.002

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

40.

Accession number: 20145100350135

Title: **A novel pH-responsive hydrogel based on natural polysaccharides for controlled release of protein drugs**

Authors: Xu, Wenjin[1, 2] ; He, Xianran[3] ; Zhong, Min[4] ; Hu, Xianming[1] ; Xiao, Yuling[1] ✉

Author affiliation:

[1] State Key Laboratory of Virology, School of Pharmaceutical Sciences, Wuhan University, Wuhan, China

[2] School of Chemistry, Chemical Engineering and Life Science, Wuhan University of Technology, Luoshi Road 122, Wuhan, Hubei, China

[3] Institute for Interdisciplinary Research, Jianghan University, Wuhan Economic and Technological Development Zone, Wuhan, China

[4]

	School of Chemical and Environmental Engineering, Jianghan University, Wuhan Economic and Technological Development Zone, Wuhan, China
Corresponding author:	Xiao, Yuling
Source title:	RSC Advances
Abbreviated source title:	RSC Adv.
Volume:	5
Issue:	5
Issue date:	2015
Publication year:	2015
Pages:	3157-3167
Language:	English
E-ISSN:	20462069
CODEN:	RSCACL
Document type:	Journal article (JA)
Publisher:	Royal Society of Chemistry
Abstract:	A biocompatible and biodegradable hydrogel based on a natural polysaccharide was prepared and characterized to evaluate its applicability as an effective carrier for controlled protein delivery. The hydrogel exhibited significant pH-sensitivity, which was favorable for protein release in a simulated intestinal medium. It is capable of incorporating considerable amounts of protein drugs (encapsulation efficiency up to 97.6 wt%) following a protein-friendly preparation procedure. It was shown that the hydrogel is able to release two entrapped model protein drugs (bovine serum albumin and lysozyme) in a controlled manner with full preservation of protein stability and enzymatic activity for lysozyme. Moreover, the insulin-loaded hydrogel was effective in reducing blood glucose level in diabetic animal models. Importantly, the hydrogel showed no evidence of cytotoxicity in vitro and in vivo, rather, it is biodegradable. The synthesized hydrogel shows favorable features as a promising delivery carrier candidate for targeted delivery of protein drugs to specific sites. This journal is © The Royal Society of Chemistry 2015.
Number of references:	56
Main heading:	Hydrogels
Controlled terms:	Biocompatibility - Biosynthesis - Body fluids - Cytotoxicity - Encapsulation - Enzymes - Proteins
Uncontrolled terms:	Biodegradable hydrogels - Bovine serum albumins - Cytotoxicity in Vitro - Encapsulation efficiency - Enzymatic activities - Natural polysaccharide - pH-responsive hydrogels - Preparation procedures

Classification code: 451.1 Air Pollution Sources - 461.2 Biological Materials and Tissue Engineering - 462.5 Biomaterials (including synthetics) - 802.2 Chemical Reactions - 804 Chemical Products Generally - 804.1 Organic Compounds - 813.2 Coating Materials

DOI: 10.1039/c4ra08147a

Database: Compendex

41.

Accession number: 20150600503024

Title: **Modelling and analysis of step response test for hydraulic automatic gauge control**

Authors: Jiangang, Yi[1] ✉

Author affiliation: [1] Hubei Key Laboratory of Industrial Fume and Dust Pollution Control, Jianghan University, Wuhan, China

Corresponding author: Jiangang, Yi

Source title: Strojniski Vestnik/Journal of Mechanical Engineering

Abbreviated source title: Stroj Vest

Volume: 61

Issue: 2

Issue date: 2015

Publication year: 2015

Pages: 115-122

Language: English

ISSN: 00392480

CODEN: STJVAX

Document type: Journal article (JA)

Publisher: Assoc. of Mechanical Eng. and Technicians of Slovenia

Abstract: The step response for hydraulic automatic gauge control (HAGC) determines the steel rolling speed and the steel sheet thickness in the process of rolling production. In this paper, the step response test process of HAGC was analysed, and a test approach was proposed for it. Based on that, the transfer function model of the step response test was established and simulated by using Matlab. In order to reduce the settling time and the overshoot, an adaptive proportional-integral-derivative (APID) link was presented in order to compensate for the input signal by using back propagation neural networks (BPNN). The experimental results show that the improved step response test model reaches the process requirements of HAGC, eliminates the jitter of the HAGC system at the start-up phase, and

	has better stability as well as faster response for steel sheet rolling. © 2015 Journal of Mechanical Engineering. All rights reserved.
Number of references:	18
Main heading:	Step response
Controlled terms:	Backpropagation - Gages - Neural networks - Proportional control systems - Steel sheet - Strip mills - Two term control systems
Uncontrolled terms:	Automatic gauge control - Back-propagation neural networks - Modelling and analysis - Process requirements - Proportional integral - Proportional integral derivatives - Step response tests - Transfer function model
Classification code:	535.1.2 Rolling Mill Practice - 545.3 Steel - 723.4 Artificial Intelligence - 731.1 Control Systems - 943.3 Special Purpose Instruments
DOI:	10.5545/sv-jme.2014.2046
Database:	Compendex

42.

Accession number:	20153101097624
Title:	**A general strategy to construct uniform carbon-coated spinel LiMn<inf>2</inf>O<inf>4</inf> nanowires for ultrafast rechargeable lithium-ion batteries with a long cycle life**
Authors:	Sun, Weiwei[1] ; Liu, Huiqin[1] ; Liu, Yumin[2] ; Bai, Gongxun[3] ; Liu, Wei[1] ; Guo, Shishang[1] ✉; Zhao, Xing-Zhong[1] ✉
Author affiliation:	[1] School of Physics and Technology, Key Laboratory of Artificial Micro, Nano-structure of Ministry of Education, Wuhan University, Wuhan, China [2] Institute for Interdisciplinary Research (IIR), Jianghan University, Wuhan Hubei, China [3] Department of Applied Physics, Hong Kong Polytechnic University, Hong Kong, Hong Kong
Corresponding author:	Guo, Shishang
Source title:	Nanoscale
Abbreviated source title:	Nanoscale
Volume:	7
Issue:	31
Issue date:	August 21, 2015
Publication year:	2015
Pages:	13173-13180

Language: English

ISSN: 20403364

E-ISSN: 20403372

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: Control over one-dimensional growth of spinel-type LiMn<inf>2</inf>O<inf>4</inf> nanowires is challenging in the area of materials science due to their cubic crystal structure. The current strategy is to use a self-support template to fabricate LiMn<inf>2</inf>O<inf>4</inf> nanowires, which is time-consuming and limits their large-scale commercial production. In this paper, we propose a general strategy to construct well-defined LiMn<inf>2</inf>O<inf>4</inf> nanowires terminated with amorphous carbon at the edges by an ingenious method without using any template. Benefited from its unique carbon-coated nanowire structure, the electrode exhibits a capacitor-like rate performance and battery-like high capacity for long-time cycling. Even after 1500 cycles at an extremely high current density of 30 C, approximately 82% of its initial capacity can still be retained. Significantly, the strategy reported here will be beneficial and revelatory to manufacture other extensive one-dimensional robust carbon-decorated nanowires, paving new ways for future developments of ultrafast rechargeable lithium-ion batteries. This journal is © The Royal Society of Chemistry 2015.

Number of references: 45

Main heading: Lithium-ion batteries

Controlled terms: Amorphous carbon - Crystal structure - Electric batteries - Growth (materials) - Lithium alloys - Lithium compounds - Nanowires - Secondary batteries

Uncontrolled terms: Commercial productions - Cubic crystal structures - High capacity - High current densities - Nanowire structures - One-dimensional growth - Rate performance - Rechargeable lithium ion battery

Classification code: 549.1 Alkali Metals - 702.1 Electric Batteries - 702.1.2 Secondary Batteries - 761 Nanotechnology - 804.1 Organic Compounds - 933 Solid State Physics - 951 Materials Science

DOI: 10.1039/c5nr02057c

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

43.

Accession number: 20151000602428

Title: **Iron-catalyzed atom transfer radical polymerization**

Authors: Xue, Zhigang[1] ✉; He, Dan[2] ; Xie, Xiaolin[1] ✉

Author affiliation: [1] Key Laboratory for Large-Format Battery Materials and Systems, Ministry of Education, Huazhong University of Science and Technology, Wuhan, China

[2] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China

Corresponding author: Xue, Zhigang

Source title: Polymer Chemistry

Abbreviated source title: Polym. Chem.

Volume: 6

Issue: 10

Issue date: March 14, 2015

Publication year: 2015

Pages: 1660-1687

Language: English

ISSN: 17599954

E-ISSN: 17599962

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: In the last two decades, metal-catalyzed controlled radical polymerization (CRP), or atom transfer radical polymerization (ATRP) has become a ubiquitous tool for the facile synthesis of a wide range of materials with specific macromolecular architectures. The complex plays an important role in ATRP, and for this purpose researchers put a great deal of effort on studying the effect of various complexes on polymerization. However, one of the disadvantages of a copper complex, the most extensively studied catalyst system in ATRP, is the contamination of polymers resulting from a high concentration of stable catalyst. Efficiently and economically removing the catalyst from the resultant polymers will provide a wide variety of new functional polymers for specialty applications, especially for large-scale industrial manufacture. Iron-based catalysts have attracted particular attention because of their low toxicity, low cost, abundance, and environmental friendliness, and thus many iron catalysts have been designed for ATRP. This article reviews the preparation of polymers using iron-catalyzed atom transfer radical polymerization, and is organized according to: (a) mechanistic considerations; (b) iron complexes and ligand types. © 2015 The Royal Society of Chemistry.

Number of references: 377

Main heading: Atom transfer radical polymerization

Controlled terms: Atoms - Catalysis - Catalysts - Free radical reactions - Iron - Iron compounds - Macromolecules - Polymerization

Uncontrolled terms: Catalyst system - Controlled radical polymerization - Copper complexes - Environmental friendliness - Facile synthesis - Iron-based catalyst - Macromolecular architecture - Stable catalysts

Classification code: 545.1 Iron - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 815.2 Polymerization - 931.3 Atomic and Molecular Physics

DOI: 10.1039/c4py01457j

Database: Compendex

44.

Accession number: 20152700989569

Title: **Magnetically separable Cu2O/chitosan.Fe3O4nanocomposites: Preparation, characterization and visible-light photocatalytic performance**

Authors: Cao, Chunhua[1, 2] ; Xiao, Ling[1] ✉; Chen, Chunhua[2] ; Cao, Qihua[1]

Author affiliation:
[1] School of Resource and Environmental Science, Wuhan University, Luojia Mountain of Wuchang, Wuhan, Hubei, China
[2] Key Laboratory of Optoelectronic Chemical Materials and Devices, Jianghan University, Ministry of Education, Wuhan, China

Corresponding author: Xiao, Ling

Source title: Applied Surface Science

Abbreviated source title: Appl Surf Sci

Volume: 333

Issue: 1

Issue date: 2015

Publication year: 2015

Pages: 110-118

Language: English

ISSN: 01694332

CODEN: ASUSEE

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: A novel magnetically-separable visible-light-induced photocatalyst, Cu2O/chitosan-Fe3O4nanocomposite (Cu2O/CS-Fe3O4NC), was prepared via a facile one-step precipitation-reduction process by using magnetic chitosan chelating copper ions as precursor. The structure and properties of Cu2O/CS-Fe3O4NCs were characterized by XRD, FT-IR, SEM, HRTEM, SAED, EDS, BET, VSM, XPS and UV-vis/DRS. Thephotocatalytic activity of Cu2O/CS-Fe3O4NCs was evaluated by decolorization of reactive brilliant red X-3B (X-3B) under visible light irradiation. The characterization results indicated that Cu2O/CS-Fe3O4NCs exhibited relatively large specific surface areas and special dimodal pore structure because Cu2Owas wrapped in chitosan matrix embedded with Fe3O4nanoparticles. The tight combination of magnetic Fe3O4and semiconductor Cu2O through chitosan made the nanocomposites show good superparamagnetism and photocatalytic activity. It was found that X-3B could be decolorized more efficiently in acidic media than in neutral or alkaline media. The decolorization of X-3B was ascribed to the synergistic effectof photocatalysis and adsorption. Cu2O/CS-Fe3O4NCs could be easily separated from the solution by an external magnet, and the decolorization rates of X-3B were still above 87% after five reaction cycles, indicating that Cu2O/CS-Fe3O4NCs had excellent reusability and stability. © 2015 Elsevier B.V. All rights reserved.

Number of references: 42

Main heading: Light

Controlled terms: Chitin - Chitosan - Magnetic separation - Magnetism - Metal ions - Nanocomposites - Photocatalysis - Photocatalysts - Reaction rates - Reusability

Uncontrolled terms: Cuprous oxide - Large specific surface areas - Photocatalytic activities - Photocatalytic performance - Reactive brilliant red X-3B - Structure and properties - Visible light - Visible-light irradiation

Classification code: 531.1 Metallurgy - 701.2 Magnetism: Basic Concepts and Phenomena - 741.1 Light/Optics - 761 Nanotechnology - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 933 Solid State Physics

DOI: 10.1016/j.apsusc.2015.02.002

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

45.

Accession number: 20153501227075

Title: **Transparent and through thickness conductive polystyrene films using external magnetic fields for "z" alignment of nickel nanoparticles**

Authors:

Chen, Yuwei[1, 2] ; Guo, Yuanhao[1] ; Batra, Saurabh[1] ; Wang, Enmin[1] ; Wang, Yanping[2] ; Liu, Xueqing[3] ; Wang, Yimin[2] ; Cakmak, Miko[1]

Author affiliation:
[1] Polymer Engineering Department, University of Akron, Akron; OH, United States
[2] State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai, China
[3] Key Laboratory of Optoelectronic Chemical Material and Devices, Ministry of Education, Jianghan University, Wuhan, China

Corresponding author: Cakmak, Miko

Source title: Nanoscale
Abbreviated source title: Nanoscale
Volume: 7
Issue: 35
Issue date: September 21, 2015
Publication year: 2015
Pages: 14636-14642
Language: English
ISSN: 20403364
E-ISSN: 20403372
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry

Abstract: A combination of transparency, electrical conductivity and flexibility is desired in the emerging flexible electronics industry for current and future applications. In this paper, we report the development of through thickness electrical conductivity in polystyrene films filled with nickel nanopowder by external magnetic field application. This process leads to the formation of nanocolumns of nickel spanning across the thickness direction while generating nanoparticle depleted regions in between. This leads to directionally dependent enhancement in optical light transmission particularly in the normal direction of the films. With the use of as little as 2 wt% (0.22 vol%) nickel we were able to achieve high through thickness conductivity under the influence of a magnetic field. While these films exhibit high through thickness conductivity they remain non-conductive in their planes as a result of the unique nanomorphology created which eliminates potential side branch formations. These films are anticipated to be used as electrodes for touch screens, electric dissipative materials for electronic packaging and other sensors. © 2015 The Royal Society of Chemistry.

Number of references: 46

Main heading: Conductive films

Controlled terms: Electric conductivity - Electronics industry - Electronics packaging - Filled polymers - Films - Flexible electronics - Light transmission - Magnetic fields - Magnetism - Nanomagnetics - Nanoparticles - Nickel - Packaging materials - Plastic films - Polystyrenes - Touch screens

Uncontrolled terms: Dissipative materials - Electrical conductivity - Electronic Packaging - External magnetic field - Future applications - Generating nanoparticles - Nickel nanoparticles - Thickness direction

Classification code: 548.1 Nickel - 694.2 Packaging Materials - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 708 Electric and Magnetic Materials - 708.2 Conducting Materials - 715 Electronic Equipment, General Purpose and Industrial - 722.2 Computer Peripheral Equipment - 741.1 Light/Optics - 761 Nanotechnology - 815.1.1 Organic Polymers - 817.1 Polymer Products - 933 Solid State Physics - 951 Materials Science

DOI: 10.1039/c5nr03328d

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

46.

Accession number: 20152901036361

Title: **Recovery of copper from slow cooled ausmelt furnace slag by floatation**

Authors: Xue, Ping[1, 2] ; Li, Guangqiang[1] ; Qin, Qingwei[1]

Author affiliation:

[1] Key Laboratory for Ferrous Metallurgy and Resources Utilization, Wuhan University of Science and Technology, Ministry of Education, Jianshe Road, Wuhan, Hubei, China

[2] Jianghan University, Sanjiaohu Road, Wuhan, Hubei, China

Source title: TMS Annual Meeting

Abbreviated source title: TMS Annu Meet

Volume: 2015-January

Part number: 1 of 1

Issue: January

Monograph title: Characterization of Minerals, Metals, and Materials 2015 - Held During TMS 2015 144th Annual Meeting and Exhibition

Issue date: 2015

Publication year: 2015

Pages: 621-628

Language: English

CODEN: 85MVAI

Document type: Conference article (CA)

Conference name: Characterization of Minerals, Metals, and Materials 2015 - TMS 2015 144th Annual Meeting and Exhibition

Conference date: March 15, 2015 - March 19, 2015

Conference location: Orlando, FL, United states

Conference code: 112234

Sponsor: Materials Characterization Committee of the Extraction and Processing Division of The Minerals, Metals and Materials Society (TMS)

Publisher: Minerals, Metals and Materials Society, 184 Thorn Hill Road, Warrendale, PA 15086, United States

Abstract: Ausmelt furnace slag contains about 0.9% Cu (mass %). With increasing the amount of Ausmelt furnace slag, the recovery of copper from it will produce an enormous economic yield. The recovery of copper by floatation from slow cooled Ausmelt furnace slag was studied in this paper. The phases and composition of the slow cooled slag were analyzed. The factors which affected the copper recovery efficiency such as grinding fineness, pH value of flotation medium, different collectors and floating process were investigated. It was shown that the size distribution of the primary grinding and secondary grinding of middling were 75% for particles less than 0.074mm and 82% for particles less than 0.043mm respectively. The closed- circuit experimental results with butyl xanthate as collector in laboratory showed that the copper grade reached 16.11% and the recovery rate of copper reached 69.90% and the copper grade of tailings was only 0.2%. Copyright © 2015 by The Minerals, Metals & Materials Society. All rights reserved.

Number of references: 7

Main heading: Copper

Controlled terms: Characterization - Collector efficiency - Flotation - Furnaces - Grinding (machining) - Recovery - Slags

Uncontrolled terms: Ausmelt - Butyl xanthates - Closed circuit - Copper recovery - Furnace slags - pH value - Recovery rate - Slow cooled

Classification code: 406 Highway Engineering - 412 Concrete - 413 Insulating Materials - 531 Metallurgy and Metallography - 532 Metallurgical Furnaces - 533.1 Ore Treatment - 544.1 Copper - 606.2 Abrasive Devices and Processes - 702.3 Solar Cells - 951 Materials Science

Database: Compendex

Compendex references: YES

47.

Accession number: 20151700789912

Title: **Calculation equation of wellhead productivity and absolute open flow capacity via wellhead pressure**

Authors: Wei, Wei[1] ✉ ; Guo, Kang-Liang[1] ; Tian, Lang[2] ; He, Liang[3] ; Chen, Kai-Yan[1]

Author affiliation:
[1] School of Geosciences, Yangtze Univercity, Wuhan, China
[2] Sinopec Oilfield Service Jianghan Corporation International, Wuhan, China
[3] Chengdu University of Technology Energy Institute, Chengdu, China

Corresponding author: Wei, Wei

Source title: Natural Gas Geoscience

Abbreviated source title: Nat. Gas Geosci.

Volume: 26

Issue: 2

Issue date: February 10, 2015

Publication year: 2015

Pages: 391-396

Language: Chinese

ISSN: 16721926

Document type: Journal article (JA)

Publisher: Science Press

Abstract: In deliverability evaluation of oil and gas field, the single point deliverability equation and binomial deliverability equation are often used to obtain the productivity to strike open flow capacity. For some special cases of the well, pressure gauge can not be put into the middle layer, conventional methods require the wellhead pressure converted into bottom-hole pressure, then find the binomial deliverability equation and single point deliverability equation suitable for the area, this is not only time consuming but also increases the uncertainty. In this paper, based on the data of TWT Gasfield, we try to directly use wellhead pressure to obtain the wellhead productivity equation but not through convert wellhead pressure. Compared to the open flow capacity derived from wellhead productivity equation and conventional deliverability equation, it is found to have the function very well, thus verify the feasibility of the method that does not convert wellhead pressure but directly calculate wellhead productivity equation and absolute open flow capacity by wellhead pressure. ©, 2015, Science Press. All right reserved.

11

Number of references:

Main heading: Wellheads

Controlled terms: Bottom hole pressure - Gas industry - Natural gas fields - Oil fields - Productivity - Well pressure

Uncontrolled terms: Absolute open flow capacity - Conventional methods - Deliverability equations - Oil and gas fields - Open flow capacity - Pressure gauges - Productivity equation - Wellhead pressures

Classification code: 511 Oil Field Equipment and Production Operations - 512 Petroleum and Related Deposits - 522 Gas Fuels - 913.1 Production Engineering

DOI: 10.11764/j.issn.1672-1926.2015.02.0391

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

48.

Accession number: 20151400720713

Title: **Polychlorinated biphenyls in spent etching solutions and their copper salt recycling products**

Authors: Wang, Pu[1, 2] ✉ ; Liang, Yong[1, 3] ; Xu, Shi'ai[4] ; Gao, Renfu[4] ; Li, Yingming[2] ; Zhang, Qinghua[2] ✉

Author affiliation:

[1] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China

[2] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China

[3] School of Medicine, Jianghan University, Wuhan, China

[4] Shajing Treatment Center of Dongjiang Environmental Co., Ltd., Shenzhen, China

Corresponding author: Zhang, Qinghua

Source title: Research of Environmental Sciences

Abbreviated source title: Res. Environ. Sci.

Volume: 28

Issue: 3

Issue date: March 1, 2015

Publication year: 2015

Pages: 460-465

Language: Chinese

ISSN: 10016929

Document type: Journal article (JA)

Publisher: Editorial department of Molecular Catalysis, Tianshui Road No. 18, Lanzhou City, Gansu Province,, 730000, China

Abstract: In order to explore the transport of persistent organic pollutants (POPs) in the industrial process, polychlorinated biphenyls (PCBs), including seven indicator congeners and CB-209, were investigated in the spent etching solutions generated during manufacture of printed circuit boards and its copper salt recycling products. The potential of PCB transport from the spent etching solutions to the copper salts was discussed as well. The samples, including three different spent etching solutions, H2SO4 and three kinds of copper salts, were analyzed by high-resolution gas chromatography/high-resolution mass spectrometry (HRGC/HRMS) using an isotope-dilution method. The results showed that no evident PCBs were detected in the spent alkaline etching solutions and microetch solutions, while various levels of the contaminants were found in the spent acid etching solutions. ρ(∑8PCBs) were in the range of 0.41-60.80 ng/L, where ρ(∑7PCBs) of the indicator congeners ranged from 0.24-58.00 ng/L. Among the copper salts (CuCl2, Cu2(OH)3Cl and CuSO4), relatively higher levels of PCBs were observed in CuSO4 samples, with w(∑8PCBs) of 2.75-284.00 ng/kg, while w (∑8PCBs) in CuCl2 and Cu2(OH)3Cl ranged between 6.95-31.50 ng/kg and 7.31-9.42 ng/kg, respectively. The congener profiles showed a similar distribution pattern of PCBs in the spent acid etching solutions and its copper recycling products, where CB-28 was the predominant congener and followed by CB-209.Since CB-209 was not present in the most common Aroclor mixtures and rarely found in the environment, higher levels of CB-209 combined with the similar profiles of indicator PCBs in both spent acid etching solutions and its copper recycling products suggested that PCBs in the copper salts might be mainly transported from the spent acid etching solutions. It is necessary to further investigate the source in spent acid etching solutions. ©, 2015, Editorial department of Molecular Catalysis. All right reserved.

Number of references: 29

Main heading: Printed circuit boards

Controlled terms: Chromatography - Copper - Etching - Gas chromatography - Isotopes - Mass spectrometry - Organic pollutants - Pollution - Polychlorinated biphenyls - Printed circuit manufacture - Printed circuits - Recycling - Salts

Uncontrolled terms: Copper salt - Distribution patterns - High-resolution gas chromatography/high-resolution mass spectrometries - Isotope dilution methods - Persistent organic pollutants - Pollution sources - Polychlorinated biphenyl (PCBs) - Spent etching solution

Classification code:

452.3 Industrial Wastes - 454.2 Environmental Impact and Protection - 531 Metallurgy and Metallography - 544.1 Copper - 715 Electronic Equipment, General Purpose and Industrial - 801 Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds

DOI: 10.13198/j.issn.1001-6929.2015.03.18

Database: Compendex

49.

Accession number: 20154201387780

Title: **A study on the spread spectrum steganography based on the high-order Markov model**

Authors: Wu, Kaicheng[1, 2]

Author affiliation:
[1] School of Computer Science, Wuhan University, Wuhan, Hubei, China
[2] School of Mathematics and Computer Science, Jianghan University, Wuhan, Hubei, China

Corresponding author: Wu, Kaicheng

Source title: MATEC Web of Conferences

Abbreviated source title: MATEC Web Conf.

Volume: 22

Monograph title: International Conference on Engineering Technology and Application, ICETA 2015

Issue date: July 9, 2015

Publication year: 2015

Article number: 01012

Language: English

E-ISSN: 2261236X

Document type: Conference article (CA)

Conference name: International Conference on Engineering Technology and Application, ICETA 2015

Conference date: May 29, 2015 - May 30, 2015

Conference location: Xiamen, China

Conference code: 115595

Publisher: EDP Sciences

Abstract: Spread spectrum communication is a way of information transmission. Steganography based on the principle of spread spectrum has a strong robustness and security. This paper carries out a study on the application of the high-order Markov model of digital grayscale image in its spread spectrum steganalysis. Results suggest that the statistical estimate of the original image and the stego-image obtained by the digital image high-order Markov model is more sensitive than that of the traditional E-secure security index and the image Markov model. Based on the fact that the high-order Markov model of carrier images has a preferable effect on SSIS steganalysis, the accuracy of steganalysis increases and False Positive decreases with the increase of the model order. The SSIS steganalysis scheme of the model is applicable not only to practical calculations but also to users of steganalysis with different requirements on analysis results. © Owned by the authors, published by EDP Sciences, 2015.

Number of references: 21

Main heading: Spread spectrum communication

Controlled terms: Markov processes - Spectroscopy - Steganography

Uncontrolled terms: Digital image steganography - Gray-scale images - Information transmission - Markov model - Practical calculation - Steganalysis - Steganographic algorithms - Strong robustness

Classification code: 716.3 Radio Systems and Equipment - 723.2 Data Processing and Image Processing - 922.1 Probability Theory

DOI: 10.1051/matecconf/20152201012

Database: Compendex

50.

Accession number: 20145100332384

Title: **Optimization of Pd content in ZnO microstructures for high-performance gas detection**

Authors: Hu, Jie[1] ✉; Gao, Fanqin[1] ✉; Sang, Shengbo[1] ✉; Li, Pengwei[1] ✉; Deng, Xiao[1] ✉; Zhang, Wendong[1] ✉; Chen, Yong[2] ✉; Lian, Kun[1, 3] ✉

Author affiliation:
[1] Micro and Nano System Research Center, Information Engineering College, Taiyuan University of Technology, No. 79 West Yingze Street, Taiyuan, China
[2] Institute for Interdisciplinary Research, Jianghan University, Wuhan, China
[3] J. Bennett Johnston Sr., Center for Advanced Microstructures & Devices, Louisiana State University, Baton Rouge; LA, United States

Corresponding author: Hu, Jie

Source title: Journal of Materials Science

Abbreviated source title: J Mater Sci

Volume: 50

Issue: 4

Issue date: 2015

Publication year: 2015

Pages: 1935-1942

Language: English

ISSN: 00222461

E-ISSN: 15734803

CODEN: JMTSAS

Document type: Journal article (JA)

Publisher: Kluwer Academic Publishers

Abstract: Pure ZnO and Pd/ZnO microstructures were prepared by hydrothermal method. The crystalline structures, morphology, and composition of synthesized hexagon hammer Pd/ZnO microstructures were analyzed by X-ray diffraction (XRD), scanning electron microscope (SEM), and energy dispersive X-ray spectroscopy (EDS). They were then studied for gas detection in order to achieve the optimal concentration of Pd in ZnO. Our results show that overall the Pd/ZnO microstructures have a better performance for ethanol detection comparing to the one without Pd, including a better sensitivity, a decreased operating temperature, and a shortened response/recovery time. At the optimal Pd concentration of 0.25 wt%, we observed a sensitivity enhancement of 3.5 times larger than that of ZnO without doping and a response and recovery time of 10 and 7 s, respectively. Moreover, the Pd/ZnO sensors could show a high selectivity and an excellent chemical stability, thereby providing a way to improve the gas sensing performances. © 2014, Springer Science+Business Media New York.

Number of references: 30

Main heading: Palladium

Controlled terms: Chemical stability - Energy dispersive spectroscopy - Gas detectors - Microstructure - Scanning electron microscopy - X ray diffraction - Zinc oxide

Uncontrolled terms: Crystalline structure - Energy dispersive X ray spectroscopy - Hydrothermal methods - Operating temperature - Optimal concentration - Response and recovery time - Response/recovery time - Sensitivity enhancements

DOI: 10.1007/s10853-014-8758-2

Database: Compendex

Compendex references: YES

51.

Accession number: 20152700994061

Title: **Effect of construction land expansion on energy-related carbon emissions: Empirical analysis of China and its provinces from 2001 to 2011**

Authors: Deng, Xuankai[1]; Yu, Yanhua[2]; Liu, Yanfang[1]

Author affiliation:
[1] School of Resource and Environmental Sciences, Wuhan University, Wuhan, China
[2] Institute for Interdisciplinary Research, Jianghan University, Wuhan, China

Corresponding author: Liu, Yanfang

Source title: Energies

Abbreviated source title: Energies

Volume: 8

Issue: 6

Issue date: 2015

Publication year: 2015

Pages: 5516-5537

Language: English

E-ISSN: 19961073

Document type: Journal article (JA)

Publisher: MDPI AG, Postfach, Basel, CH-4005, Switzerland

Abstract: Construction land expansion significantly affects energy-related carbon emissions. This paper analyzed the effect of construction land expansion on energy-related carbon emissions in China and its provinces from 2001 to 2011 by using the logarithmic mean Divisia index method. We divided the study into two intervals (2001-2006 and 2006-2011) and categorized the 30 provinces of China into eight zones. Results indicated that construction land expansion exerted the second largest positive effect on carbon emission growth in China and in the 30 provinces from 2001 to 2011. The north, east, and south coastal regions as well as the middle Yellow River region, were the highly affected regions in the same period. Between the two study intervals, the effect of construction land expansion on carbon emissions decreased in China and in the coastal regions, but increased in inland regions. The Hebei, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, Yunnan, Chongqing, Ningxia, and Xinjiang provinces, which are concentrated in the north, east, and south coastal regions, were selected for the reduction of carbon emissions by controlling construction land expansion. © 2015 by the authors; licensee MDPI, Basel, Switzerland.

Number of references: 77

Main heading:	Coastal zones
Controlled terms:	Energy management
Uncontrolled terms:	Carbon emissions - Coastal regions - Construction land - Divisia index decomposition methods - Divisia index method - Empirical analysis - Logarithmic mean - Regional differences
Classification code:	471 Marine Science and Oceanography - 525 Energy Management and Conversion
DOI:	10.3390/en8065516
Database:	Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

52.

Accession number:	20152300909960
Title:	**Temporal and spatial variations in provincial CO<inf>2</inf> emissions in China from 2005 to 2015 and assessment of a reduction plan**
Authors:	Deng, Xuankai[1] ✉; Yu, Yanhua[2] ✉; Liu, Yanfang[1] ✉
Author affiliation:	[1] School of Resource and Environmental Sciences, Wuhan University, Wuhan, China [2] Institute for Interdisciplinary Research, Jianghan University, Wuhan, China
Corresponding author:	Liu, Yanfang
Source title:	Energies
Abbreviated source title:	Energies
Volume:	8
Issue:	5
Issue date:	2015
Publication year:	2015
Pages:	4549-4571
Language:	English
E-ISSN:	19961073
Document type:	Journal article (JA)
Publisher:	MDPI AG, Postfach, Basel, CH-4005, Switzerland
Abstract:	This study calculated the provincial carbon dioxide (CO<inf>2</inf>) emissions in China, analyzed the temporal and spatial variations in emissions, and determined the emission intensity from 2005 to 2015. The total emissions control was forecasted in 2015, and the reduction pressure of the 30 provinces in China was assessed based on historical emissions and the 12th five-year (2011-2015) reduction plan. Results indicate that CO<inf>2</inf>

emissions eventually increased and gradually decreased from east to west, whereas the emission intensity ultimately decreased and gradually increased from south to north. By the end of 2015, the total control of provincial emissions will increase significantly compared to the 2010 level, whereas the emission intensity will decrease. The provinces in the North, East, and South Coast regions will maintain the highest emission levels. The provinces in the Southwest and Northwest regions will experience a rapid growth rate of emissions. However, the national emission reduction target will nearly be achieved if all provinces can implement reduction targets as planned. Pressure indices show that the South Coast and Northwest regions are confronted with a greater reduction pressure of emission intensity. Finally, policy implications are provided for CO<inf>2</inf> reductions in China. © 2015 by the authors.

Number of references: 88

Main heading: Carbon dioxide

Controlled terms: Carbon - Emission control - Public policy

Uncontrolled terms: Distribution - Emission intensity - Emission reduction targets - Historical emissions - Policy implications - Regional differences - Temporal and spatial variation - Total emissions controls

Classification code: 451.2 Air Pollution Control - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 971 Social Sciences

DOI: 10.3390/en8054549

Database: Compendex

Compendex references: YES

53.

Accession number: 20144900276314

Title: **B-spline-based shape coding with accurate distortion measurement using analytical model**

Authors: Lai, Zhongyuan[1, 2] ✉; Wang, Zhe[1] ✉; Zuo, Zhen[1] ✉; Yao, Zhijun[1] ✉; Liu, Wenyu[1] ✉

Author affiliation:
[1] Department of Electronics and Information Engineering, Huazhong University of Science and Technology, Wuhan, China
[2] Institute for Interdisciplinary Research, Jianghan University, Wuhan, China

Corresponding author: Liu, Wenyu

Source title: Neurocomputing

Abbreviated source title: Neurocomputing

Volume: 149

Issue: PC

Issue date: February 3, 2015

Publication year: 2015

Pages: 1631-1646

Language: English

ISSN: 09252312

E-ISSN: 18728286

CODEN: NRCGEO

Document type: Journal article (JA)

Publisher: Elsevier

Abstract: In this paper, we present a new model to measure the contour point distortion for the vertex-based shape coding with B-splines, called accurate distortion measurement using analytical model (ADMAM). Different from existing distortion measurements containing approximation, quantization or parameterization process, our distortion is defined on the original B-spline. It is modeled as the shortest distance of associated contour point from the original B-spline, which is in line with the subjective-based objective quality metric. The geometric relationships are introduced to simplify the model computation, followed by a hybrid admissible distortion checking algorithm to reduce the execution time. Our theoretical analysis and experimental results demonstrate that the ADMAM can lead to the smallest bit-rate among all the distortion measurements that guarantee the admissible distortion, when the operational rate-distortion optimal shape coding framework is applied. Moreover, if the original contour has NC points, it takes only O(NC) time for both peak and mean-squared segment distortion measuring paradigms, which is the lowest computational complexity among all the existing distortion measurements.

Number of references: 31

Main heading: Interpolation

Controlled terms: Analytical models - Codes (symbols) - Computational complexity - Electric distortion - Image coding - Model checking - Ship propellers - Signal distortion - Video signal processing

Uncontrolled terms: B-spline - Contour points - Distortion measurement - Geometric relationships - Model computation - Objective qualities - Operational rate-distortion - Shape coding

Classification code: 671.2 Ship Equipment - 711.1 Electromagnetic Waves in Different Media - 716.1 Information Theory and Signal Processing - 716.4 Television Systems and Equipment - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.2 Data Processing and Image Processing - 921 Mathematics - 921.6 Numerical Methods

DOI: 10.1016/j.neucom.2014.08.029

Database: Compendex

54.

Accession number: 20154501525885

Title: **Non-equidistance GM(1,1,t^{α}) model with time power and its application**

Authors: Guo, Huan[1, 2]; Xiao, Xin-Ping[1] ; Forrest, Jeffrey[3]

Author affiliation:
[1] School of Science,, Wuhan University of Technology,, Wuhan, China
[2] School of Mathematics and Computer Science,, Jianghan University,, Wuhan, China
[3] Mathematic Department,, Slippery Rock University of Pennsylvania,, Slippery Rock, United States

Corresponding author: Guo, Huan

Source title: Kongzhi yu Juece/Control and Decision

Abbreviated source title: Kongzhi yu Juece Control Decis

Volume: 30

Issue: 8

Issue date: August 1, 2015

Publication year: 2015

Pages: 1514-1518

Language: Chinese

ISSN: 10010920

CODEN: KYJUEF

Document type: Journal article (JA)

Publisher: Northeast University

Abstract: The GM(1,1,t^{α}) model with time power is a generalization of the grey GM(1,1) model. Based on the grey GM(1,1) model and the equidistance GM(1,1,t^{α}) model with time power, the non-equidistance GM(1,1,t^{α}) model with time power is proposed. The relationship of the model's curve, power's exponent and development coefficient is discussed, and the parameter space of non-equidistance GM(1,1,t^{α}) model with time power is studied. The average relative error is seen as a function of power's exponent. The numeric area of power's exponent can been got according to the shape of raw data. The particle swarm optimization (PSO) algorithm is used to solve the power's exponent. The practical application illustrates the effectiveness of the proposed model. ©, 2015, Northeast University. All right reserved.

Number of references: 13

Main heading: System theory

Controlled terms: Particle swarm optimization (PSO)

Uncontrolled terms: Average relative error - GM (1 , 1) model - ITS applications - Non-equidistance - Parameter spaces - Particle swarm optimization algorithm

Classification code: 723 Computer Software, Data Handling and Applications - 961 Systems Science

DOI: 10.13195/j.kzyjc.2014.0649

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

55.

Accession number: 20154101347767

Title: **A 3D graphene oxide microchip and a Au-enwrapped silica nanocomposite-based supersandwich cytosensor toward capture and analysis of circulating tumor cells**

Authors: Li, Na[1, 2] ; Xiao, Tingyu[1, 2] ; Zhang, Zhengtao[1] ; He, Rongxiang[1, 2] ; Wen, Dan[1] ; Cao, Yiping[1, 2] ✉; Zhang, Weiying[1, 2] ✉; Chen, Yong[1, 2, 3]

Author affiliation:

[1] Flexible Display Mater. and Tech. Co-Innovation Center of Hubei, Institute for Interdisciplinary Research, Jianghan University, Wuhan, China

[2] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China

[3] Ecole Normale Supérieure, CNRS-ENS-UPMC, UMR 8640, 24 Rue Lhomond, Paris, France

Corresponding author: Cao, Yiping

Source title: Nanoscale

Abbreviated source title: Nanoscale

Volume: 7

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Publication year: 2015

Pages: 16354-16360

Language: English

ISSN: 20403364

E-ISSN: 20403372

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: Determination of the presence and number of circulating tumor cells (CTCs) in peripheral blood can provide clinically important data for prognosis and therapeutic response patterns. In this study, a versatile supersandwich cytosensor was successfully developed for the highly sensitive and selective analysis of CTCs using Au-enwrapped silica nanocomposites (Si/AuNPs) and three-dimensional (3D) microchips. First, 3D microchips were fabricated by a photolithography method. Then, the prepared substrate was applied to bind graphene oxide, streptavidin and biotinylated epithelial-cell adhesion-molecule antibody, resulting in high stability, bioactivity, and capability for CTCs capture. Furthermore, horseradish peroxidase and anti-CA153 were co-linked to the Si/AuNPs for signal amplification. The performance of the cytosensor was evaluated with MCF7 breast cancer cells. Under optimal conditions, the proposed supersandwich cytosensor showed high sensitivity with a wide range of 10¹ to 10⁷ cells per mL and a detection limit of 10 cells per mL. More importantly, it could effectively distinguish CTCs from normal cells, which indicated the promising applications of our method for the clinical diagnosis and therapeutic monitoring of cancers. This journal is © The Royal Society of Chemistry.

Number of references: 35

Main heading: Cells

Controlled terms: Cell adhesion - Cytology - Diagnosis - Diseases - Graphene - Microprocessor chips - Nanocomposites - Photolithography - Proteins - Silica - Tumors

Uncontrolled terms: Circulating tumor cells - Epithelial cell adhesion molecules - Horse-radish peroxidase - MCF-7 breast cancer cells - Signal amplifications - Silica nanocomposites - Therapeutic monitoring - Threedimensional (3-d)

Classification code: 461 Bioengineering and Biology - 761 Nanotechnology - 804 Chemical Products Generally - 804.1 Organic Compounds - 933 Solid State Physics

DOI: 10.1039/c5nr04798f

Database: Compendex

Compendex references: YES

56.

Accession number: 20154201414639

Title: **Reduced graphene oxide supported titanium dioxide nanomaterials for the photocatalysis with long cycling life**

Authors: Cao, Yuan-Cheng[1, 2] ; Fu, Zhongtian[3] ; Wei, Wenjun[1, 2] ; Zou, Linling[1, 2] ; Mi, Tie[4] ; He, Dan[1, 2] ; Yan, Chaolu[1] ; Liu, Xiyou[1] ; Zhu, Ying[1] ; Chen, Liuqing[1] ; Sun, Yuanjie[1]

Author affiliation:
[1] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China
[2] Flexible Display Materials and Technology Co-Innovation Centre of Hubei Province, Jianghan University, Wuhan, China
[3] College of Resource and Civil Engineering, Northeastern University, Shenyang, China
[4] Hubei Key Laboratory of Industrial Fume and Dust Pollution Control, Jianghan University, Wuhan, China

Corresponding author: Cao, Yuan-Cheng

Source title: Applied Surface Science
Abbreviated source title: Appl Surf Sci
Volume: 355
Issue date: November 15, 2015
Publication year: 2015
Pages: 1289-1294
Language: English
ISSN: 01694332
CODEN: ASUSEE
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: The reduced Graphene Oxide (rGO) supported TiO2(rGO@TiO2) as the photocatalyst was synthesized and evaluated. Graphene was oxided using chemical method and the AFM measurements showed that the thickness of the as-synthesized GO was 3-5 nm which indicates 4-6 layers of the resultant graphene oxide. BET surface area showed 62.4 m^2/g for TiO2and 247.3 m^2/g for rGO@TiO2. Size distribution showed when the rGO ratio increases from 5% to 15% (rGO/TiO2), the resultant rGO@TiO2samples show better size distribution in the range of 100 nm to 200 nm. Photocatalysis test showed when the exposure time increased to over 100 min, the degradation rate for rGO@TiO2could reach to 96.4%. First order kinetics results of the rGO@TiO2photocatalyst showed much higher degradation constant than that of the TiO2. Reproducibility test showed the rGO@TiO2photocatalyst can keep the degradation rates at less for 25 cycles. Results showed rGO@TiO2is a promising

photocatalyst with long cycling life. © 2015 Elsevier B.V. All rights reserved.

Number of references: 27

Main heading: Titanium dioxide

Controlled terms: Catalysis - Degradation - Graphene - Nanostructured materials - Oxides - Photocatalysis - Photocatalysts - Size distribution - Titanium - Titanium oxides

Uncontrolled terms: BET surface area - Cycling life - First order kinetics - Graphene oxides - Reduced graphene oxides - Reduced graphene oxides (RGO) - Reproducibilities - Titanium dioxide nanomaterials

Classification code: 542.3 Titanium and Alloys - 761 Nanotechnology - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 922.2 Mathematical Statistics

DOI: 10.1016/j.apsusc.2015.08.036

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

57.

Accession number: 20153201106519

Title: **Main Parameters Analysis of Ball Screw Shock Absorber on Suspension System Performance**

Authors: Bao, Weining[1]

Author affiliation: [1] Jianghan University, China

Corresponding author: Bao, Weining

Source title: SAE Technical Papers

Abbreviated source title: SAE Techni. Paper.

Volume: 2015-April

Part number: 1 of 1

Issue: April

Monograph title: SAE 2015 World Congress and Exhibition

Issue date: April 14, 2015

Publication year: 2015

Report number: 2015-01-1504

Language: English

Document type: Conference article (CA)

Conference name: SAE 2015 World Congress and Exhibition

Conference date: April 21, 2015 - April 23, 2015

Conference location:	Detroit, MI, United states
Conference code:	111931
Sponsor:	AVL; Continental; et al.; FEV; Fiat Chrysler Automobiles; IAV Automotive Engineering
Publisher:	SAE International
Abstract:	A ball screw regenerative shock absorber was designed for the relief of the vehicle vibration and the energy recovery of the vehicle vibration. The effect of its main parameters on the suspension system was numerically analyzed. According to the principle of the ball screw regenerative suspension system, a mathematical model of the ball screw regenerative shock absorber was established regarding the ball screw rotational inertia, the motor rotational inertia, the screw lead and the radius of the screw nut. A suspension dynamic model based on the ball screw regenerative shock absorber was developed combining the road model and the two-degrees-of-freedom suspension dynamic model. Using a triangle pulse input condition and a random road input condition, through changing value of parameters with an interval of 2% of the initial value, the influences of parameters, including the ball screw rotational inertia, the motor rotational inertia, the screw lead and the radius of the screw nut, on the ball screw suspension performance were investigated. Finally, the parameter sensitivity was studied using the one parametric variation method. It was found that the most significant factor affecting the suspension performance is the screw nut radius, followed by the screw lead, while the effects of the ball screw's moment of inertia and the motor's moment of inertia are less significant. Copyright © 2015 SAE International.
Number of references:	20
DOI:	10.4271/2015-01-1504
Database:	Compendex Compilation and indexing terms, © 2015 Elsevier Inc.
Compendex references:	YES

58.

Accession number:	20153301170411
Title:	**Changes and contrast analysis for ingredients of nutrient under different storage environment**
Authors:	Chang-Lei, Li[1] ; Bao-Miao, Ma[2] ; Xiao-Qing, Chen[1] ; Xi-Ji, Shu[1]
Author affiliation:	[1] School of Medicine, Jianghan University, Wuhan, China [2] Wuhan Institutes of Biomedical Sciences, Jianghan University, Wuhan, China
Corresponding author:	Xi-Ji, Shu
Source title:	Advance Journal of Food Science and Technology

Abbreviated source title: Adv. J. Food Sci. Technol.

Volume: 8

Issue: 12

Issue date: 2015

Publication year: 2015

Pages: 887-889

Language: English

ISSN: 20424868

E-ISSN: 20424876

Document type: Journal article (JA)

Publisher: Maxwell Science Publications

Abstract: In order to explore the best environment conditions for storage nutrients. Average distributed the same batch nutrients samples which were placed into five groups environment respectively whom set different specific targets, specific indicators of each group environment including temperature, humidity, air velocity, light intensity. The nutrient samples were stored in each group environment after 14 days, detect the content of indicators whose include moisture, protein, fat, vitamins, minerals. In the storage environment whose has temperature of 18-20°C, humidity of 41-50%, the air flow velocity of 3.0 m/sec, the light intensity of 181-200 lx, moisture content of nutrients is the lowest, other ingredients content were the highest, nutrient ingredient were saved preferably. Stored the nutrients under appropriate environment conditions, in order to make it to meet the requirements of quality in longer time and avoid certain loss, which play a greater degree of benefit results. © Maxwell Scientific Organization, 2015.

Number of references: 8

Main heading: Nutrients

Controlled terms: Air - Flow velocity - Food storage - Moisture

Uncontrolled terms: Air flow velocity - Air velocities - Change and contrast analysis - Environment conditions - Light intensity - Main ingredients

Classification code: 631 Fluid Flow - 801.4 Physical Chemistry - 804 Chemical Products Generally - 821.2 Agricultural Chemicals - 822.1 Food Products Plants and Equipment

Database: Compendex

59.

Accession number: 20151400701700

Title:

Highly sensitive determination of dialkyl phosphinate acids in environmental samples by ion chromatography tandem mass spectrometry

Authors: Niu, Yu-Min[1] ; Liang, Yong[2, 3] ; Liu, Ji-Yan[2] ; Liu, Jing-Fu[1]

Author affiliation:
[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Science, Chinese Academy of Sciences, Beijing, China
[2] School of Medicine, Jianghan University, Hubei Province, Wuhan, China
[3] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Hubei Province, Wuhan, China

Corresponding author: Liu, Jing-Fu

Source title: Journal of Chromatography A
Abbreviated source title: J. Chromatogr. A
Volume: 1394
Issue date: May 15, 2015
Publication year: 2015
Pages: 26-35
Language: English
ISSN: 00219673
E-ISSN: 18733778
CODEN: JCRAEY
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: Dialkyl phosphinate acids (DPAs) are the hydrolysates of aluminum dialkyl phosphinates (ADPs), one class of emerging phosphorus flame retardants since brominated flame retardants have been gradually phased out in recent years. It has been found that once dissolved in water, ADPs are completely hydrolyzed and exist as DPAs. However, there is no report on the determination of DPAs in environmental water samples. For the first time, we developed a method for the analysis of trace DPAs and ADPs in different environmental samples, including waters, soils and sediments. In this proposed method, MAX cartridges were employed for the purification, and ion chromatography (IC) tandem mass spectrometry (MS) method with large volume injection (200μL) and postcolumn addition of methanol and NH<inf>3</inf>·H<inf>2</inf>O were employed for the determination of DPAs and ADPs. The matrix effects were <16% for water samples and <25% for soil/sediment samples, which were greatly improved in comparison to the liquid chromatography (LC) tandem MS determination. Determined at three fortified levels of 0.02μg/L, 0.2μg/L and 1.0μg/L, the mean

recoveries were from 75.8% to 110.2%, with an acceptable coefficient of variation (3.3-20%, n=6) for water samples. The limits of the method were 3.5-9.3ng/L for DPAs in environmental water samples, and 0.06-0.09μg/kg for DPAs and ADPs in soil and sediment samples. For soil and sediment samples, results determined by the present IC-MS method were in good agreement with that determined by LC-MS in our previous study. © 2015 Elsevier B.V.

Number of references: 28

Main heading: Ion chromatography

Controlled terms: Chromatography - Flame retardants - Liquid chromatography - Mass spectrometry - Phase separation - Sediments - Soils - Spectrometry

Uncontrolled terms: Environmental water samples - ESI-MS/MS - Phosphinate - Soil and sediment - Solid-phase extraction

DOI: 10.1016/j.chroma.2015.03.041

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

60.

Accession number: 20150800555774

Title: **Novel flame-retardant epoxy composites containing aluminium β-carboxylethylmethylphosphinate**

Authors: Liu, Xueqing[1] ✉; Liu, Jiyan[1] ; Chen, Jia[1] ; Cai, Shaojun[1] ; Hu, Chenlong[1]

Author affiliation: [1] College of Chemistry and Environmental Engineering, Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China

Corresponding author: Liu, Xueqing

Source title: Polymer Engineering and Science

Abbreviated source title: Polym Eng Sci

Volume: 55

Issue: 3

Issue date: March 1, 2015

Publication year: 2015

Pages: 657-663

Language: English

ISSN: 00323888

E-ISSN: 15482634

CODEN: PYESAZ

Document type: Journal article (JA)

Publisher: John Wiley and Sons Inc.

Abstract: A novel flame-retardant aluminum β-carboxylethylmethylphosphinate [Al(CEP)] was synthesizedby a simple process. The effect of Al(CEP) on the curing of epoxy resin (EP) was investigated with differential scanning calorimetry (DSC) and Fourier transform infrared spectroscopy. The flame retardancy and thermal properties of Al(CEP)/EP were analyzed by a limiting oxygen index (LOI), vertical burning test (UL-94), scanning electron microscopy (SEM) with energydispersive X-ray (EDX), gravimetric analyses, and DSC. Results disclosed that curing of EP is delayed by incorporating Al(CEP). The flexural strength of EP is reduced but the flexural modulus is increased by adding Al(CEP). Adding Al (CEP) depresses the decomposition of EP while leads to a increase in the glass transition temperature (Tg), in char formation and in flame retardancy of EP. EP containing 25 phr Al(CEP) provides LOI of 28.3% and passes UL-94 V-0 rating. SEM results show that the sample passing V-0 rating can form the condensed char whereas porous char is observed from the sample failing in V-0 rating after combustion. EDX analysis shows that the condensed char presents higher weight ratio of carbon to phosphorus than the porous char, indicating appropriate amount of Al(CEP) is necessary for formation of the stable char. POLYM. ENG. SCI., 55:657-663, 2015. © 2014 Society of Plastics Engineers.

Number of references: 35

Main heading: Aluminum

Controlled terms: Combustion - Curing - Differential scanning calorimetry - Epoxy resins - Fourier transform infrared spectroscopy - Glass transition - Rating - Scanning electron microscopy

Uncontrolled terms: Char formation - Energy dispersive x-ray - Epoxy composite - Flame retardancy - Flexural modulus - Higher weight - Limiting Oxygen Index - Vertical burning tests

Classification code: 521.1 Fuel Combustion - 541.1 Aluminum - 741.1 Light/Optics - 801 Chemistry - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 902.2 Codes and Standards

DOI: 10.1002/pen.23929

Database: Compendex

61.

Accession number: 20150800540102

Title: **Study on determination of synephrine and artemisinin in Phellinus vaninii by high performance capillary electrophoresis**

Authors: Ma, Bao Miao[1] ; Yue, Kai[1] ; Li, Chang Lei[2] ; Xu, Peilong[3] ; Ru, Qin[1] ; Chen, Lin[1] ; Xiong, Qi[1] ; Tian, Xiang[1] ; Jin, Guo Zhang[1, 4] ; Li, Chao Ying[1]

Author affiliation:
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[2] School of Medicine, Jianghan University, Wuhan, China
[3] State key Laboratory of Modern Textile and Fiber New Material, Qingdao University, China
[4] Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai, China

Corresponding author: Li, Chao Ying

Source title: Advance Journal of Food Science and Technology

Abbreviated source title: Adv. J. Food Sci. Technol.

Volume: 7

Issue: 1

Issue date: 2015

Publication year: 2015

Pages: 7-10

Language: English

ISSN: 20424868

E-ISSN: 20424876

Document type: Journal article (JA)

Publisher: Maxwell Science Publications

Abstract: This study established high performance capillary electrophoresis method to determine synephrine and Artemisinin in Phellinus vaninii. In 30 mmol/L Na2B4O7buffer solution (pH = 10.00), effective separation of components to be tested was achieved, which provided a new approach of quality control of Chinese medicine Phellinus vaninii. © Maxwell Scientific Organization, 2015.

Number of references: 8

Main heading: Capillary electrophoresis

Controlled terms: Food technology

Uncontrolled terms: Artemisinin - Buffer solutions - Chinese medicines - High performance capillary electrophoresis - New approaches - Phellinus - Separation of components - Synephrine

Database: Compendex

62. **Accession number:** 20151900829791

Title: **Highly responsive room-temperature hydrogen sensing of α-MoO<inf>3</inf> nanoribbon membranes**

Authors: Yang, Shulin[1] ; Wang, Zhao[1] ; Hu, Yongming[1] ✉; Luo, Xiantao[1] ; Lei, Jinmei[1] ; Zhou, Di[3] ; Fei, Linfeng[2] ; Wang, Yu[2] ; Gu, Haoshuang[1] ✉

Author affiliation:
[1] Hubei Collaborative Innovation Centre for Advanced Organic Chemical Materials, Faculty of Physics and Electronic Science, Hubei University, Wuhan, Hubei Province, China
[2] Department of Applied Physics and Materials Research Centre, Hong Kong Polytechnic University, Hong Kong, Hong Kong
[3] School of Physics and Information Engineering, Jianghan University, Wuhan, Hubei Province, China

Corresponding author: Hu, Yongming

Source title: ACS Applied Materials and Interfaces

Abbreviated source title: ACS Appl. Mater. Interfaces

Volume: 7

Issue: 17

Issue date: 2015

Publication year: 2015

Pages: 9247-9253

Language: English

ISSN: 19448244

E-ISSN: 19448252

Document type: Journal article (JA)

Publisher: American Chemical Society

Abstract: [001]-Oriented α-MoO<inf>3</inf> nanoribbons were synthesized via hydrothermal method at temperature from 120 to 200 °C and following assembled a membrane on interdigital electrodes to form sensors. The sensitivity, response speed, and recovery speed of the sensor improve with the increasing hydrothermal temperature. Among them, the sample obtained at 200 °C exhibits a room-temperature response time of 14.1 s toward 1000 ppm of H<inf>2</inf>. The nanoribbons also show good selectivity against CO, ethanol, and acetone, as well as high sensitivity to H<inf>2</inf> with a concentration as low as 500 ppb. The hydrogen sensing behavior is dependent on the redox reaction between the H<inf>2</inf> and chemisorbed oxygen species. Higher hydrothermal temperature creates larger specific surface area and higher Mo⁵⁺ content, leading to increased chemisorbed oxygen species on the nanoribbon surface. © 2015 American Chemical Society.

Number of references: 33

Main heading: Nanoribbons

Controlled terms: Acetone - Chemisorption - Electrodes - Hydrogen - Oxygen - Redox reactions

Uncontrolled terms: Chemisorbed oxygen - High sensitivity - Hydrogen sensor - Hydrogen-sensing - Hydrothermal methods - Hydrothermal temperature - Interdigital electrode - Room temperature

Classification code: 704.1 Electric Components - 761 Nanotechnology - 802.2 Chemical Reactions - 804 Chemical Products Generally - 804.1 Organic Compounds

DOI: 10.1021/acsami.5b01858

Database: Compendex

Compendex references: YES

63.

Accession number: 20143600060519

Title: **Processability, morphology, thermal, and mechanical properties of rigid PVC composites with liquid macromolecular modifier-coated CaCO<inf>3</inf>**

Authors: Liu, Hai[1] ; Wang, Jie[1] ; Wen, Sheng[1] ; Gong, Chunli[1] ; Zheng, Genwen[1] ; Xiong, Chuanxi[2] ✉ ; Gao, Lin[3]

Author affiliation:

[1] Faculty of Chemistry and Material Science, Hubei Engineering University, Xiaogan, Hubei, China

[2] School of Materials Science and Engineering, Wuhan Textile University, Wuhan, China

[3] School of Chemistry and Environmental Engineering, Jianghan University, Wuhan, China

Corresponding author: Xiong, Chuanxi

Source title: Polymer Composites

Abbreviated source title: Polym Compos

Volume: 36

Issue: 7

Issue date: July 1, 2015

Publication year: 2015

Pages: 1286-1292

Language: English

ISSN: 02728397

E-ISSN: 15480569

CODEN: PCOMDI

Document type: Journal article (JA)

Publisher: John Wiley and Sons Inc.

Abstract: Rigid poly(vinyl chloride) (PVC)/CaCO<inf>3</inf> and PVC/liquid macromolecular modifier (LMM) coated CaCO<inf>3</inf> (PVC/LCC) composites were both fabricated by melt mixing. The processability, micro-structure, dynamic mechanical behavior and mechanical properties of PVC/CaCO<inf>3</inf> and PVC/LCC composites were studied by using torque rheometer, scanning electron microscope (SEM), dynamic mechanical analysis (DMA), and universal mechanical testing machine. The results showed that the synergistic effect of LMM and CaCO<inf>3</inf> particles accelerated the plasticization of PVC resins. The processability of PVC/LCC composites was improved. The dispersion of LCC in PVC matrix was improved by the modification of CaCO<inf>3</inf> particles with LMM. The T<inf>gs</inf> of PVC/LCC composites were enhanced by filling with LCC. Because of the synergistic toughening of LMM and CaCO<inf>3</inf> particles, the PVC/LCC composites exhibited excellent notched impact properties at the optimum value of LCC particles content. © 2014 Society of Plastics Engineers.

Number of references: 17

Main heading: Polyvinyl chlorides

Controlled terms: Chlorine compounds - Dynamic mechanical analysis - Dynamics - Macromolecules - Mechanical properties - Mechanical testing - Scanning electron microscopy

Uncontrolled terms: Dynamic mechanical analysis (DMA) - Dynamic mechanical behavior - Impact property - Mechanical testing machines - Optimum value - Processability - Synergistic effect - Torque rheometer

Classification code: 421 Strength of Building Materials; Mechanical Properties - 422 Strength of Building Materials; Test Equipment and Methods - 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 931 Classical Physics; Quantum Theory; Relativity

DOI: 10.1002/pc.23033

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

64.

Accession number: 20152100875496

Title: **Amide group-containing polar solvents as ligands for iron-catalyzed atom transfer radical polymerization of methyl methacrylate**

Authors: Zhou, Jun[1] ; Wang, Jirong[1] ; Han, Jianyu[1] ; He, Dan[2] ; Yang, Danfeng[1] ; Xue, Zhigang[1] ✉ ; Liao, Yonggui[1] ; Xie, Xiaolin[1] ✉

Author affiliation:
[1] Key Laboratory for Large-Format Battery Materials and Systems, School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan, China
[2] Key Laboratory of Optoelectronic Chemical Materials and Devices, School of Chemical and Environmental Engineering, Jianghan University, Wuhan, China

Corresponding author: Xue, Zhigang

Source title: RSC Advances
Abbreviated source title: RSC Adv.
Volume: 5
Issue: 54
Issue date: 2015
Publication year: 2015
Pages: 43724-43732
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry

Abstract: A series of amide group-containing polar solvents, formamide (Fo), N-methylformamide (MFo), N,N-dimethylformamide (DMF), acetamide (Ac), N-methylacetamide (MAc), N,N-dimethylacetamide (DMAc), urea, tetramethyl urea (TMU), 2-pyrrolidone (2-Py), N-methyl-2-pyrrolidone (NMP) and 5-methyl-2-pyrrolidone (MPy), were used as both solvents and ligands for iron(II)-catalyzed atom transfer radical polymerizations (ATRPs) of methyl methacrylate (MMA), with ethyl 2-bromo-2-phenylacetate (EBPA) as the initiator. Most of the polymerizations were well-controlled in character, and the structures of the polar solvents greatly affected the catalytic activity. In addition, the living features of the systems remained in the presence of limited amounts of polar solvents. Some of the polar solvents (MFo, TMU and 2-Py) were also employed for iron(III)-catalyzed activators generated by electron transfer (AGET) ATRPs of MMA, and the results were as good as those of the ATRPs. © The Royal Society of Chemistry 2015.

Number of references: 83

Main heading: Atom transfer radical polymerization

Controlled terms: Acrylic monomers - Amides - Catalysis - Catalyst activity - Esters - Free radical polymerization - Free radical reactions - Ionic liquids - Iron - Iron compounds - Ligands - Metabolism - Organic solvents - Polymerization - Polymers - Solvents - Urea

Uncontrolled terms: Electron transfer - Methyl methacrylates - N ,N-Dimethylacetamide - N ,N-Dimethylformamide - N-methyl-2-pyrrolidone - N-Methylacetamide - N-methylformamide - Polar solvents

Classification code: 461.9 Biology - 545.1 Iron - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 804 Chemical Products Generally - 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.2 Polymerization

DOI: 10.1039/c5ra05460e

Database: Compendex

Compendex references: YES

65.

Accession number: 20151000594671

Title: **Vehicle rollover simulation analysis considering road excitation**

Authors: Bao, Weining[1] ✉; Hu, Sanbao[2]

Author affiliation:

[1] School of Electromechanical & Architectural Engineering, Jianghan University, Wuhan, China

[2] Key Laboratory of Advanced Technology of Automotive Parts, Wuhan University of Technology, Wuhan, China

Source title: Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering

Abbreviated source title: Nongye Gongcheng Xuebao

Volume: 31

Issue: 2

Issue date: January 15, 2015

Publication year: 2015

Pages: 59-65

Language: Chinese

ISSN: 10026819

CODEN: NGOXEO

Document type: Journal article (JA)

Publisher: Chinese Society of Agricultural Engineering

Abstract: Traditional researches on vehicle rollover mainly focused on untrip rollover when vehicle running on the plat road, and 3DOF (three degree of freedom) model including lateral translational motion, yaw rotational motion and roll rotational motion was used widely. Obviously, the 3DOF model does not consider the influence caused by road excitation. But SUV (Sport Utility Vehicle) and commercial vehicle always run on the rough road, and the vehicle rollover characteristic were influence by the road condition impacts. For exploring the influence of road irregularity on vehicle dynamical rollover characteristic, a combined vehicle model was proposed. The model include six degree of freedom such as lateral translational motion, vertical translational motion, yaw rotational motion, roll rotational motion of vehicular body and two vertical translational motion of tires. The calculation program was built in MATLAB/ Simulink, and the vehicle rollover characteristic response parameters were calculated by Simulink with FISHHOOK test. The right road profile was a sine wave road coupling B grade road, the left road profile was B grade. Then a multi-body dynamical vehilcle model was built in Adams software. And the Adams vehicle model was used to calculate the results under the same work conditions with Simulink model, the results through Simulink model were compared with the values in the simulation test data of Adams model. Through comparison of simulation results, the Simulink model was proved correct. Secondly, the influences on roll angle caused by road grade, vehicle velocity and steering angle velocity were investigated. The results of simulation analysis showed that the simulation results of combined model were more accurate than the data of 3DOF and 4DOF model, the combined model results can consistent with Adams model result. The road irregularity, vehicle speed, steering wheel rotation speed have some effects on the vehicle roll characteristic, the roll angle during the steady state region increases as the rise of road grade, and the value during transient state has not obvious change. Vehicle roll angle increases as the rise of vehicle speed. And only the roll angle during the transient state is susceptible to rotation speed of steering wheel, which presented an augment with the increase of rotation speed. Further, the reason using simulation test on vehicle rollover characteristic research and the application of combined rollover model were discussed. Because of extremely dangerous and high economic cost, the majority research institution and automotive factory use the simulation test instead of on road test for vehicle rollover analysis, and commonly method is constructing multi-body dynamical simulaton model by Adams or LMS. Virtual. LAB/Motion. Then, simulation test was carried out based on the Fishhook and J-Turn test procedure. The application of combined rollover model was closely tied with vehicle control technology, such as differential braking, semi-active/active suspension, active steering, integrated chassis control and so on. These control method needs a state estimation to detect the impending vehicle rollover. Obviously, the accuracy of estimator is important to the control effect. The combined model has more accurate calculation result for vehicle roll angle and roll angle velocity than traditional 3DOF and 4DOF model. ©, 2015, Chinese Society of Agricultural Engineering. All right reserved.

Number of references: 17

Main heading: Crashworthiness

Controlled terms: Automobile bodies - Automobile steering equipment - Commercial vehicles - Computer simulation - Control system synthesis - Degrees of freedom (mechanics) - Fiber optic sensors - Magnetic levitation vehicles - MATLAB - Models - Roads and streets - Rotation - Rotational flow - Software testing - Speed - Steering - Transportation - Vehicles - Wheels

Uncontrolled terms: Accurate calculations - Integrated chassis controls - Research institutions - Road excitations - Rollover - Six degree-of-freedom - Sport utility vehicles - Three degree of freedoms

Classification code: 406.2 Roads and Streets - 601.2 Machine Components - 631.1 Fluid Flow, General - 662.1 Automobiles - 662.4 Automobile and Smaller Vehicle Components - 723.5 Computer Applications - 731.1 Control Systems - 741.1.2 Fiber Optics - 914.1 Accidents and Accident Prevention - 931.1 Mechanics

DOI: 10.3969/j.issn.1002-6819.2015.02.009

Database: Compendex

Compendex references: YES

66.

Accession number: 20154401482389

Title: **Robust finite-time filtering for singular discrete-time stochastic systems**

Authors: Zhang, Aiqing[1]; Campbell, Stephen L.[2]

Author affiliation:

[1] School of Mathematics AndComputer Science, Jianghan University, Wuhan, China

[2] Department of Mathematics, North Carolina State University, Raleigh; NC, United States

Source title: Proceedings of the 2015 27th Chinese Control and Decision Conference, CCDC 2015

Abbreviated source title: Proc. Chin. Control Decis. Conf., CCDC

Monograph title: Proceedings of the 2015 27th Chinese Control and Decision Conference, CCDC 2015

Issue date: July 17, 2015

Publication year: 2015

Pages: 913-918

Article number: 7162049

Language: English

ISBN-13:	9781479970179
Document type:	Conference article (CA)
Conference name:	27th Chinese Control and Decision Conference, CCDC 2015
Conference date:	May 23, 2015 - May 25, 2015
Conference location:	Qingdao, China
Conference code:	115665
Publisher:	Institute of Electrical and Electronics Engineers Inc.
Abstract:	This paper addresses the problem of singular stochastic finite-time filter design for uncertain discrete-time singular stochastic systems. The stochastic Lyapunov function method is adopted to design a filter such that for all admissible uncertainties, the filtering error system is singular stochastic finite-time stable (SSFTS) and preserves a prescribed performance level. A sufficient condition for the existence of a filter for the system under consideration is developed and the corresponding filter parameters can be calculated by solving a sequence of linear matrix inequalities (LMI). Finally, a numerical example is given to illustrate the design procedure and the effectiveness of the proposed method. © 2015 IEEE.
Number of references:	16
DOI:	10.1109/CCDC.2015.7162049
Database:	Compendex Compilation and indexing terms, © 2015 Elsevier Inc.
Compendex references:	YES

67.

Accession number:	20154601538152
Title:	**Finite-time H∞fuzzy control for discrete-time stochastic systems**
Authors:	Zhang, Aiqing[1]
Author affiliation:	[1] School of Mathematics and Computer Science, Jianghan University, Wuhan, China
Corresponding author:	Zhang, Aiqing
Source title:	Chinese Control Conference, CCC
Abbreviated source title:	Chinese Control Conf., CCC
Volume:	2015-September
Monograph title:	Proceedings of the 34th Chinese Control Conference, CCC 2015
Issue date:	September 11, 2015
Publication year:	2015
Pages:	135-139

Article number: 7259626

Language: English

ISSN: 19341768

E-ISSN: 21612927

ISBN-13: 9789881563897

Document type: Conference article (CA)

Conference name: 34th Chinese Control Conference, CCC 2015

Conference date: July 28, 2015 - July 30, 2015

Conference location: Hangzhou, China

Conference code: 116011

Sponsor: Hangzhou Dianzi University; Technical Committee on Control Theory (TCCT) of Chinese Association of Automation (CAA); The Society of Instr. and Contr. Engineers (SICE)

Publisher: IEEE Computer Society

Abstract: This paper deals with the problems of finite-time stochastic stabilization and finite-time H∞control for discrete-time Takagi-Sugeno(T-S)fuzzy stochastic systems. The purpose of the finite-time stochastic stabilization problem is to design a state feedback fuzzy controller such that the closed-loop fuzzy system is finite-time stochastic stable. In the H∞control problem, in addition to the finite-time stochastic stability requirement, a prescribed performance is required to be achieved. Linear matrix inequalities (LMIs) sufficient conditions are developed to solve these problems, respectively. The expressions of desired state feedback fuzzy controllers are given. Finally, a numerical simulation is given to illustrate the effectiveness of the proposed method. © 2015 Technical Committee on Control Theory, Chinese Association of Automation.

Number of references: 11

DOI: 10.1109/ChiCC.2015.7259626

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

68.

Accession number: 20153701274734

Title: **Selective hydrophilic modification of hydrophobic POSS nanoparticles**

Authors: Gao, L.[1, 2] ✉; Li, Y.[2] ; Sun, Z.[3] ; Yao, J.[4] ; Chen, S.[2] ; Chen, F.[2]

Author affiliation: [1] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China

[2] School of Chemistry and Environmental Engineering, Jianghan University, Wuhan, China

[3] Hubei Collaborative Innovation Center for Advanced Organic Chemical Materials, Hubei University, Wuhan, China

[4] School of Materials Science and Engineering, Wuhan Institute of Technology, Wuhan, China

Corresponding author: Gao, L.

Source title: Materials Research Innovations

Abbreviated source title: Mater. Res. Innov.

Volume: 19

Issue date: June 1, 2015

Publication year: 2015

Pages: S634-S637

Language: English

ISSN: 14328917

E-ISSN: 1433075X

Document type: Journal article (JA)

Publisher: Maney Publishing

Abstract: Hydrophobicity of polyhedral oligomeric silsesquioxane was selectively improved by simple amidiation reaction with hydrophilic colour reagent (carboxyazo-p-COOH, PCAC) at ambient temperature. The molecular structure, thermal properties and absorption features of the resulting PCAC-POSS were characterised by Fourier transform infrared, thermal gravimetric analyses, differential scanning calorimetry and visible absorption spectra. Modified polyhedral oligomeric silsesquioxane nanoparticles exhibit excellent solubility in ethanol, and keep insoluble in aqueous solution. The solubility is selectively controlled by proper hydrophilic modification using a simple and mild amidation reaction.

Number of references: 7

Main heading: Hydrophilicity

Controlled terms: Chemical reactions - Differential scanning calorimetry - Hydrophobicity - Nanoparticles - Oligomers - Solubility - Solutions

Uncontrolled terms: Amidation - Carboxyazo-p-COOH - Fourier transform infra reds - Hydrophilic - Polyhedral oligomeric silsesquioxanes - POSS - Thermal gravimetric analysis - Visible absorption spectra

Classification code: 708 Electric and Magnetic Materials - 761 Nanotechnology - 801 Chemistry - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics

DOI: 10.1179/1432891715Z.0000000001441

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

69.

Accession number: 20153201119854

Title: **Evaluating the blank contamination and recovery of sample pretreatment procedures for analyzing organophosphorus flame retardants in waters**

Authors: Liang, Kang[1] ; Niu, Yumin[1] ; Yin, Yongguang[1] ; Liu, Jingfu[1, 2]

Author affiliation:

[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China

[2] Institute of Environment and Health, Jianghan University, Wuhan, China

Corresponding author: Liu, Jingfu

Source title: Journal of Environmental Sciences (China)

Abbreviated source title: J. Environ. Sci.

Volume: 34

Issue date: August 1, 2015

Publication year: 2015

Pages: 57-62

Language: English

ISSN: 10010742

Document type: Journal article (JA)

Publisher: Chinese Academy of Sciences

Abstract: Organophosphate esters (OPEs), used as flame retardants and plasticizers, are widely present in environmental waters. Development of accurate determination methods for trace OPEs in water is urgent for understanding the fate and risk of this class of emerging pollutants. However, the wide use of OPEs in experimental materials results in blank interference, which influences the accuracy of analytical results. In the present work, blank contamination and recovery of pretreatment procedures for analysis of OPEs in water samples were systematically examined for the first time. Blank contaminations were observed in filtration membranes, glass bottles, solid phase extraction cartridges, and nitrogen blowing instruments. These contaminations could be as high as 6.4-64. ng/L per treatment. Different kinds of membranes were compared in terms of contamination levels left after common glassware cleaning, and a special wash procedure was proposed to eliminate the contamination from membranes. Meanwhile, adsorption of highly hydrophobic

OPEs on the inside wall of glass bottles was found to be 42.4%-86.1%, which was the primary cause of low recoveries and was significantly reduced by an additional washing step with acetonitrile. This work is expected to provide guidelines for the establishment of analysis methods for OPEs in aqueous samples. © 2015 The Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences.

Number of references: 28

Main heading: Extraction

Controlled terms: Contamination - Effluent treatment - Esters - Filtration - Flame retardants - Glass - Glass bottles - Microfiltration - Phase separation - Recovery - Solvents - Water pollution

Uncontrolled terms: Experimental materials - Flame retardants and plasticizers - Organophosphate esters - Organophosphorus flame retardants - Pretreatment procedure - Sample pretreatment - Solid phase extraction cartridges - Water samples

Classification code: 452.4 Industrial Wastes Treatment and Disposal - 453 Water Pollution - 531 Metallurgy and Metallography - 714.2 Semiconductor Devices and Integrated Circuits - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 804.1 Organic Compounds - 812.3 Glass

DOI: 10.1016/j.jes.2015.01.022

Database: Compendex

70.

Accession number: 20152200897054

Title: **Spatial distribution and fate of perfluoroalkyl substances in sediments from the Pearl River Estuary, South China**

Authors: Gao, Yan[1] ; Fu, Jianjie[1] ; Meng, Mei[1] ; Wang, Yawei[1, 2, 3] ; Chen, Baowei[4] ; Jiang, Guibin[1]

Author affiliation:

[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China

[2] Institute of Environment and Health, Jianghan University, Wuhan, China

[3] University of Chinese Academy of Sciences, Beijing, China

[4] Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong

Corresponding author: Wang, Yawei

Source title: Marine Pollution Bulletin

Mar. Pollut. Bull.

Abbreviated source title:

Volume: 96

Issue: 1-2

Issue date: July 15, 2015

Publication year: 2015

Pages: 226-234

Language: English

ISSN: 0025326X

E-ISSN: 18793363

CODEN: MPNBAZ

Document type: Journal article (JA)

Publisher: Elsevier Ltd

Abstract: In this study, 54 sediment samples were collected from the Pearl River Estuary (PRE) in Southern China to study the spatial distribution and patterns of PFASs in this region. PFAS concentrations in the sediment samples ranged from nd (below detection limit) to 2.41ngg⁻¹dw (dry weight) with an average value of 0.79ngg⁻¹dw. PFAS concentrations were higher at the nearshore sampling sites than in the others. Perfluorobutanesulfonate (PFBS) and perfluorohexanesulfonate (PFHxS) were the two dominant compounds among the target PFASs, which may be due to their production and use as PFOS substitutes in the Pearl River Delta (PRD) areas. Significant linear relationships were found between total PFAS concentrations and total organic carbon (TOC) (R=0.30, p<0.05). The preliminary environmental risk assessment indicated that PFOS and PFOA in the regional sediments posed no significant ecological risk to the benthic organisms at present levels. © 2015 Elsevier Ltd.

Number of references: 49

Main heading: Risk assessment

Controlled terms: Carbon - Estuaries - Gems - Organic carbon - Rivers - Sediments - Spatial distribution

Uncontrolled terms: Benthic organisms - Environmental risk assessment - Linear relationships - Pearl River delta - Pearl River estuary - Perfluoroalkyl substances - PFASs - Total Organic Carbon

DOI: 10.1016/j.marpolbul.2015.05.022

Database: Compendex

Compendex references: YES

71.

Accession number: 20154401482661

Title: **Application and design of computer games system in Phantom Go**

Authors: Gui, Wu[1] ✉; Jun, Tao[2] ✉

Author affiliation:
[1] Educational Administration Office, Jianghan University, Wuhan, China
[2] School of Mathematics and Computer Science, Jianghan University, Wuhan, China

Source title: Proceedings of the 2015 27th Chinese Control and Decision Conference, CCDC 2015

Abbreviated source title: Proc. Chin. Control Decis. Conf., CCDC

Monograph title: Proceedings of the 2015 27th Chinese Control and Decision Conference, CCDC 2015

Issue date: July 17, 2015

Publication year: 2015

Pages: 5748-5751

Article number: 7161830

Language: English

ISBN-13: 9781479970179

Document type: Conference article (CA)

Conference name: 27th Chinese Control and Decision Conference, CCDC 2015

Conference date: May 23, 2015 - May 25, 2015

Conference location: Qingdao, China

Conference code: 115665

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Phantom Go is a new game based on the incomplete information. This paper analyzes the structure and the functional module of computer games system in Phantom Go. With the combination of advantages of Alpha-Beta search algorithm and Monte-Carlo search algorithm, different search algorithms are applied and used to Phantom Go according to the state of game board. Then the scheme generates the next step by means of the search engine. On the basis of the above design, computer games system in Phantom Go is developed and programmed completely and finally, which can effectively interact and process information. The advanced and modified algorithm is proved to be practical and applicative by experimentations and tests of computer games system in Phantom Go provided in this paper. © 2015 IEEE.

Number of references: 15

DOI: 10.1109/CCDC.2015.7161830

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

72.

Accession number: 20154401482484

Title: **Application and design of attack and defense algorithms in WTN chess of computer games**

Authors: Jun, Tao[1] ✉; Gui, Wu[2] ✉

Author affiliation:
[1] School of Mathematics and Computer Science, Jianghan University, Wuhan, China
[2] Educational Administration Office, Jianghan University, Wuhan, China

Source title: Proceedings of the 2015 27th Chinese Control and Decision Conference, CCDC 2015

Abbreviated source title: Proc. Chin. Control Decis. Conf., CCDC

Monograph title: Proceedings of the 2015 27th Chinese Control and Decision Conference, CCDC 2015

Issue date: July 17, 2015

Publication year: 2015

Pages: 5803-5806

Article number: 7161842

Language: English

ISBN-13: 9781479970179

Document type: Conference article (CA)

Conference name: 27th Chinese Control and Decision Conference, CCDC 2015

Conference date: May 23, 2015 - May 25, 2015

Conference location: Qingdao, China

Conference code: 115665

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: The WTN Chess is a kind of important chess game in computer games. The attack and defense algorithms are the key points of WTN chess which are lacked of relative detail research at present. The paper provides practical and effective algorithms for making the relatively right choices to move chess pieces based on digital enumerations and static analysis strategies. At the same time, it also achieves an algorithm of situation assessment. According to many experimental data and results, attack and defense algorithms are demonstrated to be useful and effective in WTN chess. © 2015 IEEE.

15

Number of references:	
DOI:	10.1109/CCDC.2015.7161842
Database:	Compendex
	Compilation and indexing terms, © 2015 Elsevier Inc.
Compendex references:	YES

73.

Accession number:	20145000313309
Title:	**β-diiminato titanium complexes with varying fluorine substitution patterns on the N-aryl moiety: probing the effect of ligand substitution on ethylene polymerization**
Authors:	Li, Tingcheng[1] ; Song, Wen[1] ; Ai, Haitao[1] ; You, Qingliang[2] ; Zhang, Aiqing[1] ; Xie, Guangyong[1, 3]
Author affiliation:	[1] Key Laboratory of Catalysis and Materials Science of the State Ethnic Affairs Commission & Ministry of Education, Hubei Province, South-Central University for Nationalities, Wuhan, China [2] School of Chemical and Environmental Engineering, Jianghan University, Wuhan, China [3] State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian, China
Corresponding author:	Xie, Guangyong
Source title:	Journal of Polymer Research
Abbreviated source title:	J Polym Res
Volume:	22
Issue:	1
Issue date:	2015
Publication year:	2015
Language:	English
ISSN:	10229760
CODEN:	JPOREP
Document type:	Journal article (JA)
Publisher:	Kluwer Academic Publishers
Abstract:	A series of six mono β-diiminato titanium complexes with varying fluorine-substitution patterns on the iminophenyl moiety were designed and synthesized, and the ethylene polymerization activities were studied with modified methylaluminoxane (MMAO) as cocatalyst. The introduction of

fluorine substituents significantly increased the catalytic activity of the β-diiminato titanium complexes compared with their alkyl-substituted counterparts. Furthermore, both the position and the amount of fluorine substitution greatly influenced the catalytic behavior. The activity was increased when the ortho-positions of the N-aryl were substituted by fluorine, and the more ortho-positions were substituted, the higher the activity. All of the three o-fluoro substituted complexes (2a, 2e and 2f) exhibited very high activity (up to 10⁶gmol^{−1} h^{−1} atm^{−1}); whereas the m- and p-fluoro derivatives (2b and 2c) were much less active. The high activity of the o-fluoro-substituted complexes is suggested to be due to the formation of non-covalent interactions between the o-fluorine atom and the ethylene monomer, which may assist in the enrichment and coordination of ethylene to the central metal, thus increase the catalytic activity. © 2014, Springer Science+Business Media Dordrecht.

Number of references: 52

Page count: 8

Main heading: Catalyst activity

Controlled terms: Ethylene - Fluorine - Ligands - Organometallics - Polymerization - Polymers - Synthesis (chemical) - Titanium - Titanium compounds

Uncontrolled terms: Ethylene polymerization - Ethylene polymerization activity - Fluorine substituents - Fluorine substitution - Modified methylaluminoxane - Non-covalent interaction - Non-metallocene - Titanium complexes

Classification code: 542.3 Titanium and Alloys - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 804 Chemical Products Generally - 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.2 Polymerization

DOI: 10.1007/s10965-014-0631-0

Database: Compendex

Compendex references: YES

74.

Accession number: 20153201119862

Title: **Water chemistry controlled aggregation and photo-transformation of silver nanoparticles in environmental waters**

Authors: Yin, Yongguang[1] ; Yang, Xiaoya[1,3] ; Zhou, Xiaoxia[1] ; Wang, Weidong[1] ; Yu, Sujuan[1] ; Liu, Jingfu[1,2] ; Jiang, Guibin[1]

Author affiliation:
[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China
[2] Institute of Environment and Health, Jianghan University, Wuhan, China
[3] School of the Environment, Jiangsu University, Zhenjiang, China

Corresponding author:	Liu, Jingfu
Source title:	Journal of Environmental Sciences (China)
Abbreviated source title:	J. Environ. Sci.
Volume:	34
Issue date:	August 1, 2015
Publication year:	2015
Pages:	116-125
Language:	English
ISSN:	10010742
Document type:	Journal article (JA)
Publisher:	Chinese Academy of Sciences
Abstract:	The inevitable release of engineered silver nanoparticles (AgNPs) into aquatic environments has drawn great concerns about its environmental toxicity and safety. Although aggregation and transformation play crucial roles in the transport and toxicity of AgNPs, how the water chemistry of environmental waters influences the aggregation and transformation of engineered AgNPs is still not well understood. In this study, the aggregation of polyvinylpyrrolidone (PVP) coated AgNPs was investigated in eight typical environmental water samples (with different ionic strengths, hardness, and dissolved organic matter (DOM) concentrations) by using UV-visible spectroscopy and dynamic light scattering. Raman spectroscopy was applied to probe the interaction of DOM with the surface of AgNPs. Further, the photo-transformation and morphology changes of AgNPs in environmental waters were studied by UV-visible spectroscopy, inductively coupled plasma mass spectrometry, and transmission electron microscopy. The results suggested that both electrolytes (especially Ca²⁺ and Mg²⁺) and DOM in the surface waters are key parameters for AgNP aggregation, and sunlight could accelerate the morphology change, aggregation, and further sedimentation of AgNPs. This water chemistry controlled aggregation and photo-transformation should have significant environmental impacts on the transport and toxicity of AgNPs in the aquatic environments. © 2015 Published by Elsevier B.V.
Number of references:	45
Main heading:	Agglomeration
Controlled terms:	Biological materials - Environmental impact - High resolution transmission electron microscopy - Hydrochemistry - Infrared spectrophotometers - Ionic strength - Light scattering - Mass spectrometry - Metal nanoparticles - Nanoparticles - Silver - Toxicity - Transmission electron microscopy - Ultraviolet visible spectroscopy

Uncontrolled terms: Dissolved organic matters - Environmental toxicity - Environmental water samples - Silver nanoparticles (AgNps) - Sunlight - Transformation - UV visible spectroscopy - Water chemistry

Classification code: 454.2 Environmental Impact and Protection - 461.2 Biological Materials and Tissue Engineering - 481.2 Geochemistry - 547.1 Precious Metals - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 801.4 Physical Chemistry - 802.3 Chemical Operations

DOI: 10.1016/j.jes.2015.04.005

Database: Compendex

75.

Accession number: 20151700776136

Title: **Efficient optical coupling in AlGaN/GaN quantum well infrared photodetector via quasi-one-dimensional gold grating**

Authors: Wang, S.[1] ; Tian, W.[1] ; Wu, F.[1] ; Zhang, J.[1] ; Dai, J.N.[1] ✉; Wu, Z.H.[1] ; Fang, Y.Y.[1] ; Tian, Y.[2] ; Chen, C.Q.[1] ✉

Author affiliation:
[1] Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China
[2] School of Physics and Information Engineering, Jianghan University, Wuhan, China

Source title: Optics Express

Abbreviated source title: Opt. Express

Volume: 23

Issue: 7

Issue date: April 6, 2015

Publication year: 2015

Pages: 8740-8748

Language: English

E-ISSN: 10944087

Document type: Journal article (JA)

Publisher: Optical Society of American (OSA)

Abstract: In this letter, a new kind of grating, quasi-one-dimensional gold grating, has been proposed to enhance the optical coupling in AlGaN/GaN quantum well infrared photodetector (QWIP). The electric field distribution, current density and energy flow are analyzed by an algorithm of finite element method (FEM). Significantly enhanced electric field component E<inf>z</inf> perpendicular to multiple quantum wells (MQWs) is explained by introducing the resonant coupling of surface plasmon polariton (SPP) and localized surface plasmon (LSP). The |E<inf>z</inf>|² in MQWs reaches 0.85 (V/m)² when the electric field intensity (|E<inf>0</inf>|²) of normal incidence is 1 (V/m)² at 4.65 μm, showing 2 times and 1.3 times increase compared with that obtained via a one-dimensional gold grating and a two-dimensional gold grating, respectively. The results confirm that the quasi-one-dimensional gold grating provides more plasma excitation source and higher charge density with structure optimization, resulting in a high optical coupling efficiency of 85% in quantum well region. © 2015 Optical Society of America.

Number of references: 30

Main heading: Quantum well infrared photodetectors

Controlled terms: Diffraction gratings - Electric fields - Electromagnetic wave polarization - Finite element method - Gallium nitride - Gold - Infrared detectors - Photodetectors - Photons - Plasmons - Semiconducting indium compounds - Semiconductor quantum wells - Structural optimization - Surface plasmon resonance

Uncontrolled terms: Electric field components - Electric field distributions - Electric field intensities - Localized surface plasmon - Optical coupling efficiency - Quasi-one dimensional - Structure optimization - Surface plasmon polaritons

Classification code: 547.1 Precious Metals - 701.1 Electricity: Basic Concepts and Phenomena - 711 Electromagnetic Waves - 712.1 Semiconducting Materials - 712.1.2 Compound Semiconducting Materials - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 921.5 Optimization Techniques - 921.6 Numerical Methods - 941.3 Optical Instruments

DOI: 10.1364/OE.23.008740

Database: Compendex

Compendex references: YES

76.

Accession number: 20151000611958

Title: **Fabrication and Properties of Conductive Chitosan/Polypyrrole Composite Fibers**

Authors: Liu, Ying[1] ; Peng, Xianghong[1] ✉; Ye, Hong[1] ; Xu, Junhui[1] ; Chen, Feng[1]

Author affiliation: [1] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China

Corresponding author: Peng, Xianghong

Source title: Polymer - Plastics Technology and Engineering

Abbreviated source title: Polym.-Plast. Technol. Eng.

Volume: 54

Issue: 4

Issue date: March 7, 2015

Publication year: 2015

Pages: 411-415

Language: English

ISSN: 03602559

E-ISSN: 15256111

Document type: Journal article (JA)

Publisher: Taylor and Francis Inc., 325 Chestnut St, Suite 800, Philadelphia, PA 19106, United States

Abstract: Conductive chitosan/polypyrrole composite fibers (CS-PPy) were fabricated through pyrrole polymerization on chitosan fibers by in situ oxidation, in which chitosan fibers were obtained by the wet spinning method. The structures, the morphologies and the electroactivities of CS-PPy were characterized by FTIR, SEM, TGA, the four-probe technique and cyclic voltammetry (CV). Results showed that the diameter, thermal stability and electrical conductivity of the fiber were affected by pyrrole polymerization times. Electrical conductivity values of CS-PPy were varied from 1.60×10^{-5} to 1.31×10^{-4} S cm^{-1}. CV of the conductive fibers presents an oxidation peak at 0.25 V in pH 7.0 PBS. Such biodegradable conductive fibers may provide new electrical stimulation materials in biomedical applications. Copyright © Taylor & Francis Group, LLC.

Number of references: 37

Main heading: Spinning (fibers)

Controlled terms: Aromatic compounds - Chitin - Chitosan - Conductive materials - Cyclic voltammetry - Electric conductivity - Fibers - Medical applications - Oxidation - Polymerization - Polypyrroles

Uncontrolled terms: Biomedical applications - Conductive fibers - Electrical conductivity - Electrical stimulations - Four-probe techniques - In-situ oxidation - Pyrrole polymerization - Wet-spinning method

Classification code: 461.1 Biomedical Engineering - 701.1 Electricity: Basic Concepts and Phenomena - 708.2 Conducting Materials - 802.2 Chemical Reactions - 804.1 Organic Compounds - 812 Ceramics, Refractories and Glass - 815.2 Polymerization - 817 Plastics and Other Polymers: Products and Applications - 819.3 Fiber Chemistry and Processing - 942.2 Electric Variables Measurements

DOI: 10.1080/03602559.2014.935420

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

77.

Accession number: 20153201119877

Title: **Is there a silver lining? Aggregation and photo-transformation of silver nanoparticles in environmental waters**

Authors: Zheng, Qi[1, 2] ✉; Zhou, Michael[3] ; Deng, Wenchao[1] ; Chris Le, X.[3] ✉

Author affiliation:

[1] Key Laboratory of Optoelectronic Chemical Materials, Devices of Ministry of Education, Jianghan University, Wuhan, China

[2] Institute of Environment and Health, Jianghan University, Wuhan, China

[3] Division of Analytical and Environmental Toxicology, University of Alberta, Edmonton; AB, Canada

Corresponding author: Zheng, Qi

Source title: Journal of Environmental Sciences (China)

Abbreviated source title: J. Environ. Sci.

Volume: 34

Issue date: August 1, 2015

Publication year: 2015

Pages: 259-262

Language: English

ISSN: 10010742

Document type: Journal article (JA)

Publisher: Chinese Academy of Sciences

Number of references: 38

DOI: 10.1016/j.jes.2015.07.002

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

78.

Accession number: 20152300904639

Title: **A model system for concurrent detection of antigen and antibody based on immunological fluorescent method**

Authors: Cao, Yuan-Cheng[1, 2]

Author affiliation:
[1] Key Laboratory of Optoelectronic Chemical Materials and Devices, Ministry of Education, Jianghan University, Wuhan, China
[2] Flexible Display Materials and Technology Co-Innovation Centre of Hubei Province, Jianghan University, Wuhan, China

Corresponding author: Cao, Yuan-Cheng

Source title: Journal of Spectroscopy

Abbreviated source title: J. Spectroscopy

Volume: 2015

Issue date: 2015

Publication year: 2015

Article number: 248504

Language: English

ISSN: 23144920

E-ISSN: 23144939

Document type: Journal article (JA)

Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: This paper describes a combined antigen/antibody immunoassay implemented in a 96-well plate using fluorescent spectroscopic method. First, goat anti-human IgG was used to capture human IgG (model antigen); goat anti-human IgG (Cy3 or FITC) was used to detect the model antigen; a saturating level of model antigen was then added followed by unlabelled goat anti-human IgG (model antibody); finally, Cy3 labelled rabbit anti-goat IgG was used to detect the model antibody. Two approaches were applied to the concomitant assay to analyze the feasibility. The first approach applied FITC and Cy3 when both targets were present at the same time, resulting in 50 ng/mL of the antibody detection limit and 10 ng/mL of antigen detection limit in the quantitative measurements of target concentration, taking the consideration of FRET efficiency of 68% between donor and acceptor. The sequential approach tended to lower the signal/noise (S/N) ratio and the detection of the model antigen (lower than 1 ng/mL) had better sensitivity than the model antibody (lower than 50 ng/mL). This combined antigen/antibody method might be useful for combined detection of antigens and antibodies. It will be helpful to screen for both antigen and antibody particularly in the situations of the multiserotype and high-frequency mutant virus infections. © 2015 Yuan-Cheng Cao.

Number of references: 16

Main heading: Antigens

Controlled terms: Antibodies - Chemical detection - Fluorescence - Spectroscopic analysis - Viruses

Uncontrolled terms: Antigen detections - Combined detections - Donor and acceptor - Fluorescent methods - Quantitative measurement - Sequential approach - Spectroscopic method - Target concentrations

Classification code: 461.9 Biology - 461.9.1 Immunology - 741.1 Light/Optics - 801 Chemistry - 801.2 Biochemistry

DOI: 10.1155/2015/248504

Database: Compendex

79.

Accession number: 20152500954455

Title: **PDMS micropillar-based microchip for efficient cancer cell capture**

Authors: Xiao, Jingrong[1] ; He, Weiqi[1] ; Zhang, Zhengtao[1] ; Zhang, Weiying[1] ; Cao, Yiping[1] ; He, Rongxiang[1] ✉ ; Chen, Yong[1, 2] ✉

Author affiliation:
[1] Institute for Interdisciplinary Research, Key Laboratory of Optoelectronic Chemical Materials and Devices, Jianghan University, Wuhan, China
[2] Département de Chimie, Ecole Normale Supérieure, 24 Rue Lhomond, Paris Cedex05, France

Source title: RSC Advances

Abbreviated source title: RSC Adv.

Volume: 5

Issue: 64

Issue date: 2015

Publication year: 2015

Pages: 52161-52166

Language: English

E-ISSN: 20462069

CODEN: RSCACL

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: We introduce a micropillar-based microfluidic device for efficient and rapid cancer cell capture. The microfluidic chip consists of two linear arrays of micropillars integrated with a herringbones flow-derived microstructure, and the separation distance between two adjacent micropillars is similar to the size of tumor cells. Cancer cells can be forced to come into contact with the micro-columns and are then captured by specific immune antibody-antigen interactions.

	Both previously published data and new available experimental data confirm the superiority of the proposed device. Different cancer cell lines were utilized to investigate the capture efficiency of our microfluidic device. MCF-7 cancer cells spiked into DMEM culture medium can be captured from a suspension with over 90% efficiency. The results of the present work provide a promising method for separation of rare cells, such as circulating tumor or fetal cells. This journal is © The Royal Society of Chemistry.
Number of references:	29
Main heading:	Diseases
Controlled terms:	Antigen-antibody reactions - Cell culture - Fluidic devices - Microfluidics - Tumors
Uncontrolled terms:	Antibody-antigen interactions - Cancer cell lines - Capture efficiency - Culture medium - Micro-columns - Micro-fluidic devices - Microfluidic chip - Separation distances
Classification code:	461 Bioengineering and Biology - 631 Fluid Flow - 732.1 Control Equipment
DOI:	10.1039/c5ra04353k
Database:	Compendex
	Compilation and indexing terms, © 2015 Elsevier Inc.

80.

Accession number:	20152000839141
Title:	**Biomagnification of mercury in mollusks from coastal areas of the Chinese Bohai Sea**
Authors:	Meng, Mei[1] ; Shi, Jian-Bo[1, 2] ✉; Liu, Cheng-Bin[1] ; Zhu, Na-Li[1] ; Shao, Jun-Juan[1] ; He, Bin[1] ; Cai, Yong[2, 3] ; Jiang, Gui-Bin[1]
Author affiliation:	[1] State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China [2] Institute of Environment and Health, Jianghan University, Wuhan, China [3] Department of Chemistry and Biochemistry and Southeast Environmental Research Center, Florida International University, Miami; Florida, United States
Corresponding author:	Shi, Jian-Bo
Source title:	RSC Advances
Abbreviated source title:	RSC Adv.
Volume:	5
Issue:	50

Issue date: 2015

Publication year: 2015

Pages: 40036-40045

Language: English

E-ISSN: 20462069

CODEN: RSCACL

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: The multiple recognized mollusk species are usually regarded as one group lying at the second trophic level in the marine ecosystem. As a result, the virtual resolution of Hg uptake and transfer processes that occur in different mollusks would be overlooked. In this work, the concentrations of total mercury (THg) and methylmercury (MeHg), δ¹⁵N, δ¹³C and lipid contents were comprehensively analyzed in 11 mollusk species collected from the Chinese Bohai Sea during 2007-2012. The contents of THg and MeHg were in the range 27.2-461.1 and 2.1-295.5 μg kg⁻¹, respectively. The trophic levels (TLs) were in the range 1.99-4.02. The biomagnification of Hg was evident from the significant positive correlations between Hg contents and TLs, and from the trophic magnification factors (TMFs). MeHg is the main species of Hg magnification in mollusks, while growth dilution occurs in the trophic transfer of inorganic mercury (IHg). TLs showed a greater effect on Hg levels in mollusks than lipid contents. © The Royal Society of Chemistry 2015.

Number of references: 55

Main heading: Molluscs

Controlled terms: Ecosystems - Mercury (metal) - Seebeck effect

Uncontrolled terms: Biomagnification - Growth dilution - Inorganic mercury - Marine ecosystem - Positive correlations - Transfer process - Trophic magnifications - Trophic transfer

Classification code: 454.3 Ecology and Ecosystems - 471 Marine Science and Oceanography - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 615.4 Thermoelectric Energy

DOI: 10.1039/c5ra02919h

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

81.

Accession number: 20150700506764

Title:

Phosphorus-containing polymers from THPS. II: Synthesis and property of phosphorus-containing hyperbranched aromatic-aliphatic polyamides

Authors: Tan, Zhi-Wei[1, 2] ; Sun, Jian[1] ; Zhang, Min[1] ; Qiu, Jin-Jun[1] ; Hu, Si-Qian[3] ; Liu, Cheng-Mei[1]

Author affiliation: [1] Key Laboratory for Large-Format Battery Materials and System, Huazhong University of Science and Technology, Ministry of Education, Wuhan, China

[2] School of Chemistry and Environmental Engineering, Hubei University for Nationalities, Enshi, China

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Corresponding author: Liu, Cheng-Mei

Source title: Designed Monomers and Polymers

Abbreviated source title: Des Monomers Polym

Volume: 18

Issue: 3

Issue date: January 1, 2015

Publication year: 2015

Pages: 222-231

Language: English

ISSN: 1385772X

E-ISSN: 15685551

Document type: Journal article (JA)

Publisher: Taylor and Francis Ltd.

Abstract: Phosphorus-containing hyperbranched aromatic-aliphatic polyamides are prepared via direct polymerization of triacid (B3) with different diamines (A2), which for improving the processability of aromatic polyamides while keeping exellent thermal and mechanical property. The triacid (B3), tris(2-carboxyethyl)phosphine oxide (TCEPO), is synthesized from tetrakis(hydroxymethyl) phosphonium sulfate and its structure is verified by Fourier transform infrared, ^{1}H, ^{13}C and ^{31}P NMR spectroscopy. Then, the polycondensation reaction of TCEPO with p-phenylene diamine, 4,4′-oxyphenylene diamine and 4,4′-methylenedianiline result in three phosphorus-containing hyperbranched aromatic-aliphatic polyamides, and the degree of branching is found between 0.66 and 0.71. Gel permeation chromatography measurement reveal that all hyperbranched aromatic-aliphatic polyamides have moderate number-averaged molecular weights and narrow molecular weight distribution. The Dynamic mechanical thermal analysis results show all polymers have two glass transition temperatures (Tg) in the temperature range 85.3-128.0 °C and have high storage modulus

about 1.52-3.19 GPa at 50 °C. The TGA results reveal the initial degradation temperatures (T5) and the temperatures for 10% gravimetric loss (T10) for the hyperbranched aromatic-aliphatic polyamides are in the range of 214-250 and 256-333 °C, and the maximum decomposition temperatures (Tm) are about 500 °C, and also the char yields of polymers at 850 °C are about 39.4-48.4%, which indicate good thermal stability. © 2015 © 2015 Taylor & Francis.

Number of references: 51

Main heading: Dendrimers

Controlled terms: Amines - Aromatic compounds - Aromatic polymers - Aromatization - Dynamic mechanical analysis - Gel permeation chromatography - Glass transition - Mechanical properties - Methanol - Molecular weight - Molecular weight distribution - Nuclear magnetic resonance spectroscopy - Phosphorus - Phosphorus compounds - Polyamides - Polymers - Synthesis (chemical) - Thermoanalysis - Thermodynamic stability - Vulcanization agents

Uncontrolled terms: Aliphatic polyamides - Dynamic mechanical thermal analysis - Fourier transform infra reds - Narrow molecular weight distributions - Phosphorus-containing polymers - Tetrakis - Thermal and mechanical properties - Tris(2 carboxyethyl) phosphine

DOI: 10.1080/15685551.2014.999461

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

82.

Accession number: 20151500735233

Title: **Comprehensive evaluation of marketing channel risk of beverage enterprise on the basis of GRA-Fuzzy-AHP**

Authors: Xu, Yihong[1]; Shi, Mengju[2]; Chang, Hao[3]; Wei, Qiushuang[3]; Wang, Suhua[4]

Author affiliation:
[1] Jianghan University, Wuhan, China
[2] Zhongnan University of Economy and Law, Wuhan, China
[3] School of Economics and Management, North China Electric Power University, Beijing, China
[4] Datang Sanmenxia Power Generation Co., Ltd., Sanmenxia, China

Corresponding author: Xu, Yihong

Source title: International Journal of Information Technology and Management

Abbreviated source title: Int. J. Inf. Technol. Manage.

Volume: 14

Issue: 2-3

Issue date: 2015

Publication year: 2015

Pages: 133-145

Language: English

ISSN: 14614111

Document type: Journal article (JA)

Publisher: Inderscience Enterprises Ltd.

Abstract: Many risks exist in the competitive beverage market. In this paper, a risk evaluation index system of marketing channel risks of beverage enterprises is established, a comprehensive evaluation model of marketing channel risks of beverage enterprises based on GRA-Fuzzy-AHP method is built, qualitative indexes are quantised by using fuzzy mathematics method, and the index weight is determined by using analytic hierarchy process (AHP) method. On this basis, this paper evaluates the marketing channel risks of beverage enterprises comprehensively by using grey relational analysis (GRA) method. The empirical analysis result proves that the risk evaluation index system of beverage enterprise marketing channels is effective and the evaluation model is feasible, reasonable and scientific. Copyright © 2015 Inderscience Enterprises Ltd.

Number of references: 11

Main heading: Risk assessment

Controlled terms: Analytic hierarchy process - Beverages - Commerce - Hierarchical systems - Marketing - Risks

Uncontrolled terms: AHP - Comprehensive evaluation - Fuzzy - GRA - Grey relational analysis - Marketing channels

Classification code: 822.3 Food Products - 911.4 Marketing - 921 Mathematics - 922.1 Probability Theory - 961 Systems Science

DOI: 10.1504/IJITM.2015.068492

Database: Compendex

Compilation and indexing terms, © 2015 Elsevier Inc.

Compendex references: YES

83.

Accession number: 20153901317675

Title: **Modelling and stability analysis of nonlinear networked control systems based on quasi T-S fuzzy model**

Authors: Zhang, Hong[1] ✉; Fang, Huajing[2] ✉; Zhu, Quanmin[3] ✉

Author affiliation: 1

College of Physics and Information Engineering, Jianghan University, Wuhan, Hubei, China

[2] Department of Control Science and Engineering, HuaZhong University Science and Technology, Wuhan, Hubei, China

[3] Department of Engineering Design and Mathematics, University of the West of England, Frenchay Campus, Coldharbour Lane, Bristol, United Kingdom

Corresponding author:	Zhang, Hong
Source title:	International Journal of Modelling, Identification and Control
Abbreviated source title:	Int. J. Model. Ident. Control
Volume:	24
Issue:	1
Issue date:	September 1, 2015
Publication year:	2015
Pages:	42-51
Language:	English
ISSN:	17466172
E-ISSN:	17466180
Document type:	Journal article (JA)
Publisher:	Inderscience Enterprises Ltd.
Abstract:	This study presents a two-level quasi T-S fuzzy (QTS) model to represent nonlinear networked control systems (NCSs), which takes the performance of network with time-delay and data packet dropouts into the investigations. At the operation points of nonlinear NCS, the subsystem is regarded as linear system modelling by QTS, then the global model of nonlinear is fuzzy fused by linear subsystem. This study constructs the corresponding system model, in which the stability of the system is proved with linear matrix inequality (LMI). A nonlinear system is selected to demonstrate the feasibility and efficiency through numerical analysis. The study provides a new model of nonlinear NCS, and further research work can be done under this model, such as observer designing and fault diagnosis and tolerance control of nonlinear NCS. Copyright © 2015 Inderscience Enterprises Ltd.
Number of references:	12
Main heading:	Control system stability
Controlled terms:	Control system analysis - Control systems - Delay control systems - Fault detection - Fault tolerance - Linear matrix inequalities - Linear systems - Matrix algebra - Networked control systems - System stability - Time delay
Uncontrolled terms:	

Data packet dropout - Fault diagnosis and tolerances - Linear subsystems - LMI - Nonlinear networked control systems - Stability analysis - System modelling - T-S fuzzy models

Classification code: 422 Strength of Building Materials; Test Equipment and Methods - 713 Electronic Circuits - 722.4 Digital Computers and Systems - 731 Automatic Control Principles and Applications - 921.1 Algebra

DOI: 10.1504/IJMIC.2015.071702

Database: Compendex

84.

Accession number: 20152500960157

Title: **Rapid quantification of a chemically synthesized peptide GAP162 in rat plasma by liquid chromatography/triple quadrupole tandem mass spectrometry and application to a pharmacokinetic study**

Authors: Zhao, Xiaoping[1] ; Kang, Liping[2] ; Zhang, Taichang[3] ; Chen, Jianhua[4] ; Ren, Xinyi[1] ; Bao, Yuanwu[3] ; Cheng, Yuanguo[1]

Author affiliation:

[1] State Key Laboratory of Pathogen and Biosecurity, Beijing Institute of Microbiology and Epidemiology, 20 Dongda Street, Fengtai District, Beijing, China

[2] State Key Laboratory Breeding Base of Dao-di Herbs, National Resource Center, China Academy of Chinese Medical Sciences, Beijing, China

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[4] Jianghan University, Wuhan, China

Corresponding author: Cheng, Yuanguo

Source title: RSC Advances

Abbreviated source title: RSC Adv.

Volume: 5

Issue: 64

Issue date: 2015

Publication year: 2015

Pages: 51708-51716

Language: English

E-ISSN: 20462069

CODEN: RSCACL

Document type: Journal article (JA)

Publisher: Royal Society of Chemistry

Abstract: Liquid chromatography/tandem mass spectrometry (LC-MS/MS) is a promising analytical platform for the quantification of therapeutic peptide in biological fluids for pharmacokinetics (PK) studies. Herein, an absolute quantification method based on liquid chromatography-electrospray ionization-tandem mass spectrometry (LC-ESI-MS/MS) technique was developed to quantify GAP162, a new synthetic peptide derived from RasGAP<inf>301-326</inf>, which is a promising candidate as antitumor drug. A synthetic peptide P119 was used as internal standard. Solid phase extraction (SPE) of the mixed-mode of ion exchange and reversed-phase was employed for sample preparation. Chromatographic separation was performed on a reversed phase C4 column (30 mm × 2.1 mm, 5 μm) with a mobile phase consisting of acetonitrile-water containing 0.1% formic acid with gradient elution at a flow rate of 0.8 mL min⁻¹ for 2.0 min. Multiple reaction-monitoring (MRM) mode was performed with ion pairs of m/z: 748.2 → 830.2, and 526.7 → 585.5 for GAP162 and internal standard of P119, respectively. Calibration curve was linear over a concentration range of 5-500 ng mL⁻¹ with a correlation coefficient >0.99. The lower limit of detection was at 5 ng mL⁻¹ in rat plasma for GAP162. The results of the intra- and inter-day precision and accuracy studies were well within the acceptable limits. The validated method was successfully applied to investigate the pharmacokinetics study of GAP162 after single intravenous administration to male Sprague-Dawley rats at 5 mg kg⁻¹. This journal is © The Royal Society of Chemistry.

Number of references: 26

Main heading: Liquid chromatography

Controlled terms: Body fluids - Chromatography - Drug products - Electrospray ionization - Extraction - High pressure liquid chromatography - Ion exchange - Ionization of liquids - Liquids - Mass spectrometry - Peptides - Pharmacokinetics - Phase separation - Rats

Uncontrolled terms: Absolute quantification - Chromatographic separations - Intravenous administration - Liquid chromatography electrospray - Liquid chromatography/tandem mass spectrometry - Lower limit of detections - Multiple-reaction monitoring modes - Tandem mass spectrometry

Classification code: 461 Bioengineering and Biology - 801 Chemistry - 801.2 Biochemistry - 802.2 Chemical Reactions - 802.3 Chemical Operations - 931.2 Physical Properties of Gases, Liquids and Solids

DOI: 10.1039/c5ra05188f

Database: Compendex

85.

Accession number: 20151700773141

Title:	**Surface dispersion engineering of Ag-Au alloy films**
Authors:	Liu, Zhejun[1] ; Ji, Dengxin[2] ; Zeng, Xie[2] ; Song, Haomin[2] ; Liu, Jiyan[3] ; Jiang, Suhua[1] ✉; Gan, Qiaoqiang[2] ✉
Author affiliation:	[1] Department of Materials Science, Fudan University, Shanghai, China [2] Department of Electrical Engineering, University at Buffalo, State University of New York, Buffalo; NY, United States [3] Key Laboratory of Optoelectronic Chemical Materials and Devices of Ministry of Education, Jianghan University, Wuhan, China
Corresponding author:	Jiang, Suhua
Source title:	Applied Physics Express
Abbreviated source title:	Appl. Phys. Express
Volume:	8
Issue:	4
Issue date:	April 1, 2015
Publication year:	2015
Article number:	042601
Language:	English
ISSN:	18820778
E-ISSN:	18820786
Document type:	Journal article (JA)
Publisher:	Japan Society of Applied Physics
Abstract:	By controlling the content ratio of Ag and Au during the metal co-sputtering process, we demonstrate that the surface dispersion properties of alloy metal films can be manipulated with no need to tune the geometric parameters for surface patterns. This inexpensive technology provides a different way to engineer the surface dispersion properties of plasmonic metamaterial components on a chip. © 2015 The Japan Society of Applied Physics.
Number of references:	20
Main heading:	Silver
Controlled terms:	Dispersions - Gold - Metallic films - Silver alloys
Uncontrolled terms:	Ag-Au alloys - Content ratio - Cosputtering - Plasmonic metamaterials - Surface dispersion - Surface pattern
Classification code:	531 Metallurgy and Metallography - 539 Metals Corrosion and Protection; Metal Plating - 547.1 Precious Metals - 951 Materials Science
DOI:	10.7567/APEX.8.042601

Database: Compendex

Compendex references: YES

86.

Accession number: 20153501215420
Article in Press

Title: **Hamiltonian cycles in spanning subgraphs of line graphs**

Authors: Li, Hao[2, 3] ; He, Weihua[1, 2] ; Yang, Weihua[4] ; Bai, Yandong[2]

Author affiliation:
[1] Department of Applied Mathematics, Guangdong University of Technology, Guangzhou, China
[2] Laboratoire de Recherche en Informatique, UMR 8623, C.N.R.S., Université Paris-sud, 91405 Orsay cedex, France
[3] Institute for Interdisciplinary Research, Jianghan University, Wuhan, China
[4] Department of Mathematics, Taiyuan University of Technology, Taiyuan, China

Corresponding author: He, Weihua

Source title: Discrete Applied Mathematics

Abbreviated source title: Discrete Appl Math

Issue date: September 29, 2014

Publication year: 2015

Language: English

ISSN: 0166218X

CODEN: DAMADU

Document type: Article in Press

Publisher: Elsevier

Abstract: Let G be a graph and e=uv an edge in G (also a vertex in the line graph L(G) of G). Then e is in two cliques EG(u) and EG(v) with EG (u)∩EG(v)={e} of L(G), that correspond to all edges incident with u and v in G respectively. Let SL(G) be any spanning subgraph of L (G) such that every vertex e=uv is adjacent to at least min{dG(u)-1,⌈34dG(u)+12⌉} vertices of EG(u) and to at least min{dG(v)-1,⌈34dG(v)+12⌉} vertices of EG(v). Then if L(G) is Hamiltonian, we show that SL(G) is Hamiltonian. As a corollary we obtain a lower bound on the number of edge-disjoint Hamiltonian cycles in L (G). © 2015 Elsevier B.V.

Main heading: Graph theory

Controlled terms: Hamiltonians

Uncontrolled terms: Edge-disjoint hamiltonian cycles - Hamiltonian cycle - Line graph - Lower bounds - Spanning subgraphs - Subgraphs

Classification code: 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 931 Classical Physics; Quantum Theory; Relativity

DOI: 10.1016/j.dam.2015.07.040

Database: Compendex
