

28th Polymer Processing Society Annual Meeting 2012 (PPS-28)

Pattaya, Thailand
11 – 15 December 2012

Volume 1 of 2

ISBN: 978-1-5108-4261-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by Polymer Processing Society
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact Polymer Processing Society
at the address below.

Polymer Processing Society
810 E. 10th St.
Lawrence, KS 66044
USA

Phone: +1-800-627-0326
+1-785-865-9403
Fax: +1-785-843-6153

pps@allenpress.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

EXTRUSION AND EXTRUSION PROCESSES

MICROPELLETIZING USING RAYLEIGH DISTURBANCES	1
<i>T. Osswald, W. Aquite, N. Rudolph, D. Kasperek</i>	
PIEZOELECTRIC FILAMENTS PRODUCED BY COEXTRUSION	5
<i>R.S. Martins, R. Goncalves, J.G. Rocha, J.M. Nobrega, H. Carvalho, S. Lanceros-Mendez</i>	
IMPROVED PERFORMANCE OF PP/EPR BLENDS BY ADDING NANO-SIO₂ PARTICLES: EFFECT OF HIGH-SHEAR PROCESSING ON THE DISPERSION	7
<i>M. Louizi, V. Massardier, P. Cassagnau</i>	
CAPILLARY EXTRUSION AND SWELL OF A HDPE MELT EXHIBITING SLIP	10
<i>E. Mitsoulis, M. Ansari, S.G. Hatzikiriakos</i>	
TUBING EXTRUSION OF A FLUOROPOLYMER MELT	14
<i>E. Mitsoulis, S.G. Hatzikiriakos</i>	
COMPOSITE MODELING VS SCREW PUMPING CHARACTERISTICS FOR SCREW EXTRUSION	18
<i>K. Wilczynski, A. Nastaj, A. Lewandowski, K.J. Wilczynski</i>	
WINDING DEFECTS REFERRED TO SURFACE MODIFICATION OF BLOWN FILMS BY CORONA TREATMENT	21
<i>F.A. Heinzler, J. Wortberg, F. Hoffmann, T. Kirchhoff</i>	
PROTOTYPE SYSTEM AND METHODOLOGY FOR THE CHARACTERIZATION OF THE CONTACT RESISTANCE AT THE POLYMER-CALIBRATOR INTERFACE	25
<i>O.S. Carneiro, J.M. Nobrega, C. Silva, A. Mota, A.M. Ribau</i>	
MODELING THE MOLECULAR WEIGHT LOSS IN SINGLE SCREW EXTRUSION	28
<i>S. Littek, V. Schoppner, M. Schneider, K. Huber</i>	
DETERMINATION OF CORRECTION FACTORS FOR THE NETWORK-THEORY-BASED DESIGN OF EXTRUSION FILM DIES	32
<i>B. Henke, V. Schoppner</i>	
ANALYSIS OF FLOW BEHAVIOR IN DIE EXTRUSION PROCESS FOR VARIOUS INSIDE DIE DESIGNS	35
<i>M.Y. Lyu, S.H. Choi, H.J. Kim</i>	
TEMPERATURE EVOLUTION DURING FILAMENT DEPOSITION IN 3D FREE FORM EXTRUSION	37
<i>F.M. Duarte, S.F. Costa, J.A. Covas</i>	
VISCOUS HEATING OF POLYMER MELTS IN PLASTIC PIPE EXTRUSION	40
<i>C. Koolitawong, A.J. Giacomini, U. Nontakaew</i>	
REAL TIME OPTICAL METHODS TO MONITOR THE POLYMER MELT FLOW DURING EXTRUSION	44
<i>S.V. Canevarolo, P.A.R. Munoz, L.S. Hamster, A.M.C. Santos</i>	
TAIL PELLET MINIMIZATION VIA CONTROL OF SOLIDIFICATION PROCESS AND CUTTING PHENOMENA FOR A HIGH-MFR PP	48
<i>W. Tanthapanichakoon, S. Jinarakpong, R. Kulwatthanasal, S. Kitchoackgaroensakul, S. Lertthanongsak</i>	
DEVELOPMENT OF CO-ROTATING TWIN SCREW EXTRUDER TO OVERCOME LIMITATIONS OF CONTINUOUS MIXERS AND BATCH MIXERS FOR ADDITIVE MASTERBATCHES	52
<i>W. Polrut, P. Nutthanara, W.N. Ranong, S. Treethammakul, W. Tanthapanichakoon</i>	
NOVEL CONSTRUCTIONS FOR RING-SHAPED DIES BROADEN PROCESSING CAPABILITIES IN EXTRUSION	55
<i>H. Gross</i>	
PREDICTING THE MELTING BEHAVIOR WITHIN A SINGLE SCREW EXTRUDER USING 3D FVM SIMULATIONS	59
<i>C. Hopmann, C. Kremer, S. Grammel</i>	

BLOW MOLDING, ROTOMOLDING AND THERMOFORMING

EVALUATION OF PROCESSING CONCEPTS FOR POLYOLEFINS IN ROTATIONAL FOAM MOLDING	63
<i>R. Pop-Iliev</i>	
THE INFLUENCE OF PLUG MATERIALS ON CONTACT SLIP IN THERMOFORMING	67
<i>P.J. Martin, H.L. Choo, C.P.J. O'Connor</i>	
LOCAL HEATING USING LASER RADIATION FOR IMPROVED WALL THICKNESS DISTRIBUTION OF THERMOFORMED PARTS	71
<i>B. Neubig, C. Bonten</i>	
FABRICATION OF POLYMERIC MICROFLUIDIC DEVICES BY MICROTHERMOFORMING FOR BIOMEMS APPLICATIONS	76
<i>N.E. Steidle, A. Lepple, M. Schneider, M. Heilig, R. Ahrens, M. Worgull, A.E. Guber</i>	
EPOXY PROCESSABILITY BY REACTIVE ROTATIONAL MOLDING	80
<i>E. Lecocq, F. Nony, L. Letoquart, M. Savoye, A. Tcharkhtchi, J.F. Gerard</i>	
TEXTILE REINFORCED MDPE ON ROTATIONAL MOLDING	84
<i>N. O-Charoen, P. Srinak-Eiang, K. Plubthong, H. Hamada</i>	
CREEP FORMING OF POLYCARBONATE: EXPERIMENTATION AND MODELLING	87
<i>S. Zitzlsberger, C. Maurer, G. Reinhart</i>	

FIBERS, FILMS AND FOAMS

MODERN FLAME RETARDANTS FOR POLYMER FOAMS – DEVELOPMENT TRENDS WITH SPECIAL EMPHASIS ON NOVEL POLY(BUTYLENE TEREPHTHALATE) FOAMS	91
<i>T. Koppl, B. Fischer, A. Altstadt</i>	
PREPARATION OF MODIFIED UNORIENTED ELECTRICAL GRADE POLYVINYLIDENE FLUORIDE POLYMER FILMS BY CONTINUOUS PROCESS	95
<i>R.P. Vijayakumar, M.V. Mhalgi, D.V. Khakhar, A. Misra</i>	
EFFECT OF SPINNING CONDITIONS ON FIBER FORMATION BEHAVIOR IN MELT BLOWING PROCESS	99
<i>R. Ruamsuk, W. Takarada, T. Kikutani</i>	
ELECTROSPINNING OF POLYLACTIDE-POLYGLYCOLIDE NANOFIBROUS MEMBRANES WITH ULTRA-LOW DIELECTRIC PROPERTY	103
<i>S.J. Liu, L.Y. Chiou, C.Y. Liaw</i>	
PREPARATION OF OPEN-POROUS MICROCELLULAR POLYPROPYLENE FOAMS WITH NANO-FIBRILS BY CORE-BACK FOAM INJECTION MOLDING	106
<i>R. Miyamoto, M. Fukumori, H. Shikuma, M. Ohshima</i>	
COMBINING FUNCTIONALITIES IN MULTICOMPONENT SYNTHETIC FIBERS	110
<i>R. Hufenus, G. Fortunato, L. Gottardo, F.A. Reifler</i>	
REINFORCING A PC-FILM BY MEANS OF MONOAXIAL STRETCHING	114
<i>V. Schoppner, A. Wibbeke, B. Scholtes, M. Lebsanft, W. Zinn</i>	
ELECTRICAL CONDUCTIVITY AND ELECTROMAGNETIC INTERFERENCE SHIELDING EFFECTIVENESS OF INJECTION-MOLDED POLYPROPYLENE/CARBON FIBER COMPOSITE FOAMS	117
<i>A. Ameli, P.U. Jung, C.B. Park</i>	
RAPID PREPARATION OF HIGH-GAS VOLUME FRACTION POROUS POLYIMIDE FILM BY PHASE SEPARATION AND SUBSEQUENT PHOTOPOLYMERIZATION	121
<i>K. Taki, K. Hosokawa, S. Takagi, H. Mabuchi, M. Ohshima</i>	
THE EFFECT OF PARTICLE SIZE AND COATING OF CaCO_3 ON THE FOAMING BEHAVIOR OF A STYRENE BUTADIENE BLOCK COPOLYMER	126
<i>B. Geissler, S. Laske, C. Holzer, G.R. Langecker</i>	
EFFECT OF CRYSTALLINE PHASE SEPARATED HARD SEGMENTS ON PRODUCTION OF MICROCELLULAR THERMOPLASTIC POLYURETHANE FOAMS USING BUTANE	130
<i>N.J. Hossieny, M.R. Barzegari, C.B. Park</i>	
EFFECTS OF EXTENSION PARAMETERS ON THE STRUCTURE OF POLYPROPYLENE FILM	134
<i>L.Y. Chen, C.C. Su, R.H. Chen</i>	
NANOSTRUCTURED ANTI-REFLECTION FILMS FOR ENHANCEMENT OF SOLAR CELLS PERFORMANCE PREPARED USING PLASMA SPUTTERING AND INFRARED ASSISTED ROLLER EMBOSsing TECHNIQUES	138
<i>S.J. Liu, C.T. Liao</i>	

ON THE DEVELOPMENT OF NOVEL PIEZOELECTRIC FIBRE SENSOR	141
<i>E. Nilsson, A. Lund, C. Jonasson, C. Johansson, B. Hagstrom</i>	
DEPOSITION OF HMDSO ON COTTON SURFACE USING A LOW PRESSURE RADIO FREQUENCY GLOW DISCHARGE	145
<i>A. Shafiei, S. Pilehvar, K. Salem, H. Mortazavi, M. Ghorannevis, P. Manafi, Z. Nobakht, Z. Fallah</i>	
EXTRUSION FOAMED POLY(LACTIC) ACID/POLYPROPYLENE BLENDED	152
<i>N. Chuapon, O. Naithanom, S. Areerat, P. Piyamanocha, T. Sedlacek, P. Saha</i>	
OBSERVATION OF HIGHER ORDER STRUCTURE AT HEAT SEAL PARTS ON UNIAXIAL DRAWN PP FILM	156
<i>K. Yamada, R. Konishi, K. Okada, T. Tsujii, K. Miyata</i>	
STUDY ON THE APPLICATIONS OF MICROCELLULAR INJECTION MOLDING AND NANOCOMPOSITES TO IMPROVE THE WARPAGE OF THE PLASTIC BOX.....	160
<i>S.S. Hwang, J.P. Yang, C.H. Hu, C.C. Li</i>	
STUDY OF THE CRATER FORMATION MECHANISM ON THE SURFACE OF BOPP FILM	165
<i>T. Kanai, S. Tamura</i>	
FABRICATION OF CARBON-CORE/TIO₂-SHELL NANOFIBERS AND THEIR APPLICATION TO DYE-SENSITIZED SOLAR CELL	169
<i>A. Tanaka, S. Nagamine, M. Ohshima</i>	
EFFECT OF D-LACTIDE CONTENT ON STRUCTURE DEVELOPMENT BEHAVIOR OF POLYLACTIC ACID FILMS DURING UNIAXIAL AND SEQUENTIAL BIAXIAL STRETCHING.....	173
<i>W. Takarada, N. Kerddonfag, W. Chinsirikul, T. Kikutani</i>	
DEVELOPMENT OF A GASBAG-ROLLER-ASSISTED HOT EMBOSsing PROCESS WITH ANODIC ALUMINUM OXIDE ROLLER TO FABRICATE NANOSTRUCTURES ON POLYMERIC FILM	177
<i>C.F. Lu, C.H. Lin, S.Y. Yang</i>	
SEQUENTIAL BIAXIALY ORIENTED POLYLACTIC ACID FILMS CONTAINING DIFFERENT D -LACTIDE CONTENTS: DEFORMATION BEHAVIOR AND STRUCTURE DEVELOPMENT	180
<i>N. Kerddonfag, T. Yamwong, B. Hararak, P. Kumsang, C. Sripethdee, C. Winotapun, W. Chinsirikul</i>	
PROCESSING AND PROPERTY OPTIMIZATION OF POLY(LACTIC ACID)/POLY(BUTYLENE SUCCINATE) BLEND BLOWN FILMS.....	185
<i>C. Sripethdee, B. Hararak, C. Winotapun, N. Kerddonfag, P. Kumsung, W. Chinsirikul</i>	

INJECTION AND MICROINJECTION MOLDING AND MOLDS

MICRO-AND NANO-SCALE POLYMER PROCESSING - TOP-DOWN APPROACH AS INJECTION MOLDING AND IMPRINTING TECHNOLOGY	190
<i>H. Ito, A. Hariu, S. Takahagi, T. Takayama, T. Kyotani</i>	
INFLUENCE OF DYNAMIC MOLD TEMPERATURE PROCESSES ON THE WELD LINE STRENGTH OF BI-DIRECTIONAL FILLED TENSILE BARS. A NEW MULTI-FUNCTIONAL TEST INJECTION MOLD TO EXAMINE SURFACE DEFECTS, THIN-WALL PARTS AND FROZEN LAYER FORMATION.....	194
<i>G.R. Berger, G.A. Pacher, W. Friesenbichler</i>	
ACHIEVING FINE CELL STRUCTURE OF POLYPROPYLENE FOAM WITH HIGH EXPANSION RATIO BY CORE-BACK FOAM INJECTION MOLDING	198
<i>S. Yasuhara, R. Miyamoto, M. Ohshima</i>	
WIRELESS IN-MOLD SENSOR FOR INJECTION MOLDING: A NEW APPROACH.....	202
<i>F. Muller, C. Kukla, T. Lucyshyn, C. Holzer</i>	
INFLUENCE OF MASTERBATCHES ON THE BOND STRENGTH OF TWO-SHOT MOLDED PARTS.....	206
<i>T. Kisslinger, T. Lucyshyn, G.R. Langecker, C. Holzer</i>	
DEMOLDING FORCE MEASUREMENTS OF COATED MICRO-STRUCTURED SURFACES IN A HOT EMBOSsing PROCESS	210
<i>T. Struklec, M. Burgsteiner, T. Lucyshyn, W. Balika, C. Poschl, C. Holzer</i>	
HIGH PRECISION IN SHRINKAGE SIMULATION OF THICK-WALLED PLASTIC PARTS DUE TO IMPROVED MATERIAL DATA	214
<i>N. Rudolph, M. Lohner, D. Drummer, T. Osswald</i>	
INLINE-COMPOUNDING OF FIBER REINFORCED THERMOPLASTICS ON AN INJECTION MOLDING MACHINE.....	221
<i>E. Moritzer, R. Kleeschulte, E. Albring</i>	

MECHANICAL PROPERTY OF INJECTION MOLDED UNTWISTED JUTE/PP WITH WELD LINE	226
<i>C. Wang, Y. Yang, H. Hamada</i>	
VISUALIZATION ANALYSIS OF DISCONTINUOUS WRINKLY GROOVES GENERATION PROCESS BEHIND MICRO SAW-TOOTH STEPS PATTERN	231
<i>Y. Kanetoh, H. Yokoi</i>	
VISUALIZATION ANALYSIS ON FLOW BEHAVIOR OF LONG CARBON FIBER REINFORCED MATERIALS IN INJECTION MOLDING	235
<i>H. Yokoi, R. Mori, Y. Kanetoh</i>	
EXPERIMENTAL AND NUMERICAL ANALYSIS OF THE TEMPERATURE DISTRIBUTION OF INJECTION MOLDED PRODUCTS USING PROTRUDING MICROPROBES.....	239
<i>S.J. Liu, C.W. Ho</i>	
REPLICATION OF MICROSTRUCTURED FREEFORM SURFACE PARTS IN INJECTION MOLDING	242
<i>M. Burgsteiner, F. Muller, A. Wolfberger, T. Lucyshyn, C. Kukla, C. Holzer</i>	
REAL TIME VIS SPECTROSCOPIC MONITORING OF COLOUR DURING INJECTION MOULDING	246
<i>P. Brookbank, O. Ghita</i>	
INVESTIGATION OF SANDWICH STRUCTURE FROM PP BLENDS SKIN AND XHDPE CORE.....	249
<i>T. Norraprateep, U. Meekum</i>	
VISUALIZATION ANALYSIS OF IMBALANCED CAVITY FILLING PHENOMENA IN HOT RUNNER MOLD WITH A VALVE-GATE SYSTEM	253
<i>R. Takamatsu, Y. Kanetoh, H. Yokoi</i>	
INFLUENCE OF HIGH SHEAR RATES ON THE MICROSTRUCTURE OF INJECTION MOLDED POM-PDMS COMPOUNDS	257
<i>J. Aho, N.J. Alvarez, M. Papsoee, O. Hassager</i>	
THE EFFECTS OF GAS COUNTER PRESSURE COMBINED WITH DYNAMIC MOLD TEMPERATURE CONTROL ON THE SKIN LAYER THICKNESS AND FOAMING CELL SIZE OF MICROCELLULAR INJECTION MOLDING	262
<i>S.C. Chen, J.A. Chang, C.Y. Tseng</i>	
STUDY ON RESIN FLOW OF MICRO INJECTION MOLDING MACHINE.....	266
<i>A. Inoue, M. Nomoto, T. Tanaka, Y. Arao</i>	
MICROCELLULAR INJECTION MOLDING WITH GAS-LADEN PELLETS: EFFECTS OF CO-BLOWING AGENTS ON MICROSTRUCTURE.....	270
<i>X. Sun, L.S. Turng, P.J. Gorton, S. Buell, P. Nigam</i>	
OPTIMIZATION PARAMETERS OF INJECTION MOULDING MACHINE FOR REDUCING WARPAGE OF DOG BONE PLASTIC PART.....	274
<i>M. Amran, S. Salmah, M. Zaki, R. Izamshah, M. Hadzley, S. Sivarao, N.I. Syahriah</i>	
INJECTION MOULDING OF MICRO STRUCTURES ON COMPLEX PART GEOMETRIES.....	278
<i>C. Hopmann, A. Neuss, R. Schoeldgen, M. Schoengart</i>	

MIXING AND COMPOUNDING

PROGRESS IN DISPERSIVE MIXING - APPLICATION OF ULTRASONIC TECHNIQUE	282
<i>Y. Suetsugu, A. Sato</i>	
A STUDY ON THE MORPHOLOGY AND MECHANICAL PROPERTIES OF TPU/PS BLENDS	285
<i>M.R. Mansourieh, A. Javadi, M. Moradi, F. Fallahnejad, M. Bastani</i>	
CHARACTERIZATION OF TRISTIMULUS COLOUR VALUES IN POLYCARBONATE EXTRUSION PROCESS	289
<i>U. Saeed, S. Ahmad, J. Alsadi, D. Ross, G. Rizvi</i>	
ZEOLITE AND TALC – IMPORTANT MINERAL FILLERS FOR ACTIVE PACKAGING APPLICATIONS	293
<i>C. Holzer, M. Piontek, U. Gallaun, S. Laske, G. Rieb, H. Flachberger</i>	
PREPARATION AND PROPERTIES OF PP/VGCF COMPOSITES: EFFECT OF SURFACE MODIFICATION WITH TITANATE COUPLING AGENT	297
<i>W. Cheewawuttipong, N. Washida, S. Tanoue, H. Uematsu, Y. Iemoto</i>	
IBUPROFEN-KOLLIDON® SR MATRICES SOFTENED TOWARDS THE INCREASE OF WEIGHT PERCENT OF IBUPROFEN	301
<i>C. Wiranidchapong, N. Ruangpayungsak, D. Shuwisitkul, S. Tunvichien</i>	

PROCESSING OF NANOCOMPOSITES PLA/GRAPHITE USING A NOVEL ELONGATIONAL MIXING DEVICE.....	305
<i>R. Muller, M. Bouquey, J. Rondin, F. Hassouna, R. Ibarra</i>	
THE INFLUENCE OF COMPOUNDINGCONDITIONSON THERMALLY CONDUCTIVE COMPOSITES.....	309
<i>A. Leuteritz, B. Kutlu, I. Kuhnert, M. Bader</i>	
INFLUENCE OF TWIN-SCREW EXTRUSION CONDITIONS ON CNT DISPERSION AND LENGTH AND THE RESULTING ELECTRICAL AND MECHANICAL PROPERTIES OF POLYCARBONATE BASED NANOCOMPOSITES.....	310
<i>P. Potschke, T. Villmow, B. Krause, R. Boldt</i>	
EVALUATION OF MIXING PERFORMANCE OF SPECIAL ROTOR SEGMENTS IN AN INTERMESHING CO-ROTATING TWIN-SCREW EXTRUDER BY APPLYING WEIGHTED INDICES	313
<i>S. Yamada, K. Fukutani, K. Yamaguchi, H. Funahashi, K. Ebata, H. Uematsu, S. Tanoue</i>	
SILICON-BASED COMPOUNDS AS FLAME RETARDANT FOR POLYSTYRENE.....	317
<i>S.A.C. Abarca, R.A.F. Machado, A.L.G. Prette, O. Flores, G. Motz</i>	
A MATRICIAL APPROACH OF FIBRE BREAKAGE IN TWIN-SCREW EXTRUSION OF GLASS FIBRES REINFORCED THERMOPLASTICS.....	321
<i>A. Durin, P. De Micheli, J. Ville, F. Inceoglu, R. Valette, B. Vergnes</i>	
ENHANCE PROPERTIES OF CROSSLINKED PP/UHMWPE BLEND.....	326
<i>A. Khongrit, U. Meekum</i>	
INVESTIGATION OF THE PLASTIFICATION BEHAVIOR OF POLYMERS IN HIGH-SPEED TWIN SCREW EXTRUDERS	330
<i>G. Spohr, A. Knieper, C. Beinert</i>	
OPTIMIZATION OF TESPT SILANE TREATMENT IN SILICA FILLED HNBR SYSTEMS CURED WITH PEROXIDE: EFFECTS OF TESPT LOADINGS AND MIXING CONDITIONS	334
<i>M. Nillawong, C. Sirisinha</i>	

REACTIVE PROCESSING, POLYMER BLENDS AND ALLOYS

DYNAMIC EVOLUTION OF REACTION AND MORPHOLOGY FOR POLYMER REACTIVE PROCESSING IN A TWIN SCREW EXTRUDER	338
<i>G.H. Hu, S. Hoppe, C. Zhang, L. Feng</i>	
MDIFICATION OF PP AND APPLICATION FOR PP/PLA ALLOY	340
<i>I. Ito, M. Furuta, S. Nisituji, T. Inoue</i>	
EFFICIENCY OF GRAFT COPOLYMERS AS EMULSIFIERS FOR IMMISCIBLE POLYMER BLEND	342
<i>C. Zhang, L. Feng, G. Hu</i>	
EFFECTS OF HMWPE ON MECHANICAL PROPERTIES OF BIMODAL PE	344
<i>Y. Liu, J. Braun, S. Tyagi, D. Tranchida, G. Kandioller</i>	
FLUORESCENCE QUENCHING OF FLUORANTHENE BY MALEIC ANHYDRIDE IN SOLUTION AND DURING NON-REACTIVE AND REACTIVE TWIN-SCREW EXTRUSION.....	348
<i>F. Mighri, A. Methenni, S. Elkoun, P. Cassagnau</i>	
LAMINATED SANDWICH STRUCTURE BASED ON PC SKINS FOR IMPACT RESISTANT PANEL APPLICATIONS: INVESTIGATION OF CORE MATERIALS AND POLYMERIZATION PROCESSES.....	352
<i>W. Angkura, U. Meekum</i>	
HYBRID NANOCOMPOSITES PREPARATION: BATCH MIXER VS TWIN-SCREW EXTRUDER.....	356
<i>M. Oliveira, A.V. Machado</i>	
HDPE/PA-6/EVOH BLEND PROPERTIES AND MORPHOLOGY	359
<i>N. Jalalifar, Z. Ahmadi, H.A. Khonakdar</i>	
ELECTRON INDUCED REACTIVE PROCESSING: A PROMISING TECHNIQUE TO CREATE THERMOPLASTIC VULCANIZATES (TPVS).....	363
<i>U. Wagenknecht, M. Mondal, U. Gohs, K. Naskar, R. Rajeshbabu, V. Thakur, G. Heinrich</i>	
IMMOBILISATION OF POLYELECTROLYTE STABILIZED GOLD NANOPARTICLES ON A POLYMER SURFACE DURING MOULDING	365
<i>F. Kroschwald, J. Nagel, C. Zimmerer, B. Voit, G. Heinrich</i>	
STRUCTURE-PROPERTY RELATIONSHIP OF DYNAMICALLY CROSS-LINKED PP/EOC AND PP/EPDM BLENDS (TPVS): A COMPARATIVE STUDY.....	367
<i>R.R. Babu, K. Naskar</i>	

CO₂ ASSISTED BLENDING OF BIODEGRADABLE POLYESTERS.....	371
<i>S.H. Murphy, G.A. Leeke, C.A. Kelly, M.J. Jenkins</i>	
MECHANICAL AND THERMAL PROPERTIES OF RECYCLED PET INJECTION MOLDINGS.....	375
<i>K. Yamada, S. Tamada, N. Kunimine, H. Hamada</i>	
THE INFLUENCE OF SBS AS A COMPATIBILIZER ON THE RHEOLOGY AND MECHANICAL PROPERTIES OF HIPS/HDPE BLENDS	379
<i>M. Ahmadi, A. Javadi, H. Nazokdast, M. Bastani</i>	
MOLECULAR INSTABILITY OF POLYAMIDE GRAFT COPOLYMERS UNDER POLYMER PROCESSING CONDITIONS	383
<i>G.H. Hu, C. Zhang, S. Hoppe, L. Feng</i>	
EFFECT OF SILANE AND UHMWPE ON THE CROSSLINKED HDPE/PTFE BLENDS	385
<i>N. Chantanakorn, U. Meekum</i>	

POLYMER COMPOSITES AND NANOCOMPOSITES

STRUCTURE AND PROPERTIES OF POLYMER-BASED COMPOSITE NANOFIBERS.....	389
<i>C.K.H. Kent, Y. Ono, N. Ryouhei, K. Masaya</i>	
DESIGN OF NANOREINFORCEMENTS BY ENGINEERING AT NANOSCALE.....	393
<i>S.C. Jana, S. Roy, Y. Duan, R. Benavides, D. Reneker</i>	
ULTRAHIGH DENSITY ARRAY OF NANOPATTERNS ON BAROPLASTIC BLOCK COPOLYMER FILMS BY PHASE TRANSITION AT ROOM	396
<i>A. Jo, J.K. Kim</i>	
MULTIFUNCTIONAL POLYMER COMPOSITES: HIERARCHICAL MICRO/NANO MULTI-SCALE HYBRID COMPOSITES FOR SENSING APPLICATIONS	399
<i>E.T. Thostenson, G. Pandey, Q. An</i>	
PARTIALLY RESOLVED CHARACTERIZATION OF THERMO-MECHANICALLY GRADED SELF-REINFORCED POLYPROPYLENE COMPOSITES.....	402
<i>H.P. Heim, A. Ries, B. Rohde</i>	
POLY (VINYL ALCOHOL)/INORGANIC FILLERS COMPOSITES WITH HIGH PERFORMANCES PREPARED BY THERMAL PROCESSING	406
<i>L. Li, B. Wang, N. Chen, X. Chen, Q. Wang</i>	
INJECTION MOLDING COMPOUNDING OF PP POLYMER NANOCOMPOSITES.....	408
<i>M.G. Battisti, W. Friesenbichler</i>	
STRAIN SENSING CAPABILITY OF CONDUCTIVE POLYMER COMPOSITES: THE EFFECT OF CONDUCTIVE NETWORK MORPHOLOGY AND INTERFACIAL INTERACTION	413
<i>H. Deng, L. Lin, E. Bilotti, G. Xiang, T. Peijs, Q. Fu</i>	
STUDY ON COMPOSITES OF GRAPHENE OXIDE (GO) AND CONDUCTIVE POLYMER	417
<i>S. Konagaya, M. Terada, M. Mutou, T. Gotou</i>	
QUANTIFICATION OF CARBON NANOTUBE SHORTENING AFTER MELT COMPOUNDING.....	421
<i>B. Krause, T. Villmow, R. Socher, P. Potschke</i>	
THE EFFECT OF PROCESSING CONDITIONS ON THE EVOLUTION OF THE DISPERSION OF POLYMER-CLAY NANOCOMPOSITES ALONG THE EXTRUDER	425
<i>J.M. Barbas, A.V. Machado, J.A. Covas</i>	
DEVELOPMENT ON DISPERSION OF CARBON NANOTUBES REINFORCED BIODEGRADABLE POLYMER NANOCOMPOSITES.....	428
<i>S. Thumsorn, N. Srisawat, J.W. On, S. Pivsa-Art</i>	
RHEOLOGICAL ANALYSIS OF DIFFERENT REACTIVITY OF POLYMER NANOCOMPOSITE TO THE ELECTRIC FIELD ACCORDING TO THE MOLECULAR STRUCTURES AND AFFINITIES BETWEEN POLYMER AND NANOPARTICLES	432
<i>H.G. Ock, K.H. Ahn</i>	
PREPARATION OF FLAME RETARDANT LDH/POLYOLEFIN NANOCOMPOSTIES	436
<i>B. Kutlu, N.J. Kang, D.Y. Wang, A. Leuteritz</i>	
EFFECT OF NANOTUBE ASPECT RATIO ON PROPERTIES OF MELT-MIXED POLYCARBONATE NANOCOMPOSITES.....	439
<i>J. Guo, F.Y. Castillo, R. Socher, B. Krause, R. Headrick, B.P. Grady, R. Prada-Silvy, P. Potschke</i>	
INFLUENCE OF SHORT GLASS FIBER ADDITION ON THE MORPHOLOGY AND PROPERTIES OF PC-MWCNT COMPOSITES	442
<i>S. Sathyanarayana, M. Wegrzyn, P. Weiss, E. Gimenez, C. Hubner, F. Henning</i>	
MORPHOLOGY, ELECTRICAL AND THERMAL PROPERTIES OF POLYAMIDE6, EXPANDED GRAPHITE AND MULTIWALLED CARBON NANOTUBES COMPOSITES	446
<i>M.S. Sreekanth, A.R. Bhattacharyya, A.S. Panwar</i>	

HYBRID MIXTURES OF MULTIWALLED CARBON NANOTUBES AND CARBON BLACK IN HDPE-BASED CONDUCTIVE POLYMER COMPOSITES FOR INJECTION MOLDING	450
<i>I. Kindgren, M. Straat</i>	
INTERFACIAL LOCALIZATION OF MULTIWALL CARBON NANOTUBES IN POLYAMIDE6 AND ACRYLONITRILE BUTADIENE STYRENE CO-POLYMER BLENDS IN THE PRESENCE OF A REACTIVE COMPATIBILIZER	452
<i>A.V. Poyekar, A.R. Bhattacharyya, A.S. Panwar, G.P. Simon</i>	
PREPARATION AND CHARACTERIZATION OF "PVC/TIO₂ NANORODS" NANOCOMPOSITES	457
<i>A. Hasanzadeh, S. Pilehvar, M. Shahresaei, M. Partovi, A. Moradi, F. Amanizadeh, H. Jodat</i>	
PREPARATION AND PROPERTIES OF NANOCOMPOSITE FOAMS BASED ON NATURAL RUBBER (NR)/ETHYLENE-VINYL ACETATE (EVA) BLENDS	460
<i>A. Masa, J. Julyanon, A. Kaesaman, C. Thongpin, T. Sakai, N. Lopattananon</i>	
COMPOUNDING AND PROCESSING OF POLYMER / MWCNT COMPOSITES	464
<i>X. Yang, H.J. Park, C. Schneider, C. Kujat, I. Hennig, H. Steininger, M. Weber</i>	
PROPERTIES OF LAYERED DOUBLE HYDROXIDE MICRO- AND NANOCOMPOSITES	468
<i>L. Moyo, W.W. Focke, D. Heidenrich, F.J.W.J. Labuschagne, H.J. Radusch</i>	
PERCOLATED NETWORK STRUCTURE FORMATION AND RHEOLOGICAL PROPERTIES IN NYLON 6/CLAY NANOCOMPOSITES	473
<i>M. Okamoto, C. Mizuno</i>	
NANOSTRUCTURE AND ADSORPTION BEHAVIOR OF NATURAL/SYNTHETIC ALLOPHANES	476
<i>F. Iyoda, S. Arakawa, M. Okamoto, H. Hayashi</i>	
ELECTRICALLY CONDUCTIVE POLYETHYLENE NANOCOMPOSITES USING FERROMAGNETIC HIGH ASPECT RATIO NICKEL NANOWIRES AS FILLERS	480
<i>X. Luo, U. Sundararaj, J.L. Luo</i>	
TRIBOLOGICAL STUDIES OF PA66 NANOCOMPOSITES FILLED WITH LAYERED SILICATE CLAYS	484
<i>S. Laske, R.K. Selvasankar, M. Krcalik, C. Holzer, M. Winzer</i>	
THE RELATION BETWEEN COMPATIBILITY AND MAGNETIC PROPERTIES OF POLYMER BONDED MAGNETS FILLED FE₃O₄ NANOPARTICLES	488
<i>S. Mousavian, H. Ebadi-Dehaghani, D. Ashouri, H. Sadeghipour</i>	
EFFECT OF PROCESSING STRATEGIES ON THE MORPHOLOGY AND THE ELECTRICAL CONDUCTIVITY OF THE CARBON NANOTUBE FILLED BLENDS OF POLYPROPYLENE AND POLYAMIDE 6	492
<i>N. Mukhopadhyay, A.R. Bhattacharyya, A.S. Panwar</i>	
EFFECTS OF BAMBOO CHARCOAL ON THE ELECTRICAL AND RHEOLOGICAL PROPERTIES OF EVA COPOLYMER	497
<i>S. Belaid, P. Cassagnau, G. Boiteux</i>	
POLYAMIDE AS COMPATIBILIZER FOR POLYOLEFINE NANOCOMPOSITES	500
<i>A. Witschnigg, S. Laske, I. Duretek, C. Holzer</i>	
SMART MULTILAYER FREQUENCY-SELECTIVE ABSORBER FOR MICROWAVE BASED ON HYBRID STRUCTURE OF POLYMER AND CARBON NANOTUBES	504
<i>Y. Danlee, I. Huynen, C. Bailly</i>	
A NOVEL METHOD TO IMPROVE DIELECTRIC PROPERTIES IN CONDUCTIVE FILLER/POLYMER COMPOSITES	507
<i>M. Arjmand, M. Mahmoodi, S. Park, U. Sundararaj</i>	
EFFECT OF WOOD POWDER DIAMETER AND COMPOUNDING SCREW GEOMETRY ON THE MECHANICAL PROPERTY OF WOOD POWDER/PP COMPOSITE	511
<i>Y. Yu, Y. Yang, M. Murakami, T. Ota, T. Umemura, K. Hara, M. Nomura, H. Hamada</i>	
AN INVESTIGATION ON ELECTROMAGNETIC INTERFERENCE SHIELDING MECHANISMS OF INJECTION MOLDED MULTI-WALLED CARBON NANOTUBE/POLYSTYRENE COMPOSITES	515
<i>M. Arjmand, T. Apperley, M. Okoniewski, U. Sundararaj</i>	
NANOCOMPOSITEFIBERS AND NANOFIBERS FOR BIOMEDICAL APPLICATIONS	520
<i>M. Joshi, K. Saha, B. Butola</i>	
CRYSTALLIZATION BEHAVIOR OF POLYAMIDE 6/MICA NANOCOMPOSITES USING DYNAMIC RHEOMETRY AND DIFFERENTIAL SCANNING CALORIMETER	524
<i>T.S. Kermanian, H. Garmabi</i>	
INVESTIGATION OF SORBITOL/POLYHEDRAL OLIGOMERIC SILSESQUIOXANE/CARBON NANOTUBE / POLYPROPYLENE NANOCOMPOSITE SPUN FIBERS	529
<i>H. Mattausch, S.C. Jana</i>	

THE SHEAR FLOW INDUCED NANOCCLAY ORIENTATION OF PE NANOCCLAY NANOCOMPOSITES IN FILM BLOWING PROCESS	533
<i>N. Mostofi, H. Nazockdast, A.A. Katbab</i>	
CURING BEHAVIOUR OF PMMA-GRAFTED NATURAL RUBBER TOUGHENED EPOXY/CLAY NANOCOMPOSITES	537
<i>N.Y. Yuhana, S. Ahmad, M.R. Kamal, S.C. Jana, S. Bahri</i>	
CONUNDRUM OF CLAY NANOFILLERS AND DURABILITY OF POLYOLEFIN NANOCOMPOSITES	541
<i>S. Al-Malaika, H.H. Sheena</i>	
AN INVESTIGATION ON THE MORPHOLOGY AND RHEOLOGY OF NANOCOMPOSITE OBTAINED BY MELT MIXING	545
<i>A. Abbasi, A. Javadi, H. Nazockdast</i>	
PREDICTIVE MODELING OF ELECTRICAL PERCOLATION IN COMPOSITES OF POLYMERS AND CARBON NANOTUBES USING 2D AND 3D NUMERICAL MODELS	549
<i>C. Tighe, S. Malinov, T. McNally</i>	

VOLUME 2

COMPARISON OF REACTIVE AND NON-REACTIVE POSS TYPES ON THE MECHANICAL, THERMAL AND MORPHOLOGICAL PROPERTIES OF PLA AND PLASTICIZED PLA	553
<i>M. Kodal, H. Sirin, G. Ozkoc</i>	
PMMA NANOCOMPOSITES BASED ON 2ND GENERATION LAYERED SILICATES	558
<i>B. Fischer, M. Ziadeh, J. Breu, V. Altstadt</i>	
POLY(METHACRYLIC ACID)/EGGSHELL HYDROGEL COMPOSITES: A NEW ABSORBENT FOR REMOVING OF WATER POLLUTANTS	562
<i>A. Darvishi, H. Bakhshi</i>	
NOVEL TPO NANOCOMPOSITES BASED ON PP/EPDM/NANODIAMOND WITH WELL-BALANCED MECHANICAL PROPERTIES AND EXCELLENT THERMAL RESISTIVITY	564
<i>F. Hejazi, A.A. Katbab</i>	
CHARACTERIZATION OF SOY PROTEIN ISOLATE/CARBOXYMETHYL CELLULOSE/ORGANOCCLAY BIOCOMPOSITE FILM	568
<i>R. Suriyatem, A. Somwangthanaroj, P. Rachtanapunc</i>	
SULFONATED MESOPOROUS BENZENE-SILICA EMBEDDED SULFONATED PEEK MEMBRANES FOR ENHANCED PROTON CONDUCTION AND ANTI-DEHYDRATION	572
<i>J.H. Park, S.Y. Han, D. Kim</i>	
POLYURETHANE/GRAPHENE OXIDE NANO-COMPOSITES WITH GAS BARRIER PROPERTIES	576
<i>P. Kaveh, M. Mortezaei, B. Esmaili, S. Pilehvar</i>	
MECHANICAL PROPERTIES OF POLYPROPYLENE COMPOSITES CONTAINING RECYCLED PET FIBERS	578
<i>R.C. Nonato, B.C. Bonse</i>	
ANALYSIS OF THE PRODUCTION OF COMPOSITE PARTS WITH FUNCTIONAL ELEMENTS USING THE GAP IMPREGNATION PROCESS	582
<i>C. Hopmann, R. Bastian, K. Fischer, R. Schoeldgen</i>	
HIGH PRESSURE RTM – A MANUFACTURING PROCESS FOR LARGE SCALE PART PRODUCTION	586
<i>F. Henning, R. Chaudhari, M. Karcher, P. Elsner</i>	
ELECTROMAGNETIC INTERFERENCE SHIELDING EFFECTIVENESS OF MWCNT-FILLED POLY (ETHER SULFONE) AND POLY(ETHER IMIDE) BASED NANOCOMPOSITES	592
<i>S. Banerjee, A. Das, A.K. Mohanty, P. Sawai, A. Ghosh, K. Pareekh, B. Voit</i>	
IMPROVED DISPERSION OF CELLULOSE MICROCRYSTALS BY SURFACE ACETYLATION IN POLYLACTIC ACID (PLA) BASED COMPOSITES	596
<i>T. Mukherjee, N. Kao, R.K. Gupta, N. Quazi, S.N. Bhattacharya</i>	
EFFECT OF REPROCESSING ON THE PROPERTIES OF POLYETHYLENE/CLOISITE 15A NANOCOMPOSITES	600
<i>F.P. La Mantia, M.C. Mistretta, M. Morreale</i>	
COUPLED EFFECT OF HUMIDITY EXPOSURE AND CURE PRESSURE ON THE FORMATION OF MICROVOIDS IN COMPOSITE LAMINATES	602
<i>J.P. Anderson, M.C. Altan</i>	
CARBON NANOTUBE CONDUCTIVE NETWORKS IN PP AND PP/CBT BLENDS	606
<i>S. Abbasi, A. Derdouri, P.J. Carreau</i>	

MULTIWALL CARBON NANOTUBES BASED POLYPROPYLENE COMPOSITE FIBER: INFLUENCE OF A NOVEL MODIFIER AND A REACTIVE COMPATIBILIZER	611
<i>A.R. Bhattacharyya, P.B. Tambe, I. Samajdar, A.R. Kulkarni, S.T. Veedu, K. Mukhopadhyay, M.K. Sinha, A. Srivastav</i>	

RHEOLOGY AND RHEOMETRY

RHEOLOGY AND PHASE BEHAVIOR OF POLYMER BLEND	616
<i>W. Yu, C. Huang, N. Wang, C. Zhou</i>	
ANOMALOUS NORMAL STRESS BEHAVIOUR FOR POLYMER NANOCOMPOSITES AND LIQUID CRYSTALLINE POLYMER COMPOSITES	618
<i>E. Narimissa, A. Rahman, R.K. Gupta, S.N. Bhattacharya</i>	
FUNDAMENTAL UNDERSTANDING OF ENCAPSULATION IN MULTIPHASE POLYMERS	623
<i>K. Lamnawar, M. Bousmina, A. Maazouz</i>	
VISCOELASTIC MELT RHEOLOGY AND TIME-TEMPERATURE SUPERPOSITION OF POLYCARBONATE – MULTI-WALLED CARBON NANOTUBE NANOCOMPOSITES	629
<i>C.Y.H. Choong, D.S.A. De Focatiis, D.G. Hassell</i>	
THE FLOW BEHAVIOR OF ELECTORRHEOLOGICAL (ER) SUSPENSIONS	633
<i>Y.P. Seo, Y. Seo</i>	
EFFECT OF BENZYL TRIPHENYL PHOSPHONIUM CHLORIDE ON MELT RHEOLOGY OF POLYVINYLIDENE FLUORIDE (PVDF).....	636
<i>S.K. Tiwari, A. Misra, D.V. Khakhar</i>	
MULTISCALE SIMULATION OF FLOW IN ENTANGLED POLYMER MELTS AROUND A CYLINDRICAL OBSTACLE	640
<i>T. Murashima, T. Taniguchi</i>	
THE ROLE OF NANO CLAY ON KINETIC OF POLYETHYLENE CRYSTALLIZATION BY MEAN OF RHEOLOGICAL APPROACH.....	643
<i>S. Masoumi, H. Nazockdast, A. Gooneie, N. Mostofi</i>	
IMPACT OF SALINITY AND TEMPERATURE ON THE RHEOLOGY OF PARTIALLY HYDROLYZED POLYACRYLAMIDE SOLUTIONS.....	647
<i>M.S. Kamal, A.S. Sultan, U.A. Al-Mubaiyedh, M. Han, I.A. Hussein</i>	
STUDY ON MIGRATION OF NANO SILICA IN ANNEALING TIME BY RHEOLOGICAL PROPERTIES CHARACTERIZATION	651
<i>P. Kiani, H. Nazockdast, B. Ranjbar</i>	
MODELING OF THE INTERDIFFUSION AND THE INTERPHASE DEVELOPMENT BY RHEOLOGY OF A SYMMETRICAL AND AN ASYMMETRICAL BILAYER BASED ON PMMA AND PVDF MODEL POLYMERS.....	655
<i>H. Zhang, K. Lamnawar, A. Maazouz</i>	
EXTENSIONAL RHEOLOGICAL ANALYSIS OF BIODEGRADABLE POLYLACTIDE- NANOGRAPHITE PLATELET NANOCOMPOSITES	660
<i>E. Narimissa, R.K. Gupta, N. Kao, S.N. Bhattacharya</i>	
RHEOLOGICAL SIMULATION OF LIQUID CRYSTAL POLYMERS (LCPS) AT HIGH SHEAR RATES.....	664
<i>A. Rahman, R.K. Gupta, S.N. Bhattacharya, S. Ray, F. Costa</i>	
VISCOELASTIC FLOW SIMULATION OF POLYMER MELTS IN A ROTATIONAL-TYPE RHEOMETER.....	668
<i>S. Tanoue, H. Uematsu, Y. Iemoto</i>	
SHEAR AND ELONGATIONAL FLOW BEHAVIORS OF LONG CHAIN BRANCHED ETFE MELTS	672
<i>M. Sugimoto, E. Nishi, T. Satou, S. Imai, K. Koyama</i>	
COMPARISON IN SLIP CHARACTERISTIC DETERMINATION OF HDPE BY FOUR DIFFERENT TECHNIQUES.....	674
<i>D. Tabtippawon, W. Tanthapanichakoon, W. Cheevasrirungruang, B. Thitisuk, A. Fuongfuchat, P. Muangcharoen, T. Makmoon</i>	
A TOOLBOX FOR PARAMETER-FREE PREDICTIONS OF SOLID-STATE PROPERTIES OF ORIENTED GLASSY POLYMERS.....	678
<i>D.S.A. De Focatiis, C.P. Buckley</i>	

MORPHOLOGY AND STRUCTURE DEVELOPMENT

MICROSCOPICALLY-VIEWED STRUCTURAL EVOLUTION PROCESSES IN THE CRYSTALLIZATION PHENOMENA OF GREEN POLYMERS INCLUDING POLY(L-LACTIC ACID) AND TRANS-1,4-POLYISOPRENE	682
<i>K. Tashiro, K. Wasanasuk, P.J. Ratri</i>	
IN SITU SYNTHESIS OF INORGANIC FILLERS IN MOLTEN POLYMERS: PROCESSING AND MORPHOLOGY DEVELOPMENT	686
<i>V. Bounor-Legare, P. Cassagnau</i>	
MORPHOLOGY OF POLYMER BLENDS TAILORED BY NANOPARTICLES IN QUIESCENT AND SHEAR FLOW	689
<i>G. Li, Y. Huang, M. Kong, Y. Mei, W. Tong, T. Xia, Y. He, Q. Yang</i>	
SINTERING OF UHMWPE: INFLUENCE OF COCRYSTALLIZATION AND RE-ENTANGLEMENT ON THE MECHANICAL PROPERTIES.....	694
<i>T. Deplancke, O. Lame, F. Rousset, R. Seguela, G. Vigier</i>	
PROCESSING OF POLYPROPYLENE/RAPESEED STRAW COMPOSITES BY EXTRUSION AND MOULDING METHODS AND ITS INFLUENCE ON THE STRUCTURE OF POLYPROPYLENE MATRIX	698
<i>D. Paukszta, M. Szostak</i>	
SECONDARY CRYSTALLIZATION IN ZINC-NEUTRALIZED ETHYLENE-CO-METHACRYLIC ACID IONOMERS	701
<i>Y. Rui, B.P. Grady</i>	
EFFECT OF NANOCLAY ON THE MICROSTRUCTURE AND RHEOLOGICAL PROPERTIES OF PBT/EPOXY IN-SITU HYBRID NANOCOMPOSITES	705
<i>M.M. Salehi, H. Nazockdast, G.R. Pircheraghi</i>	
CONTROL OF HIERARCHICAL STRUCTURE OF POLYMER ARTICLES VIA NOVEL PROCESSING: FROM TRADITIONAL PROCESSING TOWARD "STRUCTURING" PROCESSING	710
<i>K. Wang, Z.M. Li, M.B. Yang, Q. Fu</i>	
MICROSTRUCTURE SIMULATION OF SEMI-CRYSTALLINE THERMOPLASTICS	714
<i>C. Hopmann, M. Spekowius, K. Kusters</i>	
MODELING FLOW-INDUCED CRYSTALLIZATION OF POLY(1-BUTENE) IN SHORT-TERM AND CONTINUOUS SHEAR AND EXTENSIONAL FLOW.....	719
<i>P.C. Roozmond, G.W.M. Peters</i>	
ORIENTATION ANALYSIS OF METALLIC FLAKES IN INJECTION MOLDED PRODUCTS USING X-RAY CT TECHNOLOGY	723
<i>K. Taira, H. Yokoi</i>	
CRYSTALLIZATION OF IPP IN PROCESSING CONDITIONS. EXPERIMENTS AND MODELLING	727
<i>F. De Santis, V. Speranza, R. Pantani, G. Titomanlio</i>	
A NEW PARADIGM FOR THE TOUGHENING OF POLYLACTIDE-BASED MATERIALS	730
<i>J. Odent, Y. Habibi, J.M. Raquez, P. Dubois</i>	
INTEGRATION OF NANOFILLERS IN POLYURETHANE FOAMS FOR DIFFUSION CONTROL#.....	734
<i>R. Boldt, A. Leuteritz, J. Finnberg, T. Thieme, G. Heinrich</i>	
THE INFLUENCE OF TALC AS A NUCLEATION AGENT ON THE NON-ISOTHERMAL CRYSTALLIZATION AND MORPHOLOGY OF ISOTACTIC POLYPROPYLENE: THE APPLICATION OF THE LAURITZEN-HOFFMANN, AVRAMI AND OZAWA THEORIES	736
<i>N. Kocic, K. Kretschmer, M. Bastian, P. Heidemeyer</i>	
INFLUENCE OF DIFFERENT NUCLEATING AGENTS ON THE BARRIER PROPERTIES OF SEMICRYSTALLINE POLYMERS	741
<i>M. Kersch, F. Richter, H.W. Schmidt, V. Altstadt</i>	
EFFECT OF SLIPPING AGENT ON SURFACE FRACTURE BEHAVIOR OF INJECTION MOLDED POLYPROPYLENE (PP) UNDER SCRATCH LOADING	745
<i>V. Chivatansoonorn, S. Kato, S. Chiba, H. Nakajima, M. Kotaki</i>	
INFLUENCES ON MORPHOLOGY IN LASER SINTERED PEEK MATERIALS	750
<i>M. Kroh, C. Bonten, P. Eyrer</i>	
MORPHOLOGY CONTROLLED TRIPLE AND QUADRUPLE SHAPE-MEMORY POLYMER MATERIALS BASED ON ELECTRON IRRADIATION CROSS-LINKED HETEROGENEOUS POLYOLEFIN BLENDS	755
<i>H.J. Radusch, I. Kolesov, U. Gohs, G. Heinrich</i>	

A MODEL EXPERIMENT FOR HIGH-PRESSURE POLYMER CRYSTALLIZATION.....	760
<i>S.A.E. Boyer, J.M. Haudin</i>	
A MODEL EXPERIMENT FOR NUCLEATION OF THE HIGH-PRESSURE GAMMA FORM IN ISOTACTIC POLYPROPYLENE	764
<i>E. Piorkowska, S.A.E. Boyer, P. Sowinski, J.M. Haudin, K. Zapala</i>	
UNUSUAL TUNING OF MECHANICAL PROPERTIES OF ISOTACTIC POLYPROPYLENE UTILIZING COMPETITIVE GROWTH OF ALPHA-AND BETA-CRYSTALS IN BETA-NUCLEATED ISOTACTIC POLYPROPYLENE UNDER SHEAR FLOW	767
<i>Z. Li, Y. Chen, G. Zhong</i>	
PRODUCTION OF KETOPROFEN-B CYCLODEXTRIN MICROPARTICLE USING PARTICLES FROM GAS SATURATED SOLUTION (PGSS) TECHNIQUE	772
<i>Sumarno, P.R. Pradnyandari, R. Tetrisyanda, P.N. Trisanti, F. Kurniawansyah</i>	
SELECTIVE LOCALIZATION AND MIGRATION OF NANOCCLAY IN HNBR/ENR BLENDS: AN ONLINE EVALUATION.....	776
<i>Z. Ali, H.H. Le, S. Ilisch, H.J. Radusch</i>	
DEVELOPMENT OF PHASE STRUCTURE IN THERMOPLASTIC ELASTOMER BASED ON POLY(VINYLIDENE FLUORIDE)/EPOXIDIZED NATURAL RUBBER BLENDS AND THEIR PROPERTIES.....	786
<i>S. Salaeh, C. Nakason, G. Boiteux, T. Tamet, P. Cassagnau</i>	
 <u>PROCESS MODELING AND SIMULATION</u>	
3D FINITE ELEMENT SIMULATION OF THE ELECTROFUSION PROCESS OF POLYETHYLENE FITTINGS	790
<i>Z. Chebbo, Y. Tillier, M. Vincent, A. Boujlal, D. Gueugnaut</i>	
SIMULATION OF ASSEMBLY INJECTION MOLDING PROCESS (AIM) OF POLYMER-METAL-HYBRID PARTS	793
<i>I. Kuhnert, T. Maenz, T.A. Osswald</i>	
COMPARISON OF DYNAMIC FOAMING BEHAVIOR IN MICROCELLULAR INJECTION MOLDING PROCESS FROM SIMULATION AND EXPERIMENT.....	795
<i>T.Y. Shiu, Y.J. Chang, C.T. Huang, C.H. Hsu, R.Y. Chang, S.S. Hwang</i>	
COOLING SYSTEM EFFECTS IN A REAL HOT RUNNER SYSTEM USING A 3D NUMERICAL METHOD.....	801
<i>F.H. Hsu, H.C. Wang, C.T. Huang, R.Y. Chang</i>	
NEW POSSIBILITIES OF TRANSIENT SIMULATION IN DESCRIBING COLOR AND MATERIAL CHANGE PROCESSES IN EXTRUSION TECHNOLOGY	805
<i>L. Szoke, O.T. Heesen, C. Ketteler, J. Wortberg</i>	
CFD-BASED OPTIMIZATION OF EXTRUSION DIES BY ANALYZING THE DWELL TIME DISTRIBUTION AND FLOW HISTORY	809
<i>O.T. Heesen, J. Wortberg</i>	
FILLING BEHAVIOR OF LONG FIBER-REINFORCED THERMOPLASTICS IN THE INJECTION MOLDING PROCESS	813
<i>C. Hopmann, E. Juntasaro, K. Kusters, J. van Haag, T. Thienthong</i>	
DIMENSIONLESS MODEL OF THE SOLIDS THROUGHPUT OF SINGLE-SCREW SMOOTH BARREL EXTRUDERS REGARDING THE FEED SECTION PARAMETERS	817
<i>V. Schoppner, J.S. Lebmman, R. Weddige, A. Porsch</i>	
POLYMERE SELECTIVE LASER MELTING SIMULATION USING THE C-NEM METHOD	822
<i>D. Defauchy, G. Regnier, P. Peyre, I. Amran, A. Ammar</i>	
FINITE ELEMENT SIMULATIONS VS. SIMPLIFIED MODELS FOR THE EVALUATION OF FORCES INVOLVED IN THE NANOIMPRINT PROCESS.....	826
<i>H. Teyssedre, P. Gilormini, G. Regnier</i>	
PIPE COOLING SIMULATION FOR ENERGY SAVINGS AND ENHANCED PRODUCT QUALITY	830
<i>G. Hiesgen, K. Saul, M. Spitz, P. Weib</i>	
COMPUTATIONAL DEVELOPMENT OF A COUNTER FLOW COOLING SYSTEM FOR THE BLOWN FILM PROCESS	834
<i>M. Janas, L. Fehlberg, J. Wortberg</i>	

BIO-BASED & BIODEGRADABLE POLYMERS AND POLYMER RECYCLING

INJECTABLE PH/TEMPERATURE-SENSITIVE HYDROGELS FOR BIOMEDICAL APPLICATIONS	838
<i>C.T. Huynh, D.S. Lee</i>	
INJECTION MOLDING OF BIODEGRADABLE STENTS FOR AIRWAY REMODELING	843
<i>K.S. Liu, F.J. Chiang, S.J. Liu</i>	
MELT STRENGTH MODIFICATION OF POLY(LACTIC ACID) BLENDS FOR PACKAGING FILM PRODUCTION.....	845
<i>K. Sungsanit, N. Kao, S.N. Bhattacharya, S. Pivsaart</i>	
SUSTAINABLE SEALANT FILM PROCESSING BY RICE FLOUR COMPOUNDING	849
<i>K. Miyata, M. Noguchi, A. Nishioka, T. Koda</i>	
MICROCELLULAR FOAMS OF POLY(LACTIC ACID) BASED COMPOSITES FOR BIOMEDICAL APPLICATIONS.....	852
<i>J. Goswami, A.K. Ghosh, N. Bhatnagar, S. Mohanty</i>	
PREPARATION AND HYDROLYTIC DEGRADATION OF POLY-LACTIC ACID BASED SCAFFOLD FOR SOFT TISSUE ENGINEERING	854
<i>V. Brucato, F.C. Pavia, V.L. Carrubba</i>	
MECHANICAL PROPERTIES OF MODIFIED BANANA FIBER/ POLYMER COMPOSITES	858
<i>T. Yasuda, T. Kajiyama</i>	
FABRICATION OF POLYLACTIDE BASED BIODEGRADABLE THERMOSET SCAFFOLDS FOR TISSUE ENGINEERING APPLICATIONS	860
<i>R. Sakai, B. John, M. Okamoto, J.V. Seppala, J. Vaithilingam, H. Hussein, R. Goodridge</i>	
COMPOUNDING AND MELT STRENGTHENING OF POLY (LACTIC ACID): SHEAR AND ELONGATION RHEOLOGICAL INVESTIGATIONS FOR FORMING PROCESS	863
<i>B. Mallet, K. Lamnawar, A. Maazouz</i>	
POLY(LACTIC ACID)/SILICONE BLEND FOR SUB ZERO TEMPERATURE APPLICATIONS: DESIGN OF EXPERIMENT	867
<i>U. Meekum, A. Khiansanoi</i>	
EXTRUSION OF BLENDS OF POLYOLEFINS REINFORCED WITH NANOCELLULOSE FROM SISAL PLANTS.....	871
<i>A. Leao, B.M. Cherian, S.F. de Souza, M. Sain, S. Narine</i>	
MODIFICATION OF ADHESION BETWEEN BANANA FIBER AND POLY(BUTYLENE SUCCINATE)	882
<i>T. Kajiyama, T. Yasuda</i>	
THE EFFECT OF SONICATION PROCESS ON HIDROTHERMAL REACTION OF CHITOSAN	884
<i>E. Savitri, A. Yuliana, L. Septy, A. Sumarno, A. Roesyadi</i>	
IMPACT MODIFICATION OF POLY (LACTIC ACID) BY USING MODIFIED NATURAL RUBBER	889
<i>W. Chareonsalung, N. Euaphantasate, C. Pattamaprom</i>	
UV IRRADIATION FORMATION OF POLY(VINYL ALCOHOL)/CHITOSAN HYDROGEL THIN FILMS FOR BIOMEDICAL APPLICATION	895
<i>N.T. Nguyen, J.H. Liu</i>	
EFFECT OF REPROCESSING ON PROPERTIES OF SUGARCANE BAGASSE FIBER REINFORCED POLYPROPYLENE COMPOSITES.....	898
<i>B.C. Bonse, G. Capecchi, W.Y. Mardegam</i>	
COMPARISON OF BLEACHED BAGASSE CARBOXYMETHYL CELLULOSE PROPERTIES FROM SPRAY DRYING AND NON-SPRAY DRYING PROCESSES.....	902
<i>S. Kamthai, R. Magaraphan</i>	
PNEUMATIC TRANSFER MOLDING TO FABRICATE THREE-DIMENSIONAL BIODEGRADABLE POROUS SCAFFOLDS	906
<i>M.T. Lin, R.H. Hong, P.L. Chen, S.Y. Yang</i>	
STUDY OF MICROSTRUCTURE AND PHYSICAL/MECHANICAL PROPERTIES OF PLA/TPS/NANOCCLAY NANOCOMPOSITES.....	911
<i>F. Afsharnajafi, H. Garmabi</i>	
EFFECT OF MATERIAL PARAMETERS ON MECHANICAL PROPERTIES OF BIODEGRADABLE POLYMERS/NANOFIBRILLATED CELLULOSE (NFC) NANOCOMPOSITES	915
<i>Y. Srithep, R. Sabo, C. Clemons, L.S. Turng, S. Pilla, J. Peng</i>	
PREPARATION OF COMPOSITES OF POLY(LACTIC ACID) AND POLY(BUTYLENE SUCCINATE) REINFORCED WITH JUTE FIBRE	920
<i>S. Pivsa-Art, N. Srisawat, W. Worrasettapong, S. Mathurosemontri, R. Wongpajan, S. Thumsorn</i>	

DEVELOPMENT OF POLYMER BLENDS OF POLY(LACTIC ACID) AND POLY(BUTYLENE SUCCINATE) USING TALCUM AS ADDITIVE FOR INJECTION MOLDING APPLICATIONS.....	923
<i>W. Pivsa-Art, S. Thumsorn, J. Ratanapisit, H. Yamane, H. Ohara</i>	
MECHANICAL PROPERTIES AND STRUCTURAL CHARACTERIZATION OF THERMOPLASTIC PROTEIN DERIVED FROM BLOODMEAL WITH TRI-ETHYLENE GLYCOL AS A PLASTICISER.....	927
<i>J.M. Bier, C.J.R. Verbeek, M.C. Lay</i>	

FOOD RHEOLOGY & PROCESSING

EXTRACTING THE STRESS-STRAIN PROPERTIES OF NON-LINEAR VISCOELASTIC MATERIALS USING THE BUBBLE INFLATION TEST.....	931
<i>S.M. Goh, B.S. Cheng</i>	
CONTROLLING OF VISCOSITY AND GELATION IN PASTEURISED HIGH-CALORIE OIL-IN-WATER EMULSION: USE OF OKARA AS DIETARY FIBER.....	935
<i>P. Hongsprabhas, P. Hongsprabhas</i>	
EFFECT OF GELLING CONDITIONS ON PHYSICAL PROPERTY AND NETWORK STRUCTURE IN POLYSACCHARIDE GELS	940
<i>S. Matsukawa, R. Shimada, K. Matsui</i>	
FLOW PROPERTIES OF COCOA BUTTER / SILICA DISPERSION AS A MODEL CHOCOLATE	942
<i>I. Kaneda, H. Miyazawa, M. Ito</i>	
POLYMER SCIENCE APPROACH TO FOOD RHEOLOGY AND PROCESSING	946
<i>K. Nishinari</i>	

NATURAL RUBBER & RUBBER PROCESSING

LIQUID MIXING: A LOW COST, ENERGY SAVING AND EFFECTIVE METHODOLOGY FOR PREPARATION OF ELASTOMERIC POLYMER NANOCOMPOSITES.....	950
<i>L. Zhang, Y. Wang, Y. Wu, Y. Lu, M. Tian</i>	
RUBBER/GRAPHENE COMPOSITES BY LATEX MIXING	954
<i>H.S. Xia, Y.H. Zhan, N. Yan</i>	
UTILIZATION OF PETROLEUM-BASED SULFUR AS BY-PRODUCT FROM REFINERY PROCESS IN RUBBER VULCANIZATION.....	958
<i>P. Pangamol, C. Sirisinha</i>	
EFFECT OF CARBON BLACK TYPE ON THE THERMAL PROPERTIES OF FLUOROELASTOMER.....	962
<i>T. Khalkhali, A. Samadi, M.M. Salehi, H. Pious, M. Hemmati</i>	
THE CHALLENGES OF SILICA-SILANE REINFORCEMENT OF NATURAL RUBBER	965
<i>S.S. Sarkawi, W.K. Dierkes, J.W.M. Noordermeer</i>	
COMPRESSION INDUCED HEATING OF RUBBER COMPOUNDS UNDER PROCESSING CONDITIONS	969
<i>L. Perko, W. Friesenbichler, C. Fellner</i>	
EFFECT OF CROSSLINKING JUNCTIONS AS A MOLECULAR SINGULARITY POINT ON MECHANICAL PROPERTIES.....	973
<i>O. Chaikumpollert, Y. Yamamoto, K. Suchiva, S. Kawahara</i>	
PROCESSABILITY AND PROPERTIES OF PEROXIDE CURED EPDM RUBBER: EFFECT OF MIXING TEMPERATURE AND PEROXIDE TYPE.....	975
<i>T. Saleesung, C. Sirisinha</i>	
THE EFFECT OF NON-ISOTHERMAL VULCANIZATION ON STATE OF CURE AND MECHANICAL PROPERTIES OF VULCANIZED RUBBER VIA FINITE ELEMENT SIMULATION.....	979
<i>W. Nabpetch, T. Tulyapitak, N. Nithi-Uthai</i>	
THE PREDICTION OF RHEOLOGICAL PROPERTIES OF MASTICATED NATURAL RUBBER BY DUAL CONSTRAINT MODEL	983
<i>C. Pattamaprom, N. Saengklin</i>	
VISCOELASTIC PROPERTIES OF RUBBER BLENDS FILLED WITH SILICA DEPENDING ON THEIR MORPHOLOGIES.....	988
<i>P. Grau, O. Sanseau, D.R. Long</i>	

HIGH-THROUGHPUT SEC ANALYSIS USING SEMI-MICRO COLUMN PACKED WITH MONO-DISPERSE POLYSTYRENE PARTICLE WHICH HAS A BROAD PORE SIZE DISTRIBUTION.....	991
<i>H. Tomizawa, K. Tokunaga, T. Tsuda, H. Moriyama</i>	
MORPHOLOGY DEVELOPMENT IN FILLED NATURAL RUBBER BLENDS	995
<i>H.H. Le, S. Ilisch, G. Heinrich, H.J. Radusch</i>	
INFLUENCE OF AROMATIC CONTENT IN LOW-POLYAROMATIC HYDROCARBON OILS ON THE VISCOELASTIC BEHAVIOUR OF STYRENE-BUTADIENE RUBBER FOR TYRE TREAD APPLICATIONS	999
<i>Y. Chokanandsombat, C. Sirisinha</i>	
MECHANICAL PROPERTIES OF FLAKE-SHAPED CELLULOSE PARTICLE REINFORCED NATURAL RUBBER COMPOSITES.....	1003
<i>K. Araki, K. Matsumoto, A. Nagatani, T. Tanaka, Y. Arao</i>	
VISCOELASTIC PROPERTIES OF NATURAL RUBBER WITH SOFT NANOMATRIX STRUCTURE	1007
<i>S. Kawahara, K. Kosugi, O. Chaikumpollert</i>	

FRONTIER PROCESSING TECHNOLOGY

LASER CUT POLYMERIC STENTS WITH SHAPE MEMORY	1013
<i>M. Kozłowski, A. Iwanczuk, A. Antonczak, B. Stepak</i>	
DEVELOPMENT OF PRECISION INJECTION MOLDING BY COOLING RATE CONTROL AND STUDY OF SHRINKAGE CHARACTERISTICS OF CYLINDRICAL PARTS MOLDED WITH VARIOUS RESINS	1017
<i>M. Imaizumi, M. Ogawa, J. Kitayama, H. Yokoi</i>	
STRUCTURED POLYMER SURFACES TO INFLUENCE STEM CELL BEHAVIOR	1022
<i>M. Katschnig, C. Holzer, S. Laske, S. Haubenwallner, U. Schafer, N. Andraschek, U. Fasching, S. Patz, M. Absenger, W. Balika, M. Wagner</i>	
ELECTRICALLY CONDUCTIVE LAYER FORMATION ON POLYMER SUBSTRATE USING NANO-SILVER-INK AND CO₂ LASER.....	1026
<i>T. Saito, T. Kawaguchi, I. Satoh</i>	
SUPERCritical CARBON DIOXIDE-ASSISTED ELECTROLESS NICKEL PLATING ON POLYPROPYLENE SUBSTRATE-EFFECT OF INJECTION MOLDING ON HYDROPHILIC MODIFICATION WITH ANTISTATIC AGENTS	1029
<i>S. Tengsuwan, M. Ohshima</i>	

SYMPOSIUM HONORING PROF. MUSA KAMAL

IMPROVEMENT OF BARRIER PROPERTIES OF POLYESTERS USING NANOCCLAYS	1033
<i>P.J. Carreau, A. Ghanbari, M.C. Heuzey</i>	
MICROMECHANICAL MODELS FOR POLYMER COMPOSITES CONTAINING ROD-LIKE NANOFILLERS	1037
<i>M.R. Loos, I. Manas-Zloczower</i>	
AN OVERVIEW OF THE CALENDERING PROCESS	1041
<i>J.F. Agassant, R. Magnier</i>	
STRUCTURE DEVELOPMENT IN MICRO INJECTION MOLDING OF POLYOXYMETHYLENE	1044
<i>A. Derdouri, M.R. Kamal, R. El Otmani</i>	
SEALABILITY AND SEAL CHARACTERISTICS OF BLENDS OF PE/EVA AND PLA/PCL	1048
<i>Z. Najarzadeh, R.Y. Tabasi, A. Ajji</i>	
THE ROLE OF CHAIN DYNAMICS ON COLD CRYSTALLIZATION OF PLA-CLAY NANOCOMPOSITES	1052
<i>S. Karami, P.G. Lafleur</i>	
APPLICATION OF ADVANCED CONTROL ALGORITHMS IN INJECTION MOLDING.....	1056
<i>F. Zhou, S. Mo, Y. Yang, K. Yao, F. Gao</i>	
THE DEPENDENCY OF PLA'S CRYSTALLIZATION KINETICS ON DISSOLVED CO₂ PRESSURE	1061
<i>M. Nofar, C.B. Park</i>	

A CRITICAL REVIEW OF MATHEMATICAL MODELS AND COMPUTER SIMULATIONS IN BLOWN FILM EXTRUSION	1065
<i>J. Vlachopoulos</i>	
STRUCTURING OF INJECTION MOLDING PRODUCTS CONTAINING FIBER AND NANO REINFORCED POLYMERS	1068
<i>S. Kenig</i>	
MODELING OF MIXING AND SILICA AGGLOMERATE BREAKUP IN MODULAR COROTATING TWIN SCREW EXTRUDER	1072
<i>S.H. Bumm, J.L. White, A.I. Isayev</i>	

MEMORIAL SESSION OF PROF. TOSHIRO MASUDA

INVESTIGATION OF A MODIFIED MOLECULAR CONSTITUTIVE EQUATION FOR PREDICTION OF NON-LINEAR RHEOLOGICAL PROPERTIES OF LONG CHAIN BRANCHED POLYMERS	1074
<i>M. Abbasi, N.G. Ebrahimi, M.K. Esfahani, M. Nadali</i>	
STRUCTURAL INTERPRETATION FOR TENSILE NECKING BEHAVIOR OF HIGH DENSITY POLYETHYLENE SOLIDS	1084
<i>K.H. Nitta, M. Kuriyagawa</i>	
PROPERTIES OF POLYMER/MULTI-WALLED CARBON NANOTUBE NANOCOMPOSITES	1089
<i>S.C. Kim, H. Ha, K. Ha</i>	
RHEOLOGICAL MODIFICATION AND ITS APPLICATION TO POLYMER PROCESSING	1094
<i>M. Yamaguchi</i>	
A MECHANISM OF THE LONG TIME RELAXATION OBSERVED IN HETEROGENEOUS POLYMER LIQUIDS	1097
<i>T. Yamamoto, T. Takigawa, T. Masuda</i>	
EFFECT OF ASPECT RATIO OF MULTIWALLED CARBON NANOTUBES ON THE PERCOLATION AND GEL-LIKE BEHAVIOR OF MWCNT/PP COMPOSITES	1098
<i>Y. Pan, L. Li</i>	
A STUDY ON THE MECHANICAL PROPERTIES OF POLY(BUTYLENE TEREPHTHALETE) BY ADDING SEVERAL KINDS OF PBT ELASTOMER	1101
<i>K. Tokumitsu, K. Nishizaka, Y. Yamashita, K. Kikuchi</i>	

PLENARY SESSION

EFFECT OF STRUCTURE FORMATION ON PROCESSING BEHAVIOR IN FIBER AND FILM PROCESSING	1105
<i>T. Kikutani</i>	
MAKING LIGHT AND ULTRA-STRONG TAPES FOR HIGH PERFORMANCE SAILS IN AMERICA'S CUP BOAT RACING	1109
<i>H. Meijer, P. Smith, K. Feldmann, T. Tervoort, J. Lefevre, J. Giesbrecht</i>	
APPROACHING PROCESSING CONDITIONS WITH CLASSICAL RHEOMETRICAL FLOWS	1112
<i>P. Van Puyvelde</i>	
Author Index	