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# 功能高分子学报

JOURNAL OF FUNCTIONAL POLYMERS



# 功能高分子学报

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PVA-SiO<sub>2</sub> 复合物改性棉纤维及其吸油性能

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# JOURNAL OF FUNCTIONAL POLYMERS

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### Special Reviews

Research Progress in Functional Materials Based on Polyoxometalate-Polymer Hybrids

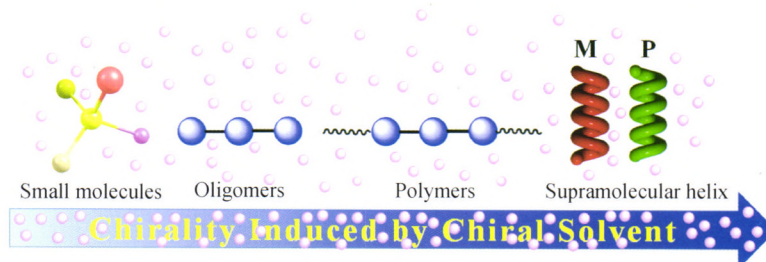


YANG Hai-kuan, WU Han, WANG Wei

*Journal of Functional Polymers*, 2016, 29(1): 1-19.

Advanced functional materials based on polyoxometalate-polymer hybrids with polymer processability and the functions of polyoxometalate (POM) clusters have important application prospect.

Advance in Chirality of Achiral Substance Induced by Chiral Solvent



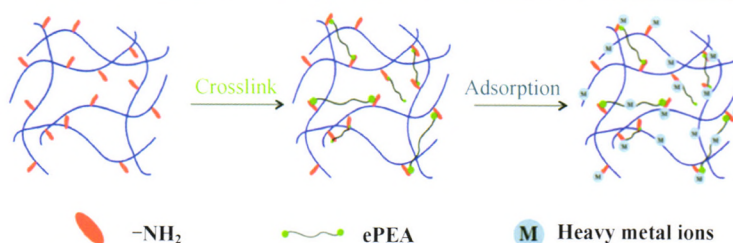
ZHAO Yin, YIN Lu, LIU Jing-jing, ZHANG Wei, ZHU Xiu-lin

*Journal of Functional Polymers*, 2016, 29(1): 20-28.

The chiral solvent induction strategy can avoid the use of expensive chiral reagents and expand the chiral substance synthesized, which covered the organic small molecules, oligomers and polymers systems.

### Papers

Preparation of Gelatin-Epoxy Poly(ether amine) Crosslinked Membrane and Its Adsorption Behavior for Heavy Metal Ions

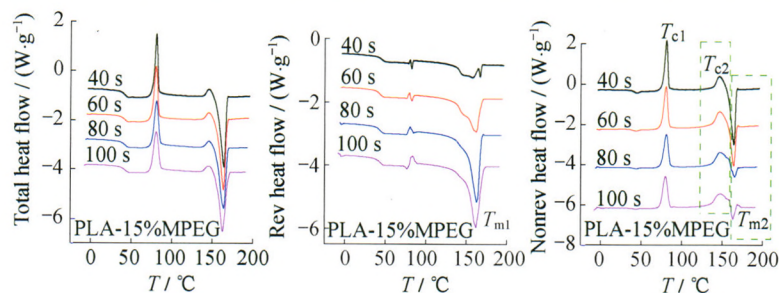


ZHANG Sai, SHI Zi-xing, YIN Jie

*Journal of Functional Polymers*, 2016, 29(1): 29-35.

Gelatin was chemically crosslinked by ePEA, which could improve the stability of the gelatin membrane swelling in water. And the gelatin/ePEA crosslinked membrane exhibited a good adsorption ability to  $\text{Cu}^{2+}$ ,  $\text{Pb}^{2+}$  and  $\text{Cd}^{2+}$  in water.

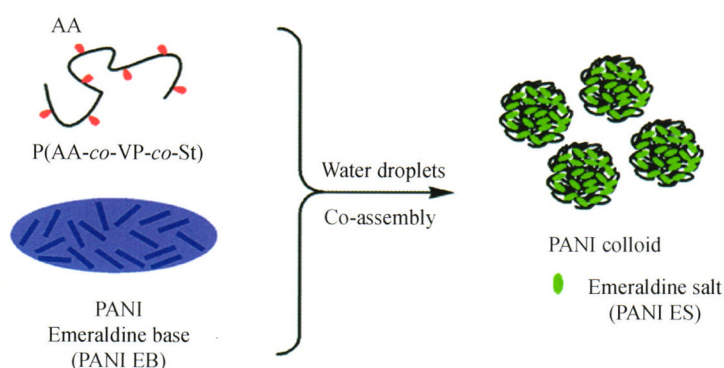
Thermal Analysis of Poly(lactide-Monomethoxy Polyethylene Glycol) Blends by Modulated Differential Scanning Calorimetry



XU Li, LI Ruo-yun, ZHENG Na,  
PU Qun, HU Ji-jiang, FENG Lian-fang  
*Journal of Functional Polymers*, 2016,  
29(1): 36-42.

The overlap transitions of recrystallization and melting of the PLA-MPEG blends were discriminated effectually by MDSC. With the increase of modulation period, the peak shape of melting in the reversible curves transformed from wide multiple peaks to a separating single peak, and the fraction of melting on reversible curves reached 95.2%.

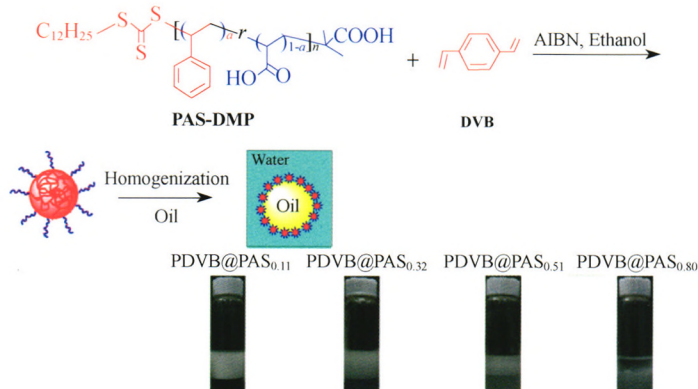
Fabrication of Polyaniline Nanoparticles via the co-Assembly of Macromolecules



HUANG Jing, SUN Jun, LUO Jing,  
LIU Xiao-ya  
*Journal of Functional Polymers*, 2016,  
29(1): 43-50.

Driven by the hydrophobic effect and the electrostatic interaction, P(AA-co-VP-co-St) and PANI could be co-assembled into uniformly dispersed PANI nanoparticles.

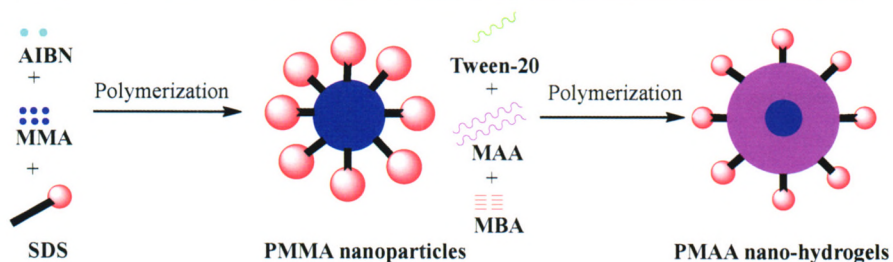
Preparation and Emulsifying Performance of Core Cross-Linked Amphiphilic Polymeric Colloidal Particles



HU Qiong, ZHU Ye, WEI Wei,  
YI Cheng-lin, GU Yao, LIU Xiao-ya  
*Journal of Functional Polymers*, 2016,  
29(1): 51-60.

The amphiphilic polymeric colloidal particles (PDVB @ PAS) with crosslinked poly(divinyl benzene) as core and poly(acrylic acid-*r*-styrene) as outer copolymer chains were used as particulate emulsifiers. The size, amphiphaticity, and emulsibility of the colloidal particles could be regulated effectively by varying the chemical constitution of the outer macromolecular chains.

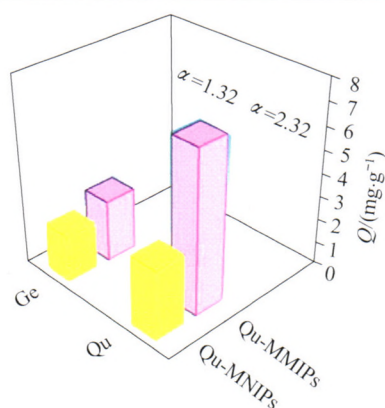
### Synthesis of Poly(methacrylic acid) Nano-Hydrogels in Water



GU Wen-juan, LU Ya-ming,  
ZHANG You-wei, ZHAO Jiong-xin  
*Journal of Functional Polymers*, 2016,  
29(1): 61-67.

Driven by the hydrophobic interactions between two surfactants and the hydrogen bonding interactions between the surfactant and monomers, methacrylic acid (MAA) monomers are selectively polymerized on the surface of poly(methyl methacrylate) (PMMA) nanolatex seed formed *in-situ*, thus realizing the “green” synthesis of PMAA nano-hydrogels in water.

### Preparation and Adsorption Property of Quercetin Magnetic Molecularly Imprinted Polymers



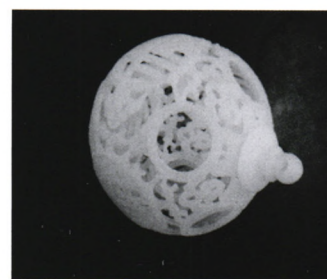
RUAN Yong-xin, MA Ying-xia,  
WANG Ru-juan, XING Dan,  
DU Xue-yan, ZHANG Wen-juan  
*Journal of Functional Polymers*, 2016,  
29(1): 68-74.

Quercetin magnetic molecularly imprinted polymers (Qu-MMIPs) with excellent magnetic responsiveness were prepared via one-pot method. Genistein (Ge), the structural analogue of quercetin, was gleaned as competitor to study the adsorption selectivity of Qu-MMIPs. The great discrimination of imprinted factors ( $\alpha$ ) between the selected substrates revealed favorable specific recognizing properties of the as-synthesized polymers for Qu.

### A Modified PBT for Fused Deposition Modeling in 3D Printing



Filament used for FDM



Object printed by 3D printer

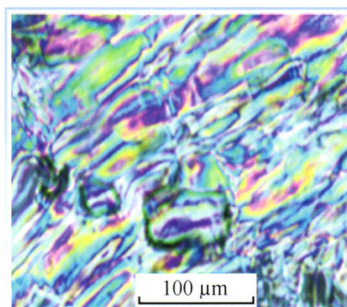
CAO Shi-qing, SUN Li, XUE Wei-lan,  
ZENG Zuo-xiang, ZHU Wan-yu  
*Journal of Functional Polymers*, 2016,  
29(1): 75-79.

Modified poly(butylene terephthalate) (poly(butylene terephthalate-co-isophthalate-co-sebacate) (PBTIS)) were prepared for fused deposition modeling in 3D printing by direct esterification and subsequent polycondensation using terephthalic acid (PTA), isophthalic acid (PIA), sebacic acid (SA) and 1,4-butanediol (BDO). The samples of PBTIS were changed into filaments by a desktop drawing machine and printed using a 3D printer, which could be 3D printed fluently.

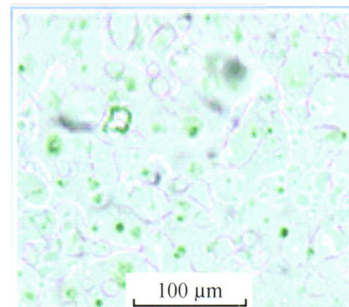
Synthesis and Properties of Side-Chain Liquid-Crystalline Polysiloxanes Exhibiting Cholesteric Platelet Texture

LI Ying

*Journal of Functional Polymers*, 2016, 29(1): 80-84.



Monomer

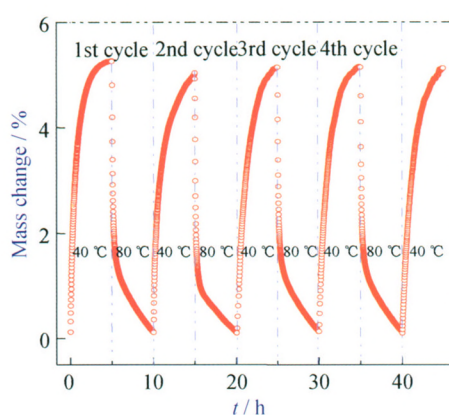
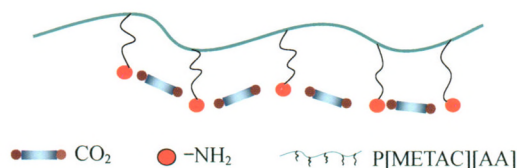
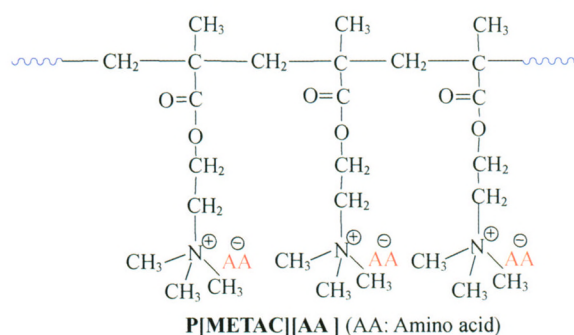


SCLCP

Side-chain liquid-crystalline polysiloxanes (SCLCP) were synthesized through hydrosilylation, grafting (*trans,trans*)-4-propyl-4'-propenyl-bicyclohexane. SCLCP exhibits cholesteric platelet texture.

Synthesis of Poly(amino acid-based ionic liquid)s and Their Performance for CO<sub>2</sub> Absorption

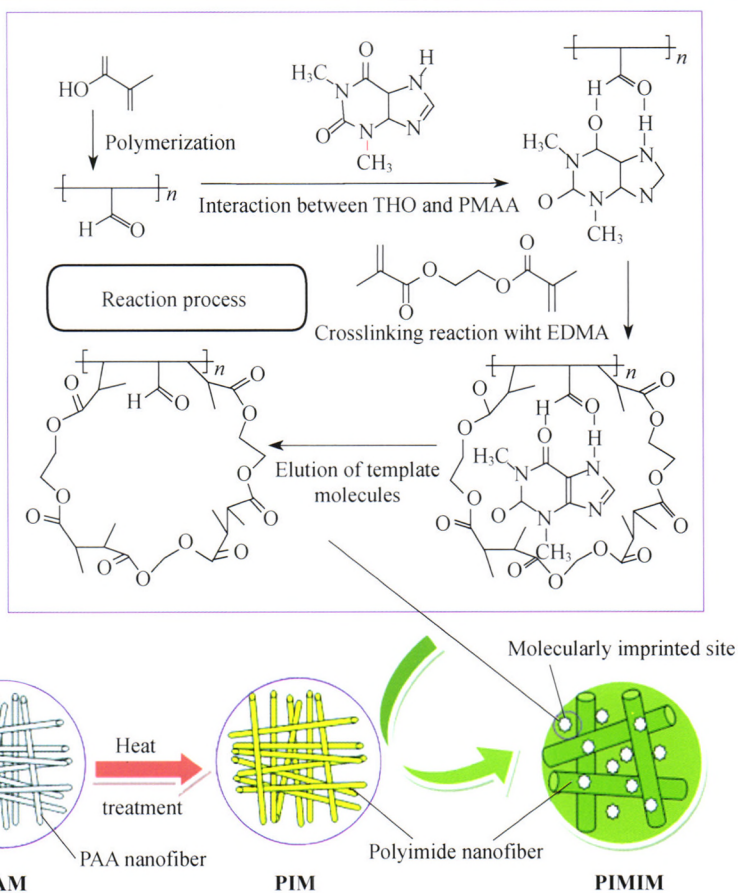
YE Hai-feng, GUO Hui, LI Cao, CHEN Xue-qin, JIANG Bing-bing  
*Journal of Functional Polymers*, 2016, 29(1): 85-90.



A solid sorbent material of poly(amino acid-based ionic liquid) (P[METAC][Gly]) was obtained, which presented a CO<sub>2</sub> absorption and demonstrated a recycling ability by temperature swing.

Preparation and Characterization of Theophylline Molecularly Imprinted Polyimide Nanofiber Membrane

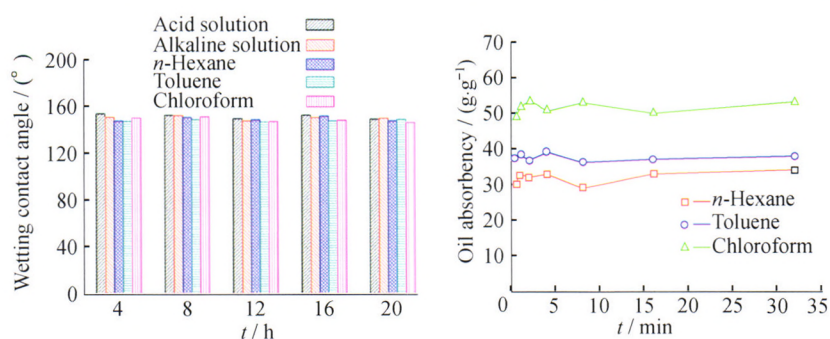
LÜ Jian-feng, XU Zhen-liang,  
MA Xiao-hua  
*Journal of Functional Polymers*, 2016,  
29(1): 91-97.



Theophylline (THO) molecularly imprinted polyimide nanofiber composite membrane (PIMIM) was synthesized by surface thermal crosslinking reaction on PIM, which was pre-coated by polymethacrylic acid (PMAA). PIMIM showed good performance with a high static adsorption binding capacity of for THO, and an acceptable selective separation factor of THO and theobromine (TB).

PVA-SiO<sub>2</sub> Composites Modified Cotton Fiber and Its Oil-Absorption Properties

WANG Jin-tao, LI Jia-li,  
ZHANG Ye-song, WANG Guo-rong,  
LIU Qi, ZHANG Shou-cun  
*Journal of Functional Polymers*, 2016,  
29(1): 98-102.

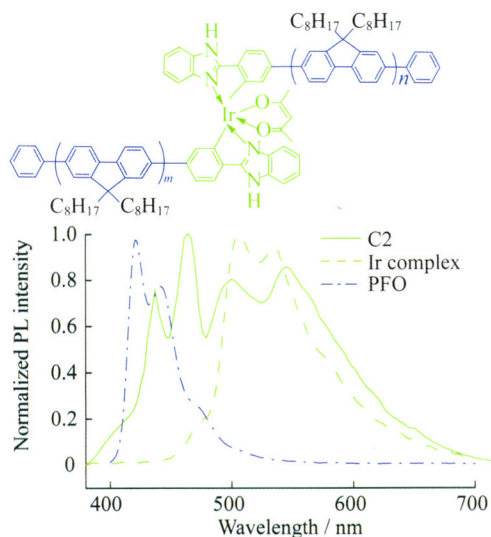


PVA-SiO<sub>2</sub> coated cotton fiber for oil absorption exhibits excellent wetting durability and reusability.



Synthesis and Photoluminescence Properties of Iridium-Fluorene Main-Chain Copolymers

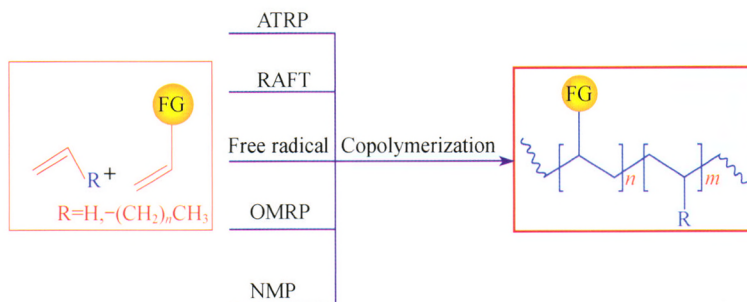
CAI Li-mei, LUO Cai-ping,  
ZENG Hui-juan, LI Dong-dong,  
LIN Mei-juan  
*Journal of Functional Polymers*, 2016,  
29(1): 103-108.



The cyclometalated iridium complex based on 2-(4-bromophenyl)-benzimidazole and acetylacetonate was prepared and then introduced into polyfluorene subject to obtain the main-chain copolymers. Iridium complex emitted green-light and the copolymers exhibited blue emission of PFO subject and green emission of iridium complex. The green light intensity was enhanced with the increasing of iridium complex content.

Review

Progress in Radical Technology for  $\alpha$ -olefins Homopolymerization or Copolymerization with Functional Monomers



SHEN Xian-rong, FU Zhi-sheng,  
LIN Ying, GAO Jian-gang  
*Journal of Functional Polymers*, 2016,  
29(1): 109-114.

Research on the synthesis of high performance polyolefins is of great significance to both academic study and industrial applications. Using radical technology in non polar monomer homopolymerization or copolymerization with functional monomers was summarized.

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