Macromolecules

August 27, 2013

Volume 46, Issue 16

Pages 6379-6670

Perspective

Structural Factors That Affect the Performance of Organic Bulk Heterojunction Solar Cells

Koen Vandewal, Scott Himmelberger, and Alberto Salleo

pp 6379-6387

Publication Date (Web): July 29, 2013 (Perspective)

DOI: 10.1021/ma400924b

Section:

Electrochemical, Radiational, and Thermal Energy Technology

Articles

Ring-Opening (ROP) versus Ring-Expansion (REP) Polymerization of ε -Caprolactone To Give Linear or Cyclic Polycaprolactones

José A. Castro-Osma, Carlos Alonso-Moreno, Joaquín C. García-Martinez, Juan Fernández-Baeza, Luis F. Sánchez-Barba, Agustín Lara-Sánchez, and Antonio Otero

pp 6388-6394

Publication Date (Web): August 16, 2013 (Article)

DOI: 10.1021/ma401216u

Section:

Chemistry of Synthetic High Polymers

Visible Light-Induced Grafting from Polyolefins

Mustafa Ciftci, Pınar Batat, A. Levent Demirel, Guangjuan Xu, Michael Buchmeiser, and Yusuf Yagci

pp 6395-6401

Publication Date (Web): August 16, 2013 (Article)

DOI: 10.1021/ma401431h

Section:

Chemistry of Synthetic High Polymers

Phototriggered Base Proliferation: A Highly Efficient Domino Reaction for Creating Functionally Photo-Screened Materials

Minghui He, Xun Huang, Zhaohua Zeng, and Jianwen Yang

pp 6402-6407

Publication Date (Web): August 16, 2013 (Article)

DOI: 10.1021/ma400983t

Section:

Chemistry of Synthetic High Polymers

Langmuir-Blodgett Films of Amphiphilic Thieno[3,4-c]pyrrole-4,6-dione-Based Alternating Copolymers

Mariane Perpethue Ouattara, Stéphane Lenfant, Dominique Vuillaume, Michel Pézolet, Jean-François Rioux-Dubé, Josée Brisson, and Mario Leclerc

pp 6408-6418

Publication Date (Web): August 14, 2013 (Article)

DOI: 10.1021/ma401030m

Section:

Physical Properties of Synthetic High Polymers

Fine Structural Tuning of Cyanated Dithieno[3,2-b:2',3'-d]silole– Oligothiophene Copolymers: Synthesis, Characterization, and Photovoltaic Response

Mirko Seri, Margherita Bolognesi, Zhihua Chen, Shaofeng Lu, Wouter Koopman, Antonio Facchetti, and Michele Muccini

pp 6419-6430

Publication Date (Web): August 8, 2013 (Article)

DOI: 10.1021/ma4011186

Section:

Chemistry of Synthetic High Polymers

A One-Step Strategy for End-Functionalized Donor–Acceptor Conjugated Polymers

Maxwell J. Robb, Damien Montarnal, Nancy D. Eisenmenger, Sung-Yu Ku, Michael L. Chabinyc, and Craig J. Hawker

pp 6431-6438

Publication Date (Web): August 16, 2013 (Article)

DOI: 10.1021/ma401255d



Chemistry of Synthetic High Polymers

Structure-Activity Relationships for Anion-Responsive Poly(squaramides): Support for an Analyte-Induced Noncovalent Polymer Cross-Linking Mechanism

Ali Rostami, Gérald Guérin, and Mark S. Taylor

pp 6439-6450

Publication Date (Web): August 15, 2013 (Article)

DOI: 10.1021/ma401263q

Section:

Chemistry of Synthetic High Polymers

Tryptophan-Containing Block Copolymers Prepared by RAFT Polymerization: Synthesis, Self-Assembly, and Chiroptical and Sensing Properties

Hideharu Mori, Eri Takahashi, Ai Ishizuki, and Kazuhiro Nakabayashi

pp 6451-6465

Publication Date (Web): August 8, 2013 (Article)

DOI: 10.1021/ma400596r

Section:

Chemistry of Synthetic High Polymers

Micellar Interpolyelectrolyte Complexes with a Compartmentalized Shell

Christopher V. Synatschke, Tina I. Löbling, Melanie Förtsch, Andreas Hanisch, Felix H. Schacher, and Axel H. E. Müller

pp 6466-6474

Publication Date (Web): August 14, 2013 (Article)

DOI: 10.1021/ma400934n

Section:

Chemistry of Synthetic High Polymers

Thermoresponsive (Co)polymers through Postpolymerization Modification of Poly(2-vinyl-4,4-dimethylazlactone)

Yicheng Zhu, Jing Yang Quek, Andrew B. Lowe, and Peter J. Roth

pp 6475-6484

Publication Date (Web): August 5, 2013 (Article)

DOI: 10.1021/ma401096r



Chemistry of Synthetic High Polymers

Strong Memory Effect of Crystallization above the Equilibrium Melting Point of Random Copolymers

Benjamin O. Reid, Madhavi Vadlamudi, Al Mamun, Hamed Janani, Huanhuan Gao, Wenbing Hu, and Rufina G. Alamo

pp 6485-6497

Publication Date (Web): August 7, 2013 (Article)

DOI: 10.1021/ma400839d



Physical Properties of Synthetic High Polymers

Monte Carlo Simulations of Strong Memory Effect of Crystallization in Random Copolymers

Huanhuan Gao, Madhavi Vadlamudi, Rufina G. Alamo, and Wenbing Hu

pp 6498-6506

Publication Date (Web): August 19, 2013 (Article)

DOI: 10.1021/ma400842h

Section:

Physical Properties of Synthetic High Polymers

Solid-State NMR Characterization of the Chemical Defects and Physical Disorders in α Form of Isotactic Poly(propylene) Synthesized by Ziegler-Natta Catalysts

Zhen Li, Toshikazu Miyoshi, Mani K. Sen, Tadanori Koga, Akihiro Otsubo, and Akihiro Kamimura

pp 6507-6519

Publication Date (Web): August 13, 2013 (Article)

DOI: 10.1021/ma401032z

Section:

Physical Properties of Synthetic High Polymers

Effect of Thermal History on the Microstructure of a Poly(tetramethylene oxide)-Based Polyurea

Alicia M. Castagna, Autchara Pangon, Gregory P. Dillon, and James Runt

pp 6520-6527

Publication Date (Web): August 16, 2013 (Article)

DOI: 10.1021/ma400856w

Section:

Physical Properties of Synthetic High Polymers

Dynamic Changes in Structural Color of a Lamellar Block Copolymer Photonic Gel during Solvent Evaporation

Wonmok Lee, Jongseung Yoon, Edwin L. Thomas, and Hyunjung Lee

pp 6528-6532

Publication Date (Web): August 6, 2013 (Article)

DOI: 10.1021/ma302557v

Section:

Physical Properties of Synthetic High Polymers

Determination of Solvent-Polymer and Polymer-Polymer Flory-Huggins Interaction Parameters for Poly(3-hexylthiophene) via Solvent Vapor Swelling

Jillian A. Emerson, Daniel T. W. Toolan, Jonathan R. Howse, Eric M. Furst, and Thomas H. Epps, III

pp 6533-6540

Publication Date (Web): August 15, 2013 (Article)

DOI: 10.1021/ma400597j

Section:

Physical Properties of Synthetic High Polymers

Fine-Tuning the Structure of Stimuli-Responsive Polymer Films by Hydrostatic Pressure and Temperature

Matthias Reinhardt, Joachim Dzubiella, Marcus Trapp, Philipp Gutfreund, Martin Kreuzer, André H. Gröschel, Axel H. E. Müller, Matthias Ballauff, and Roland Steitz

pp 6541-6547

Publication Date (Web): August 12, 2013 (Article)

DOI: 10.1021/ma400962p

Section:

Physical Properties of Synthetic High Polymers

Enhanced Cross-Linked Density by Annealing on Fluorinated Polymers Synthesized via Initiated Chemical Vapor Deposition To Prevent Surface Reconstruction Jose Luis Yagüe and Karen K. Gleason

pp 6548-6554

Publication Date (Web): August 13, 2013 (Article)

DOI: 10.1021/ma4010633

Section:

Plastics Manufacture and Processing

Shear-Induced Nucleation and Morphological Evolution for Bimodal Long Chain Branched Polylactide

Huagao Fang, Yaqiong Zhang, Jing Bai, and Zhigang Wang

pp 6555-6565

Publication Date (Web): August 14, 2013 (Article)

DOI: 10.1021/ma4012126

Section:

Physical Properties of Synthetic High Polymers

Biomimetic Modular Polymer with Tough and Stress Sensing Properties

Xiuli Fang, Huan Zhang, Yinjun Chen, Yangju Lin, Yuanze Xu, and Wengui Weng

pp 6566-6574

Publication Date (Web): August 15, 2013 (Article)

DOI: 10.1021/ma4014862

Section:

Plastics Manufacture and Processing

Direct Visualization of Three-Dimensional Morphology in Hierarchically Self-Assembled Mixed Poly(tert-butyl acrylate)/Polystyrene Brush-Grafted Silica Nanoparticles

Saide Tang, Ting-Ya Lo, Jonathan M. Horton, Chunhui Bao, Ping Tang, Feng Qiu, Rong-Ming Ho, Bin Zhao, and Lei Zhu

pp 6575-6584

Publication Date (Web): August 9, 2013 (Article)

DOI: 10.1021/ma401264m

Section:

Surface Chemistry and Colloids

Tethered PEG Crowdedness Determining Shape and Blood Circulation Profile of Polyplex Micelle Gene Carriers

Theofilus A. Tockary, Kensuke Osada, Qixian Chen, Kaori Machitani, Anjaneyulu Dirisala, Satoshi Uchida, Takahiro Nomoto, Kazuko Toh, Yu Matsumoto, Keiji Itaka, Koji Nitta, Kuniaki Nagayama, and Kazunori Kataoka

pp 6585-6592

Publication Date (Web): August 5, 2013 (Article)

DOI: 10.1021/ma401093z

Section:

Pharmaceuticals

A Simple Model for Heterogeneous Nucleation of Isotactic Polypropylene

Michael P. Howard and Scott T. Milner

pp 6593-6599

Publication Date (Web): August 9, 2013 (Article)

DOI: 10.1021/ma400702q

Section:

Physical Properties of Synthetic High Polymers

Calculated Interfacial Free Energies and Hetrogeneous Nucleation of Isotactic Polypropylene

Michael P. Howard and Scott T. Milner

pp 6600-6612

Publication Date (Web): August 9, 2013 (Article)

DOI: 10.1021/ma400703m

Section:

Physical Properties of Synthetic High Polymers

Effect of First Network Topology on the Toughness of Double Network Hydrogels

Hai Xin, Sureyya Zengin Saricilar, Hugh R. Brown, Philip G. Whitten, and Geoffrey M. Spinks

pp 6613-6620

Publication Date (Web): August 5, 2013 (Article)

DOI: 10.1021/ma400892g

Section:

Physical Properties of Synthetic High Polymers

Effect of Grafting on Rheology and Structure of a Simplified Industrial Nanocomposite Silica/SBR

Guilhem P. Baeza, Anne-Caroline Genix, Christophe Degrandcourt, Laurent Petitjean, Jérémie Gummel, Ralf Schweins, Marc Couty, and Julian Oberdisse

pp 6621-6633

Publication Date (Web): August 8, 2013 (Article)

DOI: 10.1021/ma401016d

Section:

Plastics Manufacture and Processing

Molecular Weight Effects on Particle and Polymer Microstructure in Concentrated Polymer Solutions

So Youn Kim and Charles F. Zukoski

pp 6634-6643

Publication Date (Web): August 8, 2013 (Article)

DOI: 10.1021/ma400459c

Section:

Physical Properties of Synthetic High Polymers

Monomer Distributions and Intrachain Collisions of a Polymer Confined to a Channel

E. Werner, F. Westerlund, J. O. Tegenfeldt, and B. Mehlig

pp 6644-6650

Publication Date (Web): August 9, 2013 (Article)

DOI: 10.1021/ma400464c

Section:

Physical Properties of Synthetic High Polymers

Self-Assembly of Cylinder-Forming Diblock Copolymer Thin Films

Arash Nikoubashman, Richard A. Register, and Athanassios Z. Panagiotopoulos

pp 6651-6658

Publication Date (Web): August 5, 2013 (Article)

DOI: 10.1021/ma400867s

Section:

Physical Properties of Synthetic High Polymers

Equilibrium Statistics of a Surface-Pinned Semiflexible Polymer

James T. Waters and Harold D. Kim

pp 6659-6666

Publication Date (Web): August 14, 2013 (Article)

DOI: 10.1021/ma4011704

Section:

Physical Properties of Synthetic High Polymers

Notes

Space-Dependent Dynamics in 1,4-Polybutadiene Nanocomposite

J. H. Roh, M. Tyagi, T. E. Hogan, and C. M. Roland

pp 6667-6669

Publication Date (Web): August 16, 2013 (Note)

DOI: 10.1021/ma401597r

Section:

Plastics Manufacture and Processing