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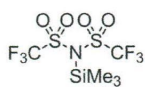
September 9, 2014  
Volume 47  
Number 17

# Macromolecules

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## Quantitative Functionalization Method for Polyacrylates

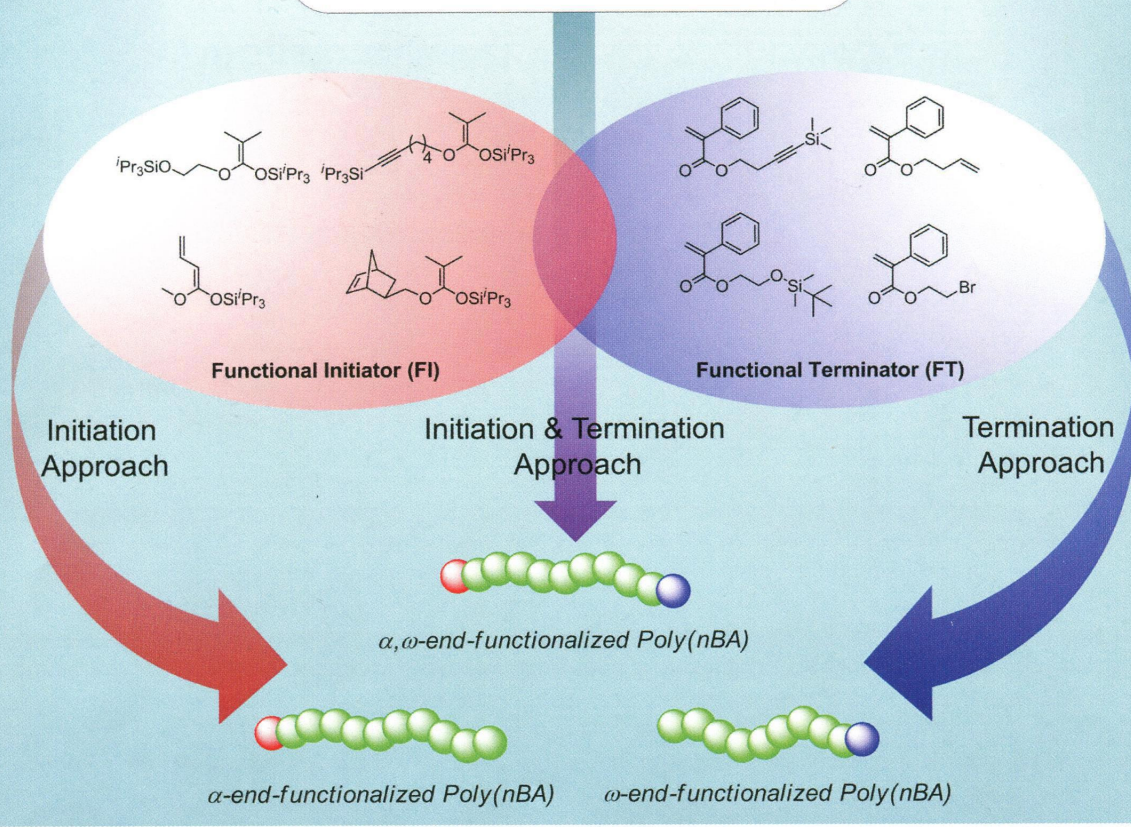
Strong Organic Acid-Catalyzed  
Group Transfer Polymerization



Catalyst



Acrylates (*n*BA)



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**ON THE COVER:** The synthesis of end-functionalized polymers based on the strong organic acid-catalyzed group transfer polymerization (GTP) method has been studied using functional initiators and terminators. The  $\alpha$ -hydroxyl-,  $\alpha$ -ethynyl-,  $\alpha$ -vinyl-, and  $\alpha$ -norbornenyl-functionalized poly(*n*-butyl acrylate)s (P*n*BAs) were synthesized by the *N*-(trimethylsilyl)bis(trifluoromethanesulfonyl)imide ( $\text{Me}_3\text{SiNTf}_2$ )-catalyzed GTP of *n*-butyl acrylate (*n*BA) using functional initiators (FIs) of triisopropylsilyl ketene acetals with the respective functional groups as initiation approach and the  $\omega$ -ethynyl-,  $\omega$ -vinyl-,  $\omega$ -hydroxyl-, and  $\omega$ -bromo-functionalized P*n*BAs using functional terminators (FTs) of 2-phenyl acrylates with the respective functional groups as termination approach. In addition, the  $\alpha,\omega$ -diethynyl-,  $\alpha,\omega$ -dihydroxyl-, and  $\alpha$ -hydroxyl, $\omega$ -ethynyl-functionalized P*n*BAs were synthesized by the GTP of *n*BA initiated by FIs and subsequently terminated by FTs. The obtained polyacrylates possessing the end-functional groups should be utilized as building blocks for constructing macromolecular architectures, such as block, cyclic, star-shaped, and dendritic polymers. See Takada, K.; Fuchise, K.; Kubota, N.; Ito, T.; Chen, Y.; Satoh, T.; Kakuchi, T. *Macromolecules* **2014**, *47*, 5514–5525.

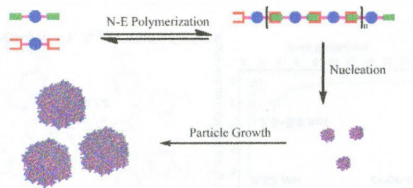
## Articles

5869

[dx.doi.org/10.1021/ma501580t](https://doi.org/10.1021/ma501580t)

### Thermoresponsive Polymeric Nanoparticles: Nucleation from Cooperative Polymerization Driven by Dative Bonds

Longyu Li, Conghui Yuan, Lizong Dai, and S. Thayumanavan\*

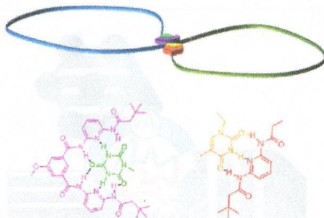


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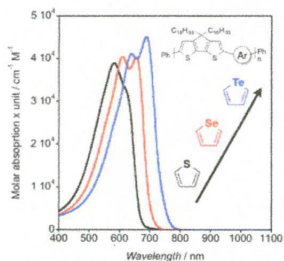
[dx.doi.org/10.1021/ma501186k](https://doi.org/10.1021/ma501186k)

### Single-Chain Folding of Diblock Copolymers Driven by Orthogonal H-Donor and Acceptor Units

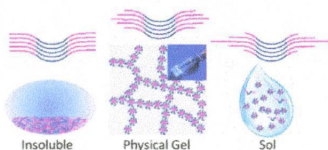
Ozcan Altintas, Peter Krolla-Sidenstein, Hartmut Gliemann, and Christopher Barner-Kowollik\*



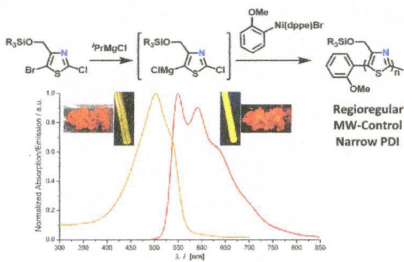
Effect of Chalcogen Atom Substitution on the Optoelectronic Properties in Cyclopentadithiophene Polymers  
Miquel Planells,\* Bob C. Schroeder, and Iain McCulloch



Effects of Molecular Weight Distribution of Amphiphilic Block Copolymers on Their Solubility, Micellization, and Temperature-Induced Sol–Gel Transition in Water  
Liang Chen, Tianyuan Ci, Ting Li, Lin Yu, and Jiandong Ding\*

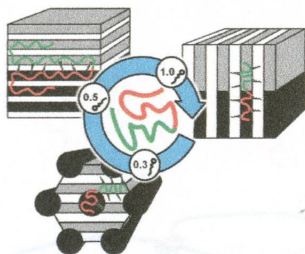


Soluble Head-to-Tail Regioregular Polythiazoles: Preparation, Properties, and Evidence for Chain-Growth Behavior in the Synthesis via Kumada-Coupling Polycondensation  
Frank Pammer,\* Jakob Jäger, Benjamin Rudolf, and Yu Sun



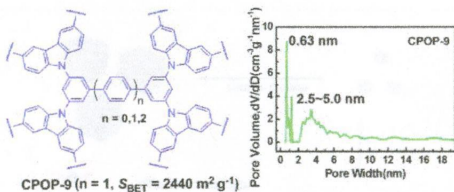
### Hierarchical Self-Assembly of Symmetric Supramolecular Double-Comb Diblock Copolymers: a Comb Density Study

Anton H. Hofman, Mehedi Reza, Janne Ruokolainen, Gerrit ten Brinke,\* and Katja Loos\*



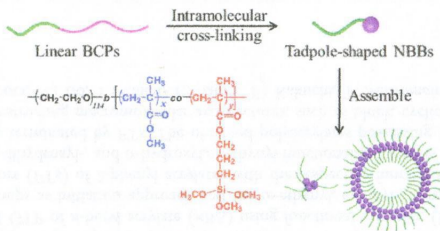
### Mesoporous Conjugated Polycarbazole with High Porosity via Structure Tuning

Qi Chen, De-Peng Liu, Jian-Hua Zhu, and Bao-Hang Han\*



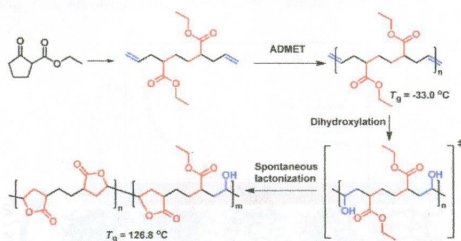
### Synthesis and Self-Assembly of Amphiphilic Hybrid Nano Building Blocks via Self-Collapse of Polymer Single Chains

Weikun Li, Chung-Hao Kuo, Istvan Kanyo, Srinivas Thanneeru, and Jie He\*



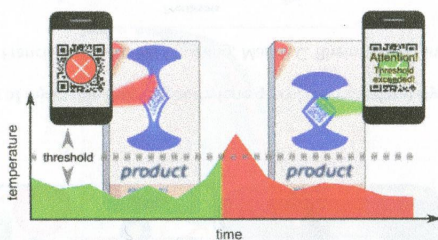
### Intrachain Cyclization via Postmodification of the Internal Alkenes of Periodic ADMET Copolymers: The Sequence Matters

Zi-Long Li, An Lv, Fu-Sheng Du, and Zi-Chen Li\*



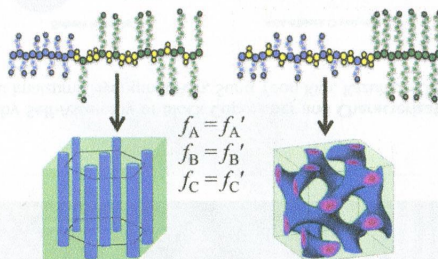
### Programming of Temperature-Memory Onsets in a Semicrystalline Polyurethane Elastomer

Nikolaus Fritzsche and Thorsten Pretsch\*



### Thermodynamics of Chain Architecture in Acrylic Block Terpolymers

James A. Bergman, Nacú B. Hernández, Eric W. Cochran,\* and Jennifer M. Heinen



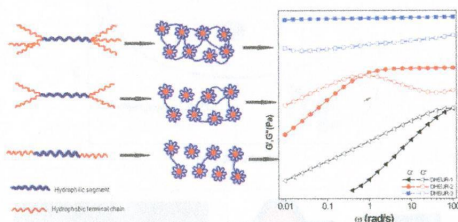
5971

S

**Novel Hydrophobically Modified Ethoxylated Urethanes End-Capped by Percec-Type Alkyl Substituted Benzyl Alcohol Dendrons: Synthesis, Characterization, and Rheological Behavior**

Jun Peng, Renfeng Dong, Biye Ren,\* Xueyi Chang, and Zhen Tong

dx.doi.org/10.1021/ma500876d



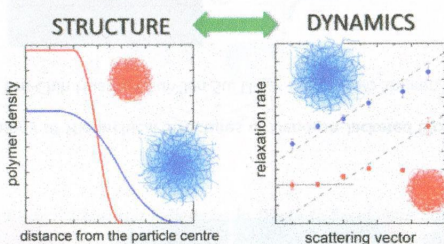
5982

S

**Conosolvency Effects on the Structure and Dynamics of Microgels**

Simona Maccarrone,\* Christine Scherzinger, Olaf Holderer, Peter Lindner, Melissa Sharp, Walter Richtering, and Dieter Richter

dx.doi.org/10.1021/ma500954t



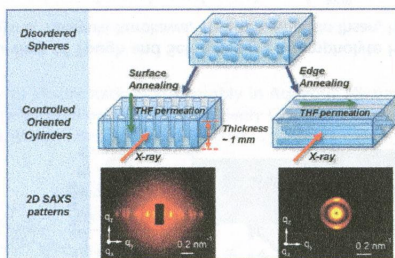
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**Macroscopic Alignment of Cylinders via Directional Coalescence of Spheres along Annealing Solvent Permeation Directions in Block Copolymer Thick Films**

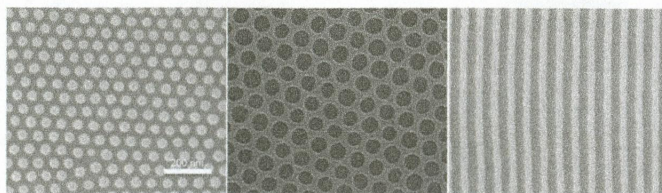
Guanghui Cui, Masamichi Fujikawa, Shusaku Nagano, Keisuke Shimokita, Tsukasa Miyazaki, Shinichi Sakurai, and Katsuhiro Yamamoto\*

dx.doi.org/10.1021/ma501033a



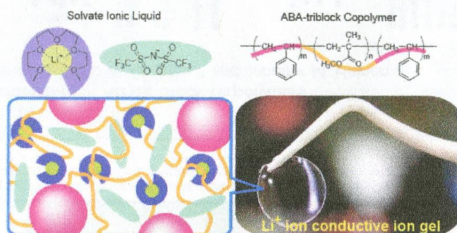
Thin Film Morphologies of Bulk-Gyroid Polystyrene-*block*-polydimethylsiloxane under Solvent Vapor Annealing

Wubin Bai, Adam F. Hannon, Kevin W. Gotrik, Hong Kyoan Choi, Karim Aissou, George Lontos, Konstantinos Ntetsikas, Alfredo Alexander-Katz, Apostolos Avgeropoulos, and Caroline A. Ross\*



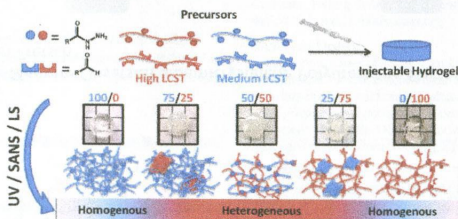
## Gelation of Solvate Ionic Liquid by Self-Assembly of Block Copolymer and Characterization as Polymer Electrolyte

Yuzo Kitazawa, Kaori Iwata, Satoru Imaizumi, Hyungmin Ahn, Sung Yeon Kim, Kazuhide Ueno, Moon Jeong Park, and Masayoshi Watanabe\*



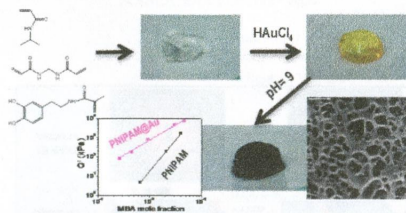
## Probing the Internal Morphology of Injectable Poly(oligoethylene glycol methacrylate) Hydrogels by Light and Small-Angle Neutron Scattering

Niels M. B. Smeets, Emilia Bakaic, Francis M. Yavitt, Fei-Chi Yang, Maikel C. Rheinstädter, and Todd Hoare\*



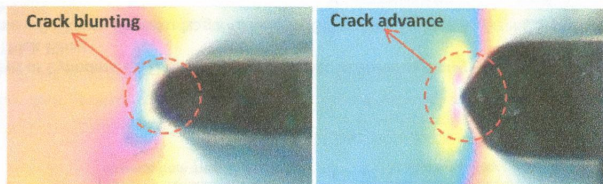
**Poly(*N*-isopropylacrylamide)/Gold Hybrid Hydrogels Prepared by Catechol Redox Chemistry. Characterization and Smart Tunable Catalytic Activity**

Gema Marcelo,\* Mar López-González, Francisco Mendicuti, M. Pilar Tarazona, and Mercedes Valiente



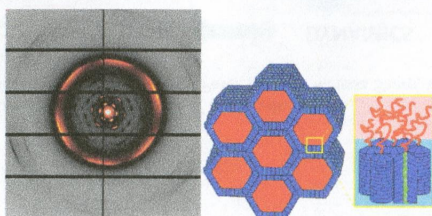
**Crack Blunting and Advancing Behaviors of Tough and Self-healing Polyampholyte Hydrogel**

Feng Luo, Tao Lin Sun, Tasuku Nakajima, Takayuki Kurokawa, Yu Zhao, Abu Bin Ihsan, Hong Lei Guo, Xu Feng Li, and Jian Ping Gong\*



**Directing the Interfacial Morphology of Hierarchical Structures of Dendron-Jacketed Block Copolymers via Liquid Crystalline Phases**

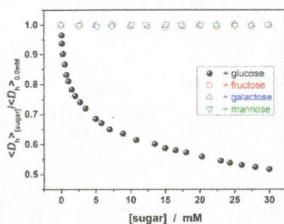
Wei-Tsung Chuang,\* Ting-Ya Lo, Yen-Chih Huang, Chun-Jen Su, U-Ser Jeng,\* Hwo-Shuenn Sheu, and Rong-Ming Ho



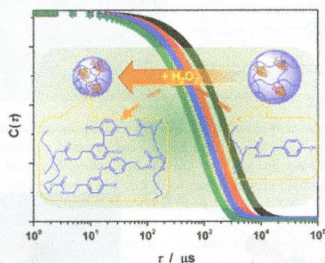


6055 [dx.doi.org/10.1021/ma501178a](https://doi.org/10.1021/ma501178a)**Graphene@Poly(phenylboronic acid)s Microgels with Selectively Glucose-Responsive Volume Phase Transition Behavior at a Physiological pH**

Mingming Zhou, Jianda Xie, Suting Yan, Xiaomei Jiang, Ting Ye, and Weitai Wu\*

6067 [dx.doi.org/10.1021/ma5013368](https://doi.org/10.1021/ma5013368)**Synthesis and Characterization of Dextran–Tyramine-Based  $H_2O_2$ -Sensitive Microgels**

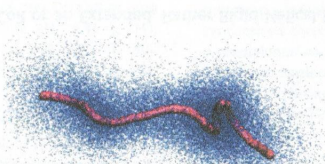
Hua Wei, Jianda Xie, Xiaomei Jiang, Ting Ye, Aiping Chang, and Weitai Wu\*



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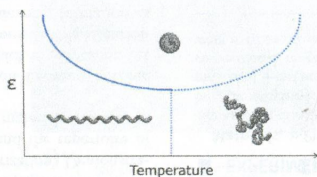
[dx.doi.org/10.1021/ma500755p](https://doi.org/10.1021/ma500755p)**Tubes, Topology, and Polymer Entanglement**

Jian Qin and Scott T. Milner\*



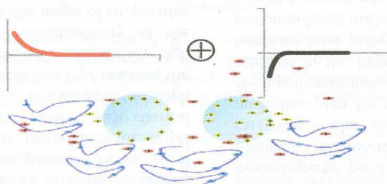
### Minimal Model of Intrinsic Chirality to Study the Folding Behavior of Helical Polymers

Christian R. Boehm and Eugene M. Terentjev\*



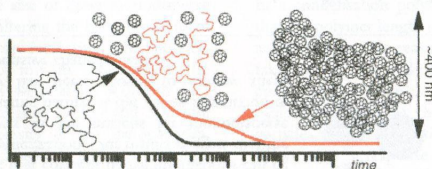
### Interplay between Depletion and Electrostatic Interactions in Polyelectrolyte–Nanoparticle Systems

Victor Pryamitsyn and Venkat Ganesan\*



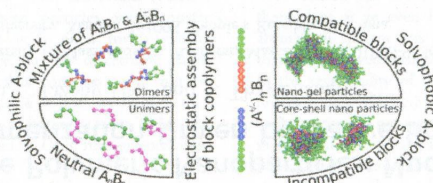
### Conformation and Interactions of Polystyrene and Fullerenes in Dilute to Semidilute Solutions

Rajeev Dattani, Rolf Michels, Alisyn J. Nedoma, Ralf Schweins, Paul Westacott, Klaus Huber, and João T. Cabral\*



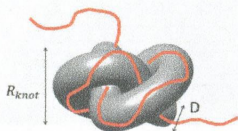
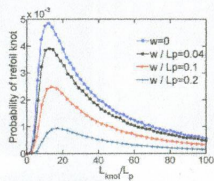
### Dissipative Particle Dynamics Study of Electrostatic Self-Assembly in Aqueous Mixtures of Copolymers Containing One Neutral Water-Soluble Block and One Either Positively or Negatively Charged Polyelectrolyte Block

Karel Šindelka, Zuzana Limpouchová, Martin Lísal, and Karel Procházka\*



**Metastable Tight Knots in Semiflexible Chains**

Liang Dai, C. Benjamin Renner, and Patrick S. Doyle\*

a metastable tight  
knot in a chainsize distribution of  
trefoil knots**Notes**

6141

**PLLA in Solution: A Flexible Random-Coil or an Extended, Rather Rigid Helical Polymer**

Alan E. Tonelli\*

dx.doi.org/10.1021/ma501576u



OR

