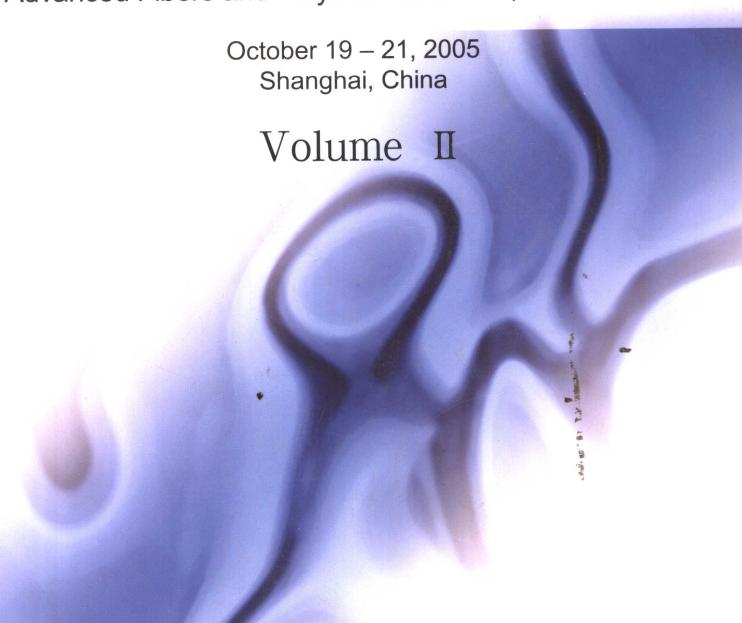


"New Century, New Materials and New Life"

Proceedings of 2005 International Conference on Advanced Fibers and Polymer Materials (ICAFPM 2005)



Edited by

State Key Laboratory for Modification of Chemical Fibers and Polymer Materials Donghua University, China

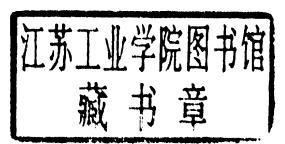
CHEMICAL INDUSTRY PRESS



"New Century, New Materials and New Life"
Proceedings of 2005 International Conference on
Advanced Fibers and Polymer Materials (ICAFPM 2005)

October 19 – 21, 2005 Shanghai, China

Volume II



Edited by

State Key Laboratory for Modification of Chemical Fibers and Polymer Materials Donghua University, China

CHEMICAL INDUSTRY PRESS

• BEIJING •

图书在版编目(CIP)数据

ICAFPM2005 论文集/东华大学编.—北京:化学工业出版社,2005.10 ISBN 7-5025-7717-3

I.I··· Ⅱ. 东··· Ⅲ.①高分子材料-文集②化学纤维-文集 Ⅳ.①TB324-53②TQ341-53

中国版本图书馆 CIP 数据核字 (2005) 第 116795 号

Copyright ©2005 by Chemical Industry Press. All Rights reserved. No part of this publication may be reproduced or distributed by any means, or transmitted or translated into any other languages, or stored in a database or retrieval system, without the prior written permission of the copyright owner.

Proceedings of 2005 International Conference on Advanced Fibers and Polymer Materials (ICAFPM2005)

State Key Laboratory for Modification of Chemical Fibers and Polymer Materials Donghua University, China

Volume II

责任编辑:杨 菁

化学工业出版社出版发行 (北京市朝阳区惠新里 3 号 邮政编码 100029) 购书咨询: (010)64982530 (010)64918013

> 购书传真: (010)64982630 http://www.cip.com.cn

新华书店北京发行所经销 北京市彩桥印刷有限责任公司印装

开本 880mm×1230mm 1/16 印张 88¼ 字数 2451 千字 2005 年 10 月第 1 版 2005 年 10 月北京第 1 次印刷

ISBN 7-5025-7717-3 总定价: 248.00元

版权所有 违者必究

该书如有缺页、倒页、脱页者,本社发行部负责退换

CONTENTS

Section A: Functional Polymers and Fibers

ADVANCED FIBER/TEXTILE MATERIALS BEING A FRONTIER OF 21 th CENTURY Hirofusa Shirai, Akira Hachimori, Kanji Kajiwara	1
POLYMER R&D, QUO VADIS? P.J. Lemstra	2
ELECTROSPINNING TECHNOLOGY D. H. Reneker	. 4
THERMOSENSITIVE POLYETHER BASED MATERIALS – SYNTHESIS, AGGREGATION AND CROSSLINKING Andrzej Dworak	N 7
IONIC COMPLEX FORMATION OF POLYAMIDINES WITH PROTON DONOR CHROMOPHORES Frank Böhme, Karthikeyan Sharavanan, Andrey V. Tenkovtsev, Marina M. Dudkina, Hasan Mart	10
COMPARATIVE STUDIES OF PHASE CHANGE CHARACTERISTICS OF PET-PEG COPOLYMER AND PET/PEG BLEND Ji Hu, Yanmo Chen, Meifang Zhu, Hao Yu	14
THE STUDY OF NOVEL PROTON EXCHANGE MEMBRANE USED IN FUEL CELL Yan He, Zhentao Zhou	17
STUDY ON CONTROLLED PHOTODEGRADABLE ISOTACTIC POLYPROPYLENE COMPOSITES CONTAINING NANO-TIO2 Qingshan Liu, Yurong Yan, Dongmei Liu, Yaoming Zhao	21
EFFECT OF THERMO AND STRETCHING TREATMENT ON THE PERFORMANCE OF POLY(4-METHYL-1-PENTENE) HOLLOW FIBER MEMBRANE Jianli Wang, Youyi Xu, Jianbing Ji, Kejian Yao, Xiaomei Yu	25
REDUCING THE INJECTION MOLDING TEMPERATURE OF POLYPROPYLENE BY HYPERBRANCHED POLYMERS Keqing Han, Zhihao Cai, Chengxun Wu, Muhuo Yu	29
FACILE SYNTHESIS AND CHARACTERIZATION OF A WHOLLY AROMATIC POLY(1,5-DIAMINOANTHRAQUINONE) BY AN OXIDATIVE POLYMERIZATION Hu Li, Mei-Rong Huang, Xin-Gui Li	31
HIGH PERFORMANCE PIMA ULTRAFINE FIBERS FROM GREEN SOLUTION BY A NO WET-ELECTROSPINNING Wen Yang, Meifang Zhu, Kai Zhang, Hongwei Bai, Hao Yu, Yanmo Chen	OVEL 35

SYNTHESIS OF ULTRA-HIGH MOLECULAR WEIGHT POLYIMIDE AND PREPARATION OF HIGH-PERFORMANCE ELCCTROSPUN NANOFIBERS Chaobo Huang, Suqing Wang, Tingting Li, Shuiliang Chen, Chuilin Lai, Haoqing Hou	39
THE EFFECT OF HEMODILYSIS ON THE STRUCTURE AND MECHANICAL PROPERTIES OF HOLLOW FIBERS B.A. Konduk, A.H. Ucisik	43
RHEOLOGICAL BEHAVIORS OF POLYACRYLONITRILE/1-BUTYL-3-METHY-LIMIDAZOLIUM CHLORIDE CONCENTRATED SOLUTIONS Yuxing Zeng, Yumei Zhang, Huaping Wang	47
SURFACE CHARACTERIZATION OF FUNCTIONALIZED POLYMER NANOFIBERS Wenzheng Xu, Qufu Wei	50
INFLUENCE OF NANO-TIO2 AND ITS DISPERSION STATUS ON RESISTANCE OF POLYPROPYLENE TO UV AGING Lixin Xu, Cheng Zhang, Mingqiang Zhong	54
SUPER-HYDROPHOBIC SURFACES: FROM NATURAL TO ARTIFICIAL Lei Jiang	58
COAXIAL ELECTROSPINNING POLYURETHAN(SHELL)/NYLON-6(CORE) FOR TEXTILE APPLICATIONS Xiao-Jian Han , Zheng-Ming Huang, Chuang-Long He , Lin Liu ,Qing-Sheng Wu	60
EFFECTS OF HARD-SEGMENT CONTENT ON THE SHAPE MEMORY PROPERTIES OF SEGMENTED POLYURETHANES Fenglong Ji, Jinlian Hu, Haojun Fan, Waiman Yu	64
THERMAL PROPERTIES OF POLY(TRIMETHYLENE TEREPHTHALATE CO-1,4-CYCLOHEXYLENE DIMETHYLENE TEREPHTHALATE) COPOLYESTERS Jian Yang, Wengang Li, Xiang'an Huang	68
SURFACE MORPHOLOGY AND CONTACT ANGLES OF POLYPROPYLENE FIBRES TREATED WITH PLASMA Fenglin Huang, Qufu Wei, YuzhengLu, WenzhengXu	72
SPINNING CONTINOUS CARBON NANOTUBE FIBRES/RIBBONS FROM A GAS-FLOW REACTION Yali Li	76
STRATEGIES FOR REACTIVE COMPATIBILIZATION AND INTERFACIAL MODIFICATION IN POLYMER BLENDS Jürgen Pionteck, Petra Pötschke, Lothar Jakisch, Veera Bhadraiah Sadhu, Ulrich Schulze	7 7
PREPARATION AND CHARACTERIZATION OF POLY (HEMA-PEGMA-MAA) / ATTAPULGITE NANO- COMPOSITE HYDROGELS Yuanqing Xiang, Zhiqin Peng, Dajun Chen	81

EFFECT OF SEPIOLITE CONTENT ON SYNTHESIS AND WATER ABSORBABILITY OF SEPIOLITE-FILLED COPOLY(ACRYLIC ACID-ACRYLAMIDE) FIBRES Yuanrong Ding, Changfa Xiao, Guangxia Jia, Shulin An	84
FIBER STRUCTURE DEVELOPMENT IN HIGH-SPEED MELT SPINNING OF POLY(L-LACTIDE)S WITH VARIOUS D-LACTIDE CONTENTS AND RACEMATE POLYLACTIDE, TOKYO INSTITUTE OF TECHNOLOGY Takeshi Kikutani	88
CHARACTERIZATION ON MIXED-CRYSTAL STRUCTURE OF BIODEGRADABLE POLY(BUTYLENE ADIPATE-CO-TEREPHTHALATE)COPOLYMER FIBERS X.Q. Shi, H. Ito, T. Kikutani	92
INVESTIGATION OF SWELLING CHARACTERISTICS OF POLY(VINYLALCOHOL) HYDROGEL IN DIFFERENT SWELLING MEDIA Yu-song Pan, Dang-sheng Xiong, Ru-yin Ma, Liang Jiang	96
THE PREPARATION AND PROPERTIES OFBUTYL-END-CAPPED POLYETHER Jiao Yu, Jian-guo Guo, Su-qin He, Cheng-shen Zhu	100
EFFECT OF REACTIVE EMULSIFIER ON THE EMULSION POLYMERIZATION OF ACRYLATE WITH HYDROXYL FUNCTIONAL MONOMER Fa-Ai Zhang, Cai-Li Yu, Chun Wei	104
STRUCTURES AND THERMAL STABILITY OF PLASMA DEPOSITED CF POLYMER FILMS Zhenyu Wu, Yintang Yang, Jiayou Wang	108
STUDY THE EFFECT OF TERTIARY HYDROGEN ON THE PERFORMANCE OF SULPHONATED POLYSTYRENE MEMBRANE Zhen-tao Zhou, Yan He	112
NEW APPROACH TO SURFACE FUNCTIONALIZATION OF POLYMER FIBERS Qufu Wei, Wenzheng Xu, Fenglin Huang, Heng Ye	118
CHELATION KINETICS OF CHITOSAN AND ZN(II) TEMPLATED CHITOSAN MEMBRANE WITH ZN(II) Chunmei Ding, Sha Xiao, Feixinag Li, Qingping Song	122
PREPARATION AND COMBUSTION CHARACTERISTIC OF INORGANIC VISCOSE NANOCOMPOSITE FIBER Yanzhi Xia, Quan Ji, Qingshan Kong	126
DESCARTÉS RAY AND CHARACTERS OF ROUND FIBERS Haiquan Zhang , Shanyuan Wang, Yanyan Zhang	130
ANTISTATIC AGENT CONTAINED ZINC OXIDE AND ITS MODIFICATION FOR PA6 FIBER Jing Guo, Xinyuan Shen, Lan Bai, Wei Chen	134
DISPERSIVENESS OF ROUND FIBER Haiquan Zhang, Shanyuan Wang, Changping Zhang	137

THE INFLUENCE OF COUPLING TREATMENT ON THE PERFORMANCE OF POLYMER PTC MATERIAL Yucai Hu	141
SYNTHESIS OF PVDF-G-PNIPAAM COPOLYMER VIA ATOM TRANSFER RADICAL POLYMERIZATION USING POLY(VINYLIDENE FLUORIDE) AS MACROINITIATOR Wenyu Wang, Li Chen	145
RESEARCH AND DEVELOPMENT OF NANOMETER MATERIAL SELF-CLEANING KNITTING FABRIC WITH BAMBOO FIBER Jiaguang Meng, Guanxiong Qiu, Yanfen He	149
POLY(METHACRYLIC ACID)/SILK SERICIN PH-SENSITIVE IPN HYDROGELS Dongsheng Wang, Ping Lan	153
CHARACTERIZATION OF TEXTILES USING THE ATOMIC FORCE MICROSCOPY Heng Ye, Qufu Wei	157
SUPRAMOLECULAR COMPOUNDS MODIFICATION OF COTTON BY SOL-GEL COATING C.X. Wang, Sh. L. Chen	161
EFFECT OF DEGUMMING ON PERFORMANCE OF DEGUMMED APOCYNUM VENETUM Wei Liu, Yuan-ming Zhang, Guang-ting Han	165
DISCUSSION ABOUT THE METHODS OF STARCH MODIFICATION BASED ON RENEWABLE RESOURCE OF NATURAL POLYMER Jian-da Cao, Quao-zhen Yu	169
THE FLAME RETARDATION OF SOYBEAN PROTEIN FIBRE WITH HEXACHLORO-CYCLOTRIPHOSPHAZENE Jianzhong Xu, Xiaolong Zhao	173
THERMAL PROPERTIES OF CASHMERE BY DSC AND TMA Xiuliang Hou, Qiguo Liu, Shanyuan Wang	177
INFLUENCE OF ORGANIC POLYMERS AND FIBERS ON VIBRATION DAMPING PROPERTY OF CEMENT-BASED MATERIALS Liguang Xiao, Lixia Gu	181
RESEARCH ON MOLECULAR INCLUSION RECOGNITION OF DIHYDROXY-BENZENES BY CELLULOSE FIBRE GRAFT \(\beta\)-CYCLODEXTRIN Junmin Wan, Zhiwen Hu, Wenxing Chen, Shirui Zheng	185
STUDY ON CONTROLLED PHOTODEGRADABLE ISOTACTIC POLYPROPYLENE COMPOSITES CONTAINING NANO-ZNO AND NANO-TIO2 Qingshan Liu, Yurong Yan, Dongmei Liu, Yaoming Zhao	189
STUDIES ON ELECTRICALLY CONDUCTIVE TEXTILE FIBERMADE BY A NEW COATING METHOD Xin Jin, Changfa Xiao, Shulin An, Yongyu Wang, Guangxia Jia	193

SHAPE CHARACTERIZATION AND RECOGNITION OF CROSS-SECTION OF PROFILED FIBRE BY MICROSCOPY AND IMAGE ANALYSIS	197
Zhengmin Li, Shouxu Du, Dafu Zhang, Feng Zhang, Xuequn Su	
BINUCLEAR METALLOPHTHALOCYANINE IMMOBILIZED ON MODIFIED SILK FIBERS AS A NOVEL AIR-PURIFYING MATERIAL Yuyuan Yao, Wenxing Chen	201
SURFACE FUNCTIONAL MODIFICATION OF KCL COATED UNIT BY REMOTE N_2 PLASMA Ru Li, ke Li, Ling-li Cai, Jie-rong Chen	205
STUDY ON NEW TYPE OF POLYURETHANE ACRYLATE MACROMONOMER AND ITS POLYMER Shao-ming Fang, Li-ming Zhou, Li-jun Gao, Peng Chen, Dong-liang Liu, Heng-ye Yan, Ying Liu	208
POLYANILINE COATED MULTIWALLED CARBON NANOTUBES/ NiFe ₂ O ₄ BY IN-SITU POLYMERIZATION Huiqun Cao, Meifang Zhu, Yaogang Li, Junhui Zhang	212
SURFACE CHARACTERISTICS AND DYEING PROPERTIES OF POLYAMIDE MICROFIBERS BY PLASMA TREATMENT Gang Bai, XinYuan Song	216
PREPARATION OF PES MEMBRANE BY DUAL-BATH COAGULATION METHOD Sijun Zhu, Yong Mei, Qingrui Wang	220
PREPARATION AND CHARACTERIZATION OF POLYIMIDE OPTICAL COMPENSATOR USED IN LIQUID CRYSTAL DISPLAY UNITS(LCD) Chaofeng Chen, Lei Li, Weimin Qin, Xiangan Huang	224
MODIFICATION OF POLYACRYLONITRILE FIBER BY BLENDED WITH 3-ALLYL-5,5-DIMETHYLHYDANTOIN/ACRYLONITRILE COPOLYMER Liuyang Wang, Juan Xie, Lixia Gu, Gang Sun	228
SYNTHESIS AND CHARACTERIZATION OF POLYIMIDES CONTAINING AZO CHROMOPHORE VIA A POST-AZO-COUPLING REACTION Hong-Xiang Song, Cheng-Xun Wu, Bin Zhua, Zhuang-Qi Cao, Xiao-Xu Deng	231
MODELING PERMEABILITY OF PTT FILAMENT WITH DIFFERENT CROSS-SECTION Yan Zhang, Yi Zhang, Huaping Wang	235
STUDY ON THE FLUORESCENCE SPECTRA OF RHODAMINE B- I ₃ -ASSOCIATION NANOPARTICLE SYSTEM AND ITS ANALYTICAL APPLICATIONS Cai-Yan Kang, Dan-Li Xia, Zhi-Liang Jiang, Ai-Hui Liang	239
STUDY ON IMPROVING THE HYDROPHILITY OF PET FABRICS BY HYPER- BRANCHED POLYMER Shan Zhan, Keqing Han, Muhuo Yu	243

PREPARATION OF NOVEL POLYIMIDES CONTAINING CALIX[4]ARENE Lei Li, chaofeng Cheng, Chunying Xian, Xiangan Huang, Limin Zheng	245
STUDIES OF CROSSLINKED 4-TERT-BUTYLSTYRENE-POLY (CIS-1, 4-BUTADIENE)- DIVINYLBENZENE RESINS FOR OIL ABSORBENCY Yanmei Liu, Zongyan Wu, Meihua Zhou	248
IMPROVING SURFACE HYDROPHILIC CHARACTERISTICS OF POLYMER BY PLASMA INDUCING GRAFT POLYMERIZATION Xiangmei Wang, Jing Zhang, hao Chen, QingruiWang	252
EFFECTS OF AMMONIUM DIBASIC PHOSPHATE PRETREATMENT TIME ON THE STRUCTURE AND PROPERTIES OF PAN-BASED ACTIVATED CARBON HOLLOW FIBER Junfen Sun, Xiaqin Wang, Chaosheng Wang, Qingrui Wan	256
THE PREPARATION AND CHARACTERIZATION OFA NOVEL ODORPROOF FIBER Yingjia Xu, Yimin Wang, Yanping Wang	259
STRUCTURE AND PROPERTIES OF PTFE AND PU LAYERED MEMBRANE FOR PROTECTIVE CLOTHING Jizhi Huang, Jianchun Zhang, Yuhai Guo	263
PREPARATION AND FLUORESCENT PROPERTY OF EU(TTA)3PHEN INCORPORATED IN POLYCARBONATE RESIN Hua Yang, Shuhui Zhao, Linping Zhang, Wengang Li	266
STUDY ON THE ATTAPULGITE MODIFIED PVA FIBERS Zhiqin Peng, Dajun Chen, Qian Zhang	270
PROCESS FOR PREPARING ACID DYEABLE ACRYLONITRILE COPOLYMER IN SOLUTION POLYMERIZATION Yazhen Wang, Xinyuan Shen, Yue Gao, Hongge Jia, Xiaohua Gu	274
MACROPOROUS ACTIVATED CARBON FIBERS FROM RAYON PRECURSORS IMPREGNATED WITH PHOSPHORIC ACID Zhihai Zhang, Qilin Wu, Aifang Yu, Ding Pan	278
POLY(CARBAMOYL SULFONATED POTASSIUM) SYNTHESIZED AND IT'S APPLICATION ON WOOL FABRICS Yi Hu, Ke- Lu Yan, Jing-Hong Yuan	282
STUDY ON THE MECHANICAL PROPERTIES OF ELASTIC FIBER(PTT) Yonghua Ren, Jianyong Yu	286
THE SYNTHESIS AND CHARACTERIZATION OF PTT-PBT COPOLYMERS Hantao Zou, , Jianming Jiang	290
EVALUATION OF THE DISPERSION BEHAVIOR OF NANOPOWDER IN ORGANIC LIQUIDS Jiajun Wu, Jing Zhang	294

A STUDY ON FUNCTIONAL FABRICS KNITTED FROM PROFILED POLYESTER Yanfeng Du, Wei Shei, Xunwei Fei	298
RHEOLOGICAL BEHAVIORS OF POLYACRYLONITRILE/1-BUTYL-3-METHYL- IMIDAZOLIUM CHLORIDE CONCENTRATED SOLUTIONS Xiaoping Tu, Yumei Zhang, Tingting Zhao, Huaping Wang	302
A STRATEGY FOR PREPARATION OF CATIONIC POLYURETHANE/POLYACRYLATE EMULSIONS Hong Zhang, Hongxia Pan, Qinghua Zhang, Dajun Chen	305
A STUDY ON PREPARATION OF POLY(VINYL ALCOHOL)(PVA) POLARIZING FILM WITH DICHROMATIC DYES Kebin Li, Dehua Zhuang, Jinxing He	308
SYNTHESIS AND CHARACTERIZATION OF PLLA-RUBBER BLOCK COPOLYMER Si Xie, Hong Xu , Cuiqing Teng, Muhuo Yu	312
THERMAL PROPERTY AND CRYSTALLIZATION BEHAVIOR OF STEREOCOMPLEXES BETWEEN PLLA—BIS A MUTIBLOCK COPOLYMER AND PDLA OLIGOMER Hong Xu , Cuiqing Teng ,Muhuo Yu	314
ENVIRONMENTALLY FRIENDLY POLYESTER CATALYST Wengang Li, Meihua Zhou	316
THE SYNTHESIS OF PET COPOLYMER CONTAINING AROMATIC AMIDE AND SULFONE STRUCTURE BY SOLID STATE POLYMERIZATION Yang Liu, Keqing Han , Muhuo Yu	319
THE PREPARATION OF POLY(L-LACTIC ACID)-POLY(ETHYLENE ADIPATE)ESTER MULTIBLOCK COPOLYMERS Cuiqing Teng, Hong Xu, Kai Yang, Muhuo Yu, Xuechao Hu	322
THE EFFECT OF PRECRYSTALLIZATION ON THE SOLID STATE POLYCONDEN- SATION OF THE PLLA PREPOLYMER Minghua Luo, Hong Xu, Si Xie, Cuiqing Teng, Muhuo Yu	325
STUDY ON SELECTIVE OXIDATION OF CELLULOSE BY TEMPO-CUCL-O2 SYSTEM Chunju Gu, bin Sun, Jinghong Ma, Borun Liang	327
DRUG LOADED ULTRAFINE PVA FIBER MATS PREPARED BY ELECTROSPINNING Chunxue Zhang , Xiaoyan Yuan , Lili Wu , Jing Sheng	330
Section B: High performance polymers, fibers and composites	
MORPHOLOGICAL IMPLICATIONS OF THE INTERPHASE LINKING CRYSTALLINE AND AMORPHOUS REGIONS IN SEMI-CRYSTALLINE POLYMERS	334

Sanjay Rastogi , Ann E. Terry, Piet J. Lemstra

STRUCTURE AND PROPERTIES OF PFA FIBER OBTAINED BY LASER-HEATED FLOW DRAWING	336
Xiaochun Song, Takayoshi Yamaguchi, Yukata Ohkoshi, Yasuo Gotoh, Masanobu Nagura, Tomoyuki Mita	
INTERLAMINAR STRESSES ON CFRP COMPOSITES M.R.Khoshravan, A.R.Jami	338
THE DEGRADATION OF PBO FIBER BY HEAT AND LIGHT Xiaoyan Liu, Weidong Yu	343
STUDIES ON THE PROPERTIES OF SISAL FIBRE/PHENOL FORMALDEHYDE RESIN IN-SITU COMPOSITES Chun Wei, Qiuhong Mu, Yong-Liang Niu, Yu Fu	349
CRYSTALLIZATION BEHAVIOR OF MODIFIED POLY(ETHYLENE TEREPHTHALATE) WITH VARIED MACROMOLECULAR ARCHITECTURE Guang Li, Shenglin Yang, Junhong Jin, Cheng Xun Wu	355
DYNAMIC BEHAVIOR OF HIGH PERFORMANCE LIGHTWEIGHT STRUCTURES WITH COMPOSITE-EMBEDDED ACTUATORS W. Hufenbach, O. Täger, L. Kroll, M. Dannemann	360
STRUCTURAL AND ELECTROCHEMICAL STUDIES ON PVDF-HFP MEMBRANES WITH NANO SIO2 ADDITIVE FOR LITHIUM ION BATTERIES Ying Bai, Chuan Wu, Feng Wu	365
A REFINED QUASI-MICROSTRUCTURE MODEL FOR FINITE ELEMENT ANALYSIS OF 3-DIMENSIONAL BRAIDED COMPOSITES UNDER BALLISTIC PERFORATION Jun Lian,, Bohong Gu	370
STUDY ON THE REACTIVELY COMPATIBILIZED POLYAMIDE 11 (NYLON 11)/POLYETHYLENE (PE) ALLOYS WITH HIGH PERFORMANCE Biaobing Wang, Guosheng Hu	376
DEVELOPMENT OF TENSILE MODULUS AND STRENGTH UPON DRAWING OF ULTRA-HIGH MOLECULAR WEIGHT POLY(ACRYLONITRILE) FIBERS D. Sawai (a) and T. Kanamoto	380
EFFECT OF FIBER VOLUME, LENGTH AND ORIENTATION DISTRIBUTION ON FLEXURAL MODULUS OF SHORT NATURAL FIBER-REINFORCED BIOCOMPOSITES Shinichi Shibata, Takuya Kamiyama, Yong Cao	384
PREPARATION AND PROPERTIES OF WATERBORNE POLYURETHANEUREA CONSISTING OF A, Ω-DIHYDROXYPOLY[(3,3,3-TRIFLUOROPROPYL) METHYLSILOXANE] UNITS Teng Su, Chunpu Hu, Xudong Xu	388
A NOVEL AROMATIC POLYIMIDE FIBER WITH BIPHENYL SIDE-GROUPS: DOPE SYNTHESIS AND THE SPINNING PROCESS OF FILAMENTS	393

Xiangyang Liu, Wei Xu, Guangdou Ye, Yi Gu	
MECHANICAL BEHAVIOUR OF NOVEL TEXTILE MULTI-AXIAL REINFORCED THERMOPLASTIC COMPOSITES MADE FROM HYBRID YARNS W. Hufenbach, L. Kroll, R. Böhm	397
THE PREPARATION OF NIZNFE/POLYANILINE OXIDE NANOCOMPOSITE Guijuan Li, Liandi Guo, Shifeng Yan, Enle Zhou, Yanmo Chen	402
THREE-DIMENSIONAL ARRAY EXPRESSION OF MULTI-LAYER WEAVE FOR ADVANCED COMPOSITE MATERIALS Luoqing, Zhou, Mingjun Zhang, Xiao Han	406
EFFECTS OF SISAL FIBER TREATMENT ON PROPERTIES OF SISAL FIBER/PHENOL FORMALDEHYDE RESIN COMPOSITES Chun Wei, Qiuhong MU, Yongliang Niu, Yu Fu	411
MOLECULAR DESIGNS IN NANO-COMPOSITE FIBERS & NANO-FIBROUS SCAFFOLDS Benjamin Chu	415
STUDY ON THE EPOXY RESIN REINFORCED UHMWPE FIBER Yimin Wang, Xinpeng Wang, Linli Liang	416
INFLUENCE OF COOLING RATE ON THE CRYSTALLIZATION AND MORPHOLOGY OF UHMWPE POROUS MEMBRANES Zinian Zhao, Huiling Shen	421
STUDY ON CRYSTALLIZATION BEHAVIOR AND CRYSTAL MORPHOLOGY PTT/PBT BLENDS Ligui juan, Wangkun yan, Renxiu yan, Yangfu hua	425
STUDY ON THE BEHAVIORS OF POLYACRYLATE EMULSION MODIFIED WITH HIGH HYDROGEN-CONTAINING POLYMETHYLSILOXANE Lihua Zhang, Xiangmei Wang	429
COMPLEX NETWORK MODEL OF FILM STRUCTURE OBTAINED FROM PVA/ ADDITIVES/ WATER SYSTEM Masato Iwaseya, Kazuo Yamaura	433
CHARACTERIZATION OF THR PBO PRECUSORS HAVING SIDE CHAIN DooSoo Yoon	437
FLAME RETARDED NBR FOAMS WITH PHOSPHORUS/NITROGEN CONTAINING FLAME RETARDANTS Sung-Cheal Moon	438
PREPARATION AND FLEXURAL PROPERTIES OF BIOCOMPOSITES MADE FROM BAGASSE FIBRE AND BIODEGRADABLE RESIN Yong Cao, Shinichi Shibata, Isao Fukumoto	439

444

PREPARTION OF HYDROPHOBIC SILICA AEROGEL-FIBRE COMPOSITE VIA AMBIENT

Zhihua Zhang, Jun Shen, Xingyuan Ni ,Guangming Wu, Bin Zhou, Miaoxiang Yang, Xiaochun Gu, Mingjuan Qian, Yuehua Wu	
FRICTION AND WEAR PROPERTIES OF UHMWPE AGAINST THERMAL OXIDATION-TREATED TITANIUM ALLOY Zhan Gao, Dangsheng Xiong	449
TRIBOLOGICAL PROPERTIES OF UHMWPE COMPOSITE FILLED WITH NANO- ZRO2 PARTICLE Nan Yuan, Dangsheng Xiong	453
RESEARCH ON THE MICRO-STRUCTURAL EVOLUTION OF PHENOL-FORMALDEHYDE RESIN MODIFIED BY BORON CARBIDE Jigang Wang, Haiyun Jiang	457
ADDITIVE EVALUATION FOR ENHANCING THE ADHESION OF POLYACRYLAMIDE TO FIBERS Zhifeng Zhu, Liang Lei	461
A STUDY ON PROCESSING CONDITIONS OF COMPOSITE MATERIALS BY USING WASTE OF VARIOUS FABRICS COATED BY PVC Fangli Li, Wanhu Zhang	465
DYNAMIC VISCOELASTICITY AND SHEAR FLOW BEHAVIOR OF THE SHORT GLASS FIBER FILLED POLYPROPYLENE MELTS Wanhu Zhang, Fangli Li	469
EFFECTS OF TLCP CONTENTS ON THE THERMAL AND MECHANICAL PROPERTIES OF IN-SITU HYBRID COMPOSITES OF TLCP/UP/GF Xianbao Yu, Yu Fu, Deng Xu, Chihua Lu, Yongliang Niu, Chun Wei	474
EFFECTS OF SISAL FIBER CONTENTS ON WEAR RESISTANCE OF SISAL FIBER/PHENOL FORMALDEHYDE RESIN IN-SITU COMPOSITES Yongliang Niu, Jinbiao Zhong, Xiaowang Yang, Xianbao Yu, Chun Wei	479
PREPARATION AND CHARACTERIZATION OF NOVEL BISMALEIMIDE RESINS MODIFIED WITH DIALLYL BISPHENOL A Haoyu Tang, Zihong Gao, Xinghe Fan, Xiaofang Chen, Qian Xiang, Qi-feng Zhou	484
PREPARATION AND APPLICATION OF S CATION AND N ANION CO-DOPED TIO2 PILLARED MONTMORILLONITE NANO COMPOSITE PHOTOCATALYST Zhanjiang Yu, Anning Zhou	489
CREEP BEHAVIORS OF GEL-SPUN ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE FIBERS Xin Li, Yuan Jiang, Zhijing Zou	493
CURE KINETIC STUDIES OF A MODIFIED BISMALEIMIDE BY ISOTHERMAL DSC ANALYSIS	497

PRESSURE

ZhanSheng Guo, ShanYi Du, Boming Zhang, Zheng Zhong	
CARBON BLACK DISPERSIONS FOR SPUN-DYEING OF PAN FIBERS Kuanjun Fang, Xia Yuan	502
STUDY ON THE EFFECT OF SIO2 TO MORPHOLOGY AND MICROSTRUCTURE OF TIPS PU COMPOSITE MEMBRANE Huiling Shen, Changfa Xiao	506
EFFECTS OF SPINNING PROCESS ON MORPHOLOGY OF POLYIMIDE FIBERS Wei Xu, Guangdou Ye, Xiangyang Liu, Yi Gu	510
PREPARATION OF PVDF/PVC BLEND HOLLOW-FIBER MEMBRANE Chunmei Gao, Danli Xi, Xiaobo Yang	514
DEVELOPMENT OF A THERMAL-ELECTRIC ANALOG METHOD TO MEASURE THERMAL CONDUCTIVITY OF HIGH PERFORMANCE AND HIGH TEMPERATURE RESISTANT MATERIALS Fanglong Zhu, Weiyuan Zhang	520
STUDY ON THE STRUCTURE AND PROPERTIES OF PTT/PA6/SURLYN BLENDS Linlin Yan, Wengang Li	525
STUDY ON THE RELATION BETWEEN THE PROPERTY OF WAX AND WAX PRINTING Li Sun, Wei Wang, Lin Shui	529
PREPARATION AND CHARACTERIZATION OF AROMATIC-ALIPHATIC CO-POLYUREAS Xuelian Li, Dajun Chen	533
INVESTIGATIONS OF DIFFUSION MECHANISM OF PAN PRECURSOR FOR CARBON FIBER IN A DMSO-WATER COAGULATION BATH Xiaomei Zeng, YouWei Zhang, Jiongxin Zhao, Din Pang	538
PREPARATION AND PROPERTIES OF TPC MODIFIED META-ARAMID COPOLYMERS Lei Chen, Zuming Hu, Xinyu Xie, Zhaofeng Liu	542
EVALUATION OF VACUUM ASSISTED PROCESS AND ITS PERFORMANCE Wei Li, D. Heider, J.W. Gillespie	548
PROPERTIES OF COMPATIBILIZED NYLON 6/ABS POLYMER BLENDS Fengmei Cheng, Haidong Li, Dajun Cheng, Xiabin Jing	553
THE INFLUENCE OF LOOP DENSITY OF KNITTED FABRIC PREFORM ON THE TENSILE PROPERTIES OF COMPOSITES Zaixia Fan, Yu Zhang, Yanmo Chen, Hairu Long, Wenhua Wu	557
PROCESS RESEARCH OF LGF/PVC COMPOSITES BY AQUEOUS SUSPENSION-PULTRUDE Changjiang Li, Xiangkai Yuan, Jun Chen, Muhuo Yu	561
EFFECTS OF ALKALI HYDROLYSIS ON THE STRUCTURE AND PROPERTIES OF PA6 & COPET BI-COMPONENT FIBER	563

Yangjun Gao, Danli Xi	
INFLUENCE OF UV INTENSITY ON THE PHOTO-OXIDATION OF POLYPROPYLENE FILAMENTS Xudong Yang, Xin Ding	568
STOCHASTIC MODELLING OF MESO-SCALE FLOW THROUGH FIBER ARRAYS MI Weng, Xin Ding	573
STUDY OF KNITTABILITY OF GLASS-FIBRE YARNS FOR WARP KNITTED FABRIC REINFORCED COMPOSITES Zhigang Qin, Hairu Long, Xiaohong Ma	579
EXPERIMENTAL STUDY ON HYDRAULIC PROPERTIES OF ACRYLATE COPOLYMER LATEX MODIFIED CEMENT MORTAR Weidong Liu, Yimin Wang	584
STUDY ON CARBON NANOTUBE WITH AMINE GROUPS USED AS EPOXY RESIN CROSS LINKER Cong Wang, Keqing Han, Muhuo Yu	590
CHARACTERIZATION FOR THE TORSION FATIGUE OF PBO FIBER Hongyan Feng, Weidong Yu, Lutie Chen	593
SURFACE CHARACTERIZATION OF PBO AND SPBO BY CONTACT ANGLE MEASUREMENTS AND XPS Kaiqing Luo, Guang Li, Junhong Jin, Shenglin Yang, Jianming Jiang	598
STUDY ON PREPARATION AND CHARACTERIZATION OF ET/CT COPOLYESTERS Aifang Yu, Xiangan Huang	603
EVALUATION OF TAWRON FIBRE STRENGTH DISTRIBUTION FROM SINGLE FIBRE TESTS Hongling Liu, Hongbin Jin	607
SPINNABILITY AND DYEABILITY FOR PET/PTT/ NANO-SIO2FIBER Suhua Li, Jialin Wu	611
STUDY ON THE MODIFICATION OF ULTRAHIGH MOLECULAR WEIGHT POLYETHYLENE FIBER WITH POLAR POLYMERS Junrong Yu, Zuming Hu, Zhaofeng Liu	616
THERMAL DEGRADATION OF FLAME RETARDANT AND SMOKE SUPPRESSANT PVC MODIFIED BY HYDROTALCITE AND ZINC OXIDE Zhonghou Zhang, Chunmian Yan, Meifang Zhu	62

626

628

STUDY ON INSITU POLYMERIZATION ABS /GLASS FIBER COMPOSITES

ON MECHANICAL PROPERTY OF THE LONG GLASS FIBER REINFORCED ABS

Weixia Yan, Xiangkai Yuan, Minghui Liu, Keqing Han, Muhuo Yu

COMPOSITES

Xiangkai Yuan, Weixia Yan, Minghui Liu, Keqing Han, Muhuo Yu	
PREPARATION OF LONG GLASS FIBER REINFORCED PBT COMPOSITES WITH CHEMICAL BONDING INTERPHASE Hongmei Zhou, Keqing Han, Muhuo Yu	630
SYNTHESIS AND CHARACTERIZATION OF POLYIMIDES BASED ON 2,2'-BIS(4-AMINOPHENOXY PHENYL) PROPANE Cuili Kong, Qinghua Zhang, Dajun Chen	633
Section C: Nano-composites and fibers	
NANOFIBERS AND NANOTEMPLATES FROM DIBLOCK COPOLYMERS Manfred Stamm, G. Gorodyska, R. Krenek, A. Sidorenko, I. Tokarev, S. Minko	636
RESEARCH FOR THE MNUFACURING OF ELECTROSPINNING NANOFIBER PROCESS Yoshihiro Yamashita	637
LOW-THRESHOLD RANDOM LASER WITH ONE MIRROR AND FEEDBACKS IN PMMA NANO-COMPOSITE FILMS Xiaohong Sun, Xiaoming Tao, Pu Xue, Jianguo Deng, KwanKai Cheong	638
PREPARATION OF PPY NANOFIBERS AT DIFFERENT ELECTRODES AND ITS ELECTROCATALYTIC REDUCTION EFFECTS TO NITRATE Xiuling Zhang, Jixiao Wang	642
THE STUDY ON ZNO NANO-PARTICLE COATING AGENT AND ANTI- BACTERIAL T/C FABRIC MODIFIED Qun Li, Shuilin Chen	646
PREPARATION AND COMBUSTION CHARACTERISTIC OF INORGANIC VISCOSE NANOCOMPOSITE FIBER Yanzhi Xia, Quan Ji, Qingshan Kong, Fengyu Quan	651
TRANSMISSION ELECTRON MICROSCOPY STUDIES IN SWNT/POLYMER COMPOSITE FIBERS Tetsuya Uchida, Satish Kumar	655
ELECTROSPUN SECONDARY CELLULOSE ACETATE NANOFIBERS WITH DMAC/ACETONE SOLVENTS Xinwei Wang, Jin Cao, Zuming Hu, Zhaofeng Liu	660
SYNTHESIS AND THERMAL BEHAVIOR OF SILICA-GRAFT-POLYPROPYLENE NANOCOMPOSITE Kang Zheng, XiaYin Yao, XingYou Tian, Lin Chen, Yong Li	665
STUDY ON THE SYNTHESIS AND PROPERTIES OF POLY(ACRYLONITRILE- VINYL ACETATE)/ ORGANO-MMT NANOCOMPOSITE MATERIALS QingShan Li, Xinwei Wang, Guirong Peng, Qingrui.Wang, Sanyuan Wan	670

RESEARCH AND DEVELOPMENT OF NANOMETER MATERIAL ANTI-MITE AND ANTI-BACTERIA KNITTING FABRIC WITH SOYBEAN PROTEIN FIBER Jiaguang Meng, Guanxiong Qiu, Tao Xue, Yuhui Wang	675
PREPARATION OF PARTICLE-ARRAYED POLYMER MATRIX VIA IMMOBILIZATION OF COLLOIDAL CRYSTALS FORMED BY POLYMER- GRAFTED SILICA PARTICLES IN GELS Kohji Yoshinaga, Kumiko Fujiwara, and Emiko Mouri	679
APPLICATION OF A VERSATILE POLYMER PRECURSOR STRATEGY IN ZINC OXIDE NANOPARTICLE SYNTHESIS Guangqiang Lu, Ingo Lieberwirth, Gerhard Wegner	685
FABRICATION AND PROPERTIES OF CARBON NANOTUBE AND POLY(VINYL ALCOHOL) COMPOSITES Wenjing Ni, Biao Wang, Huaping Wang, Yumei Zhang	686
SYNTHESIS AND CHARACTERIZATION OF FE-NI/ POLY (METHYL METHA- CRYLATE) NANOCOMPOSITES GuoXing Zhu, XianWen Wei, HuiQun Sun, JuHong Zhou	690
CRYSTALLIZATION OF ORGANIC NANOSTRUCTURES BY ATMOSPHERIC ORIENTATION PLASMA POLYMERIZATION Jing Zhang, Ying Guo, Jinzhou Xu, Xinsheng Fang	694
PREPARATION OF CHITOSAN/POLY (VINYL ALCOHOL) BLENDS NANOFIBROUS MATRIX YongTang Jia, XiaoHua Gu, FengChun Dong, XinYuan Shen	695
MULTI-WALLED CARBON NANOTUBE-POLYURETHANE COMPOSITES PREPARED BY IN SITU POLYMERIZATION WITH ELECTROACTIVE SHAPE RECOVERY Hye Jin Yoo, Yong Chae Jung, Jae Whan Cho	700
PREPARATION AND PROPERTIES OF POLY(ETHYLENE TEREPHTHALATE)/ SILICA NANOCOMPOSITES Xingyou Tian, Xian Zhang, Wentao Liu, Jin Zheng, Changjiu Ruan, Ping Cui	704
ELECTROSPUN CORE-SHELL PLLA NANOFIBER AND ITS POTENTIAL FOR DRUG RELEASE C.L. He, Z.M Huang, L. Liu, X.J. Han	708
TIME-DEPENDENT UNIAXIAL PIEZORESISTIVE BEHAVIOR OF HIGH-DENSITY POLYETHYLENE / SHORT CARBON FIBER CONDUCTIVE COMPOSITES Q. Zheng, J. F. Zhou, Y.H. Song	713
STRUCTURAL CHARACTERISTICS OF CHEMICAL VAPOR POLYMERIZED POLYPYRROLE/ POLYCAPROLACTAM FIBER COMPOSITES C. F. Xiao, X. M. Tao, Sarah M. Y. Leung, Keith W. Y. Kwok	726
PREPARATION AND CHARACTERIZATION OF POLY (VINYL ACETATE) / MONTMORILLONITE NANOCOMPOSITES MATERIALS	730