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## Special Topic: Chirality in Polymers

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### COVER

Cover Image: adapted from Zhi-Wei Zhao and Wei Zhang (Article pages 2824–2842).

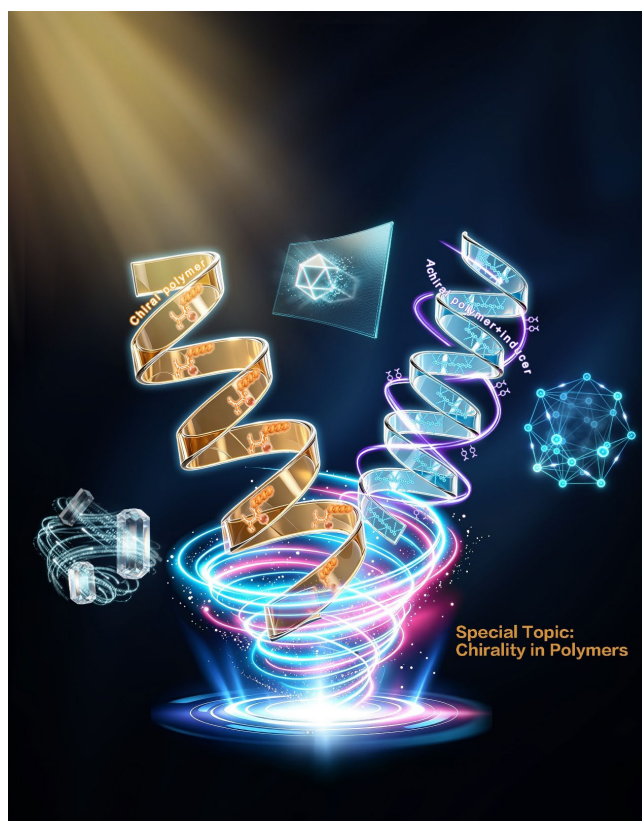
## Cover Image

### Advances in Polymer-based Circularly Polarized Luminescent Materials

Gong Zhang, Zi-Xiang He, Zhi-Wei Zhao, and Wei Zhang

Henan University of Technology; Zhengzhou University

Benefiting from distinctive structural merits, polymers are ideal platforms to fabricate circularly polarized luminescent materials, including chiral helical polymers and achiral polymers.



Chinese J. Polym. Sci. 2026, 44(9), 2824–2842 <https://doi.org/10.1007/s10118-026-3708-4>

## Contents

### Preface

#### Special Topic: Chirality in Polymers

Feng Wang and Xin-Hua Wan

Chinese J. Polym. Sci. 2026, 44(9), 2809 <https://doi.org/10.1007/s10118-026-3831-2>

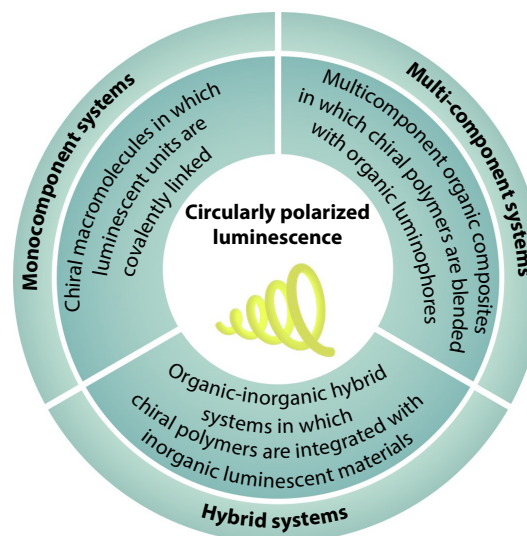
## Reviews

## Circularly Polarized Luminescence Based on Helical Polymers: Structure-Property Relationships and Regulation Mechanisms

Ao-Qi Wang, Xiao-Bin Gao, Biao Zhao, and Jian-Ping Deng

Beijing University of Chemical Technology

This schematic categorizes helical-polymer-based CPL materials into monocomponent, multicomponent, and hybrid systems, while elucidating the pivotal mechanisms that dictate chiroptical amplification, including chirality transfer, responsive inversion, and photonic modulation. These insights provide a systemic blueprint for rational integration of high-performance chiroptical systems with tailored properties.



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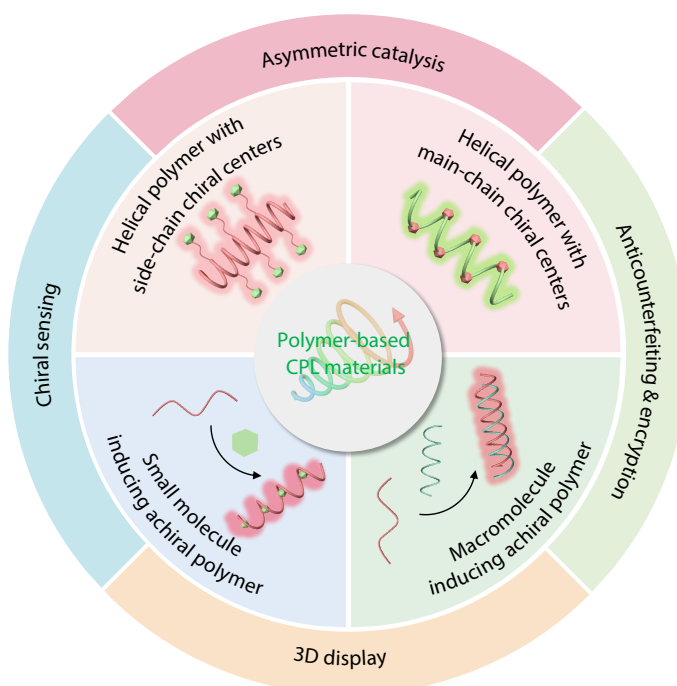
<https://doi.org/10.1007/s10118-026-3712-8>

## Advances in Polymer-based Circularly Polarized Luminescent Materials

Gong Zhang, Zi-Xiang He, Zhi-Wei Zhao, and Wei Zhang

Henan University of Technology; Zhengzhou University

This review summarizes polymer-based circularly polarized luminescence (CPL) materials, focusing on chiral architectures from helical polymers and achiral polymer/chiral inducer systems. It discusses the chiral induction and amplification mechanisms, and the challenges and future application prospects in this field.



Chinese J. Polym. Sci. 2026, 44(9), 2824–2842

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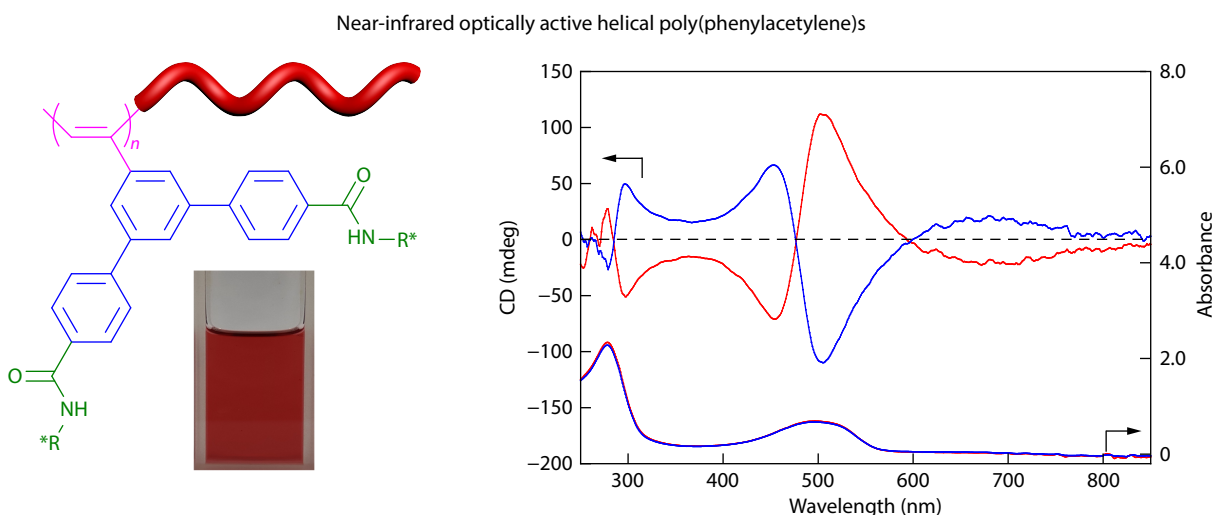
## Research Articles

# One-handed Helical Poly(*m*-terphenyl acetylene)s with Broad Optical Activity Range from Ultraviolet-Visible to Near-infrared Regions

Li-Yuan Shi, Fu Tian, Cheng-Yin Cao, Kun Hu, Xiao-Die Zhu, Xiao-Hong Li, and Sheng Wang

Soochow University

A series of poly(*m*-terphenyl acetylene)s was prepared, in which large *m*-terphenyl units were directly linked to the polyene backbone, thereby significantly enhancing the steric repulsion between side groups to afford stretched poly(phenylacetylene)s with large conjugated lengths and near-infrared optical activity.



Chinese J. Polym. Sci. 2026, 44(9), 2843–2853

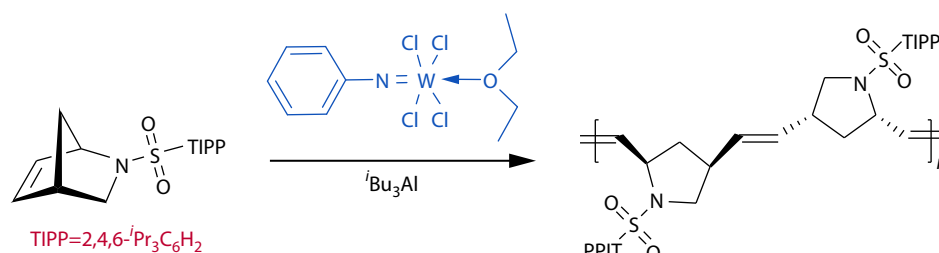
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## Highly Regio- and *trans*-Selective Ring-opening Metathesis Polymerization of Chiral Aza-norbornene with a Simple Phenylimido-Tungsten Catalyst

Xun Ci, Jing Bai, Yu Wang, and Wei You

Institute of Chemistry, Chinese Academy of Sciences; University of Chinese Academy of Sciences

The ring-opening metathesis polymerization (ROMP) of a chiral monomer using a tungsten catalyst produced a highly head-to-head regio- and *trans*-selective polymer, unlike the *cis*-selective polymers from ruthenium-based catalysts. The varied stereochemistry configurations led to distinct optical activities and chiral expression of polymers derived from the same monomer.



- *trans*-polymer
- Head-to-head regioselectivity
- Elucidation of the relationships between stereochemistry and optical activity

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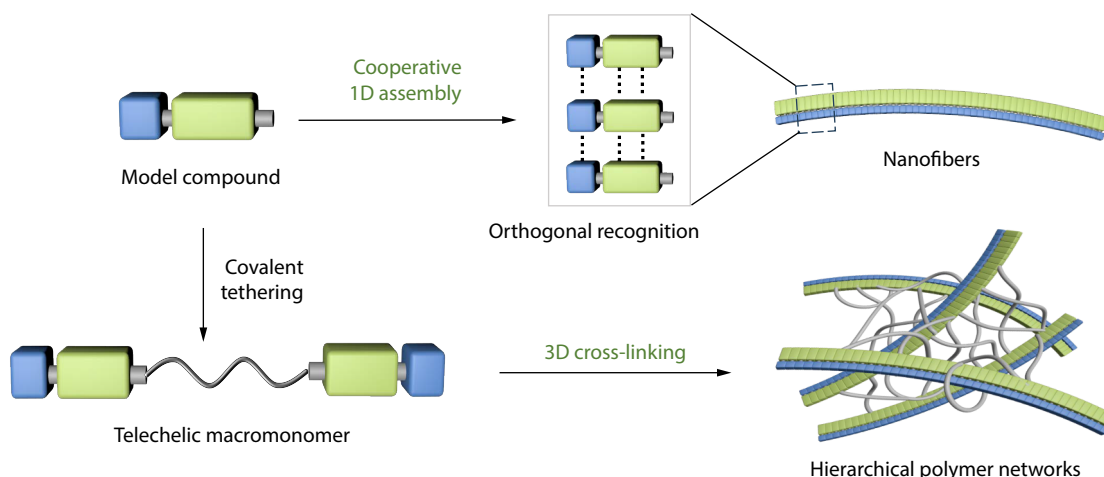
<https://doi.org/10.1007/s10118-026-3696-4>

## Squaramide-directed Cooperative One-dimensional Assembly in Telechelic Polydimethylsiloxane for Hierarchical Network Formation

Yu-Hong Zhang, Jian-Fei Ma, Hao-Bo Wei, Jie Wang, and Feng Wang

University of Science and Technology of China; Jilin University of Chemical Technology

A squaramide-directed cooperative assembly strategy was developed to construct hierarchical polymer networks by integrating 1D supramolecular nanofibers into covalent architectures. This approach effectively reconciles the trade-off between covalent robustness and supramolecular reversibility, leading to a significantly enhanced thermal stability and mechanical performance.



Chinese J. Polym. Sci. 2026, 44(9), 2862–2871

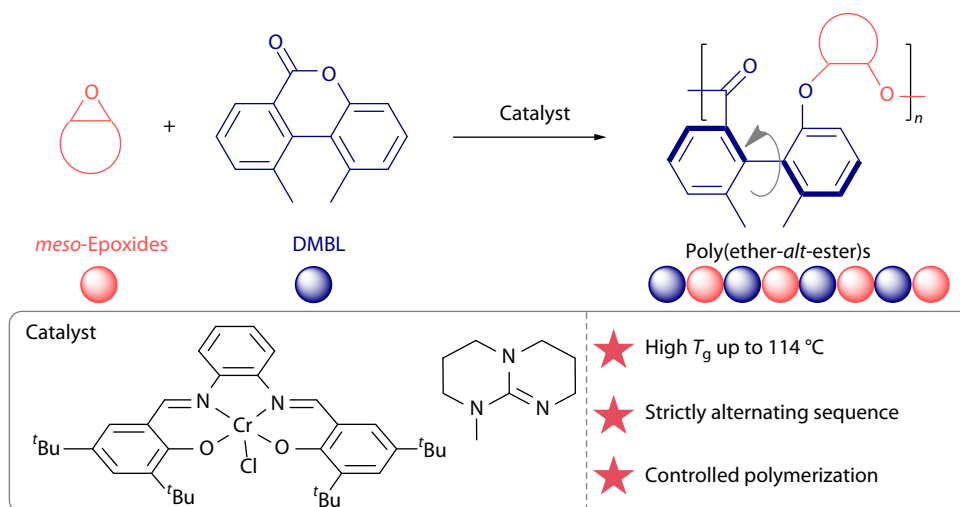
<https://doi.org/10.1007/s10118-026-3700-z>

## Alternating Poly(ether-*alt*-ester)s with High Glass Transition Temperature Enabled by Rotationally Constrained Biaryl Units

Yu-Tao Wang, Zheng-Fei Liu, Ye Liu, and Xiao-Bing Lu

Dalian University of Technology

A conformationally constrained Bringmann's lactone undergoes strictly alternating and controlled copolymerization with meso-epoxides using a Salen-Cr(III)-Cl/MTBD catalyst system, yielding poly(ether-*alt*-ester)s with a high  $T_g$  of 114 °C.



Chinese J. Polym. Sci. 2026, 44(9), 2872–2879

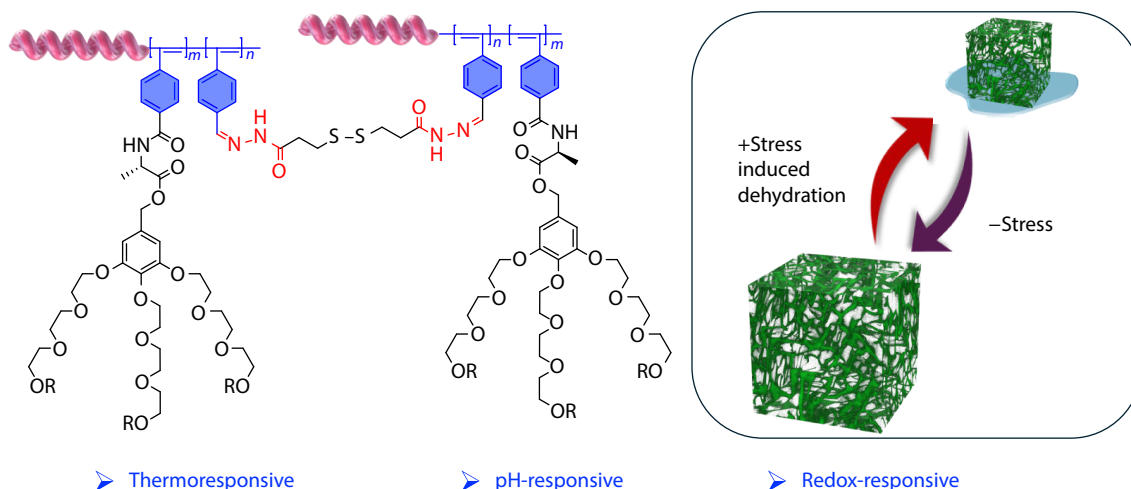
<https://doi.org/10.1007/s10118-026-3726-2>

## Multiple-Responsive Chiral Hydrogels from Helical Dendronized Poly(phenylacetylene)s

Lei Wang, Quan-Sheng Li, Lin Yun, Afang Zhang, and Wen Li

Shanghai University

Chiral hydrogels were fabricated from helical dendronized poly(phenylacetylene)s through acylhydrazone linkage with a disulfide crosslinker. They exhibited responsiveness to temperature, pH, and redox, and possessed characteristic stabilized helicity, reversible compression, and low cytotoxicity.



Chinese J. Polym. Sci. 2026, 44(9), 2880–2890

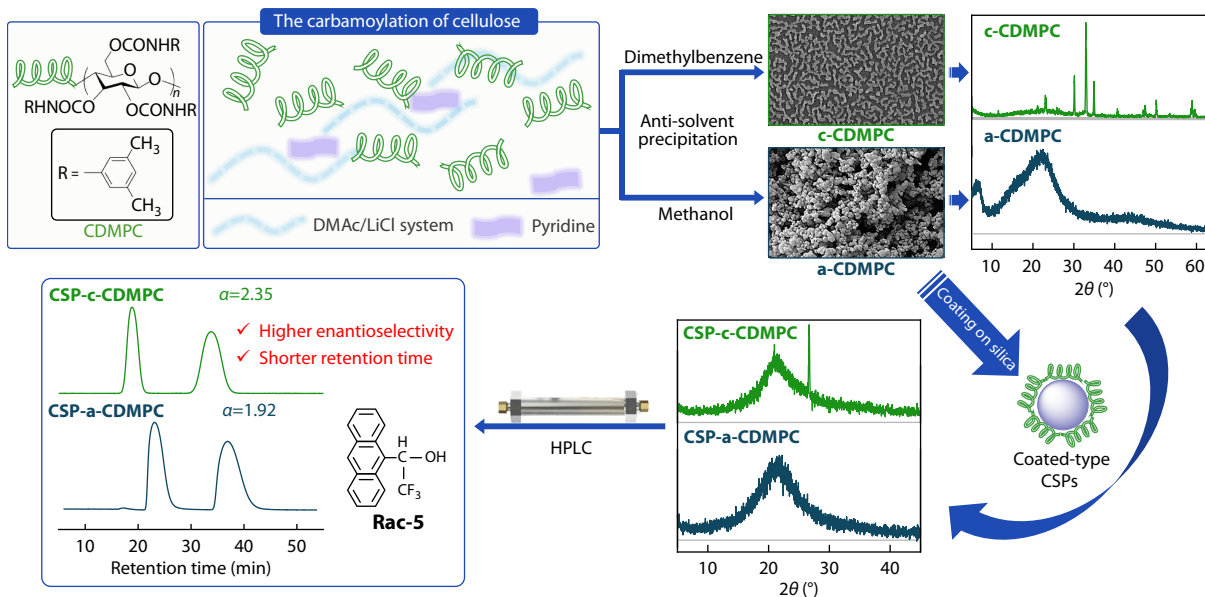
<https://doi.org/10.1007/s10118-026-3715-5>

## Preparation and Chiral Recognition Ability of Crystalline Cellulose Phenylcarbamate

Yu-Tong Zhang, Xiao Dai, En-Ting Deng, Li-Li Zhang, Ting Zheng, and Jun Shen

University of Science and Technology Beijing; Harbin Engineering University; Yangtze River Delta Carbon Fiber & Composite Innovation Center

Crystalline cellulose tris(3,5-dimethylphenylcarbamate) exhibited higher chiral recognition abilities with shorter retention times than amorphous derivative and chiralcel OD. The ordered crystalline arrangement played a crucial role in chiral recognition.



Chinese J. Polym. Sci. 2026, 44(9), 2891–2898

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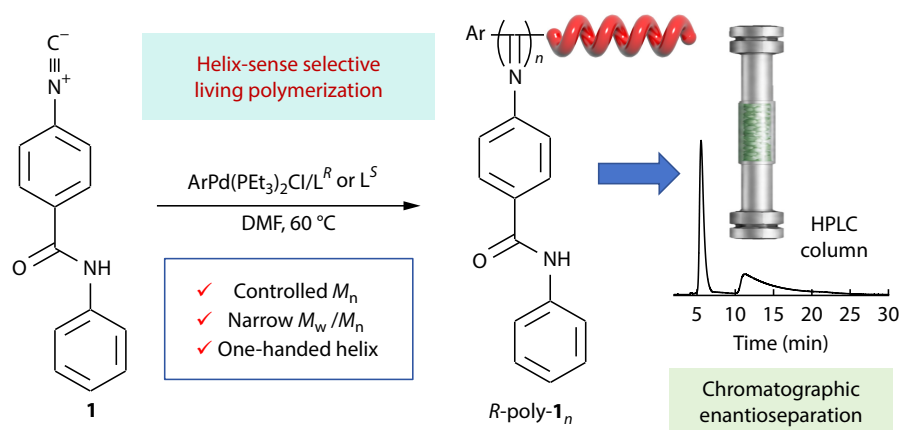


## Optically Active Helical Poly(phenyl isocyanide)s Bearing Achiral Benzanilide Pendants: from Controlled Synthesis to Enantioseparation Application

Jing Wang, Shuai Wang, Hai-Xu Tong, Na Liu, and Zong-Quan Wu

Jilin University

Optically active helical poly(phenyl isocyanide)s bearing achiral benzanilide pendants were prepared *via* helix-sense-selective living polymerization. The resulting polymers, featuring controlled molecular weights and narrow distributions, exhibit excellent chiral recognition abilities, enabling their use as chromatographic enantioseparation and enantioselective crystallization materials.



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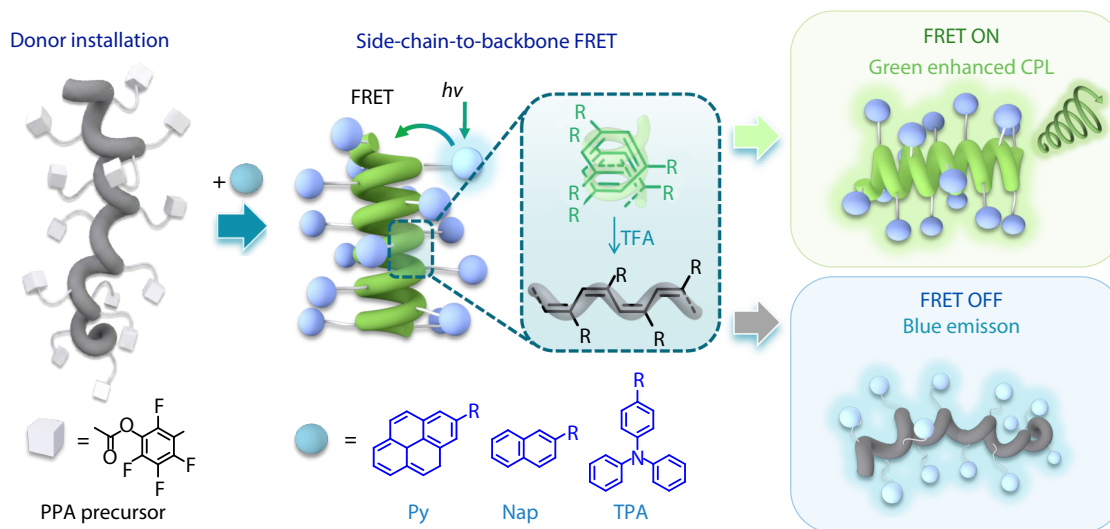
<https://doi.org/10.1007/s10118-026-3775-6>

## Tunable Circularly Polarized Luminescence of Helical Poly(phenylacetylene)s *via* Side-chain-to-Backbone Förster Resonance Energy Transfer

Yi-Han Huang, Jian Guan, Jia-Qi Yu, Xin-Hua Wan, and Jie Zhang

Peking University

Donor-functionalized helical poly(phenylacetylene)s achieved tunable circularly polarized luminescence through side-chain-to-backbone Förster resonance energy transfer (FRET). Pyrene pendants undergo chiral ordering and transfer excitation energy to the emissive helical backbone, producing an amplified film CPL with a  $|g_{lum}|$  value of  $7 \times 10^{-2}$ , whereas triphenylamine pendants enable helical-conformation-responsive blue-green switching.



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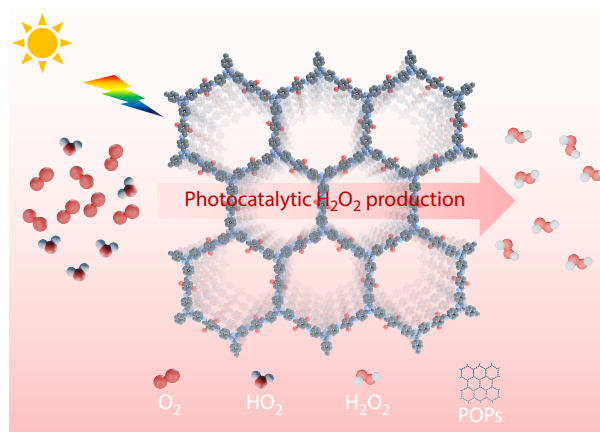
## Reviews

## Porous Organic Polymers for Photocatalytic Hydrogen Peroxide Production: Recent Advances and Future Perspectives

Jia-Wei Xie and Bi-En Tan

Huazhong University of Science and Technology

This review systematically summarizes modification strategies of porous organic polymers (POPs) (covalent organic frameworks (COFs)/covalent triazine frameworks (CTFs)) for photocatalytic  $\text{H}_2\text{O}_2$  production, highlights structure-activity relationships, and offers forward-looking perspectives on this field.



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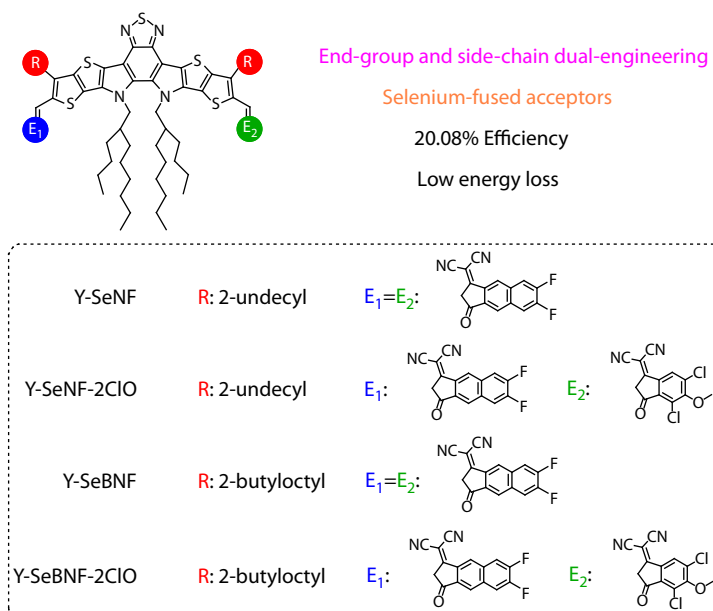
## Research Articles

## End-group and Side-chain Dual-engineering of Selenium-fused Acceptors for 20.08% Efficiency Polymer Solar Cells with Low Energy Loss

Wen-Yan Su, Hao-Yu Su, Xu-Min Zhou, Kai Xiang, Chen-Yang Dong, Teng-Fei Li, Shu-Juan Liu, Tao Sun, Hong-Mei Qin, Hai-Rui Bai, Yu-Xiang Li, Zi-Cheng Ding, Chao Gao, Hong-Xiang Li, and Qun-Ping Fan

Xi'an University of Science and Technology; Xi'an Jiaotong University; Xi'an Modern Chemistry Research Institute; Shaanxi Normal University; Guang'an Institute of Technology; Sichuan University

Four selenium-fused NIR-absorbing acceptors were developed by tailoring the molecular photoelectric properties via end-group and side-chain dual engineering. Among them, Y-SeNF-2CIO with linear side chains and asymmetric end groups showed favorable molecular packing and energy levels, which optimized the active layer morphology and suppressed energy loss, achieving a high device efficiency of 20.08%.



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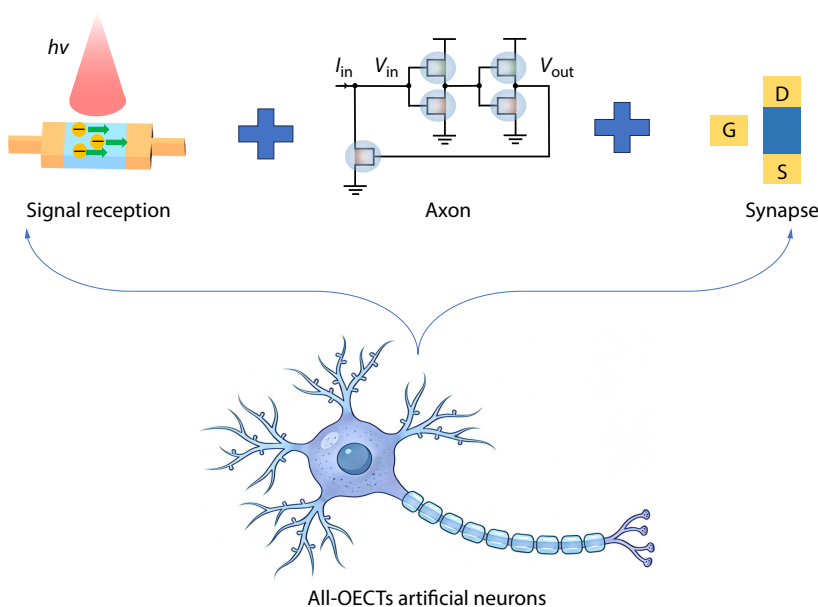
<https://doi.org/10.1007/s10118-026-3704-8>

## End-to-End Neuron-inspired Signal Transduction Using Organic Electrochemical Transistors

Jin-Yao Wang, Yue Tian, Yi-Fan Xie, Miao Cheng, Chang-Rui Liu, Jing-Yun Chu, Guo-Qing Xie, Neng Gao, Hao-Fan He, Le-Jing Huang, Ling-Fei Wang, and Meng-Meng Li

*Institute of Microelectronics, Chinese Academy of Sciences; University of Chinese Academy of Sciences; State Key Laboratory of Fabrication Technologies for Integrated Circuits, Chinese Academy of Sciences*

This work demonstrates an end-to-end neuron-inspired signal pathway built entirely from organic electrochemical transistors (OECTs), where a photosensitive receptor directly drives axonal spiking and synaptic plasticity through analog hardware coupling without algorithmic processing.



*Chinese J. Polym. Sci.* 2026, 44(9), 2953–2962

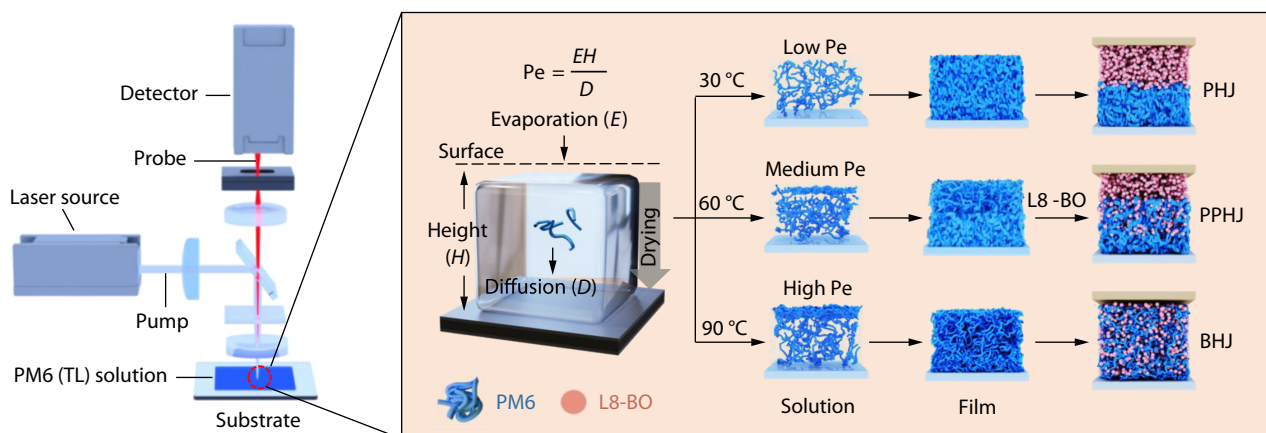
<https://doi.org/10.1007/s10118-026-3703-9>

## Manipulating Hierarchical Aggregation Structure via Film-forming Kinetics Enables Organic Photovoltaics over 20% Efficiency

Qin-Sheng Li, Hou-Dong Mao, Lin Wen, Li-Fu Zhang, Zhao Qin, Jia-You Zhang, Dou Luo, Li-Cheng Tan, and Yi-Wang Chen

*Nanchang University*

The Peclet number was first introduced as a parameter to regulate hierarchical aggregation and vertical crystallization of polymer donors, inducing ordered donor/acceptor interpenetration for controllable heterojunction construction.



*Chinese J. Polym. Sci.* 2026, 44(9), 2963–2971

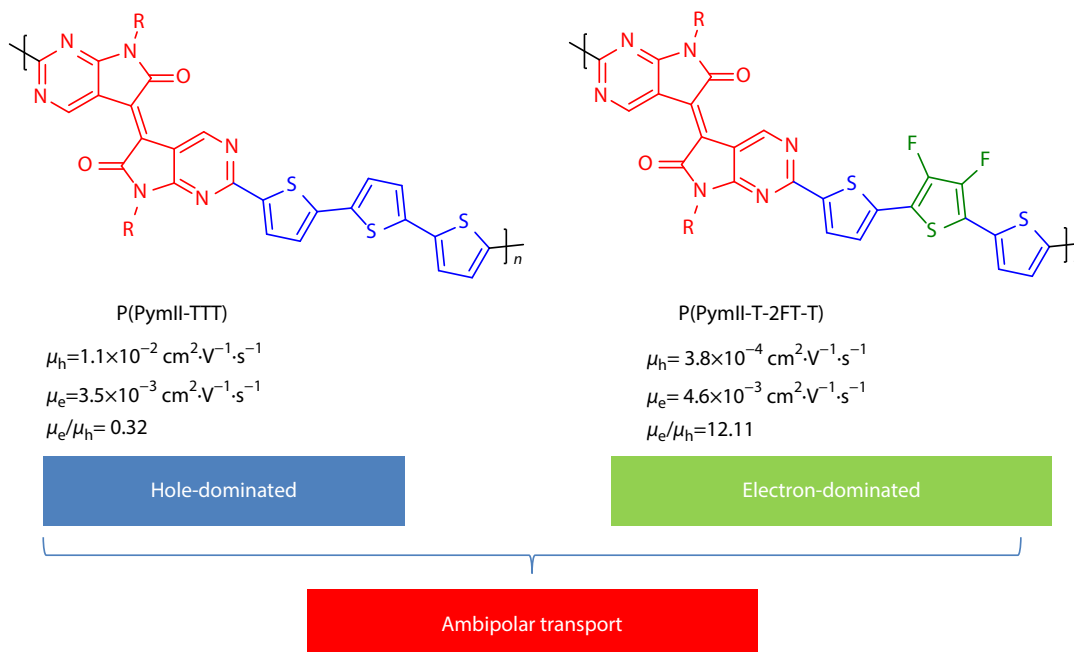
<https://doi.org/10.1007/s10118-026-3702-x>

## Pyrimidoisoindigo-based Polymers for Ambipolar Charge Transport

Yu-Ze Wang, Xiao-Yan Zhang, Ze-Zhou Liang, You-Bing Mu, Zhi-Yuan Zhao, Jie-Yu Wang, Jian Pei, Yun-Qi Liu, and Xiao-Bo Wan

Jiangnan University; Peking University; Institute of Chemistry Chinese Academy of Sciences

Two new polymers based on thiophene-flanked pyrimidoisoindigo (T-PymlI) were synthesized by copolymerizing it with thiophene and 3,4-difluorothiophene; both polymers exhibited ambipolar transport properties: P(PymlI-TTT) was dominated by hole transport, while P(PymlI-T-2FT-T) was dominated by electron transport.



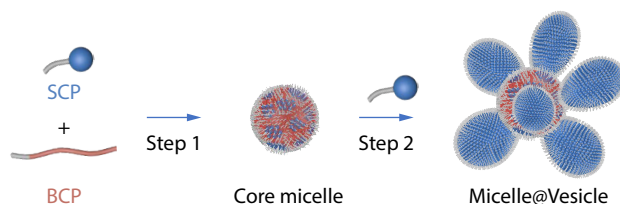
Chinese J. Polym. Sci. 2026, 44(9), 2972–2981 <https://doi.org/10.1007/s10118-026-3709-3>

## Topology-regulated Co-assembly of Single Chain Polymer Nanoparticles and Block Copolymers into Hierarchical Micelle@Vesicle Composite Structures

Bai-Xue Deng, Hong-Zhu Lai, Li Jiang, Lin Yu, Lin Cheng, and Dao-Yong Chen

Fudan University; Anhui Normal University

Topology-regulated co-assembly of single-chain polymer nanoparticles and block copolymers proceeds through a stepwise pathway, forming hierarchical micelle@vesicle composite structures and offering a new strategy for constructing complex polymer assemblies.



Chinese J. Polym. Sci. 2026, 44(9), 2982–2989 <https://doi.org/10.1007/s10118-026-3713-7>

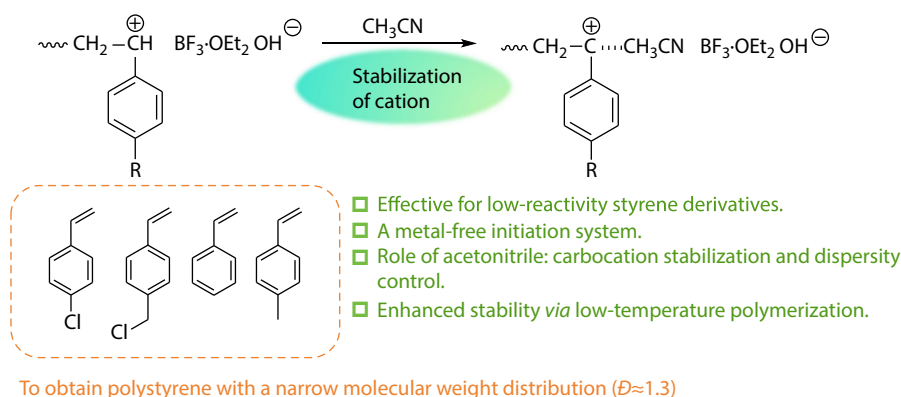
## A Paradigm for $\text{BF}_3$ Co-initiated Cationic Polymerization with Low Dispersity: Introducing Acetonitrile and Lowering the Reaction Temperature

Yi-Meng Liu, Yu Zhu, Bo-Yu Xu, Zi-Lin Xu, Xing-Long Zhang, Hui Li, Qiang Liu, and Shou-Ke Yan

Qingdao University of Science and Technology; State Key Laboratory of Advanced Optical Polymer and Manufacturing Technology

Acetonitrile modulates  $\text{BF}_3 \cdot \text{OEt}_2$ -mediated styrene cationic polymerization by stabilizing the propagating carbocation, enabling access to narrowly dispersed polymers ( $\mathcal{D} \approx 1.3$ ). Chain lifetimes are further prolonged at reduced temperatures, and the protocol is generalizable to diverse styrenic monomers.

Metal-free cationic polymerization of styrene derivatives with low reactivity mediated by acetonitrile



To obtain polystyrene with a narrow molecular weight distribution ( $\mathcal{D} \approx 1.3$ )

Chinese J. Polym. Sci. 2026, 44(9), 2990–3001

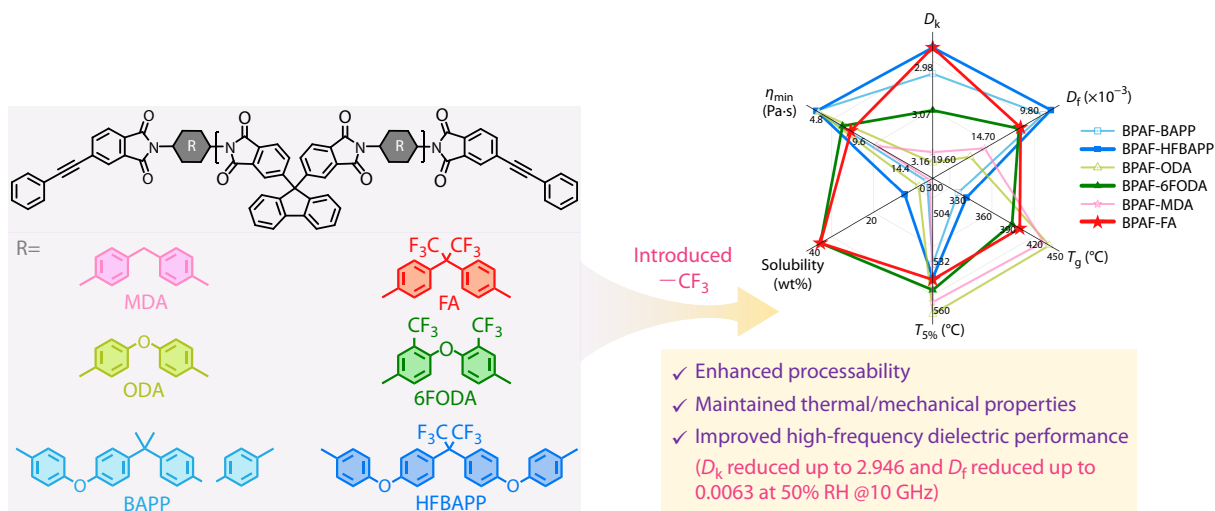
<https://doi.org/10.1007/s10118-026-3714-6>

## Enhancing Processability of Phenylethynyl-terminated Imide Oligomers and Properties of Cured Polyimides *via* $-\text{CF}_3$ Incorporation

Xiao-Ying Xing, Xin-Er Liu, Zun-Chu Liu, Chu-Ying Li, Xue-Yi Yu, Ye Zhang, Xin-Zheng Huang, Ruo-Peng Liu, Si-Wei Liu, and Yi Zhang

Sun Yat-sen University; Shenzhen Kuang-Chi Cutting-edge Technology Co., Ltd.

This study demonstrates the incorporation of  $-\text{CF}_3$  enhances the processability of phenylethynyl-terminated imide (PETI) oligomers, maintains thermal and mechanical properties, and reduces high-frequency  $D_k$  and  $D_f$  of the cured polyimides.



Chinese J. Polym. Sci. 2026, 44(9), 3002–3016

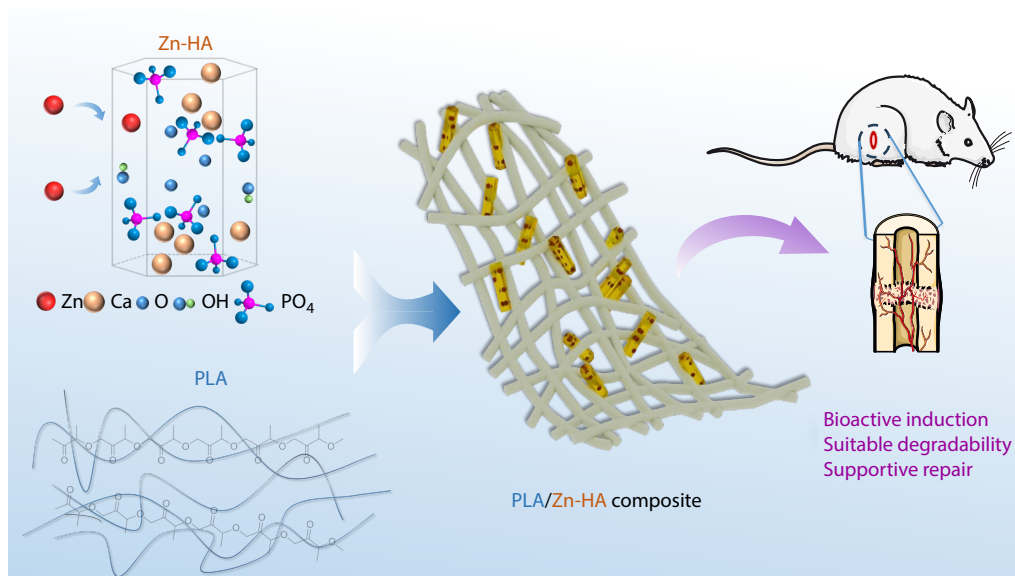
<https://doi.org/10.1007/s10118-026-3716-4>

## Bioinspired Zinc-doped Nano Hydroxyapatite Reinforced Poly(lactic acid) Composites for Bone Repair

Hong-Xiang Yin, Yang Wang, Yi-Fei Wu, Jin-Jing Li, Xiao Kong, Wen-Hao Mei, Ze-Tong Wang, Chun-Sheng Xiao, Cheng Zhang, Zhan-Fu Cong, Irshad Hussain, Zhao-Hui Tang, and Wei Yan

Hubei University, China; Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China; Changchun SinoBiomaterials Co., Ltd., China; Lahore University of Management Sciences (LUMS), Pakistan

Bioinspired poly(lactic acid) (PLA)/zinc-doped hydroxyapatite (Zn-HA) composites were prepared *via* melt blending method. The 10 wt% PLA/Zn-HA composite shows optimal mechanical performance, degradation control and bioactivity, providing promising strategy for bone repair.



Chinese J. Polym. Sci. 2026, 44(9), 3017–3025

<https://doi.org/10.1007/s10118-026-3761-z>

## pH-Responsive L-Cysteine-conjugated Polydopamine Nanocarriers for Controlled Release of Emamectin Benzoate against *Pieris brassicae*

Kirna Devi, Sunil Kumar, Ishani Saini, Alka Rana, and Rajender Kumar

Central University of Himachal Pradesh, India

A green-synthesized L-cysteine-conjugated polydopamine (PDC) nanocarriers was developed for efficient encapsulation and controlled release of emamectin benzoate (EMB). The nanocarriers exhibits pH-responsive release behavior, enhanced photostability, adhesion and insecticidal efficacy, offering a sustainable strategy in smart pesticide delivery system.



Chinese J. Polym. Sci. 2026, 44(9), 3026–3041

<https://doi.org/10.1007/s10118-026-3699-1>

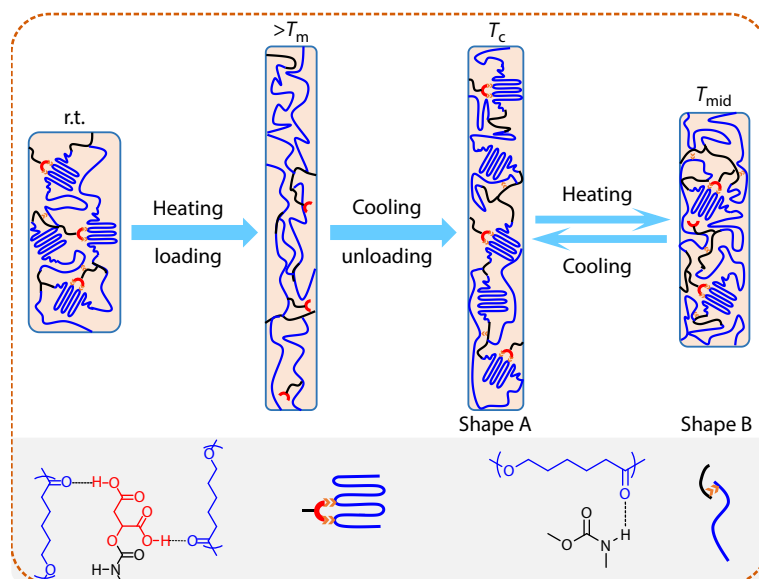


## Two-way Shape Memory Effect of Polycaprolactone-based Polyurethane via Synergistic Role of Hydrogen Bonding and Crystallization Tuned by Malic Acid

Xue-Qing Li, Shuai Lu, Jun-Jie Tan, Bo Lv, Hong-Ye Yan, Yan Tang, Yu Zhou, Yang Zhou, and Hong-Xiang Chen

Wuhan University of Science and Technology; Wuhan Textile University; Hubei Normal University

Malic acid (MA) side chains were incorporated into the polycaprolactone (PCL)-based cross-linked polyurethane. The incorporation broadened the melting transition. The sample exhibited a steadier  $R_{act}$  and a higher  $R_{rec}$  during four heating-cooling cycles. The synergistic mechanism of dynamic MA-PCL hydrogen bonding and residual crystalline domains optimized the precision of deformation and cyclic stability.



Chinese J. Polym. Sci. 2026, 44(9), 3042–3052

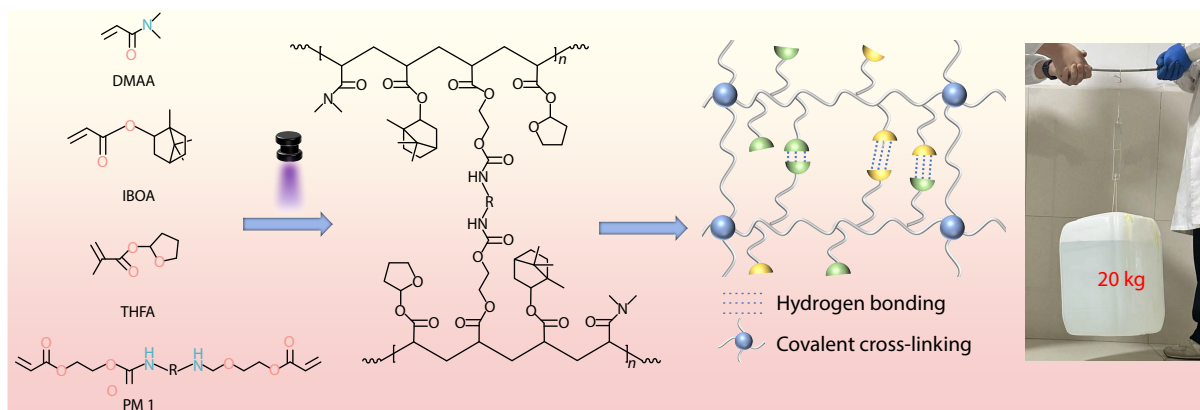
<https://doi.org/10.1007/s10118-026-3686-6>

## On-demand Peelable UV-curable Adhesives with Superior Bonding Strength: Rational Molecular Engineering of Cohesion-adhesion Synergy

Wen-Qian Liu, Peng Wang, Hao-Kai Yuan, Lin Zhang, Bin Chen, Hong-Fei Jiang, Yi-Ran Wang, Lu Wang, Shu-Sheng Li, and Chuan-Yong Zong

University of Jinan; Shandong Institute of Non-Metallic Materials; Tianjin University

This study reports on-demand peelable UV-curable adhesives with outstanding bonding strength, hot-water-triggered debonding, and recyclable adhesion, which show great promise for electronic device recycling and sustainable manufacturing.



Chinese J. Polym. Sci. 2026, 44(9), 3053–3065

<https://doi.org/10.1007/s10118-026-3677-7>

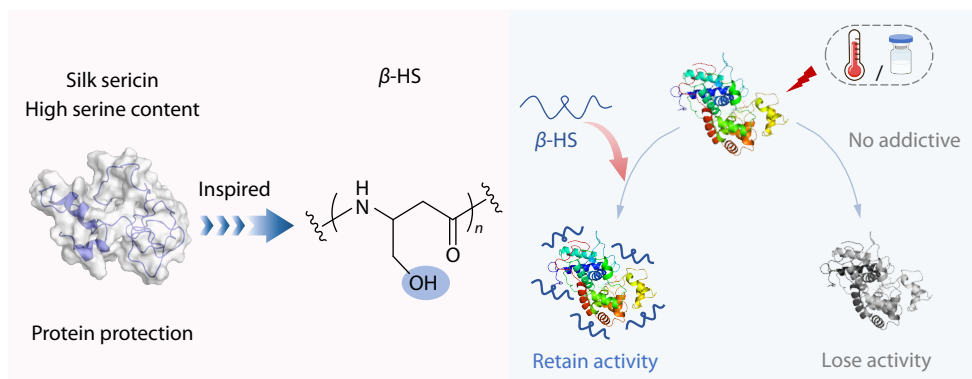


## Silk Sericin-inspired Poly- $\beta$ -homoserine for Protein Protection

Jun-Yu Zhang, Jia-Yi Cai, Dong-Hui Zhang, Long-Qiang Liu, Zhong-Hua Zhi, Bing Li, Qi Chen, and Run-Hui Liu

East China University of Science and Technology; Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences; Fudan University

Sericin exhibits a protein protective function and is characterized by a high serine content, which inspired us to explore the protein-stabilizing effects of poly- $\beta$ -homoserine ( $\beta$ -HS).  $\beta$ -HS effectively stabilizes proteins with varying physicochemical properties under environmental stresses, such as elevated temperature and lyophilization, highlighting its significant potential for protein stabilization.



Chinese J. Polym. Sci. 2026, 44(9), 3066–3074

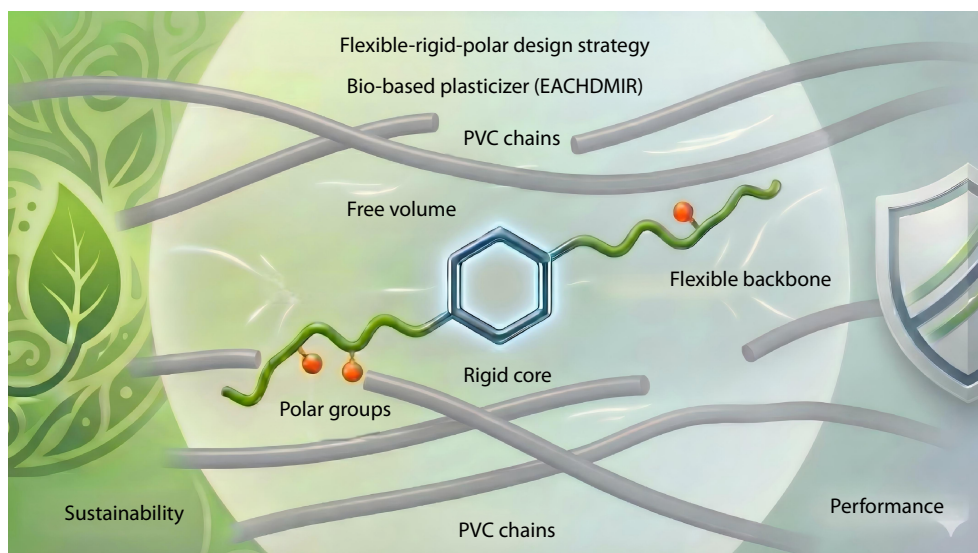
<https://doi.org/10.1007/s10118-026-3691-9>

## Epoxy-functionalized Cyclohexane-based Ricinoleate Plasticizer: Synthesis, Performance Evaluation, and Plasticizing Mechanism

Zhuo-Kai Wang, Ying-Yong Jiang, Wen-Nan Du, Yao-Bin Wang, Xing-Chen Bai, Cheng-Wei Song, Zhi-Peng Jiang, Liang Ren, Sai-Nan Cui, and Feng-Xiang Gao

Changchun University of Technology; Research Institute of Jilin Petrochemical Company, PetroChina; Institute of Applied Chemistry CAS, Chinese Academy of Sciences

A novel molecular design integrating flexible non-edible backbone, alicyclic rigid core, and epoxy groups breaks the performance-sustainability trade-off. The optimal plasticizer lowers  $T_g$  of poly(vinyl chloride) (PVC) by 30%, increases elongation >50-fold, and improves efficiency by 20.7% versus dioctyl terephthalate (DOTP).



Chinese J. Polym. Sci. 2026, 44(9), 3075–3091

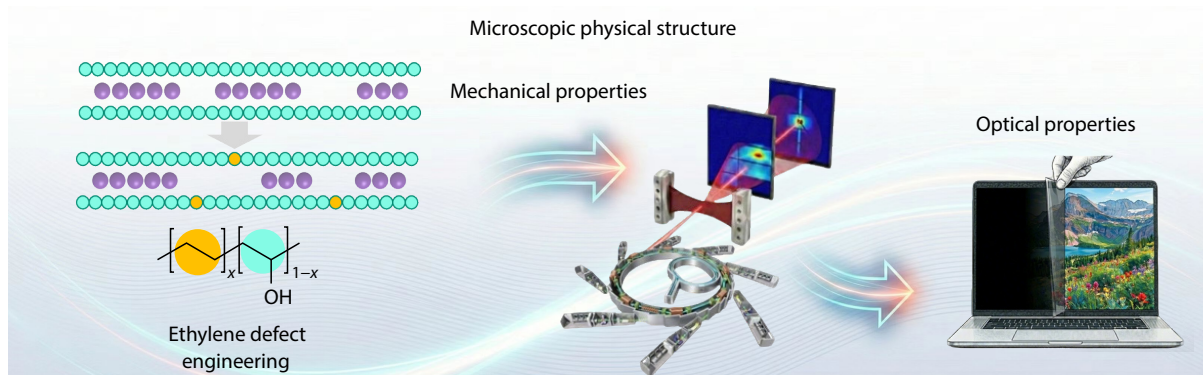
<https://doi.org/10.1007/s10118-026-3698-2>

## From Molecular Defect to Macroscopic Performance: Manipulating Dichroism and Mechanics in Iodine-doped Poly(vinyl alcohol) via Ethylene Incorporation

Liang-Peng You, Jia-Yu Xie, Yao Li, Xin Guang, and Wei Chen

University of Science and Technology of China

Based on ethylene defect engineering and leveraging employing *in situ* synchrotron radiation X-ray scattering techniques to characterize the condensed structure, this work successfully achieved the regulation of the mechanical and optical properties of polarizing films through poly(vinyl alcohol) (PVA) structure control.



Chinese J. Polym. Sci. 2026, 44(9), 3092–3103

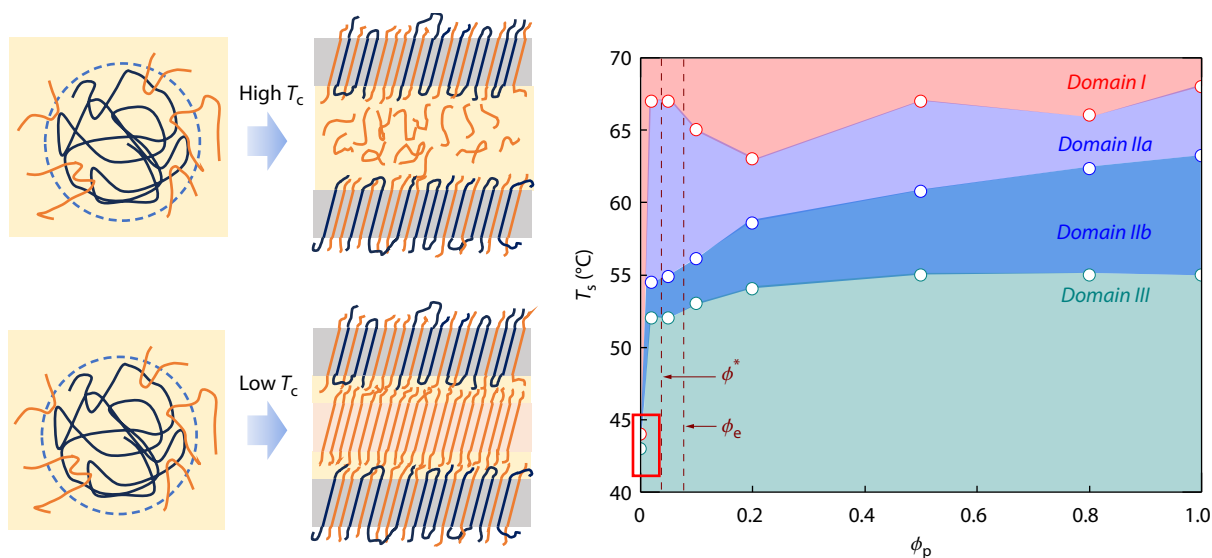
<https://doi.org/10.1007/s10118-026-3693-7>

## Molecular Segregation and Melt Memory in Dilute Polycaprolactone with Reduced Entanglements

Ce Shi, Jia-Le Zeng, Ze-Fan Wang, and Yong-Feng Men

Changchun Institute of Applied Chemistry, Chinese Academy of Sciences; Shenzhen University; University of Science and Technology of China

This study clarifies that in bimodal polymer mixtures with low entanglement concentrations, the crystallization morphology is strongly related to the molecular weight of the long chains. The lamellar stack structure is determined by the fraction of tie chains. The melt-memory effect has been proven to be related to intrachain interactions rather than entanglements.



Chinese J. Polym. Sci. 2026, 44(9), 3104–3118

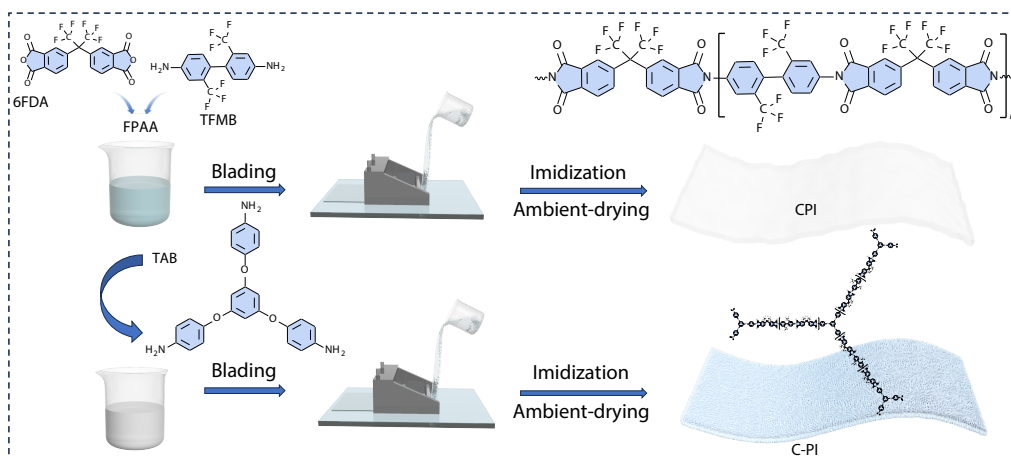
<https://doi.org/10.1007/s10118-026-3695-5>

## Molecularly Engineered Polyimide Films with Switchable Cavitation for Bidirectional Passive Thermal Regulation

Qiao-Ran Zhang, Xin-Fei Wang, Ya-Nan Chen, Bo-Yuan Zhou, Hong-Liang Wei, Xiao-Yu Cao, and Jin Wang

Henan University of Technology; Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences

Structure-tunable polyimide films enable radiative cooling (about 90% reflectivity,  $\Delta T$  is about  $-6^\circ\text{C}$ ) and solar heating (about 88.7% transmittance,  $\Delta T$  is about  $+8^\circ\text{C}$ ), while offering flame retardancy, thermal stability, and UV/acid resistance.



Chinese J. Polym. Sci. 2026, 44(9), 3119–3128

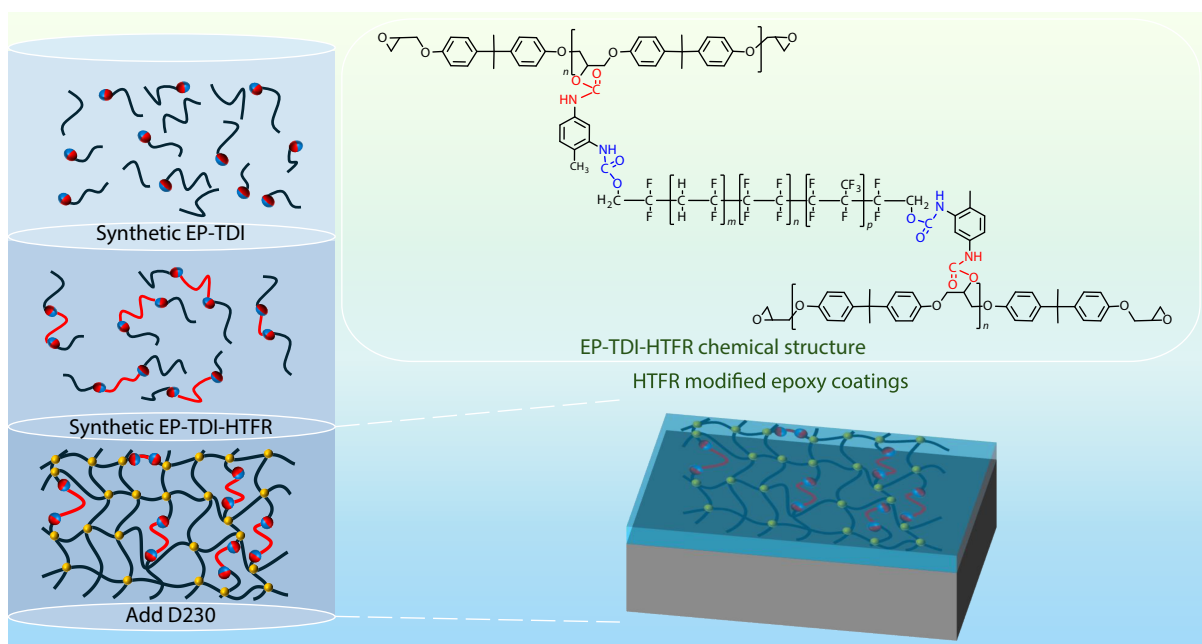
<https://doi.org/10.1007/s10118-026-3687-5>

## Improvements of Hydrophobicity and Toughness of Epoxy Coatings Modified with Hydroxyl-terminated Fluororubber

Yu-Tong Zhou, You-Fan Wu, Qian-Qian Yang, Hai-Bao Zhang, Ting Zhang, Hao-Yan Guo, Zhen-Jun Wang, and Gang Li

Chang'an University; Shaanxi Union Research Center of University and Enterprise for Advanced Transportation Infrastructure Materials; Shihezi University

Flexible fluororubber grafting onto epoxy resin achieves high toughness (elongation at break: 46.40%) and hydrophobicity (contact angle:  $110^\circ$ ) at 25% HTFR content, significantly enhancing cavitation erosion resistance.



Chinese J. Polym. Sci. 2026, 44(9), 3129–3141

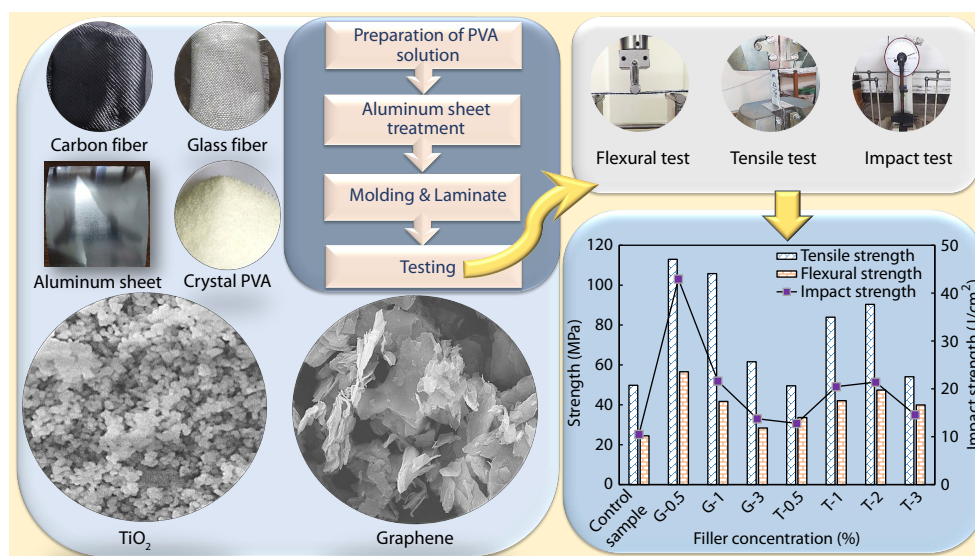
<https://doi.org/10.1007/s10118-026-3688-4>

## Experimental Investigation of Graphene and TiO<sub>2</sub> Reinforced Poly(vinyl alcohol)-based Fiber Metal Laminates

Nayan Sur, Arup Kumar Debnath, Md. Abdul Hasib, and Tanmoy Chakroborty

Khulna University of Engineering & Technology, Bangladesh; University of Colorado at Boulder, USA

Poly(vinyl alcohol) (PVA)-based fiber-metal laminates reinforced with graphene (0.5 wt%–3 wt%) and TiO<sub>2</sub> (0.5 wt%–3 wt%) were fabricated via vacuum bag molding. Graphene at 0.5 wt% and TiO<sub>2</sub> at 2 wt% maximized tensile, flexural, and toughness properties, and reduced water absorption, while higher loadings caused property degradation.



Chinese J. Polym. Sci. 2026, 44(9), 3142–3155

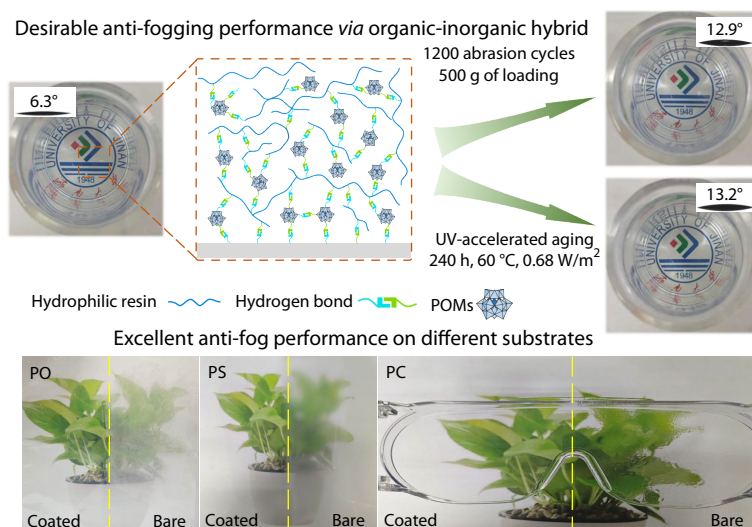
<https://doi.org/10.1007/s10118-026-3689-3>

## Durable Anti-fogging and Abrasion-resistant Coatings Based on Polyoxometalates-Hydrophilic Resin Composites with Enhanced Cohesion and Adhesion

Xu Yang, Shu-Di Ying, Cong-Cong Zhai, Yu-Lin Yin, Jian-Chao Hou, Pan-Pan Zhao, Wen-Ting Li, Shuai-Jun Yang, Jia-Chen Ma, and Xu-Chuan Jiang

University of Jinan; Huzhou College; Shandong Institute of Non-Metallic Materials

An organic-inorganic hybrid anti-fogging coating composed of polyoxometalates and hydrophilic resin, with enhanced adhesion and cohesion, achieves high abrasion resistance, UV stability, and durable superhydrophilicity for various substrates.



Chinese J. Polym. Sci. 2026, 44(9), 3156–3166

<https://doi.org/10.1007/s10118-026-3690-x>

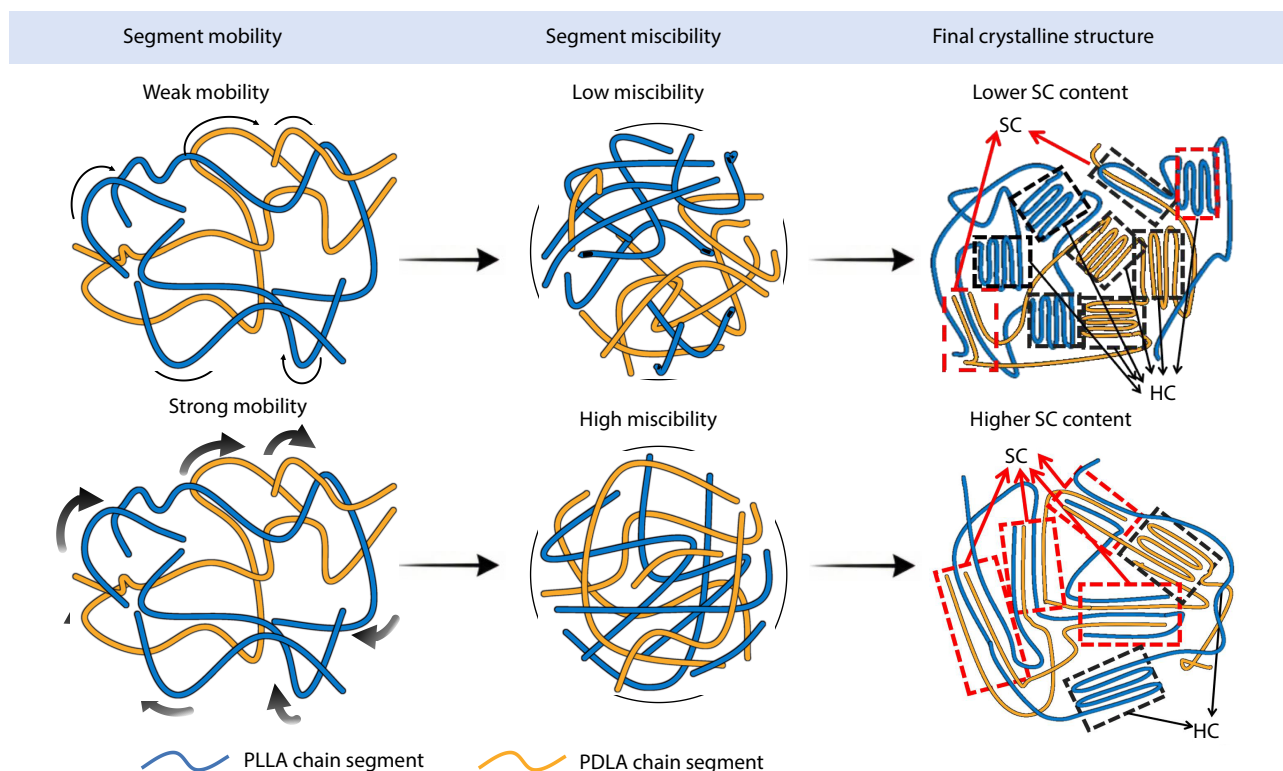


## Enhanced Segment Mobility Promotes Stereocomplex Crystallization in Polymer Blends via Elevated Segmental Miscibility

Zi-Xiang Dai and Yi-Jing Nie

Jiangsu University

The improvement in segment mobility in poly(lactic acid) enantiomer blends can effectively enhance segment miscibility during the crystallization process, thereby promoting the formation of more stereocomplex crystals in poly(lactic acid).



Chinese J. Polym. Sci. 2026, 44(9), 3167–3175

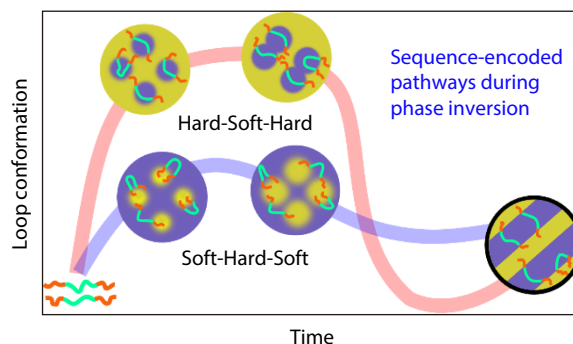
<https://doi.org/10.1007/s10118-026-3701-y>

## Sequence-encoded Conformation Pathways in Viscoelastic Microphase Separation of Multiblock Copolymers

Zhe-Peng Zhu, Jia-Ping Lin, and Liang-Shun Zhang

East China University of Science and Technology

The sequence-encoded viscoelastic kinetics is introduced to direct non-equilibrium self-assembly pathways of multiblock copolymers and program their distinct conformation evolution, a capability that moves beyond the conventional design of static equilibrium nanostructures.



Chinese J. Polym. Sci. 2026, 44(9), 3176–3188

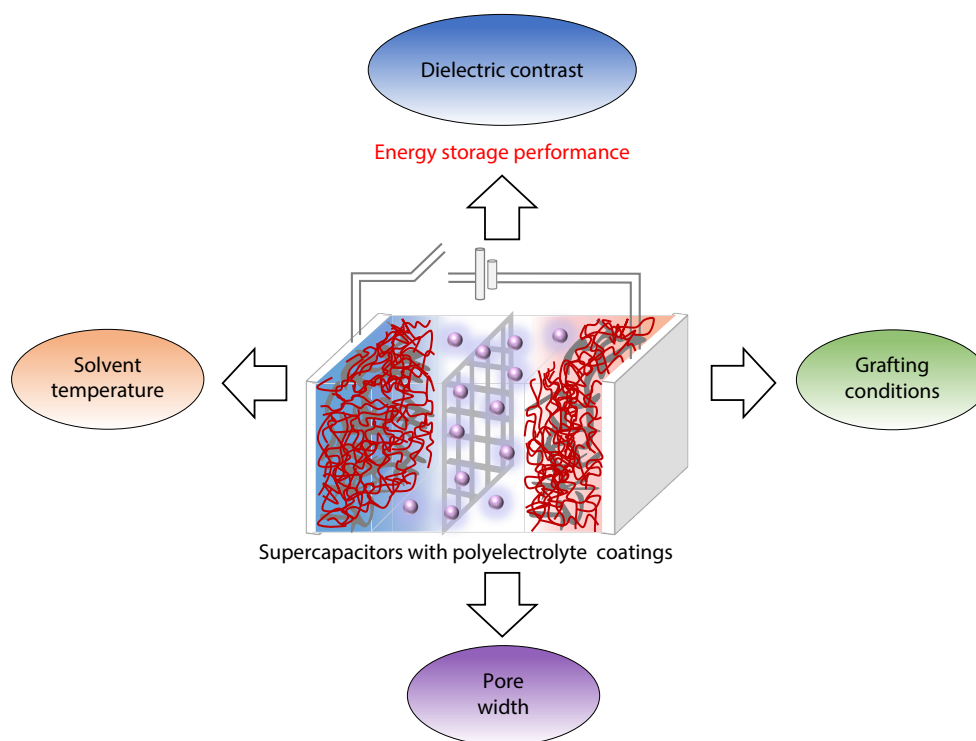
<https://doi.org/10.1007/s10118-026-3705-7>

## Energy Storage Performance of Supercapacitors with Polyelectrolyte Surface Coatings: Effects of Dielectric Contrast

Yi-Yao Han, Ming-Yu Chen, and Xiao-Fei Xu

East China University of Science and Technology

Classical density functional theory is employed to study the energy storage performance of supercapacitor with polyelectrolyte surface coating. The dielectric contrast effects between the electrode substrate and the solvent are explicitly accounted. It is found that the dielectric contrast plays a decisive role in determining the energy storage performance.



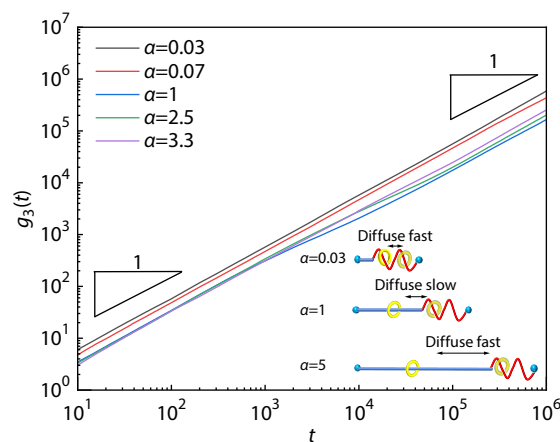
Chinese J. Polym. Sci. 2026, 44(9), 3189–3202 <https://doi.org/10.1007/s10118-026-3710-x>

## Sliding Dynamics of Ring Chain on a Rod-Coil Block Copolymer in Rotaxane

Si-Yi Yan, Xiang-Hong Wang, Ke Li, and Lin-Li He

Wenzhou University; Shanghai Technical Institute of Electronics & Information; Shanghai University of Electric Power

The sliding dynamics of the ring chain in rod-coil rotaxanes depend non-monotonically on the rod-coil ratio  $\alpha$ , coil stretch  $\mu$ , and ring size. Intermediate-time sub-diffusion arises from backbone heterogeneity. Diffusion is fastest on homogeneous chains and under moderate coil stretching, thereby guiding the design of tunable slide-ring materials.



Chinese J. Polym. Sci. 2026, 44(9), 3203–3211 <https://doi.org/10.1007/s10118-026-3711-9>

## Upgrading Commercially Available Polyethylene to High-value Materials with Strong Mechanical Performance and Hydrophilicity by Blending with Ethylene/*meta*-Methoxystyrene Copolymers

Hui Tian, Chun-Ji Wu, and Bao-Li Wang

Changchun Institute of Applied Chemistry, Chinese Academy of Sciences; University of Science and Technology of China

High-density polyethylene (HDPE) materials blending with E-*m*MOS copolymers at low adding ratios (2 wt%, 5 wt% and 10 wt%) were prepared. These blends exhibited increasing tensile strength and toughness, as well as improved surface hydrophilicity. DSC and rheological measurements confirmed good processability.

