

Polymer Vol. 49, No. 21, 6 October 2008

Contents

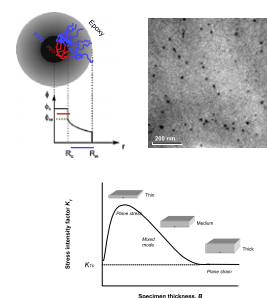
FEATURE ARTICLE

Toughening by nanostructure

Lorena Ruiz-Pérez, Gareth J. Royston, J. Patrick A. Fairclough, Anthony J. Ryan*

Department of Chemistry, University of Sheffield, Brook Hill, Sheffield S3 7HF, United Kingdom

pp 4475–4488



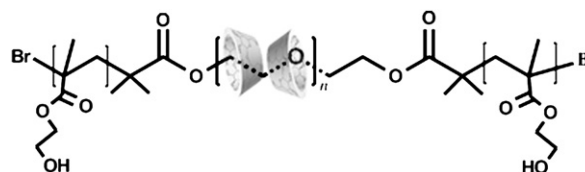
POLYMER COMMUNICATION

Novel main-chain polyrotaxanes synthesized via ATRP of HEMA initiated with polypseudorotaxanes comprising BriB–PEG–iBBr and α -CDs

Xinming Tong, Xiaowen Zhang, Lin Ye, Ai-ying Zhang, Zeng-guo Feng*

School of Materials Science and Engineering, Beijing Institute of Technology, Beijing 100081, China

pp 4489–4493



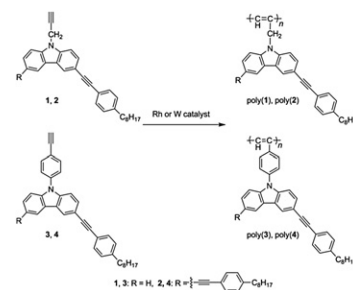
POLYMER PAPERS

Synthesis and properties of polyacetylenes having pendent phenylethynylcarbazolyl groups

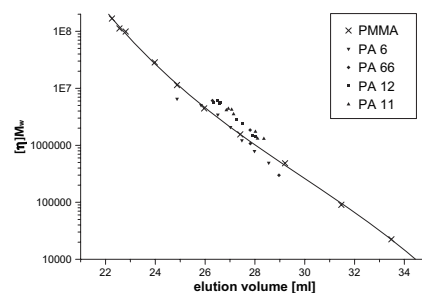
Kosaku Tamura, Toru Fujii, Masashi Shiotsuki, Fumio Sanda*, Toshio Masuda**

Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University, Katsura Campus, Kyoto 615-8510, Japan

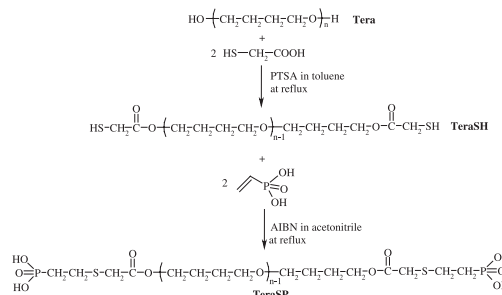
pp 4494–4501

**Molar mass analysis of polyamides-11 and -12 by size exclusion chromatography in HFIP**Sandra Laun^a, Harald Pasch^{a,*}, Nicolas Longi eras^b, Christophe Degoulet^b^a Deutsches Kunststoff-Institut (German Institute for Polymers), Schlossgartenstrasse 6, 64289 Darmstadt, Germany^b Arkema, Cerdato, Route du Rilsan, Serquigny 27470, France

pp 4502–4509

**Synthesis and characterization of ionomers based on telechelic phosphonic polyether or aromatic polyesters**Mohamed Essahli^b, Ga el Colomines^a, Sophie Monge^a, Jean-Jacques Robin^{a,*}, Andr e Collet^a, Bernard Boutevin^a^a Institut Charles Gerhardt Montpellier, UMR5253 CNRS-UM2-ENSCM-UM1, Equipe Ing enierie et Architectures Macromol culaires, Universit  Montpellier II cc1702, Place Eug ne Bataillon, 34095 Montpellier Cedex 5, France^b Laboratoire de Chimie Organique, Facult  des sciences et Techniques, BP2202 F s, Morocco

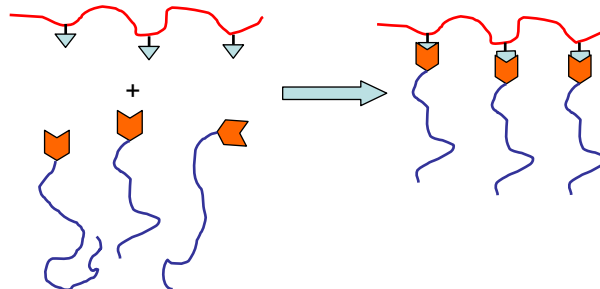
pp 4510–4518

**Synthesis and properties of polyolefin graft copolymers by a grafting "onto" reactive process**

Jean Jacques Robin*, Cyrille Boyer, Bernard Boutevin, Cedric Loubat

Institut Charles Gerhardt Montpellier UMR5253 CNRS-UM2-ENSCM-UM1, Equipe Ing enierie et Architectures Macromol culaires, Universit  Montpellier II, Bat 17, cc17-02, Place Eug ne Bataillon 34095 Montpellier Cedex 5, France

pp 4519–4528

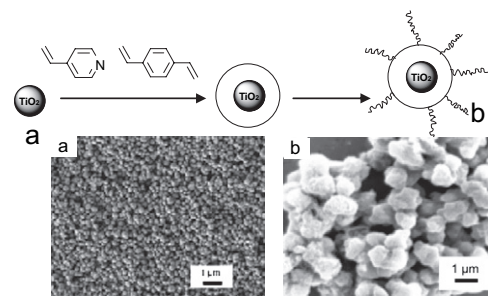


Encapsulation of TiO₂ in poly(4-vinyl pyridine)-based cationic microparticles for electrophoretic inks

pp 4529–4533

M. Badila, C. Brochon*, A. Hébraud, G. Hadziioannou*

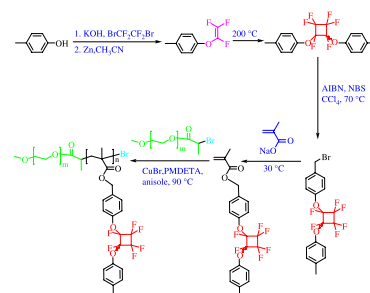
Laboratoire d'Ingénierie des Polymères pour les Hautes Technologies, UMR 7165,
 Université Louis Pasteur, Ecole Européenne de Chimie, Polymères et Matériaux,
 25 rue Becquerel, 67000 Strasbourg, France

**Synthesis and characterization of perfluorocyclobutyl aryl ether-based amphiphilic diblock copolymer**

pp 4534–4540

Liang Tong, Zhong Shen, Sen Zhang, Yongjun Li, Guolin Lu, Xiaoyu Huang*

Key Laboratory of Organofluorine Chemistry and Laboratory of Polymer Materials,
 Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, 354 Fenglin Road,
 Shanghai 200032, PR China

**Non-invasive headspace measurement for characterizing oxygen-scavenging in polymers**

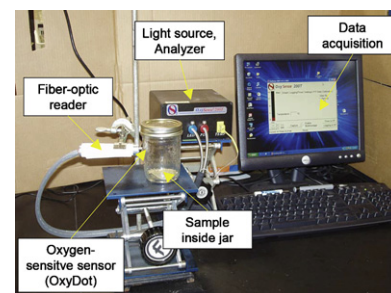
pp 4541–4545

Hua Li^a, David K. Ashcraft^a, Benny D. Freeman^{a,*}, Mark E. Stewart^b, Mona K. Jank^b, Thomas R. Clark^c

^a The University of Texas at Austin, Department of Chemical Engineering,
 Center for Energy and Environmental Resources, 10100 Burnet Road, Building 133,
 Austin, TX 78758, United States

^b Global PET Technology, Eastman Chemical Company, P.O. Box 511, Kingsport, TN 37662,
 United States

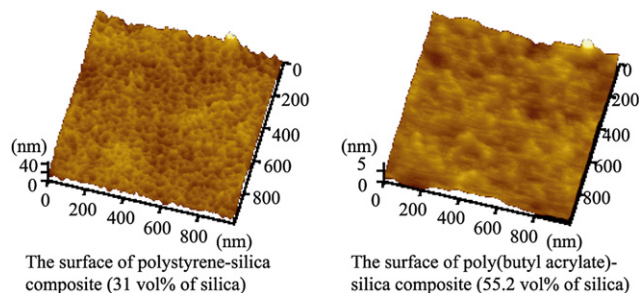
^c Packaging Strategic Research, Kraft Foods, 200 DeForest Avenue, East Hanover, NJ 07936,
 United States

**Water vapor barrier property of organic–silica nanocomposite derived from perhydropolysilazane on polyvinyl alcohol substrate**

pp 4546–4551

Reiko Saito*, Takayoshi Hosoya

Department of Organic and Polymeric Materials, Tokyo Institute of Technology,
 2-12-1-S1-22, Ookayama, Meguro, Tokyo 152-8552, Japan



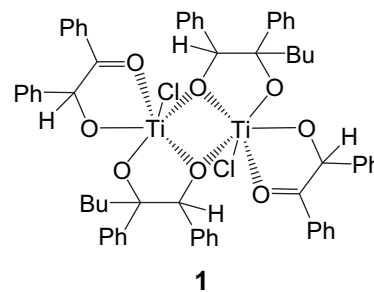
Novel bis(benzoin) titanium catalyst for homo- and copolymerization of norbornene with ethylene: Synthesis, characterization and catalytic properties

pp 4552–4558

Hao Hu^a, Haiyang Gao^a, Keming Song^a, Fengshou Liu^a, Jieming Long^a, Ling Zhang^a, Fangming Zhu^{a,b}, Qing Wu^{a,b,*}

^a Institute of Polymer Science, School of Chemistry and Chemical Engineering, Sun Yat-sen (Zhongshan) University, Guangzhou 510275, China

^b PCFM Laboratory, OFCM Institute, Sun Yat-sen (Zhongshan) University, Guangzhou 510275, China



Synthesis and properties of various PPV derivatives with phenyl substituents

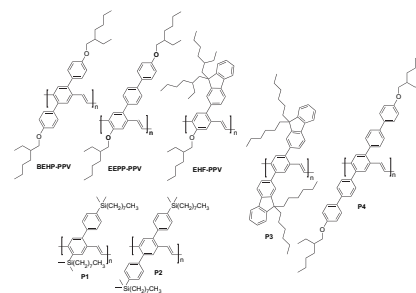
pp 4559–4568

Youngeup Jin^a, Suhee Song^a, Sung Heum Park^b, Jin-A Park^a, Jinwoo Kim^a, Han Young Woo^c, Kwanghee Lee^b, Hongsuk Suh^{a,*}

^a Department of Chemistry, Chemistry Institute for Functional Materials, Pusan National University, Pusan 609-735, Republic of Korea

^b Department of Materials Science and Engineering Gwangju Institute of Science and Technology Gwangju 500-712, Republic of Korea

^c Department of Nanomaterials Engineering, Pusan National University, Miryang 627-706, Republic of Korea

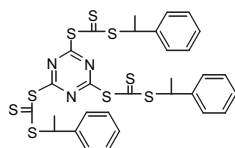


Synthesis and self-assembly behaviors of three-armed amphiphilic block copolymers via RAFT polymerization

pp 4569–4575

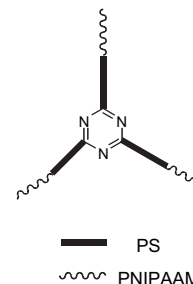
Weidong Zhang, Wei Zhang, Nianchen Zhou, Zhenping Cheng, Jian Zhu, Xiulin Zhu*

Key Laboratory of Organic Synthesis of Jiangsu Province, School of Chemistry and Chemical Engineering of Soochow (Suzhou) University, Suzhou 215123, China



TTA

1. RAFT polymerization of St
2. RAFT polymerization of NIPAAm

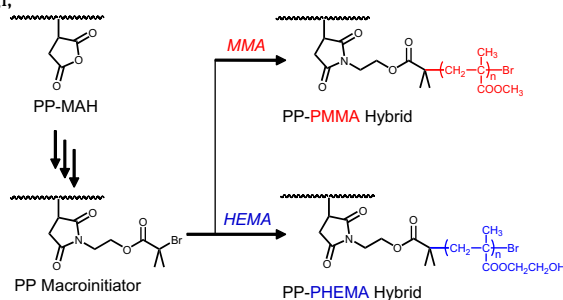


Synthesis and characterization of polypropylene-based polymer hybrids linking poly(methyl methacrylate) and poly(2-hydroxyethyl methacrylate)

pp 4576–4584

Hideyuki Kaneko*, Junji Saito, Nobuo Kawahara, Shingo Matsuo, Tomoaki Matsugi, Norio Kashiwa

Research Center, Mitsui Chemicals, Inc., 580-32 Nagaura, Sodegaura, Chiba 299-0265, Japan



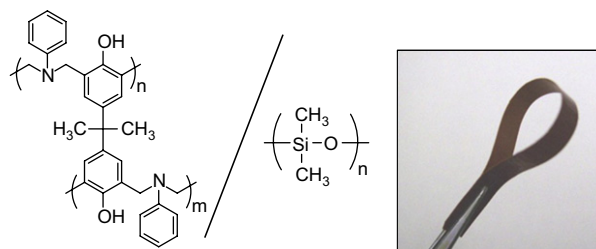
Performance enhancement of polybenzoxazine by hybridization with polysiloxane

pp 4585–4591

Hosta Ardhyananta^a, Mohd. Haniff Wahid^a, Masahiro Sasaki^a, Tarek Agag^a, Takehiro Kawauchi^a, Hanafi Ismail^b, Tsutomu Takeichi^{a,*}

^a School of Materials Science, Toyohashi University of Technology, Tempaku-cho, Toyohashi 441-8580, Japan

^b School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia, Seri Ampangan, 14300 Nibong Tebal, Pulau Pinang, Malaysia



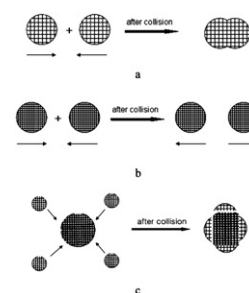
Polybenzoxazine / polysiloxane hybrid

Crosslinkable functional moiety for the formation of highly crosslinked stable microspheres in the precipitation polymerization

pp 4592–4601

Minhye Ha, Kangseok Lee, Soonja Choe^{*}

Department of Chemical Engineering, Inha University, Yonghyundong 253, Namgu, Incheon 402-751, Republic of Korea



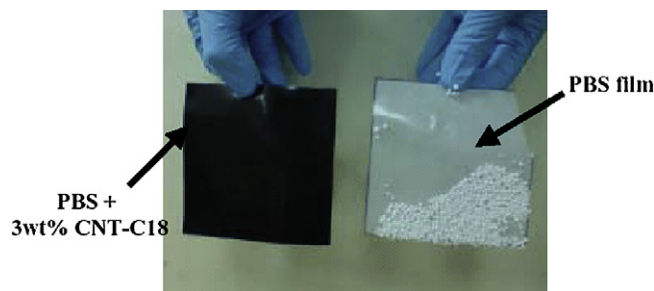
Preparation and properties of biodegradable PBS/multi-walled carbon nanotube nanocomposites

pp 4602–4611

Y.F. Shih^{a,*}, L.S. Chen^b, R.J. Jeng^b

^a Department of Applied Chemistry, Chaoyang University of Technology, 168 Jifong East Road, Wufong Township, Taichung County 41349, Taiwan

^b Department of Chemical Engineering, National Chung Hsing University, 250 Kuo Kuang Road, Taichung 402, Taiwan

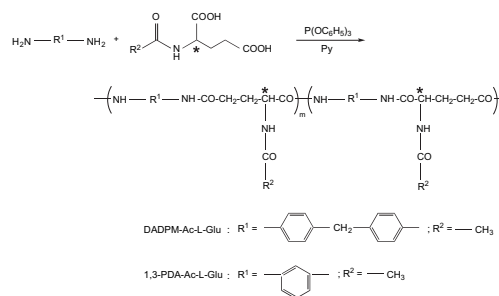


Chiral separation of racemic amino acids with novel polyamides having N-α-acetyl-L-glutamyl residue as a diacid component

pp 4612–4619

Maiko Nakagawa, Yoshimi Ikeuchi, Masakazu Yoshikawa^{*}

Laboratory for Applied Polymer Chemistry, Department of Biomolecular Engineering, Kyoto Institute of Technology, Matsugasaki, Kyoto 606-8585, Japan

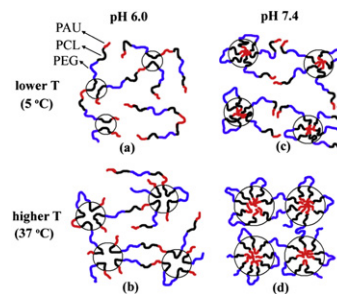


In situ gelling aqueous solutions of pH- and temperature-sensitive poly(ester amino urethane)s

Kasala Dayananda¹, Chaoliang He¹, Doo Sung Lee^{*}

Department of Polymer Science and Engineering, Sungkyunkwan University, Suwon, Gyeonggi 440-746, Republic of Korea

pp 4620–4625

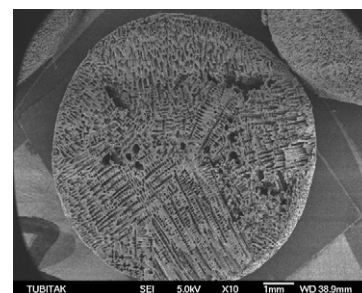


Tough organogels based on polyisobutylene with aligned porous structures

Saadet Dogu, Oguz Okay^{*}

Istanbul Technical University, Department of Chemistry, Maslak, 34469 Istanbul, Turkey

pp 4626–4634



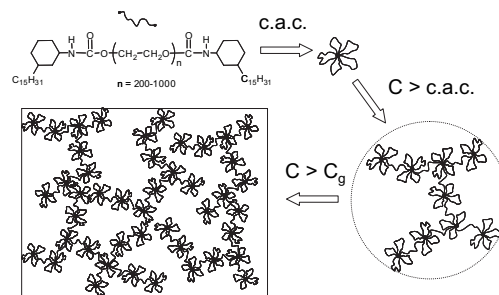
Synthesis and self-assembling properties of α,ω -hydroxy-poly(ethylene oxide) end-capped with 1-isocyanato-3-pentadecylcyclohexane

Vijay S. Kadam^a, Manohar V. Badiger^a, Prakash P. Wadgaonkar^a, Guylaine Ducouret^b, Dominique Hourdet^{b,*}

^a Polymer Science and Engineering Division, National Chemical Laboratory, Pune 411 008, India

^b Physico-Chimie des Polymères et des Milieux Dispersés, UMR 7615, ESPCI-CNRS-UPMC, 10 Rue Vauquelin, 75005 Paris Cedex 05, France

pp 4635–4646



Synthesis of MDMO-PPV capped PbS quantum dots and their application to solar cells

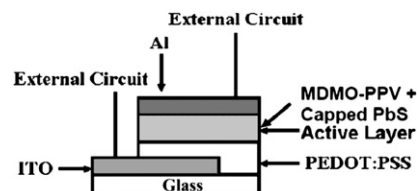
Zhijie Wang^a, Shengchun Qu^{a,*}, Xiangbo Zeng^a, Changsha Zhang^a, Mingji Shi^a, Furui Tan^a, Zhanguo Wang^a, Junpeng Liu^b, Yanbing Hou^c, Feng Teng^c, Zhihui Feng^c

^a Key Laboratory of Semiconductor Materials Science, Institute of Semiconductors, Chinese Academy of Sciences, P. O. Box 912, Beijing 100083, PR China

^b College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, PR China

^c Key Laboratory of Luminescence and Optical Information, Ministry of Education, Institute of Optoelectronic Technology, Beijing Jiaotong University, Beijing 100044, PR China

pp 4647–4651



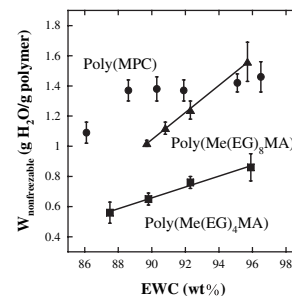
Hydration of phosphorylcholine groups attached to highly swollen polymer hydrogels studied by thermal analysis

pp 4652–4657

Toshinori Morisaku^a, Junji Watanabe^b, Tomohiro Konno^a, Madoka Takai^a, Kazuhiko Ishihara^{a,*}

^a Department of Materials Engineering, School of Engineering and Center for NanoBio Integration, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

^b Department of Applied Chemistry, Graduate School of Engineering, Osaka University, 2-1 Yamada-oka, Suita, Osaka 565-0871, Japan

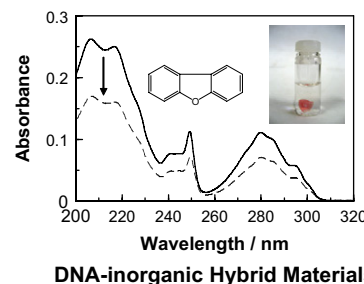


DNA–inorganic hybrid material as selective absorbent for harmful compounds

pp 4658–4665

Masanori Yamada^{*}, Hirofumi Aono

Department of Chemistry, Faculty of Science, Okayama University of Science, Ridaicho, Okayama 700-0005, Japan



Study of the thermal conduction mechanism of nano-SiC/DGEBA/EMI-2,4 composites

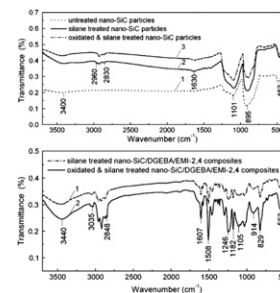
pp 4666–4672

Tianle Zhou^{a,b,*}, Xin Wang^a, GU. Mingyuan^c, Xiaoheng Liu^a

^a Key Laboratory for Soft Chemistry and Functional Materials of Ministry Education, Nanjing University of Science and Technology, Nanjing 210094, China

^b Department of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing 210094, China

^c State Key Laboratory of MMCs, Shanghai Jiao Tong University, Shanghai 200240, China

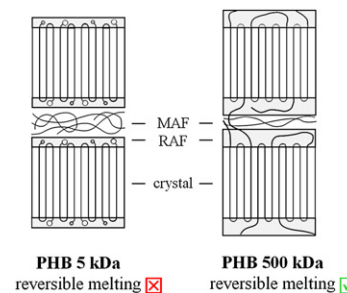


Surface structure of folded-chain crystals of poly(R-3-hydroxybutyrate) of different chain length

pp 4673–4679

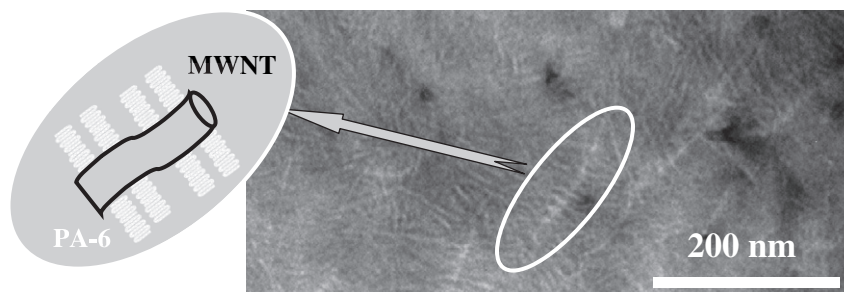
René Androsch

Martin-Luther-University Halle-Wittenberg, Center of Engineering Sciences, D-06099 Halle/Saale, Germany

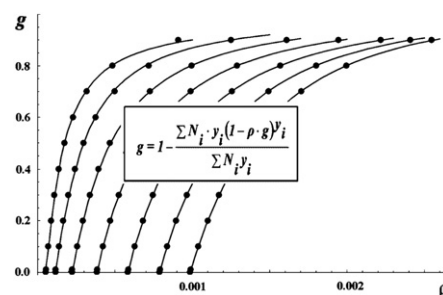


Effect of multi-walled carbon nanotubes on the lamellae morphology of polyamide-6

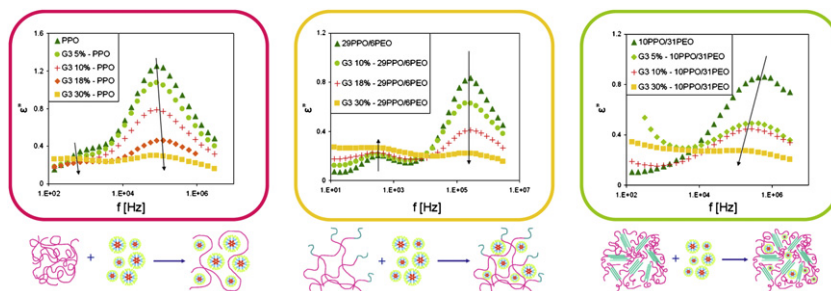
pp 4680–4686

Anne-Carine Brosse^a, Sylvie Tencé-Girault^{a,*},
Patrick M. Piccione^b, Ludwik Leibler^a^a Matière Molle et Chimie (ESPCI-CNRS, UMR 7167),
ESPCI, 10 rue Vauquelin, 75231 Paris Cedex 05, France^b ARKEMA, Groupement de Recherches de Lacq,
B.P. 34, RN 117, 64170 Lacq, France**Proposed solution for the Flory–Charlesby equation for crosslinked polymers and application for 1,2-polybutadiene crosslinked with AIBN and aryl diazide**

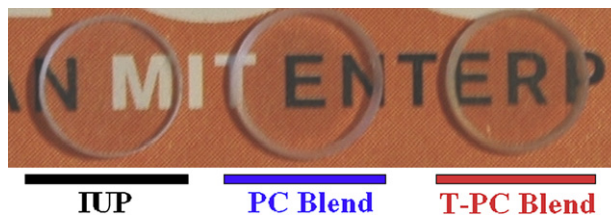
pp 4687–4694

Virgil Barboiu^{*}, Mihaela Iuliana Avadanei^{*}“Petru Poni” Institute of Macromolecular Chemistry, 41A Grigore Ghica Voda Alley, Iasi 700487, Romania**Dynamics in complex systems: Dendrimer–polymer blends in electric and mechanical fields**

pp 4695–4702

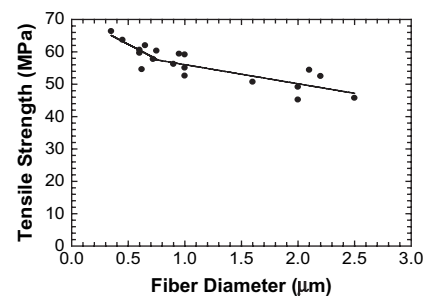
Sanja Ristić, Jovan Mijović^{*}Othmer–Jacobs Department of Chemical and
Biological Engineering, Polytechnic Institute
of New York University, Six Metrotech Center,
Brooklyn, NY 11201, USA**Enhancement to the rate-dependent mechanical behavior of polycarbonate by incorporation of triptycenes**

pp 4703–4712

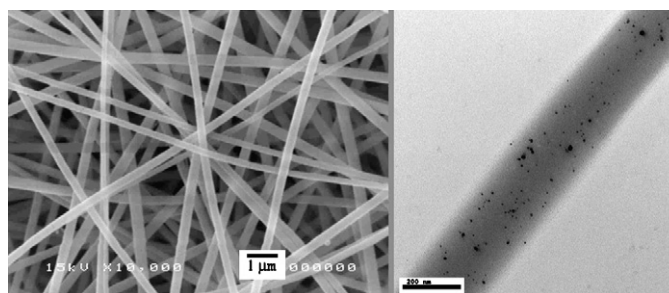
Nicholas T. Tsui^a, Yong Yang^b, Adam D. Mulliken^c, Lokman Torun^{b,d}, Mary C. Boyce^c,
Timothy M. Swager^b, Edwin L. Thomas^{a,*}^a Department of Materials Science and Engineering, Institute for Soldier
Nanotechnologies, Massachusetts Institute of Technology, 77 Massachusetts
Avenue, Cambridge, MA 02139, United States^b Department of Chemistry, Institute for Soldier
Nanotechnologies, Massachusetts Institute of Technology,
77 Massachusetts Avenue, Cambridge, MA 02139, United States^c Department of Mechanical Engineering, Institute for Soldier
Nanotechnologies, Massachusetts Institute of Technology,
77 Massachusetts Avenue, Cambridge, MA 02139, United States^d Tubitak Mam, Materials Institute, PK 21 Gebze, Kocaeli 41470, Turkey

Effect of fiber diameter on tensile properties of electrospun poly(ϵ -caprolactone)

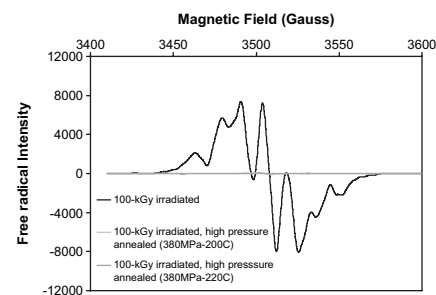
pp 4713–4722

Shing-Chung Wong^{a,*}, Avinash Baji^a, Siwei Leng^b^a Department of Mechanical Engineering, The University of Akron, Akron, OH 44325-3903, USA^b Institute of Polymer Science, The University of Akron, Akron, OH 44325-3903, USA**Wound-dressing materials with antibacterial activity from electrospun gelatin fiber mats containing silver nanoparticles**

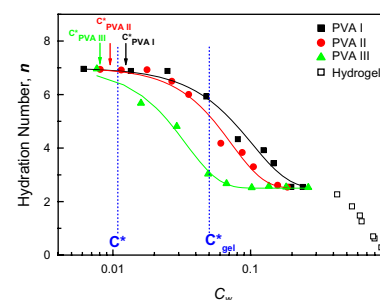
pp 4723–4732

Pim-on Rujitanaroj^a, Nuttaporn Pimpha^b, Pitt Supaphol^{a,*}^a Technological Center for Electrospun Fibers and The Petroleum and Petrochemical College, Chulalongkorn University, Pathumwan, Bangkok 10330, Thailand^b National Nanotechnology Center, Thailand Science Park, Phatum Thani 12120, Thailand**Free radical elimination in irradiated UHMWPE through crystal mobility in phase transition to the hexagonal phase**

pp 4733–4739

Ebru Oral^{a,b}, Christine Godleski Beckos^a, Orhun K. Muratoglu^{a,b,*}^a Orthopaedic Biomechanics and Biomaterials Laboratory, Department of Orthopaedic Surgery, Massachusetts General Hospital, 55 Fruit Street, GRJ 1206, Boston, MA 02114, USA^b Harvard Medical School, Boston, MA, USA**Transition of hydration states of poly(vinyl alcohol) in aqueous solution**

pp 4740–4744

Wenbo Li^a, Yun Zheng^a, Rongshi Cheng^{a,b,*}^a Key Laboratory for Mesoscopic Chemistry of the Ministry of Education, Department of Polymer Science and Engineering, College of Chemistry and Chemical Engineering, Nanjing University, Nanjing, 210093, PR China^b College of Material Science & Engineering, South China University of Technology, Guangzhou, 510640, PR China

*Corresponding author



Full text of this journal is available, on-line from **ScienceDirect**. Visit www.sciencedirect.com for more information.

Abstracted/indexed in: AGRICOLA, Beilstein, BIOSIS Previews, CAB Abstracts, Chemical Abstracts, Current Contents: Life Sciences, Current Contents: Physical, Chemical and Earth Sciences, Current Contents Search, Derwent Drug File, Ei compendex, EMBASE/Excerpta Medica, Medline, PASCAL, Research Alert, Science Citation Index, SciSearch. Also covered in the abstract and citation database SCOPUS®. Full text available on ScienceDirect®



ELSEVIER

ISSN 0040-4020

Author Index

- Agag, T. 4585
 Androsch, R. 4673
 Aono, H. 4658
 Ardhyananta, H. 4585
 Ashcraft, D. K. 4541
 Avadanei, M. I. 4687

 Badiger, M. V. 4635
 Badila, M. 4529
 Baji, A. 4713
 Barboiu, V. 4687
 Boutevin, B. 4510, 4519
 Boyce, M. C. 4703
 Boyer, C. 4519
 Brochon, C. 4529
 Brosse, A.-C. 4680

 Chen, L. S. 4602
 Cheng, R. 4740
 Cheng, Z. 4569
 Choe, S. 4592
 Clark, T. R. 4541
 Collet, A. 4510
 Colomines, G. 4510

 Dayananda, K. 4620
 Degoulet, C. 4502
 Dogu, S. 4626
 Ducouret, G. 4635

 Essahli, M. 4510

 Fairclough, J. P. A. 4475
 Feng, Z. 4647
 Feng, Z.-g. 4489
 Freeman, B. D. 4541
 Fujii, T. 4494

 Gao, H. 4552
 Godleski Beckos, C. 4733

 Ha, M. 4592
 Hadziioannou, G. 4529
 He, C. 4620
 Hébraud, A. 4529
 Hosoya, T. 4546
 Hou, Y. 4647
 Hourdet, D. 4635
 Hu, H. 4552
 Huang, X. 4534

 Ikeuchi, Y. 4612
 Ishihara, K. 4652
 Ismail, H. 4585

 Jank, M. K. 4541
 Jeng, R. J. 4602
 Jin, Y. 4559

 Kadam, V. S. 4635
 Kaneko, H. 4576
 Kashiwa, N. 4576
 Kawahara, N. 4576
 Kawauchi, T. 4585
 Kim, J. 4559
 Konno, T. 4652

 Laun, S. 4502
 Lee, D. S. 4620
 Lee, Kangseok 4592
 Lee, Kwanghee 4559
 Leibler, L. 4680
 Leng, S. 4713
 Li, H. 4541
 Li, W. 4740
 Li, Y. 4534
 Liu, F. 4552
 Liu, J. 4647
 Liu, X. 4666
 Long, J. 4552
 Longiéras, N. 4502
 Loubat, C. 4519
 Lu, G. 4534

 Masuda, T. 4494
 Matsugi, T. 4576
 Matsuo, S. 4576
 Mijović, J. 4695
 Mingyuan, G. U. 4666
 Monge, S. 4510
 Morisaku, T. 4652
 Mulliken, A. D. 4703
 Muratoglu, O. K. 4733

 Nakagawa, M. 4612

 Okay, O. 4626
 Oral, E. 4733

 Park, J.-A. 4559
 Park, S. H. 4559
 Pasch, H. 4502
 Piccione, P. M. 4680
 Pimpha, N. 4723

 Qu, S. 4647

 Ristić, S. 4695
 Robin, J. J. 4519
 Robin, J.-J. 4510
 Royston, G. J. 4475
 Ruiz-Pérez, L. 4475
 Rujitanaroj, P.-o. 4723
 Ryan, A. J. 4475

 Saito, J. 4576
 Saito, R. 4546
 Sanda, F. 4494
 Sasaki, M. 4585
 Shen, Z. 4534
 Shi, M. 4647
 Shih, Y. F. 4602
 Shiotsuki, M. 4494
 Song, K. 4552
 Song, S. 4559
 Stewart, M. E. 4541
 Suh, H. 4559
 Supaphol, P. 4723
 Swager, T. M. 4703

 Takai, M. 4652
 Takeichi, T. 4585
 Tamura, K. 4494
 Tan, F. 4647
 Tencé-Girault, S. 4680
 Teng, F. 4647
 Thomas, E. L. 4703
 Tong, L. 4534
 Tong, X. 4489
 Torun, L. 4703
 Tsui, N. T. 4703

 Wadgaonkar, P. P. 4635
 Wahid, M. H. 4585
 Wang, X. 4666
 Wang, Zhanguo 4647
 Wang, Zhijie 4647
 Watanabe, J. 4652
 Wong, S.-C. 4713
 Woo, H. Y. 4559
 Wu, Q. 4552

 Yamada, M. 4658
 Yang, Y. 4703
 Ye, L. 4489
 Yoshikawa, M. 4612

 Zeng, X. 4647
 Zhang, A.-y. 4489
 Zhang, C. 4647
 Zhang, L. 4552
 Zhang, S. 4534
 Zhang, Wei 4569
 Zhang, Weidong 4569
 Zhang, X. 4489
 Zheng, Y. 4740
 Zhou, N. 4569
 Zhou, T. 4666
 Zhu, F. 4552
 Zhu, J. 4569
 Zhu, X. 4569