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Vol. 32 No. 5 October 2019

Cover Story

Liquid-Phase Epitaxial Layer-by-Layer Growth of Metal-Organic Framework Thin Films

GU Zhigang

Journal of Functional Polymers, 2019, 32(5) : 533–540

A kind of metal organic frameworks (MOFs) thin films grown on substrate were prepared by using a liquid phase epitaxial (LPE) layer-by-layer approach (called surface-mounted MOFs, SURMOFs). Such MOFs thin films with homogenous surface, highly orientation and tunable thickness give rise to more competitive candidates for the study of physical/chemical properties and the applications of adsorption/separation, catalysis, sensors and devices.



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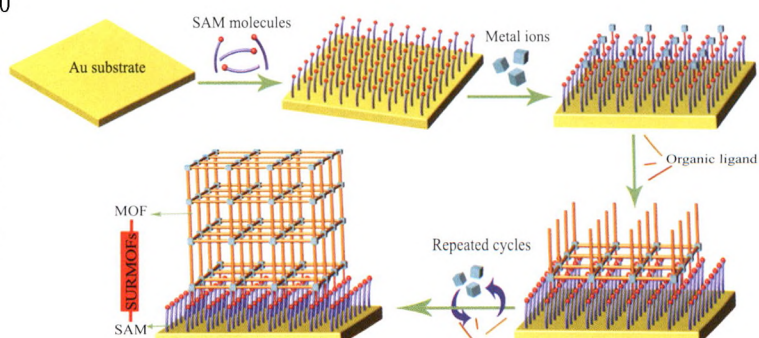
Invited Reviews

Liquid-Phase Epitaxial Layer-by-Layer Growth of Metal-Organic Framework Thin Films

GU Zhigang

Journal of Functional Polymers, 2019, 32(5) : 533–540

The liquid-phase epitaxial layer-by-layer growth of metal-organic frameworks thin films (SURMOFs) on substrate surfaces have been introduced in this review. Several kinds of advanced growth strategies, including layer-by-layer dipping, pump, spray, spin-coating and flowing method, have been summarized as well.

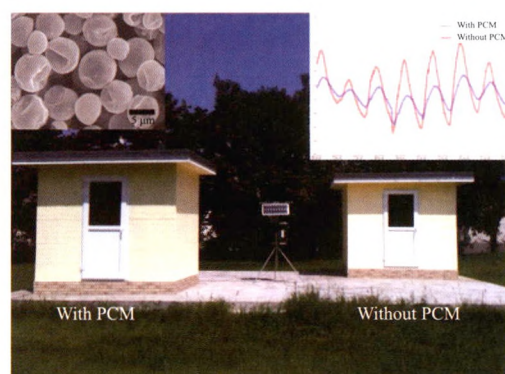


Application of Phase Change Materials in Building Energy Conservation

JI Xuyang, JIN Zhaoguo, LIANG Fuxin

Journal of Functional Polymers, 2019, 32(5) : 541–549.

In order to reduce building energy consumption, phase change materials have achieved exemplary applications in the field of building energy conservation recently. The application of this new technology could effectively reduce building energy consumption and improve residential comfort.

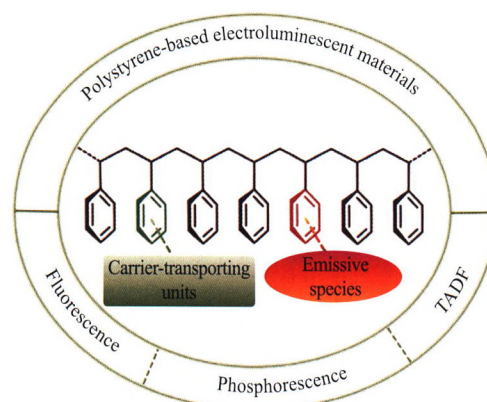


Research Progress on Polystyrene-Based Electroluminescent Materials

MA Zhihua, DONG Wenyue, SHAO Shiyang, WANG Lixiang

Journal of Functional Polymers, 2019, 32 (5) : 550–557.

Recent research progresses on polystyrene-based electroluminescent materials, including fluorescent, phosphorescent and thermally activated delayed fluorescent (TADF) polymers, are reviewed in terms of molecular design and their electroluminescent properties.

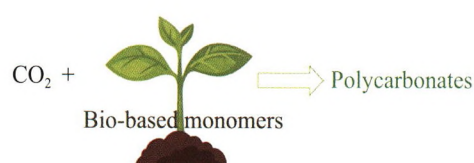


Green Polycarbonates Prepared by CO₂ and Bio-Based Epoxides

QIN Yusheng

Journal of Functional Polymers, 2019, 32 (5) : 558–566.

The use of bio-based epoxides combined with greenhouse gas CO₂ to prepare fully bio-based polymer materials provides us a promising green and sustainable synthetic route towards polymer material.

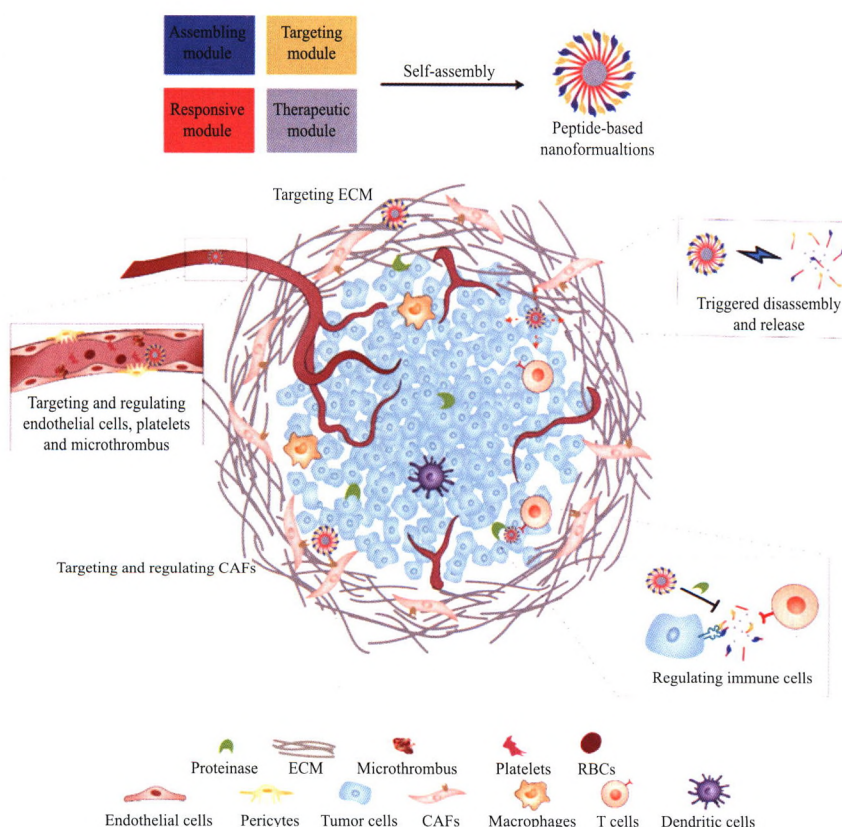


Application of Peptide-Based Nanoformulations for Targeting and Regulating Tumor Microenvironment

LI Chen, QI Yingqiu, WANG Yazhou, NIE Guangjun, ZHAO Ying

Journal of Functional Polymers, 2019, 32 (5) : 567–581.

Peptides and peptide derivatives, owing to their biocompatibility, sequence designability, easy modification, and biological functionality, have been widely employed as the building blocks for the construction of multifunctional drug delivery systems. The application of peptide-based nanoformulations for targeting and regulating tumor microenvironment will be the emphasis of this review.

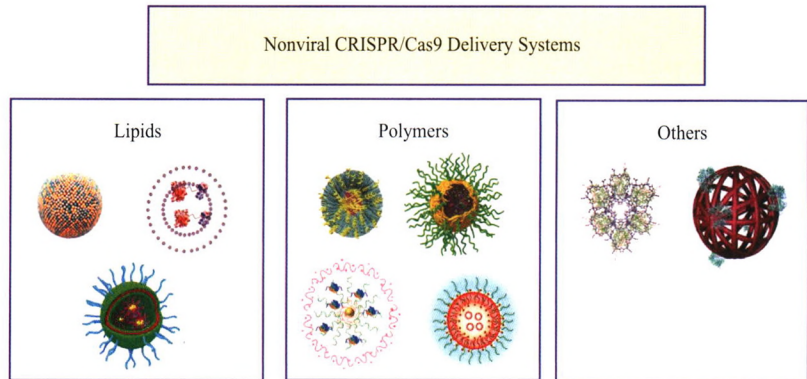


Nonviral CRISPR/Cas9 Delivery Systems for Gene Editing

XI Longchang, GE Zhishen

Journal of Functional Polymers, 2019, 32(5) : 582–592.

Nonviral CRISPR/Cas9 delivery systems possess significant advantages in biosafety and large-scale production, and great progress has been made in recent years. We primarily summarized the recent progresses in lipid and polymer CRISPR/Cas9 delivery systems.

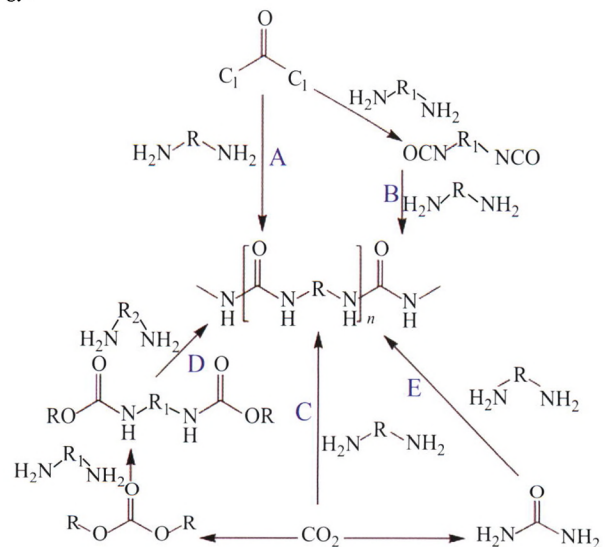


Green Synthesis, Properties and Applications of Polyurea

SHI Ruhui, WU Peixuan, JIANG Shan, CHENG Haiyang, ZHAO Fengyu

Journal of Functional Polymers, 2019, 32(5) : 593–600.

The studies on green synthesis strategies of polyurea and the development of polyurea with various performances are very important. Here the green synthesis methods of polyurea was reviewed, including direct or indirect use of CO₂ as the starting carbonyl block.



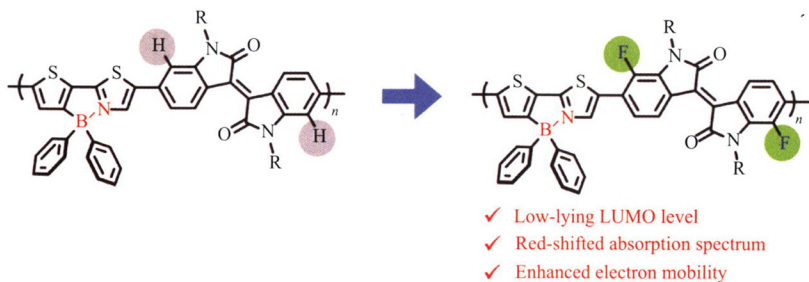
Papers

B ← N-Based Polymer Acceptor Containing Fluorinated Isoindigo Unit

ZHAO Ruyan, DOU Chuandong, LIU Jun, WANG Lixiang

Journal of Functional Polymers, 2019, 32(5) : 601–609.

Introduction of fluorine atom into polymer acceptor containing boron-nitrogen coordination bond can lead to the lower-lying LUMO energy level, red-shifted absorption spectrum, as well as the dense molecular stacking and enhanced electron mobility. All-polymer solar cells based on the resulting polymer acceptor beared a power conversion efficiency of 2.83%.

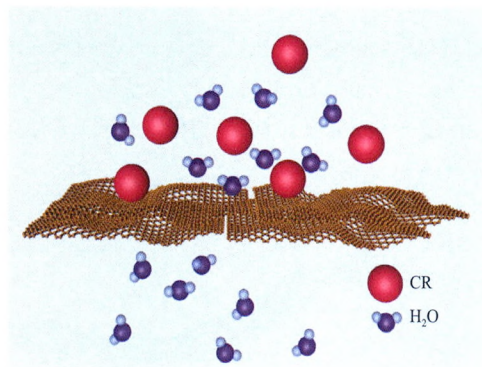


Synthesis of Two-Dimensional Covalent Triazine Framework Membranes and Study on Their Separation Performances

LI Guiliang, FANG Qile, LIU Fu

Journal of Functional Polymers, 2019, 32(5) : 610–616.

2D-CTF-1 membrane contains rich transfer channels and its selective separation performances for small organic molecules are studied.

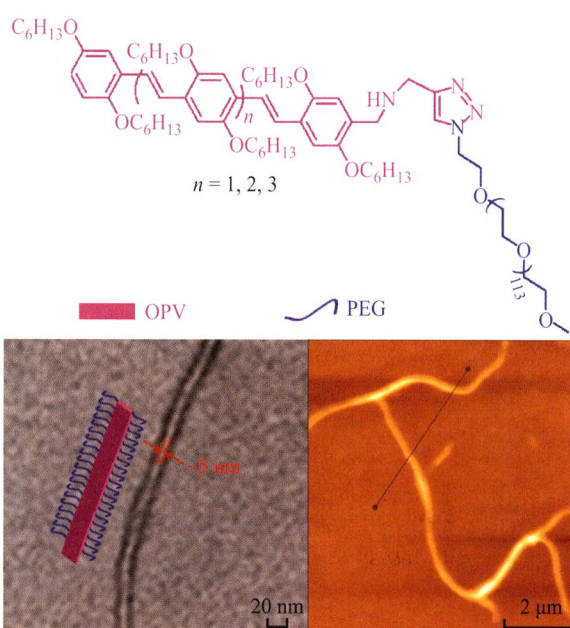


Synthesis and Crystallization-Driven Self-Assembly of Oligo(*p*-phenylenevinylene)-*b*-Poly(ethylene glycol)

TAO Daliao, LU Guolin, HUANG Xiaoyu, FENG Chun

Journal of Functional Polymers, 2019, 32(5) : 617–625.

OPV₃-*b*-PEG₁₁₅ diblock copolymers could self-assemble into long fiber-like micelles with length as high as several micrometers in ethanol where OPV segments self-assembled into H-aggregates. However, OPV₃-*b*-PEG₁₁₅ and OPV₄-*b*-PEG₁₁₅ were not able to aggregate and were dissolved in butanol at molecular level.

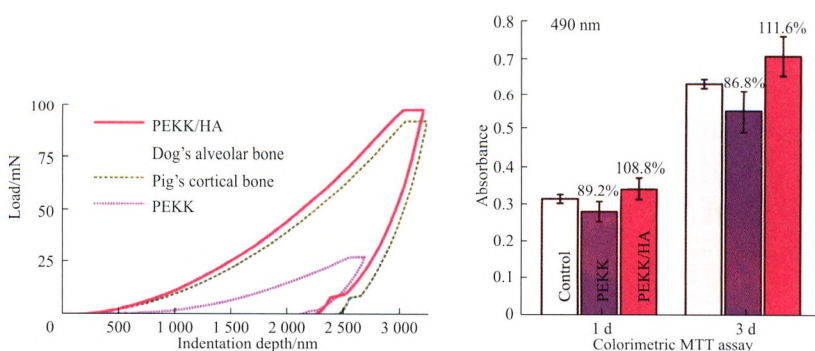


Mechanical Property and Biological Activity of Polyetherketoneketone/Hydroxyapatite Composite Implants

YANG Xueqin, WU Jian, LI Conglei, BAO Lifeng, MA Zhongshi, XUAN Zhengwei, ZHANG Xiaohua, ZHANG Xiangcheng

Journal of Functional Polymers, 2019, 32(5) : 626–632.

Polyetherketoneketone (PEKK)/hydroxyapatite (HA) composites are prepared by *in-situ* polymerization of PEKK around HA particles. The composites exhibit excellent mechanical property that is comparable with animal bones, and the improved biocompatibility where the cell proliferation rate is much higher than that of PEKK.

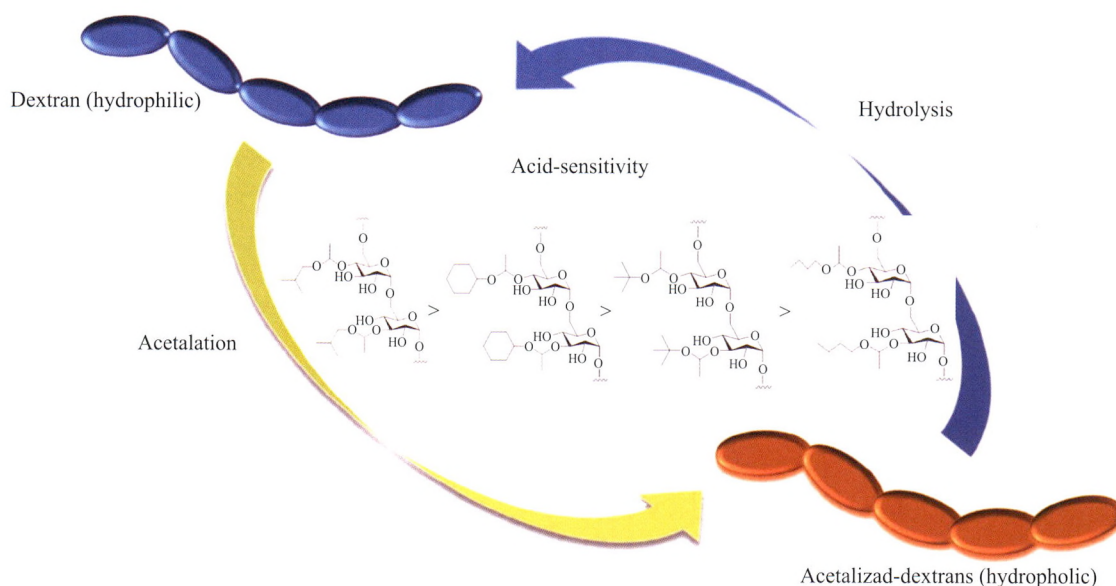


Preparation and Acid-Sensitivity of Acetalized-Dextrans

XU Yudi, MA Sheng, TANG Zhaohui

Journal of Functional Polymers, 2019, 32(5) : 633–639.

A series of acid sensitive acetalized-dextrans were prepared by decorating the dextran backbone with different hydrophobic groups, such as *n*-butyl, isobutyl, cyclohexyl, or *tert*-butyl, through the reaction of vinyl ethers with dextran by using pyridinium 4-toluenesulfonate as a catalyst. The *tert*-butyl-decorated dextran possessed the highest acid-sensitivity among the obtained acetalized-dextrans.

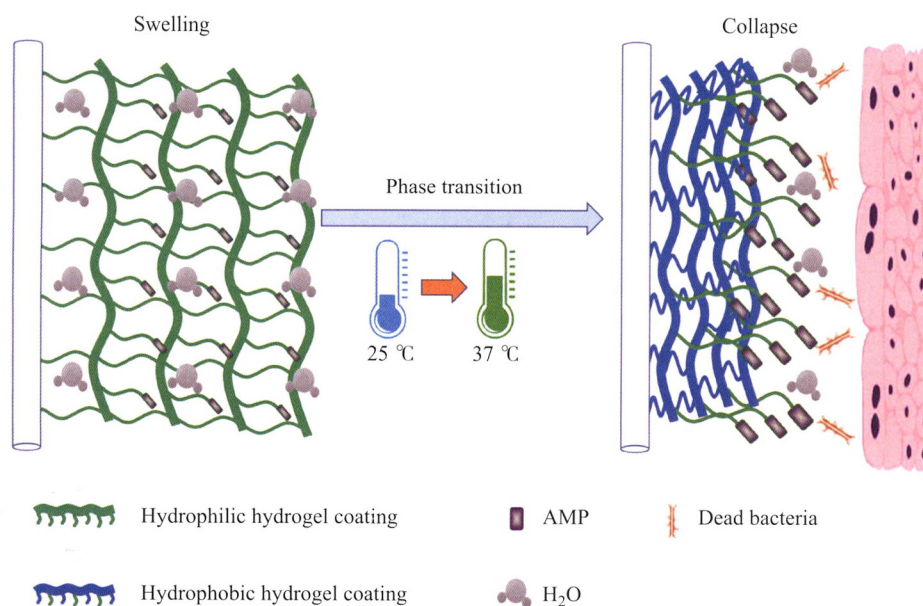


Synthesis of Copolymer P(NIPAM-co-AAEA) and Properties of the Antibacterial Hydrogel Coating

ZHU Kai, ZHU Baoning, LI Lili

Journal of Functional Polymers, 2019, 32(5) : 640–646.

Based on ‘one step’ photocrosslinking reaction of thermo-sensitive copolymer P(NIPAM-co-AAEA) and antibacterial peptides (AMPs), the thermo-sensitive hydrogel coating was fabricated with expected antifouling and antibacterial activity.



《功能高分子学报》第七届编辑委员会 (以姓氏拼音为序)

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