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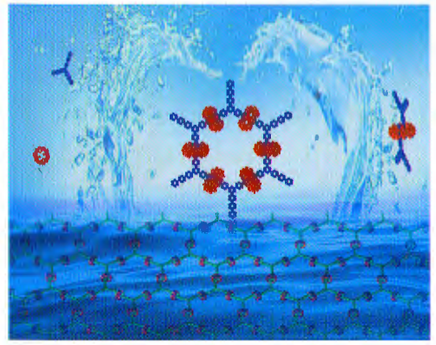
Cover Image

Soluble Two-dimensional Supramolecular Organic Frameworks (SOFs): An Emerging Class of 2D Supramolecular Polymers with Internal Long-range Orders

Shu-Yan Jiang and Xin Zhao

Soluble two-dimensional (2D) supramolecular organic frameworks (SOFs) have been summarized. These 2D SOFs are homogeneously constructed in aqueous solutions through self-assembly of rationally designed building blocks. They are soluble and maintain stable periodic network structures in solutions, representing a new class of 2D supramolecular polymers which exhibit high long-range internal orders. These features endow them with uniqueness not only in structures but also in properties.



Chinese Journal of Polymer Science, 2019, 37(1), 1–10
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Chinese Journal of Polymer Science Vol. 37, No. 1, January 2019

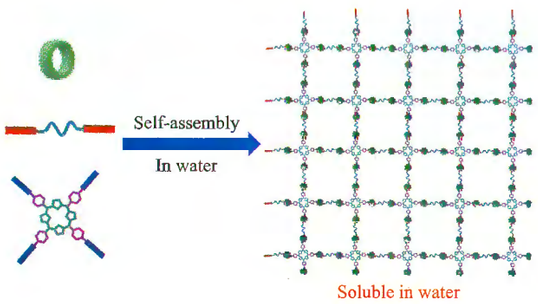
Contents

Reviews

Soluble Two-dimensional Supramolecular Organic Frameworks (SOFs): An Emerging Class of 2D Supramolecular Polymers with Internal Long-range Orders

Shu-Yan Jiang and Xin Zhao

This review summarizes the development of soluble two-dimensional (2D) supramolecular organic frameworks (SOFs), a new class of 2D supramolecular polymers, which are homogeneously constructed in water through self-assembly and maintain network structures with high long-range internal orders in solution phase.



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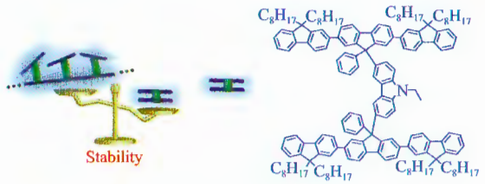
A Comparison Study of Physicochemical Properties and Stabilities of H-Shaped Molecule and the Corresponding Polymer

Quan-You Feng, Bin Li, Zong-Yan Zuo, Song-Lin Xie, Meng-Na Yu, Bin Liu, Ying Wei, Ling-Hai Xie, Rui-Dong Xia, and Wei Huang

H-shaped molecule **H-1** and its corresponding polymer **PH** are desinged and synthesized. A series of stability tests including thermal and spectral stability show that **H-1** is more stable than **PH** in various environments.



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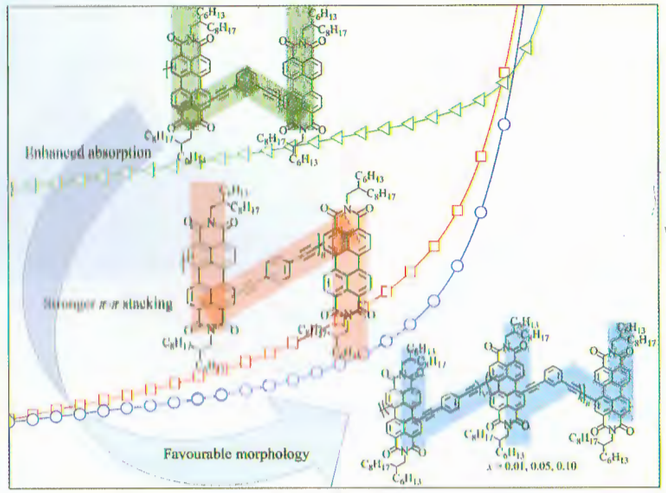
https://doi.org/10.1007/s10118-018-2152-5

Perylene Diimide Based Isomeric Conjugated Polymers as Efficient Electron Acceptors for All-polymer Solar Cells

Xiao-Cheng Liu, Qing-Wu Yin, Zhi-Cheng Hu, Zhen-Feng Wang, Fei Huang, and Yong Cao

We present here a series of isomeric electron acceptors for all-polymer solar cells. The results give a clear relationship between polymer configuration and device performance.



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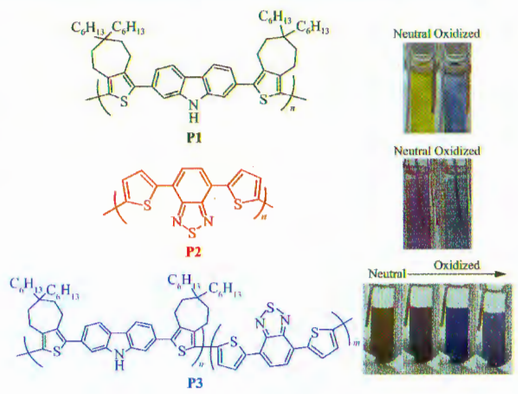
Covering the More Visible Region by Electrochemical Copolymerization of Carbazole and Benzothiadiazole Based Donor-Acceptor Type Monomers

Emine Gul Cansu-Ergun

An electrochromic copolymer synthesis was achieved with two types of donor-acceptor-donor conjugated monomers *via* electrochemical techniques. The copolymer film exhibited a multichromic behavior, changed its neutral brown color to gray (at about 0.3 V) and then blue (at about 0.6 V) upon oxidation, and finally turned to cyan beyond 1.0 V.



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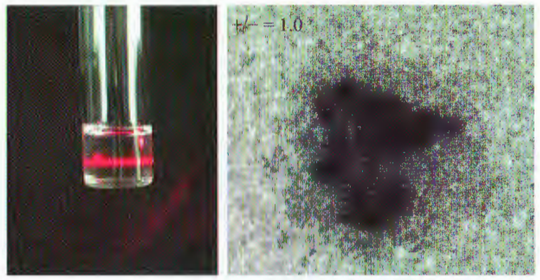
https://doi.org/10.1007/s10118-019-2181-8

Core-Corona Structure Formed by Hyaluronic Acid and Poly(L-lysine) *via* Kinetic Path

Wei Pan, Dong-Xiao Yin, Hai-Rong Jing, Hao-Jing Chang, Hao Wen, and De-Hai Liang

The polyelectrolyte complexes formed by hyaluronic acid (HA) and poly(L-lysine) evolve into a core-corona structure when the amount of HA is in excess, which significantly stabilizes the complexes in aqueous solutions.



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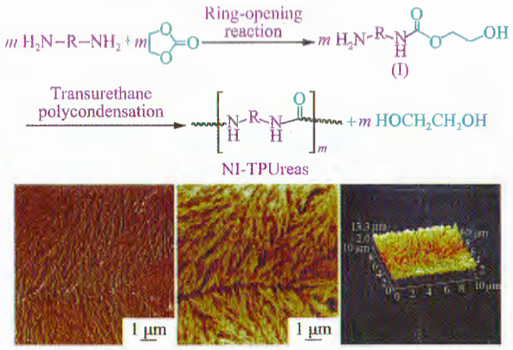
Amorphous and Crystallizable Thermoplastic Polyureas Synthesized through a One-pot Non-isocyanate Route

Jia-Long Ban, Su-Qing Li, Chen-Feng Yi, Jing-Bo Zhao, Zhi-Yuan Zhang, and Jun-Ying Zhang

A simple one-pot non-isocyanate route for synthesizing thermoplastic polyureas is established. Non-isocyanate thermoplastic polyureas (NI-TPUreas) were prepared *via in situ* urethanization of ethylene carbonate with different diamines followed with melt polycondensation. NI-TPUreas showed M_w above 1.09×10^4 g·mol^{-1} and maximal tensile strength of 32 MPa. Crystallizable NI-TPUreas exhibited T_m exceeding 98 °C.



Chinese Journal of Polymer Science, 2019, 37(1), 43–51
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Humidity-responsive Bilayer Actuators Comprised of Porous and Nonporous Poly(acrylic Acid)/ Poly(allylamine hydrochloride) Films

Miao Zheng, Tang-Jie Long, Xiao-Ling Chen, and Jun-Qi Sun

The bilayer actuators comprise a porous poly(acrylic acid) (PAA)/poly(allylamine hydrochloride) (PAH) layer and a nonporous PAA/PAH layer which are fabricated by exponentially layer-by-layer assembly method. The largely different expansion/shrinkage of the nonporous and porous PAA/PAH layers when subjected to humidity changes enables rapid and reversible rolling/unrolling motions of the bilayer actuator.

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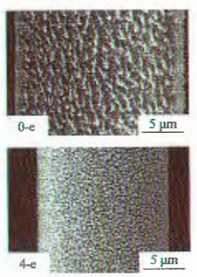
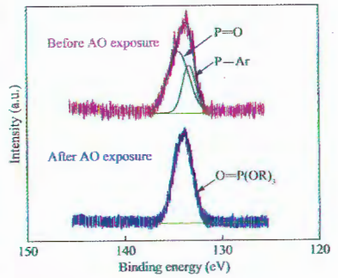
Synthesis and AO Resistant Properties of Novel Polyimide Fibers Containing Phenylphosphine Oxide Groups in Main Chain

Yong Zhao, Hong Gao, Guo-Min Li, Fang-Fang Liu, Xue-Min Dai, Zhi-Xin Dong, and Xue-Peng Qiu

Novel polyimide fibers containing phenylphosphine oxide groups in main chain were prepared *via* dry-jet wet spinning, showing less surface damage, lower mass loss, and good retention of mechanical properties after AO exposure.





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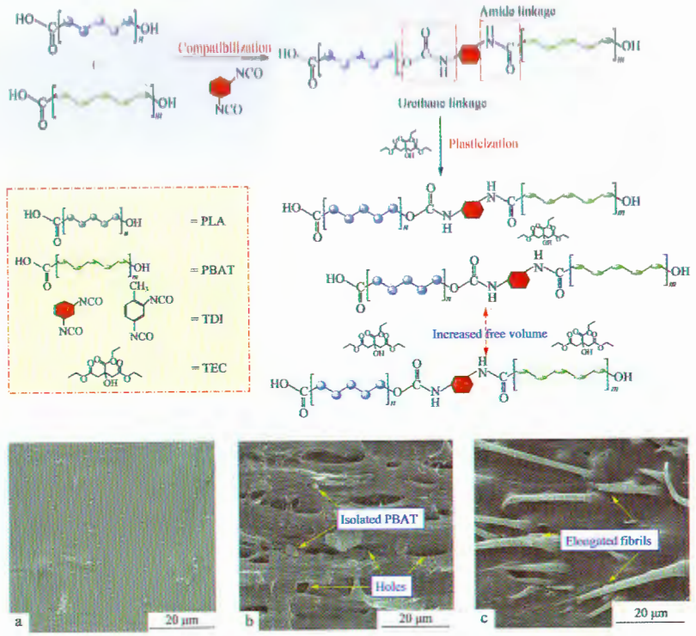
Preparation and Characteristics of Poly(butylene adipate-*co*-terephthalate)/Polylactide Blend Films *via* Synergistic Efficiency of Plasticization and Compatibilization

Worasak Phetwarotai, Neeranuch Phusunti, and Duangdao Aht-Ong

Novel synergistic efficiency of compatibilizer and plasticizer on the PLA/PBAT blend films was designed and analyzed. Not only the flexibility of PLA was improved but also the tensile-impact toughness and crystallization behavior were enhanced. Compatibilization and plasticization of PLA/PBAT blend films with TDI and TEC were described by a new proposed mechanism.



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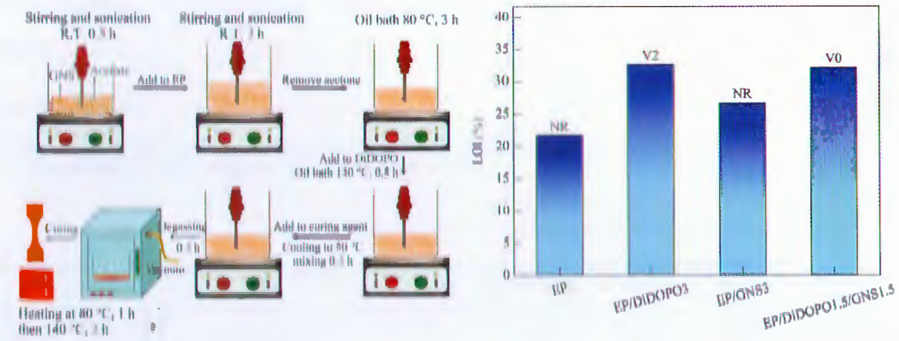
Synergistic Flame-retardant Effect of Epoxy Resin Combined with Phenethyl-bridged DOPO Derivative and Graphene Nanosheets

Wei Yan, Ming-Qiu Zhang, Jie Yu, Sheng-Qiang Nie, Dai-Qin Zhang, and Shu-Hao Qin

A phenethyl-bridged DOPO derivative (DiDOPO) was combined with graphene nanosheets (GNSs) in epoxy resin (EP) to improve its flame retardancy.



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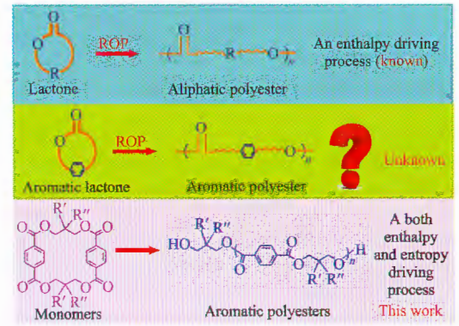
https://doi.org/10.1007/s10118-019-2173-6

Thermodynamics of Aromatic Cyclic Ester Polymerization in Bulk

Chong He, Xiang Zhu, Xiao-Hong Li, Xiao-Ming Yang, and Ying-Feng Tu

The polymerization thermodynamics for three aromatic cyclic oligo(1,3-propylene terephthalate) analogues have been investigated in this work, revealing both enthalpy and entropy driving character of these polymerization process, quite different from the polymerization of aliphatic lactones.



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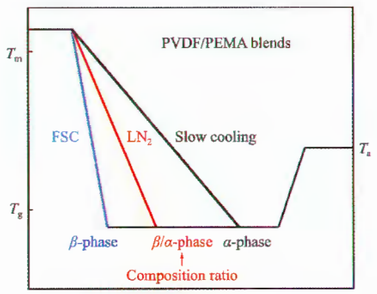
β-Phase Crystallization of Poly(vinylidene fluoride) in Poly(vinylidene fluoride)/Poly(ethyl methacrylate) Blends

Zi-Jie Huang, Jing Jiang, Gi Xue, and Dong-Shan Zhou

Effects of composition ratio of PVDF to PEMA and thermal history on the crystallization of *β* phase of PVDF were studied by XRD, IR, DSC and UFDSC. Blends containing around 60 wt% of PVDF after the quenching-annealing process could yield the most amount of *β* phase.



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