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### Synthesis of Inorganic Silica Grafted Three-arm PLLA and Their Behavior for PLA Matrix

Da-Wei Shi, Xiang-Ling Lai, Yuan-Ping Jiang, Cong Yan, Zheng-Ying Liu, Wei Yang, and Ming-Bo Yang

3A-PLLA was attached to SiO<sub>2</sub> using “grafting to” method by varying the mass ratio of raw materials and altering the order of dropping solution in the reaction. The different performances of modified nanoparticles in the matrix can be ascribed to the construction of different topologies.



Inorganic silica grafted three-arm PLLA: different topology, different performance

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<https://doi.org/10.1007/s10118-019-2191-6>

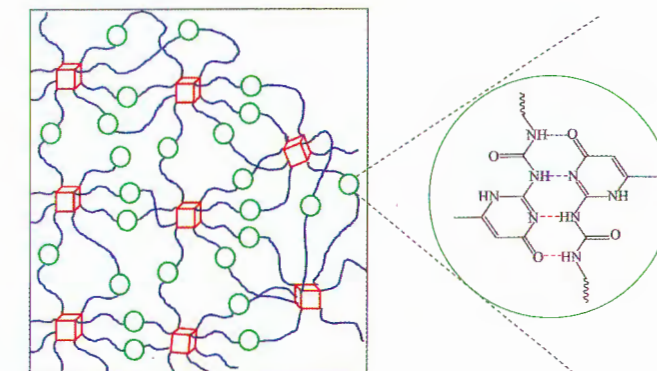
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### Articles

#### Formation of Poly( $\epsilon$ -caprolactone) Networks via Supramolecular Hydrogen Bonding Interactions

Sen Xu, Pengfei Chang, Bingjie Zhao, Muhammad Adeel, and Sixun Zheng

In this contribution, we reported the formation of poly( $\epsilon$ -caprolactone) networks via supramolecular hydrogen bonding interactions. It was found that the poly( $\epsilon$ -caprolactone) networks displayed good shape memory properties.



*Chinese Journal of Polymer Science*, 2019, 37(3), 197–207

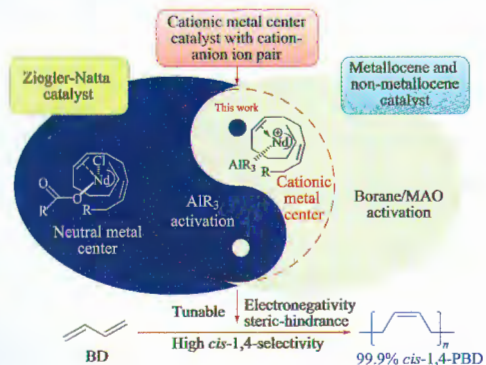
<https://doi.org/10.1007/s10118-019-2199-y>



## Neodymium Organic Sulfonate Complexes: Tunable Electronegativity/Steric Hindrance and Application in Controlled *Cis*-1,4-polymerization of Butadiene

Jian-Yun He, Long Cui, Yan-Long Qi, Quan-Quan Dai, and Chen-Xi Bai

A series of neodymium organic sulfonate complexes possessing characteristics of cation-anion ion pair can form cationic active species with tunable electronegativity and steric hindrance, which could be applied in synthesis of high *cis*-1,4-polybutadiene (99.9%).

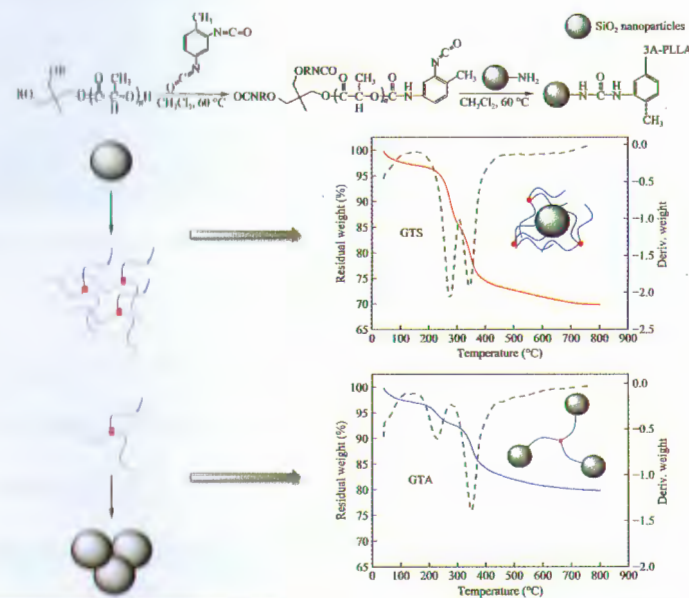


*Chinese Journal of Polymer Science*, 2019, 37(3), 208–215  
<https://doi.org/10.1007/s10118-019-2196-1>

## Synthesis of Inorganic Silica Grafted Three-arm PLLA and Their Behavior for PLA Matrix

Da-Wei Shi, Xiang-Ling Lai, Yuan-Ping Jiang, Cong Yan, Zheng-Ying Liu, Wei Yang, and Ming-Bo Yang

3A-PLLA was attached to SiO<sub>2</sub> using “grafting to” method by varying the mass ratio of raw materials and altering the order of dropping solution in the reaction. The different performances of modified nanoparticles in the matrix can be ascribed to the construction of different topologies.

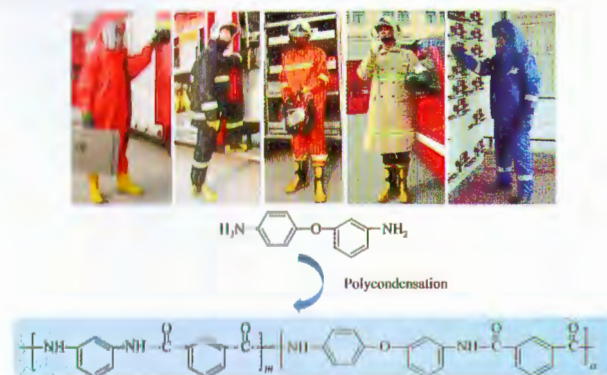


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## Synthesis and Characterization of Easily Colored Meta-aramid Copolymer Containing Ether Bonds

Na Li, Xing-Ke Zhang, Jun-Rong Yu, Yan Wang, Jing Zhu, and Zu-Ming Hu

In order to effectively color PMIA, the introduction of ether bonds into meta-aramid backbones was investigated. The preliminary results suggested that both the uptake of cationic dye and color fastness values of the copolymer were much better than those of the homopolymers.

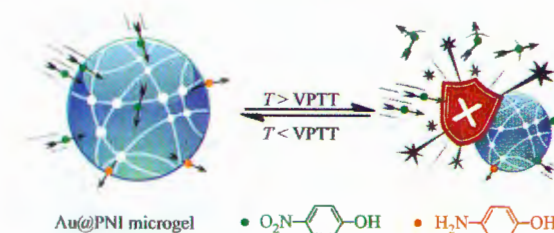


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## Thermo-sensitive Microgels Supported Gold Nanoparticles as Temperature-mediated Catalyst

Xian-Jing Zhou, Hui-Peng Lu, Ling-Li Kong, Dong Zhang, Wei Zhang, Jing-Jing Nie, Jia-Yin Yuan, Bin-Yang Du, and Xin-Ping Wang

Thermo-sensitive microgels supported gold nanoparticles could be used as temperature-mediated catalyst. They swelled or collapsed at the temperature below or above their VPTTs, so diffusion and adsorption of the reactants on AuNP surface could be regulated, resulting in a controlled rate of catalytic reaction.

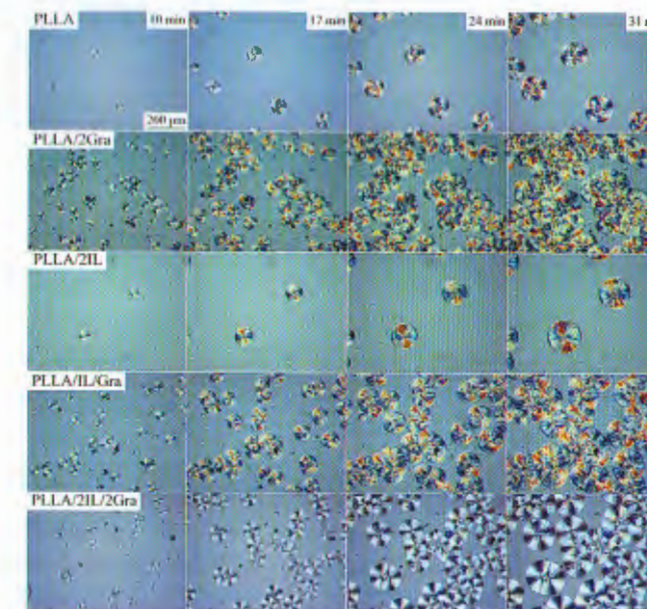


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<https://doi.org/10.1007/s10118-019-2182-7>

## Enhanced Crystallization Kinetics of PLLA by Ethoxycarbonyl Ionic Liquid Modified Graphene

Pei Xu, Zhao-Pei Cui, Gang Ruan, and Yun-Sheng Ding

The samples containing IL possessed higher growth rate of PLLA spherulite than neat PLLA did. The change of  $\alpha_n$  relaxation of PLLA/IL/Gra and PLLA/2Gra followed basically the same trend at 110–140 °C. PLLA/Gra/IL had a faster crystallization rate than PLLA/2Gra because of Gra-IL interaction and more nuclei density.

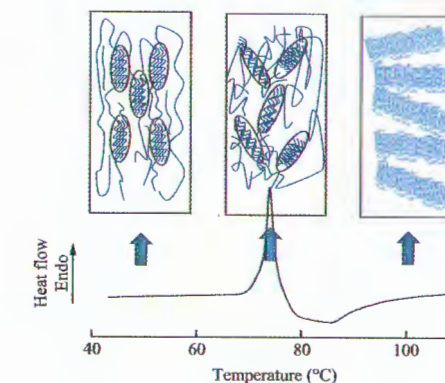


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## Study on Phase Transformation Behavior of Strain-induced PLLA Mesophase by Polarized Infrared Spectroscopy

Jian Hu, Li-Li Han, Tong-Ping Zhang, Yong-Xin Duan, and Jian-Ming Zhang

The phase transition behavior from mesophase to crystalline phase has been studied by using temperature-dependent polarized FTIR and DSC measurements. The crystallization process could be influenced by the melting of mesophase. In the heating process, the mesophase partly melted and immediately changed to crystalline phase of  $\alpha$  or  $\alpha'$ .



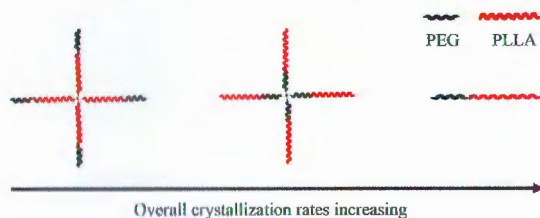
*Chinese Journal of Polymer Science*, 2019, 37(3), 253–257  
<https://doi.org/10.1007/s10118-019-2184-5>



## Influence of Chain Architectures on Crystallization Behaviors of PLLA Block in PEG/PLLA Block Copolymers

Sheng Xiang, Dong-Dong Zhou, Li-Dong Feng, Xin-Chao Bian, Gao Li, Xue-Si Chen, and Tian-Chang Wang

The overall crystallization rates of PLLA blocks decreased markedly as following: MPEG-*b*-PLLA > 4PEG-*b*-PLLA > 4PLLA-*b*-PEG.



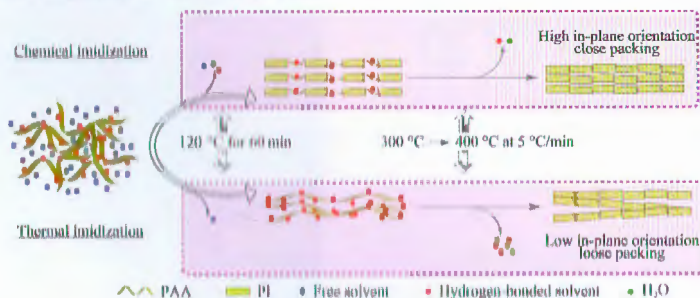
*Chinese Journal of Polymer Science*, 2019, 37(3), 258–267

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## The In-plane Orientation and Thermal Mechanical Properties of the Chemically Imidized Polyimide Films

Zhen-He Wang, Xing Chen, Hai-Xia Yang, Jiang Zhao, and Shi-Yong Yang

The chemical and aggregation structures of polymer chains during chemical imidization and thermal imidization have been investigated systematically. Chemical imidization can enhance the in-plane orientation and inhibit plasticization and decomposition of PI films. It provides a pathway to produce advanced PI films with higher modulus, higher strength and toughness, as well as lower CTE.



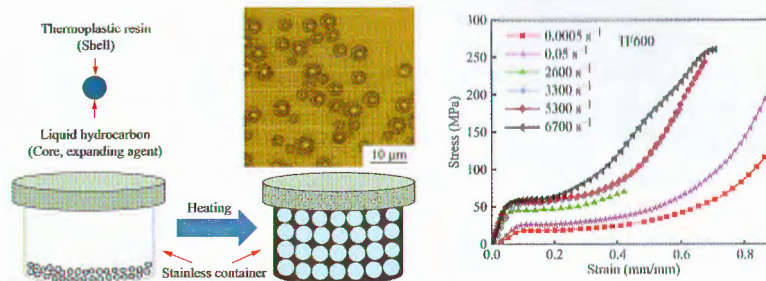
*Chinese Journal of Polymer Science*, 2019, 37(3), 268–278

<https://doi.org/10.1007/s10118-019-2173-8>

## Synthesis and Compressive Response of Microcellular Foams Fabricated from Thermally Expandable Microspheres

Rui-Zhi Zhang, Ju Chen, Mao-Wei Huang, Jian Zhang, Guo-Qiang Luo, Bao-Zhen Wang, Mei-Juan Li, Qiang Shen, and Lian-Meng Zhang

One-step heating method is introduced to fabricate microcellular foams with various densities from thermally expandable microspheres (TEMs). All the foams exhibited good compressive behavior at both quasi-static and high strain rates. With density increasing, the strain rate effect, strength and absorbed energy were more prominent.



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<https://doi.org/10.1007/s10118-019-2187-2>