## Macromolecular Research

Accumulated Contents (Volume 12, Number 1~6, 2004)

Volume 12, Number 1 February 28, 2004 Feature Articles Structural Changes in Isothermal Crystallization Processes of Synthetic Polymers Studied by Time-Resolved Measurements of Synchrotron-Sourced X-Ray Scatterings and Vibrational Spectra Kohji Tashiro\* and Hisakatsu Hama 1 Review Rubber Toughened Epoxy 11 D. Ratna and Ajit K. Banthia\* **Articles** UV-Vis Spectra of N, N'-Bis(4'-Amino-phenyl)-1,4-quinonenediimine Doped with H<sub>4</sub>SiW<sub>12</sub>O<sub>40</sub> Jian Gong, Xiu-Jun Cui, Ya-Guang Chen, Zhong-Wei Xie, and Lun-Yu Qu\* 22 Diffusion of Water in Sulfonated Polystyrene Ionomers N. R. Manoj\*, D. Ratna, and R. A. Weiss 26 Atom Transfer Radical Polymerization of Hexadecyl Acrylate Using CuSCN as the Catalyst 32 Wenjian Xu, Xiulin Zhu\*, Zhenping Cheng, Jianying Chen, and Jianmei Lu Preparation and Properties of Polyimides Having Highly Flexible Linkages and Their Nanocomposites with Organoclays 38 Young Ho Cho, Jong Min Park, and Yun Heum Park\* Anti-complement Effects of Anion-Substituted Poly(vinyl alcohol) Membranes Kyu Eun Ryu, Hyangshuk Rhim, Chong Won Park, Heung Jae Chun\*, Seung Hwa Hong, Young Chai Kim, and Young Moo Lee 46 PTC Behavior of Polymer Composites Containing Ionomers upon Electron Beam Irradiation 53 Jong Hawk Kim, Hyun-Nam Cho, Seong Hun Kim\*, and Jun Young Kim Synthesis of Various Polymeric Prodrugs of Ibuprofen with PEG and Its Derivative as Polymeric Carriers 63 Drug-Release Behavior of Polymeric Prodrugs of Ibuprofen with PEG and Its Derivatives as Polymeric Carriers Chan Woo Lee\* 71 A Low-Viscousity, Highly Thermally Conductive Epoxy Molding Compound (EMC) 78 Jong-Woo Bae, Wonho Kim\*, Seungchul Hwang, Young-Sun Choe, and Sang-Hyun Lee Preparation and Properties of in situ Polymerized Poly(ethylene terephthalate)/Fumed Silica Nanocomposites Wan-Gyu Hahm, Hee-Soo Myung, and Seung Soon Im\* 85

Joon Youl Lee* and Ji Young Han	94
Preparation of Dinuclear, Constrained Geometry Zirconium Complexes with Polymethylene Bridges and an Investigation of Their Polymerization Behavior  Seok Kyun Noh*, Wen Long Jiang, and Dong-ho Lee	100
Kinetics of Acrylamide Solution Polymerization Using Potassium Persulfate as an Initiator by <i>in situ</i> IR Shin Choon Kang*, Yoo Jeong Choi, Hyung Zip Kim, Jin Burm Kyong, and Dong Kook Kim*	107
Mechanical Properties of Ultra-High Molecular Weight Polyethylene Irradiated with Gamma Rays Choon Soo Lee, Seung Hoo Yoo, Jae Young Jho*, Kuiwon Choi, and Tae-Won Hwang	112
Influence of Silane Coupling Agents on the Interlaminar and Thermal Properties of Woven Glass Fabric/Nylon 6 Composites Donghwan Cho*, Suk Hyang Yun, Junkyung Kim, Soonho Lim, Min Park, Sang-Soo Lee, and Geon-Woong Lee	119
Surface Micelle Formation of Polystyrene- <i>b</i> -Poly(2-vinyl pyridine) Diblock Copolymer at Air-Water Interface <b>Myunghoon Choi, Bonghoon Chung, Byungok Chun, and Taihyun Chang*</b>	127
AFM and Specular Reflectance IR Studies on the Surface Structure of Poly(ethylene terephthalate) Films upon Treatment with Argon and Oxygen Plasmas Eun-Deock Seo*	134
Dynamic Mechanical Behavior of Ultra-High Molecular Weight Polyethylene Irradiated with Gamma Rays Choon Soo Lee, Jae Young Jho*, Kuiwon Choi, and Tae-Won Hwang	141
Volume 12, Number 2 April 30, 2	2004
Volume 12, Number 2  April 30, 2	2004
Feature Articles  Silver Polymer Electrolyte Membranes for Facilitated Olefin Transport: Carrier Properties, Transport Mechanism and Separation Performance Jong Hak Kim, Yong Soo Kang*, and Jongok Won  Review	145
Feature Articles  Silver Polymer Electrolyte Membranes for Facilitated Olefin Transport: Carrier Properties,  Transport Mechanism and Separation Performance  Jong Hak Kim, Yong Soo Kang*, and Jongok Won	
Feature Articles  Silver Polymer Electrolyte Membranes for Facilitated Olefin Transport: Carrier Properties, Transport Mechanism and Separation Performance Jong Hak Kim, Yong Soo Kang*, and Jongok Won  Review  Control of Molecular Weight, Stereochemistry and Higher Order Structure of Siloxane-containing Polymers and Their Functional Design Yusuke Kawakami*, Yuning Li, Yang Liu, Makoto Seino, Chitsakon Pakjamsai, Motoi Oishi,	145

Reorientation of Colloidal Crystalline Domains by a Thinning Meniscus  Sang Hyuk Im, O Ok Park*, and Moo Hyun Kwon	189
Ionic Conductivities of the LiCF <sub>3</sub> SO <sub>3</sub> Complexes with Liquid Crystalline Aromatic Polyesters Having Oligo(oxyethylene) Pendants  Jun-Woo Lee, Sung-Hoon Joo, and Jung-Il Jin*	195
Mathematical Modeling of Zone Drawing Process  Hyungsup Kim*, Kwang Soo Cho*, and Byung-Chul Ji	206
Dispersion Polymerization of Acrylamide in <i>t</i> -Butyl Alcohol/Water Media Ki-Chang Lee*, Seung-Eun Lee, Yoo-Jin Choi, and Bong-Keun Song	213
Evaluations of Poly(vinyl alcohol)/Alginate Hydrogels Cross-linked by γ-ray Irradiation Technique Sang Yong Nam, Young Chang Nho, Seung Hwa Houg, Gue Tae Chae, Hong Seok Jang, Tae Suk Suh, Woong Shick Ahn, Kyu Eun Ryu, and Heung Jae Chun*	219
Preparation of Monodisperse Melamine-Formaldehyde Microspheres via Dispersed Polycondensation In Woo Cheong, Jin Sup Shin, Jung Hyun Kim*, and Seung Jun Lee	225
Thermally Robust Highly Crosslinked Poly(methyl methacrylate-co-divinyl benzene) Microspheres by Precipitation Polymerization Sang Eun Shim, Sunhye Yang, Hyejeon Jung, and Soonja Choe*	233
Preparation of Ultra Fine Poly(methyl methacrylate) Microspheres in Methanol-enriched Aqueous Medium Sang Eun Shim, Kijung Kim, Sejin Oh, and Soonja Choe*	
Relation between Huggins Constant and Compatibility of Binary Polymer Mixtures in the Aqueous Ternary Systems  Isamu Inamura*, Makoto Kittaka, Tatsuya Aikou, Kazuhiko Akiyama, Tomoyuki Matsuyama, Masatsugu Hiroto, Ken-ichi Hirade, and Yuji Jinbo	246
Volume 12, Number 3  June 30	), 2004
Articles	
Chemical Structural Effects of Polyimides on the Alignment and Electro-optical Properties of Liquid Crystal Cells  Wonseok Dong and Sang-Hyon Paek*	251
Microwave Assisted Rapid Synthesis of Novel Optically Active Poly(amide-imide)s Based on N-Trimellitylimido-L-Leucine Diacid Chloride and Hydantoin Derivatives  Khalil Faghihi	258
A Water-Soluble Polyimide Precursor: Synthesis and Characterization of Poly(amic acid) Salt <b>Jun Yang and Myong-Hoon Lee</b>	263
Preparation of Alginate/Poly ( <i>N</i> -isopropylacrylamide) Hydrogels Using Gamma-ray Irradiation Grafting Sang Bong Lee, Sung Mi Seo, Youn Mook Lim, Seong Kwan Cho, Young Moo Lee, and Young Chang Nho	269
Effect of Molecular Weights of Polyethyleneimine on the Polyplex Formation with Calf Thymus DNA Jungho Han, Seog K. Kim, Tae-Sub Cho*, and Jae-Cheol Lee	276

The Effect of Cure History on the Fluorescence Behavior of an Unsaturated Polyester Resin with a Fluorescence Probe  Donghwan Cho*, Suk Hyang Yun, Dae-Suk Bang, and Il Hyun Park	a 282
Low-Loss Multimode Waveguides Using Organic-Inorganic Hybrid Materials  Keun Byoung Yoon	290
Mechanical Properties of Silica Nanoparticle Reinforced poly(ethylene 2, 6-naphthalate) Seon Hoon Ahn, Seong Hun Kim*, Byoung Chul Kim, Kwang Bo Shim, and Bong Gyoo Cho	293
Preparation and Properties of Waterborne-Polyurethane Coating Materials Containing Conductive <b>Ji-Yun Kwon, Eun-Young Kim, and Han Do Kim</b>	Polyaniline 305
Humidity-Sensitive Properties of Polyelectrolytes Containing Alkoxysilane Crosslinkers Chil Won Lee, Hyung Seok Park, and Myoung-Seon Gong	311
Copolymerizations of Ethylene with 1-Hexene over <i>ansa</i> -Metallocene Diamide Complexes II Kim*, C. H. Gwak, K. W. Son, J. S. Kim, S. Abraham, K. B. Bijal, CS. Ha, B. U. Kim, N. J. Jo, J. W. Lee, and J. K. Lee	316
Communications	
Photophysical Properties of a Conjugated Poly(1-dodecyl-2,5-pyrrylene vinylene)  Chang-Shik Choi*, In Tae Kim, Sang Woo Lee, Ki-Seok Jeon, Ki-Hwan Lee, Ha Hyeong Lee, Young Nam Lee, Nack-Do Sung, Mun-Jae Kil, and Yong-Ill Lee	322
Volume 12, Number 4 A	august 31, 2004
Articles	
Chain Transfer to Monomer and Polymer in Radical Polymerization of Vinyl Neo-decanoate Robert Balic*, Christopher M. Fellows, and Alex M. van Herk	325
Ethylene Polymerization Using (n-BuCp) <sub>2</sub> ZrCl <sub>2</sub> Catalyst Activated with a Cross-linked MAO-Supported Cocatalyst	224
Keun Byoung Yoon*  Sulfonated Poly(ethylene glycol) Containing Methacrylate Copolymer Surfaces;  Preparation, Characterization and <i>In Vitro</i> Biocompatibility  Ki Dong Park*, Hyung Dal Park, Hee Jung Lee, Young Ha Kim, Tooru Ooya, and Nobuhiko Yui	336
A One-Component Negative Photoresist Based on an Epoxy Terpolymer Containing Oxime-Urethane Groups as a Photobase Generator Kyu Ho Chae* and Jin Hee Park	352
Synthesis of the Polysaccharide, (1 → 5)-α-D-Ribofuranan and Its Catalytic Activities for the Hydrolysis of Phosphates and the Cleavage of Nucleic Acids  Man Jung Han*, Kyung Soo Yoo, Young Heui Kim, Hong Youb Kim, Hyun Joon Shin, and Ji Young Chang*	359
Improvement of the Biocompatibility of Chitosan Dermal Scaffold by Rigorous Dry Heat Treatme Chun Ho Kim, Hyun-Sook Park, Yong Jae Gin, Youngsook Son*, Sae-Hwan Lim, Young Ju Choi,	

Nanofabrication of Microbial Polyester by Electrospinning Promotes Cell Attachment  Ik Sang Lee, Oh Hyeong Kwon*, Wan Meng, Inn-Kyu Kang, and Yoshihiro Ito	374
Synthesis and Polymerization of Methacryloyl-PEG-Sulfonic Acid as a Functional Macromer for	371
Biocompatible Polymeric Surfaces	
Jun-Guk Kim, Sang Jun Sim, Ji-Heung Kim*, Soo Hyun Kim, and Young Ha Kim	379
Chemical Modification of Carbon Nanotubes and Preparation of Polystyrene/Carbon Nanotubes Compo	osites
Hyeong Taek Ham, Chong Min Koo, Sang Ouk Kim, Yeong Suk Choi, and In Jae Chung*	384
Fabrication of Photoimageable Silver Paste for Low-Temperature Cofiring Using Acrylic Binder Polymers and Photosensitive Materials  Seong-Dae Park*, Myong-Jae Yoo, Nam-Kee Kang, Jong-Chul Park, Jin-Kyu Lim, and Dong-Kook Kim	201
	391
Structural and Property Changes in Glass-like Carbons Formed by Heat Treatment and Addition of Fille Jangsoon Kim, Myung-Soo Kim, Hyun-Sik Hahm, and Yun-Soo Lim*	r 399
Synthesis and Properties of Poly[2-ethynyl- <i>N</i> -( <i>p</i> -hydroxyphenylethyl) pyridinium bromide] and Poly[2-ethynyl- <i>N</i> -( <i>p</i> -hydroxyphenylethyl)pyridinium tetraphenylborate]	
Yeong-Soon Gal*, Sung-Ho Jin, Won-Chul Lee, and Sang Youl Kim	407
Preparation and Characterization of Sulfonated Poly(phthalazinone ether sulfone ketone) (SPPESK)/ Silica Hybrid Membranes for Direct Methanol Fuel Cell Applications	
Dae Sik Kim, Kwang Ho Shin, Ho Bum Park, and Young Moo Lee*	413
Effect of Salt Concentration on the Glass Transition Temperature and Ionic Conductivity of	
Poly(ethyleneglycol)-Polyurethane/LiClO₄ Complexes Pil-Ho Huh, Myung-Geun Choi, Nam Ju Jo, Jin-Kook Lee, Jang-Oo Lee*, and Wongkang Yang	422
12 120 12un, 1-1, ung Geun Groot, turi gu go, gin 12von 2ev, gung Go 20ec , una 11ong.ung 1ung	.22
Notes	
Synthesis and Binding Properties of a Calix[4]crown-6-functionalized Polymeric Ion Acceptor	
Wan-Ho Seol, Yu-Sun Yang, Chil-Won Lee, and Myoung-Seon Gong*	427
Volume 12, Number 5 October	31, 2004
Articles	
Effect of Poly(ethylene glycol) dimethyl ether Plasticizer on Ionic Conductivity of Cross-Linked Poly[siloxane-g-oligo (ethylene oxide)] Solid Polymer Electrolytes	421
Yongku Kang*, Yeon-Ho Seo, Dong Wook Kim, and Changjin Lee	431
Fabrication of Multimode Polymeric Waveguides by Hot Embossing Process:  Effect of Sidewall Roughness on Insertion Loss	
Keun Byoung Yoon	437
Structural Effects on the Tensile and Morphological Properties of Zeolite-filled Polypropylene Derivative Composites	
Jagannath Biswas, Hyun Kim, Chai Suk Yim, Junghwan Cho, Geon Joong Kim,	
Soonja Choe*, and Dai Soo Lee	443

Characterization and Rheological Properties of Dilute-solutions of Three Different Families of Water-soluble Copolymers Prepared by Solution Polymerization  Enrique J. Jiménez-Regalado*, Gregorio Cadenas-Pliego, Marissa Pérez-Álvarez,	
and Yessica Hernández-Valdez	451
Cocrystallization of Poly(1,4-cyclohexyl-enedimethylene terephthalate- <i>co</i> -hexamethylene terephthalate)  Copolymers	
Young Gyu Jeong, Won Ho Jo*, and Sang Cheol Lee	459
A Kinetic Study of Thermal Degradations of Chitosan/Polycaprolactam Blends Shen-Kun Liao, Chi-Chih Hung*, and Ming-Fung Lin	466
Low-Loss Polymeric Waveguides Having Large Cores Fabricated by Hot Embossing and Micro-contact Printing Techniques  Keun Byoung Yoon	474
Characterization of Dicyclopentadiene and 5-Ethylidene-2-norbornene as Self-healing Agents for Polymer Composite and Its Microcapsules  Jong Keun Lee*, Sun Ji Hong, Xing Liu, and Sung Ho Yoon	478
Electro-optic Properties of a Guest-Host System Containing a Phenothiazine-based Chromophore:  Effect of the Chromophore Density on the Macroscopic Optical Nonlinearity  Sang Kyu Lee, Min Ju Cho, Hyuk Yoon, Seung Hwan Lee, Jae Hong Kim,  Qing Zhang, and Dong Hoon Choi*	484
Low-Temperature Decomposition of Epoxy Resin Katsuhiko Saido*, Hiroyuki Taguchi, Yoichi Kodera, Takeshi Kuroki, Jeong-Hun Park, and Seon-Yong Chung	490
Transient Protection of Intramolecular Hydrogen Bonding: A Simple but Elegant Approach for Functional Imaging  Jong-Man Kim*, Sung-Jun Min, Bum-Jun Park, Jae-Hyung Lee, and Kwang-Duk Ahn	493
Polyplex Formation of Calf Thymus DNA with Branched and Linear Polyethyleneimine Jungho Han, Seog K. Kim, Tae-Sub Cho*, Jae-Cheol Lee, and Hyun Sook Joung	501
Preparation and Biodegradation of Thermosensitive Chitosan Hydrogel as a Function of pH and Temperature  Hee Dong Han, Da Eun Nam, Dong Hoan Seo, Tae Woo Kim, Byung Cheol Shin*, and Ho Suk Choi	507
Novel Macromonomer as a Reactive Stabilizer in the Dispersion Polymerization of Methylmethacrylate  Hyejun Jung, Kangseok Lee, Sang Eun Shim, Sunhye Yang, Jung Min Lee, Huije Lee, and Soonja Choe*	512
Size and Uniformity Variation of Poly(MMA-co-DVB) Particles upon Precipitation Polymerization Sunhye Yang, Sang Eun Shim, Huije Lee, Gil Pyo Kim, and Soonja Choe*	519
Self-Organization of Dendron-Poly(ethylene glycol) Conjugates in an Aqueous Phase  Kyoung Taek Kim, Im Hae Lee, Chiyoung Park, Yumi Song, and Chulhee Kim*	528
Silk Fibroin/Chitosan Conjugate Crosslinked by Tyrosinase  Gyung Don Kang, Ki Hoon Lee, Chang Seok Ki, Joong Hee Nahm, and Young Hwan Park*	534
Notes	
Improved Adhesive Strength of Vulcanized Rubber upon Laser Treatments  Hong-lae Sohn and Bong-Ju Lee*	540

Volume 12, Number 6	December 31, 2004
Articles	
Hydrolytic Stability of Sulfonic Acid-Containing Polyimides for Fuel Cell Membranes  Hyoung-Juhn Kim*, Morton H. Litt, Eun-Mi Shin, and Sang Yong Nam*	545
Effects of Surface Modification of the Membrane in the Ultrafiltration of Waste Water Dong Lyun Cho*, Sung-Hyun Kim, Yang Il Huh, Doman Kim, Sung Yong Cho, and Byung-Ho	on Kim 553
Ultrasonic Velocity and Absorption Measurements in an Aqueous Solution of Poly(sodium 4-styrenesulfonate)	770
Jong-Rim Bae  Electroactive Polymer Composites as a Tactile Sensor for Biomedical Applications  GeunHyung Kim	559 564
Preparation of a Hydrophobized Chitosan Oligosaccharide for Application as an Efficient Gene Sohee Son, Su Young Chae, Changyong Choi, Myung-Yul Kim, Vu Giang Ngugen, Mi-Kyeong Jang, Jae-Woon Nah*, and Jung Keon Kweon	Carrier 573
Mono- and Multi-layer Langmuir-Blodgett Films of Maleimide Polymers Possessing Nonline Optical-Active Side Chains  Kuk Ro Yoon, Hoosung Lee*, Bum Ku Rhee, and Changsoo Jung	ear 581
Radiolytic Immobilization of Lipase on Poly(glycidyl methacrylate)-grafted Polyethylene Micr Seong-Ho Choi*, Kwang-Pill Lee, Hee-Dong Kang, and Hyun Gyu Park	robeads 586
Preparation and Characterization of Electroactive Acrylic Polymer-Platinum Composites Han Mo Jeong*, Sung Min Woo, Hyun Soo Kim, Byung Kyu Kim, Ju Hyun Bang, Sukmin Lee, and Mu Seong Mun	593
Gas Separation Membranes Containing Re <sub>6</sub> Se <sub>8</sub> (MeCN) <sub>6</sub> <sup>2+</sup> Cluster-Supported Cobalt-Porphyrin Su Mi Park, Jongok Won*, Myung-Jin Lee, Yong Soo Kang, Se-Hye Kim, Youngmee Kim, and Su	-
Synthesis and Characterization of ω-Sulfonated Polystyrene-stabilized Cadmium Sulfide Nat Yong Hyun Jin, Jungahn Kim*, and Seung Soon Im	noclusters 604
Atomic Force Microscopy and Specular Reflectance Infrared Spectroscopic Studies of the Surface Structure of Polypropylene Treated with Argon and Oxygen Plasmas Eun-Deock Seo	608
Communications	
Patterned Fluorescence Images with a t-Boc-Protected Coumarin Derivative Sung-Jun Min, Bum Jun Park, and Jong-Man Kim*	615