

Table of Contents

| | |
|-------------------------|------|
| Preface | v |
| Committees | vi |
| Organizers and Sponsors | viii |

Invited Paper

| | |
|--|---|
| The Coexistence and Competition of Natural Fibres with Man-Made Fibres and Future Prospects R.M. Kozlowski, M. Muzyczek and M. Mackiewicz-Talarczyk..... | 3 |
| Multi-Functional Properties of Wool Fibre Composites N.K. Kim, D. Bhattacharyya and R.J.T. Lin..... | 8 |

I. Advanced Composites and their Applications

| | |
|---|----|
| Effect of Organoclay Dispersion on the Barrier Performance and Mechanical Strength of EVA Clay Nanocomposites W. Runcy, K.S. Anil and T. Sabu..... | 15 |
| Advanced Composites with Multi-Functionality Enhanced by Nanoparticles L. Ye, D.H. Zhang and D. Wang..... | 19 |
| Influence of Organomodified Ni-Al Layered Double Hydroxide (LDH) Content on the Thermal Properties and Degradation Kinetics of Polystyrene (PS)/Ni-Al LDH Nanocomposites Prepared via Solvent Blending Method M.K. Sinha and G. Pugazhenthii..... | 23 |
| Effects of Intermediate Layers on Chemical Ordering and Hard Magnetic Properties of L₁₀ FePt Films S.C. Chen, C.D. Chen, T.H. Sun and W.H. Hong..... | 27 |
| Fabrication and Characterization of Shellac/2-Isopropyl-5-Methylphenol Composite Film Patch: Physical and Antimicrobial Properties T. Thamachat and S. Soradech..... | 31 |
| Electroactive Epoxy-Titania Hybrid Anti-Corrosive Coatings Prepared by Small Basic Molecule-Catalyzed Sol-Gel Route C.M. Chang and J.M. Yeh..... | 35 |
| Mechanical and Morphological Properties of Silicon Carbide Filled Polypropylene Composites with PP-g-MA as Compatibilizer A. Rattanapan, S. Tuampoemsab and R. Dangtungee..... | 39 |
| Investigation of Flame Retardant Properties of Poly(ethylene Terephthalate)/Silatrane Complex/Montmorillonite Nanocomposites P. Sonsilchai and D.D. Aht-Ong..... | 43 |
| Mechanical and Fractographic Studies of Surface-Treated Fly Ash Reinforced Polyester Composites S. Zahi..... | 47 |

| | |
|---|----|
| CFRP Strengthening of Reinforced Concrete Frames with Masonry Infill Walls: A Numerical and Parametric Study | |
| E. Akin and G. Özcebe..... | 51 |
| Sintered Frictional Materials Based on Cu Powders | |
| T. Yotkeaw, N. Tosangthum, R. Krataitong, M. Morakotjinda, J. Prapai and R. Tongsri | 55 |
| Dispersion Enhancement of Multi-Walled Carbon Nanotube (MWCNT) in Nitrile Rubber (NBR) | |
| A. Boonbumrung, P. Sea-Oui and C. Sirisinha..... | 59 |
| Nanoclay Gel for Poly(lactic Acid)/Clay Nanocomposite | |
| W. Luecha and R. Magaraphan..... | 63 |
| Toughness and Compatibility Improvement of Thermoplastic Starch/Poly(lactic Acid) Blends | |
| S. Tachaphiboonsap and K. Jarukumjorn | 67 |
| Mechanical, Thermal and Morphological Properties of Poly(butylene Succinate) Filled with Bio-Functional Filler from Eggshell Waste | |
| W. Buakaew, Y. Ruksakulpiwat, N. Suppakarn and W. Sutapun..... | 72 |
| Effect of Reinforcement on Flexural Properties of Brittle Composites | |
| M.Z. Hossain..... | 76 |

II. Bio-Materials and Biomimetic Materials

| | |
|---|-----|
| Synthesis of Nanocrystalline Hydroxyapatite by Natural Biopolymers Based Sol-Gel Technique | |
| J. Klinkaewnarong and E. Swatsitang..... | 83 |
| Properties of Deproteinized Natural Rubber Latex Blended Films with Glycol Penetration Enhancers for Pharmaceutical Applications | |
| W. Simchareon, T. Amnuaitkit, P. Boonme, W. Taweepreda and W. Pichayakorn..... | 87 |
| Propranolol Hydrochloride Extended-Release Matrix Tablets Using Natural Rubber Latex as Binder | |
| K. Panrat, P. Boonme, W. Taweepreda and W. Pichayakorn | 91 |
| Preparation of Peel-off Mask from Deproteinized Natural Rubber Latex | |
| W. Pichayakorn, P. Boonme and W. Taweepreda | 95 |
| Effects of Drying Temperature on the Properties of Deproteinized Natural Rubber Latex/Starch Composite Films | |
| R. Waiprib, P. Boonme and W. Pichayakorn..... | 99 |
| Characterization of Lidocaine Transdermal Patches from Natural Rubber Latex | |
| P. Boonme, H. Boontawee, W. Taweepreda and W. Pichayakorn | 103 |
| Activity of Ciprofloxacin and Tobramycin-Loaded Natural Peptide Dressing on Biofilms and Planktonic Cells | |
| W. Phoudee and W. Wattanakaroon | 107 |
| Biodegradation and Anti-Bacterial Properties of PLA and Wood/PLA Composites Incorporated with Zeomic Anti-Bacterial Agent | |
| C. Praprudivongs and N. Sombatsompop | 111 |
| Effect of Biopolymer on the Dissolution and Stability of Itraconazole | |
| B. Chamsai and P. Sriamornsak..... | 115 |

| | |
|--|-----|
| Immobilization of Naringin onto Chitosan Substrates by Using Ozone Activation M.H. Ho and J.W. Wang..... | 119 |
| Preparation of Porous Hydroxyapatite as Synthetic Scaffold Using Powder Deposition and Sintering and Cytotoxicity Evaluation E. Pujiyanto, A.E. Tontowi, M.W. Wildan and W. Siswomihardjo | 123 |
| Effect of pH on Stability of Oil-in-Water Emulsions Stabilized by Pectin-Zein Complexes M. Juttulapa, S. Piriayprasarth and P. Sriamornsak..... | 127 |
| Ultrasound Effect on Swelling Properties and Drug Release Behaviors of Spray-Dried Tapioca Starch Tablets S. Manchun, S. Limmatvapirat and P. Sriamornsak | 131 |
| Fabrication of Shellac-Based Effervescent Floating Matrix Tablet as a Novel Carrier for Controlling of Drug Release N. Chongcherdsak, D. Aekthammarat, C. Limmatvapirat and S. Limmatvapirat | 135 |
| Behaviour of Lipid-Based Formulations Containing Nifedipine in Aqueous Media as Observed by Small Angle X-Ray Scattering Y. Weerapol, M. Kumpugdee-Vollrath and P. Sriamornsak | 139 |
| Preparation of Solid Self-Emulsifying Drug Delivery System of Manidipine Hydrochloride T. Nernplod, Y. Weerapol and P. Sriamornsak..... | 143 |
| PEG-Glu-PEI-Dexamethasone Conjugates: Synthesis, Characterization and <i>In Vitro</i> Gene Transfer Properties T.H. Kim, H. Choi, G.S. Yu and J.S. Choi | 147 |
| The Influence of Amount of Succinic Anhydride in Chain Extension Reaction on Increasing Molecular Weight of Poly(lactic acid) C. Piyamawadee and D.D. Aht-Ong | 148 |
| The Recovery Effect of the Translationally Controlled Tumor Protein in 2-Hydroxy-Ethyl Methacrylate-Treated Human Dental Pulp Cells A. Kongsangkaeo, W. Chotigeat and U. Kedjarune-Leggat | 153 |
| Influence of Bagasse Carboxymethyl Cellulose Addition on the Thermal and Mechanical Properties of PLA Composites S. Kamthai and R. Magaraphan | 157 |
| Dissolution Improvement of Itraconazole by a Nanoparticulate System Containing Lecithin-Pectin Complexes P. Sriamornsak, S. Limmatvapirat and K. Cheewatanakornkool..... | 162 |
| Fabrication and Antifungal Activity of Cellulose Acetate-Based Fibers Encapsulating Natural Neem Seed Oil R. Ai-Tang, H. Utarak, T. Yoovidhya, V. Intasanta and S. Wongsasulak..... | 166 |
| Preparation of 3DP Hydroxyapatite/Polycaprolactone Composite by a Novel Sequential Infiltration Technique F. Thammarakcharoen, W. Suvannaprak and J. Suwanprateeb..... | 170 |
| Evaluation of PEG-PPG-PEG Copolymer Blends for Using as Resorbable Bone Wax W. Suvannaprak, F. Thammarakcharoen, W. Chokevivat, P. Rukskul and J. Suwanprateeb | 174 |
| Effects of Surface Treatments of Polycaprolactone Scaffolds on their Properties W. Kosorn, B. Thavorniyutikarn and W. Janvikul..... | 178 |
| Preparation and Characterization of Plasma-Treated Porous Poly(glycerol sebacate) Scaffolds T. Theerathanagorn, B. Thavorniyutikarn and W. Janvikul..... | 182 |

| | |
|--|-----|
| Controlled Release of <i>Atractylodes lancea</i> Extract from Rice Starch-Konjac Glucomannan Film C. Satirapathkul and K. Meesukanun..... | 186 |
| Fabrication and Characterization of Porous Biphasic Calcium Phosphate Scaffolds by Doping TiO₂ N. Monmaturapoj and W. Thepsuwan..... | 190 |
| Effect of Glass Compositions on Crystallization and Mechanical Properties of Lithium Disilicate Glass Ceramics for Dental Crown N. Monmaturapoj, P. Lawita and W. Thepsuwan..... | 194 |

III. Intelligent Processing of Materials and Structures

| | |
|--|-----|
| Crystallization Behaviour of Polytetrafluoroethylene over very Large Cooling Rate Domains N. Bosq, N. Guigo and N. Sbirrazzuoli..... | 201 |
| Piezoelectric Harvesting Characteristics of BaTiO₃ Microstructures for Optimal Nanogenerators W.Y. Chang and C.H. Yang..... | 205 |
| Oxygen Cold Plasma Treatment to Improve Hydrophilicity of HDPE Pellets M. Meemusaw and R. Magaraphan..... | 210 |

IV. Nano-Materials, -Sensors and -Actuators

| | |
|---|-----|
| Characterizations of Mesa Structural Near-Infrared n-Type Nanocrystalline-FeSi₂/p-Type Si Heterojunction Photodiodes at Low Temperatures N. Promros, R. Iwasaki, S. Funasaki, K. Yamashita and T. Yoshitake..... | 217 |
| Removal of Humic Acids in Water by Carbon Nanotubes Y.P. Tsai, R.A. Doong, J.C. Yang, P.C. Chuang, C.C. Chou and J.W. Lin..... | 221 |
| Reversible Self-Assembling of Comb-Like Functionalized Dextran Surfactant Polymers as an SPR-Sensing Surfaces J. Sansatsadeekul and K. Mai-Ngam..... | 225 |
| Partially Dynamically Vulcanized Thermoplastic Elastomer Based on Natural Rubber-Polypropylene-Clay Nanocomposites N. Lopattanon, S. Tanglakwaraskul, A. Kaesaman, M. Seadan and T. Sakai..... | 230 |
| Synthesis and Characterization of SPEEK/Layered Double Hydroxide Polymer Nanocomposite for Fuel Cell Applications D.Y. Kim, E.H. Joo, A.K. Mishra, N.H. Kim, Y.J. Na and J.H. Lee..... | 234 |
| Tin-Powder Mediated Facile Route for the Reduction of Graphene Oxide N.H. Kim, T. Kuila, C.F. Zhang and J.H. Lee..... | 238 |
| A Facile One-Step Hydrothermal Synthesis of Graphene/CeO₂ Nanocomposite and its Catalytic Properties M. Srivastava, A.K. Das, P. Khanra, N.H. Kim and J.H. Lee..... | 242 |
| Electrochemically Preparation of Functionalized Graphene Using Sodium Dodecyl Benzene Sulfonate (SDBS) E.H. Joo, T. Kuila, N.H. Kim, J.H. Lee, S.A. Kim, E.G. Park and U.H. Lee..... | 246 |

V. Engineering and Structural Materials

| | |
|---|-----|
| Studies on Thermal and Mechanical Properties of Polybenzoxazine Modified with Succinic Acid | |
| S. Tiptipakorn, P. Suwanmala and K. Hemvichian..... | 253 |
| Nonlocal Elasticity Theory for Free Vibration of Single-Walled Carbon Nanotubes | |
| C. Thongyothee, S. Chucheepsakul and T. Li..... | 257 |
| Finite Element Simulation for Creep Response of Strengthened Wood/PVC Composite | |
| T. Pulngern, K. Preecha, N. Sombatsompop and V. Rosarpitak..... | 261 |
| Strengthening of Gravity Load Designed Reinforced Concrete Frames with the External RC Shear Walls | |
| F. Bahadir, M. Kamanli, H.H. Korkmaz, F.S. Balik, A. Unal and S.Z. Korkmaz..... | 265 |
| Stochastic First-Ply Failure Analysis of Laminated Composite Plates under in Plane Tensile Loading | |
| A.M. Gadade, A. Lal and B.N. Singh..... | 269 |
| Influence of Clay Tile Brick Infill Walls on Seismic Response of Buildings | |
| A. Yakut and I.O. Demirel..... | 273 |
| Confinement Effectiveness of CFRP in Axial Members under Various Loading Conditions | |
| B. Erdil, U. Akyüz and İ.Ö. Yaman..... | 277 |
| Surface Roughness Model when Machining Aluminum Nitride Ceramic with Two Flute Square End Micro Grain Solid Carbide End Mill | |
| M.M. Reddy, A. Gorin, K.A. Abou-El-Hossein and D. Sujan..... | 282 |

VI. Smart Materials and Structures

| | |
|---|-----|
| Functionalization of Amorphous Chalcogenide and Titanium Oxide Layers by Gold Nanoparticles | |
| S. Kokenyesi, S. Biri, C. Hegedus, S. Charnovich and A. Csik..... | 289 |
| High CO₂ Adsorption Polymeric Foam from Poly(Dvb)Polyhipe Filled with Maleimide-Terminated Poly(arylene ether sulfone) Oligomers via High Internal Phase Emulsion | |
| M. Dejsukdipol, P. Pakeyangkoon and M. Nithitanakul..... | 293 |

VII. Tribology (Surface Engineering)

| | |
|--|-----|
| Mechanical and Wear Properties of Acrylonitrile Butadiene Styrene Polymer Composites | |
| V. Babat and M. Taşdemir..... | 299 |
| Scratch Resistance and Adhesion Properties of PEEK Coating Filled with h-BN Nanoparticles | |
| J. Tharajak, T. Palathai and N. Sombatsompop..... | 303 |

Comparative Studies on Wear Behaviour of Sintered 316L Stainless Steels Loaded with h-BN and MoS₂

S. Mahathanabodee, T. Palathai, S. Raadnui, R. Tongsrri and N. Sombatsompop..... 307

VIII. Materials for Fuel Cells and Solar Cells

Feasibility for Enhancing Power Conversion Efficiency of P3HT/C₆₀ Polymer Solar Cell by Adding Donor-Acceptor Block Copolymer as a Compatibilizer

N. Rattanathamwat, J. Wootthikanokkhan, N. Nimitsirawat,
C. Thanachayanont and U. Asawapirom..... 313

Morphology and Conductivity of Electrospun Dehydrochlorinated PVC Nanofibers

N. Seeponkai, P. Khunsriya, J. Wootthikanokkhan and C. Thanachayanont 317

Nafion-Silane Modified Mordenite Composite Membrane Synthesis and Characterization for Direct Ethanol Fuel Cell

S. Kanjanapaisit, C. Prapainainar and P. Prapainainar 321

Gel Polymer Electrolyte from Poly(Acrylamide) Coated on Natural Rubber Latex by Topology-Controlled Emulsion Polymerization for Dye Sensitized Solar Cells Application

P. Silakul and R. Magaraphan..... 325

Effect of Annealing Temperature on the Optical Parameters of CdS Thin Films Prepared by Thermal Evaporation Method

T. Gaewdang, N. Wongcharoen and T. Wongcharoen 329

Structural and Thermoelectric Properties of Zn-Doped Cuprous Aluminate Delafossite

N. Wongcharoen, T. Gaewdang and T. Wongcharoen 333

Effect of Photocatalytic Coating on Concentrator Photovoltaic Module

T. Sueto and K. Nishioka..... 337

IX. Natural Fiber Composites

Inhibition of Fungal Growth and Material Characteristics of PVC and Wood/PVC Composites Doped with Fungicides

A. Kositchaiyong and N. Sombatsompop 343

Use of Natural and Synthetic Fibers as Co-Reinforcing Agents on Abrasive Wear Behavior and Flexural Strength of Wood/PVC Composites

P. Yotkaew, N. Sombatsompop, A. Kositchaiyong and E. Wimolmala 347

Effect of Flame Retardants on Performance of PALF/ABS Composites

P. Threepopnatkul, T. Krachang, W. Teerawattananon,
K. Suriyaphaparkor and C. Kulsethanchalee 351

Mechanical Properties of Acrylate-Styrene-Acrylonitrile/Bagasse Composites

P. Pakeyangkoon and B. Ploydee..... 355

Microfibrillated Cellulose Reinforced Poly(vinyl alcohol) Composites

S. Tanpichai, W.W. Sampson and S.J. Eichhorn 359

Isolation of Nanocellulose from Pomelo Fruit Fibers by Chemical Treatments

N. Yongvanich and P. Visuttipitukul 363

| | |
|---|-----|
| Biocomposites from Cassava Pulp/Poly(lactic Acid)/Poly(butylene Succinate) P. Kangwanwathanasiri, N. Suppakarn, C. Ruksakulpiwat and Y. Ruksakulpiwat | 367 |
| The Study of Using Bio-Filler from Cassava Pulp in Natural Rubber Composites W. Ruangudomsakul, C. Ruksakulpiwat and Y. Ruksakulpiwat | 371 |
| Cogon Grass Fiber-Epoxy Natural Rubber Composites C. Ruksakulpiwat, W. Wanasut, A. Singkum and Y. Ruksakulpiwat | 375 |
| Physical and Mechanical Properties of Wood-Plastics Composites: Effect of Types and Contents of Wood Flour P. Sae-Lim and D.D. Aht-Ong | 379 |
| Density Reduction and Electrical Conductivity Induction in Wood Plastic Composites A.O.W. Ern, T.C. Ming and K. Jayaraman | 383 |
| Cellulose Nanofiber Reinforced Ecofriendly Green PMMA Nanocomposites S. Sain, S. Sengupta, D. Ray, A. Kar and A. Mukhopadhyay | 387 |
| Composite Panels from Underutilized Wood and Agricultural Fiber Resources S. Hiziroglu | 391 |
| Analysis of the Mechanical Properties of Rice Husk Reinforced Polyethylene Composites Using Experiments with Mixtures A. Bilal, R.J.T. Lin and K. Jayaraman | 395 |
| Comparative Studies on the Mechanical and Thermo-Mechanical Performance of Flax Fiber Reinforced Polyester and Polyester-Biopolymer Blend Resins M. Hosur, H. Maroju and S. Jeelani | 399 |

X. Synthetic Fiber Composites

| | |
|---|-----|
| Fabrication and Characterization of Poly(vinyl Alcohol)/Functionalized Graphene Oxide Nanofibers Produced by Electrospinning Method Y.H. Yu and C.J. Jan | 405 |
| Studies on Mechanical Properties of Kevlar Fiber Reinforced Iron (III) Oxide Nanoparticles Filled Up/Epoxy Nanocomposites S. Julyes Jaisingh, V. Selvam, M. Suresh Chandra Kumar and K. Thyagarajan | 409 |

XI. Construction and Building Materials

| | |
|---|-----|
| Shaped Textile Reinforcement Elements for Concrete Components K. Pidun and T. Gries | 415 |
| The Effect of Rice Husk Ash on Properties of Aerated Concrete K. Kunchariyakun, S. Asawapisit and K. Sombatsompop | 420 |
| Estimation of Tensile Capacity of Single Anchors Including Edge Effect Using Neural Networks M. Ozturk | 424 |
| An Experimental Study on Reinforced Concrete Infilled Frames with Openings F.S. Balik, H.H. Korkmaz, M. Kamanli, F. Bahadir, S.Z. Korkmaz and A. Unal | 429 |

| | |
|---|-----|
| Strengthening of Reinforced Concrete Frames Not Designed According to TDY2007 with External Shear Walls | |
| A. Unal, M.Y. Kaltakci, F.S. Balik, H.H. Korkmaz, F. Bahadir, S.Z. Korkmaz and M. Kamanli | 433 |
| The Structural Damages and Collapse Types in Turkey, Observed after the Recent Earthquake | |
| S.Z. Korkmaz and H.H. Korkmaz | 437 |
| Evaluation of a Gravity Load Designed Reinforced Concrete Structure Failed under its Own Weight due to Creep in Concrete | |
| M.Y. Kaltakci, H.H. Korkmaz, M. Kamanli, M. Ozturk and M.H. Arslan | 441 |
| The Influence of Aluminium Dross on Cement Paste's Porosity | |
| B. Insemeesak and A. Rodchanarowan | 445 |

XII. Soft Materials

| | |
|--|-----|
| Antibacterial Efficacy and Mechanical Properties of Silica Reinforced Natural Rubber (NR) with HPQM Based Neusilin | |
| P. Niltui, S. Kanking, S. Techangmvong, E. Wimolmala, N. Sombatsompop and E. Wimolmala | 451 |
| Antibacterial Ability of HPQM Base Neusilin/Natural Rubber Reinforced with Carbon Black | |
| C. Katathikankul, S. Techangmvong, E. Wimolmala, P. Niltui, S. Kanking and N. Sombatsompop | 455 |
| Ozonolysis by High Voltage Power Supply to the Melt-Extrudates of Admicelled Rubber and Natural Rubber | |
| A. Pongpilaipruet and R. Magaraphan | 459 |
| Cure Characteristics, Morphology and Mechanical Properties of Partially Cured NBR Blended with NR | |
| B. Chokcharoenchai, N. Kraitape, T. Kattiyaboot, R. Rodsantia and C. Thongpin | 463 |
| Effect of Mixing Conditions on Phase Morphology of NR/EPDM Blends | |
| A. Chaisuriyathepkul, K. Suchiva, P. Sea-Oui and C. Sirisinha | 467 |
| Influence of Aromatic Content in Rubber Processing Oils on Viscoelastic Behaviour and Mechanical Properties of Styrene-Butadiene-Rubber (SBR) for Tyre Tread Applications | |
| Y. Chokanandsombat, P. Sea-Oui and C. Sirisinha | 471 |

XIII. Functional Materials

| | |
|--|-----|
| New Polyimide Based Composite Films for Fuel Cells: Study of the Porous Structure | |
| V. Ratieuville, K. Fatyeyeva, C. Chappey, S. Rogalskyy, O. Tarasyuk and S. Marais | 477 |
| Anti-Algal Performances for Biocide-Enhanced Low-Density Polyethylene Film | |
| A. Gitchaiwat, S. Likhitlert, A. Kositchaiyong, K. Sombatsompop, B. Prapagdee, K.N.A. Israngkura and N. Sombatsompop | 481 |

| | |
|--|-----|
| Determining the Co-Efficient of End Constraint of Stretch Formed Microtruss Materials | |
| B.D. Venkatesh and G.D. Hibbard..... | 485 |
| Electrochemical Reactivity on Conducting Polymer Alloys | |
| V. Arnel, O. Winther-Jensen, M. Zhang and B. Winther-Jensen | 489 |
| Preparation and Properties of Diol Functionalized Epoxidized Natural Rubber | |
| P. Intharapat and A. Kongnoo..... | 493 |
| Study on Nonlinear Optical Properties of BSS Material | |
| W.D. Cheng, C.S. Lin, Z.Z. Luo and Y. Yang..... | 497 |
| Anti-Bacterial Efficacies and Discolorations of Polypropylene Doped with HPQM Based Water Solution and Neusilin | |
| A. Sributr, A. Gitchaiwat, A. Kositchaiyong, S. Techangamvong, W. Yamsaengsung and N. Sombatsompop..... | 501 |
| Synthesis and Characterization of Supramolecular Elastomers from Polyacids Composed of Vegetable Oils | |
| E. Zeimaran, S. Bahraeian, T. Ghanbari, S. Pourshahrestani and H.M. Nor | 505 |
| Functional Modification of Bamboo Rayon (Cellulose) Fabric to Render it Antibacterial and UV Protective | |
| M.D. Teli and J. Sheikh | 509 |
| Synthesis of High Quality Graphene Films by Atmospheric Pressure CVD and their Application in Laser Q-Switching | |
| M. Qi, Y.P. Zhang, W.L. Li, M. Jiang, X.L. Zheng, J.T. Bai and Z.Y. Ren..... | 514 |
| Photocatalytic Recovery of Noble Metals from Waste Solutions Using a Polyoxometallate (POM)-Based Hybrid Photocatalyst | |
| T. Kida, H. Matsufuji, M. Yuasa and K. Shimanoe..... | 518 |
| Silica-Reinforced Natural Rubber with Epoxidized Low Molecular Weight Rubber as a Compatibilizer | |
| P. Saramolee, K. Sahakaro, N. Lopattananon, W.K. Dierkes and J.W.M. Noordermeer | 522 |
| Investigation of ZnO Buffer for the Optical and Electrical Characteristics of Polymer/Carbon Nanotube Composite Sol Deposited on Flexible Substrates | |
| B.Y. Su, M.C. Chen, S.Y. Chu and Y.D. Juang..... | 526 |
| Comparison of Coupling Effectiveness among Amino-, Chloro-, and Mercapto Silanes in Chloroprene Rubber | |
| C. Siriwong, P. Sea-Oui and C. Sirisinha | 530 |
| Intermetallic Electrode Structure Produced by Thermal Spraying of Water-Atomized Cu-Sn Powders | |
| N. Intrakrathuk, V. Uthaisangasuk, T. Yotkeaw, N. Tosangthum, B. Vettayanugul and R. Tongsri..... | 534 |
| Influence of Natural Rubber/Poly (3-Trimethoxysilyl Propyl Methacrylate) Core-Shell Compatibilizer on Dynamic, Mechanical and Morphological Properties of PMMA/ENR Blends | |
| S. Nooma and R. Magaraphan | 538 |
| Superhydrophobic Silicon Surface with Micro/Nanocomposite Structure Formed by 2-Step Wet Etching | |
| K. Nishioka and T. Yasui..... | 542 |
| Effect of Heat Treatment on High Purity Nanoporous Silica Formed from Volcanic Ash Deposit Shirasu | |
| K. Sato, T. Kokubu and K. Nishioka | 547 |

| | |
|---|-----|
| Stochastic Nonlinear Free Vibration Analysis of Functionally Graded Beam Subjected to Thermal Loading with Random Material Properties N.L. Shegokar and A. Lal | 551 |
| Effect of Blend Ratio on Phase Morphology and Mechanical Properties of High Density Polyethylene and Poly (Butylene Succinate) Blend A. Aontee and W. Sutapun..... | 555 |
| The Synergistic Activity of the Extracts from Mango and <i>Cassia fistula</i> Polysaccharide in Cotton Fabric Finishing C. Satirapathkul and M. Boonjaroen..... | 560 |
| Influences of Coagent Hybrid Ratios and Silanes on Viscoelastic Properties of Silica-Filled HNBR M. Nillawong, P. Sae-Oui and C. Sirisinha | 564 |
| XIV. Materials Processing, Modeling and Technology | |
| Evaluation of Cadmould Software to Simulate the Filling Phase of a Natural Rubber Compound in Injection Moulding Process Z.M. Ariff and T.H. Khang | 571 |
| Effect of Reinforcement and Processing Methods in PP/MWCNTs Nanocomposites S. Arun and S. Kanagaraj | 575 |
| Oxygen Storage Capacity of $Ce_xZr_{1-x}O_2$ ($0.4 \leq x \leq 0.8$) Solid Solution Using Thermogravimetric Analysis N. Shanmuga Priya, C. Somayaji and S. Kanagaraj | 579 |
| Sintering and Mechanical Properties of Injection Molded Low Cost Ti Alloys H.Ö. Gülsoy | 583 |
| Fabrication of High Resolution Microstructures Using Micro Hot Embossing with a Precision Rapid Tooling C.C. Kuo and H.J. Hsu..... | 587 |
| Space-Charge-Limited Bipolar Currents at High Fields in Polymer/C_{60} Diodes: A Simple Model Description N.A.D. Yamamoto, D.C. Grodniski, L.S. Roman, M. Koehler and M.G.E. da Luz..... | 591 |
| Rheological Behavior and Extrudate Swell of Polypropylene/Silicon Carbide Composites A. Rattanapan, N. Sornsuwit and R. Dangtungee | 595 |
| Enhancement on Stability of Nanosized Titanium Dioxide in Silicone Suspension Using Diblock Copolymer: Influence of Dispersant Structure S. Toommee and N. Traiphol..... | 599 |
| $Ba_{0.9}A_{0.1}TiO_3$ (A = Al and Mg) Powders Synthesized by Solid State Reaction Technique and their Dielectric Properties T. Khongnakhon and O. Jongprateep..... | 603 |
| Natural Rubber-Toughened Polystyrene: Effects of Mixing Procedure and Maleic Anhydride Content on Impact Property and Phase Morphology S. Saengthaveep, S.C. Jana and R. Magaraphan..... | 607 |
| The Sequential Analysis of Film Deformation Behavior during Successive Biaxial Stretching Process Y. Kushizaki, M. Tokihisa, H. Tomiyama and T. Yamada | 611 |

| | |
|--|-----|
| Effects of Passes on Equal Channel Angular Pressing of 6061 Aluminium Alloy C. Banjongprasert, C. Domrong and T. Chairuangri | 615 |
| Fabrication of Fe-36Ni Alloy Powder from its Scrap J.Y. Yun, S.M. Shin, D.W. Lee, J.N. Kim and J.P. Wang | 619 |
| Effects of Mold Temperature and Casting Temperature on Hot Cracking in Al-4.5 wt.% Cu Alloy R. Burapa, S. Rawangwong, J. Chatthong and W. Boonchouytan | 623 |
| Flow Properties and Melt Distortion in Molten Rubber Compounds under Capillary Extrusion W. Chookaew, Y. Sukniyom, S. Patcharaphun and N. Sombatsompop | 627 |
| Development of Hyperelastic Model for Weldlines Containing Natural Rubber Molded Part W. Chookaew, J. Mingbunjursuk, P. Jitham and S. Patcharaphun | 631 |
| Synthesis of In₂O₃/BiOCl Composite Photocatalyst and its Photocatalytic Activity for the Degradation of Rhodamine B under Visible Light Irradiation G.Q. Zhu, M. Hojamberdiev, K.I. Katsumata, N. Matsushita, K. Okada, P. Liu and J.P. Zhou | 635 |
| The Effect of Natural Rubber Toughening on Mechanical Properties of Poly(lactic Acid)/Multiwalled Carbon Nanotube Nanocomposite M.S.Z. Mat Desa, A. Hassan and A. Arsad | 639 |

XV. Green Materials

| | |
|---|-----|
| Tensile Properties of Polypropylene/Cocoa Pod Husk Biocomposites: Effect of Maleated Polypropylene K.S. Chun, S. Husseinsyah and H. Osman | 645 |
| Corn Cob Filled Chitosan Biocomposite Films C.M. Yeng, S. Husseinsyah and S.T. Sam | 649 |
| Effects of Various Co-Surfactants and Oils on Microemulsion Formation in Decylglucoside System N. Pakpayat and P. Boonme | 653 |
| Elaboration and Characterization of a Novel Biobased Poly(Furfuryl alcohol)/Silica Nanocomposite N. Bosq, N. Guigo, J. Persello and N. Sbirrazzuoli | 657 |
| Application of Non-Destructive Testing for Measurement of Strength Development of Biocemented Sand K. Piriyaikul and J. Iamchaturapatr | 660 |
| Influence of Amino Acids on Anti-Oxidative Properties of Green Natural Rubber and Natural Rubber Compound S. Tuampoemsab | 664 |
| Biodegradation Studies of Attapulgitte Clay Filled Polyvinyl Alcohol/Modified Corn Starch Blend Films: Microbial and Enzymatic F.M.M. Suki, N.A. Azahari, N. Othman, H. Ismail and S. Sasidharan | 668 |
| Characterization and Properties of Nucleated Polylactide, Poly(butylene adipate-co-terephthalate), and Thermoplastic Starch Ternary Blend Films: Effects of Compatibilizer and Starch W. Phetwarotai and D.D. Aht-Ong | 673 |

| | |
|---|-----|
| Comparative Study of the Bio-Disintegration Behavior of Polylactic Acid under Laboratory and Pilot-Scale Composting Conditions P. Intaraksa, Y. Rudeekit, P. Siriyota and T. Leejarkpai | 678 |
| Water Diffusion Mechanisms in New Bio-Nanocomposites Based on Polyhydroxyalkanoates/Nanoclays R. Cretois, N. Follain, J. Soulestin, E. Dargent, L. Lebrun and S. Marais..... | 682 |
| Preparation of “Green” Microcapsules for Corrosion Protection: Linseed Oil Encapsulated PF Microcapsules P. Phanviriyakul, N. Tareelap, N. Thavarungkul, C. Nitipanyawong and N. Srisukhumbowornchai..... | 686 |
| Bimetallic $\text{LaNi}_{1-x}\text{Co}_x\text{O}_3$ ($x=0, 0.3, 0.5, 0.7, \text{ and } 1$) Perovskite Catalysts for Tar Reforming to Syngas C. Soongprasit, D.D. Aht-Ong and D. Atong | 690 |
| Extraction of Keratins from Human Hair at Low Pressure and their Characterization J. Chaliewsak and S. Charuchinda | 694 |
| Evaluation of Mechanical and Thermal Properties of MCC/PLA Composite Compatibilized with Modified Cellulose V. Suchaiya and D.D. Aht-Ong | 698 |
| Effects of Natural Rubber Origin on Mechanical Properties of Rubber Compound in the Presence of Natural and Commercial Antioxidants N.H.H. Shuhaimi, N. Othman, H. Ismail and S. Sasidharan..... | 703 |
| Development and Characterizations of Green Coupling Agent Coated Fly Ash Reinforced Recycled Polypropylene Matrix Composites S. Sengupta, S. Sain, D. Ray and A. Mukhopadhyay | 707 |
| Extraction of Keratin from Chicken Feather and Electrospinning of the Keratin/PLA Blends S.I. Na Ayutthaya and J. Wootthikanokkhan..... | 711 |
| Papers as Functional Green Materials J.F. Bloch, I. Ali, R. Passas and S.R. du Roscoat | 715 |
| XVI. Others | |
| Effects of Frequency and Sonication Time on Ultrasonic Degradation of Natural Rubber Latex S. Utara and U. Moonart | 721 |
| Factors Affecting Formation of Emulsions Containing Soybean Oil S. Pengon, C. Limmatvapirat, P. Srimornsak and S. Limmatvapirat..... | 725 |
| Theoretical Analysis and Verification of Plasticating Screw Characteristics for Injection Molding Machine A. Yasue, K. Nakagawa, K. Araki and H. Chiba | 729 |
| Synthesis and Thermal Stability of Cross-Linked Carbazole-Substituted Poly(dimethylsiloxane) for LED Encapsulation N.H. Nordin, N. Othman and Z. Ahmad..... | 733 |
| Experimental Investigation of Magnetic Field Assisted Electro Discharge Deposition Process B. Muralidharan and H. Chelladurai | 737 |

| | |
|---|-----|
| Study on the Antioxidant Activities of Gel Containing <i>Tagetes erecta</i> (L.) T. Limsuwan, P. Boonme and T. Amnuakit | 741 |
| Morphology and Mechanical Properties of Natural Rubber-PCL Core-Shell/PLA Composites W. Phromma and R. Magaraphan | 745 |
| The Crystallization Kinetics of Polypropylene/Organo Montmorillonite Nanocomposites Modified with Calcium Pimelate N. Thanomchaem and W. Chonkaew | 749 |
| Kinetic Studies on the Curing Reactions of Fluoroepoxy Oligomer and Cycloaliphatic Amine T. Chongtum and W. Chonkaew | 753 |
| Fabrication of Porous Copper Layers by Two-Steps Process: Electrodeposition and Combustion W. Muthusith and A. Rodchanarowan | 757 |
| Exterior Calculus: Thermodynamics and Navier-Stokes Dynamics T.L. Story | 761 |
| Radio-Frequency Sensors for Nondestructive Evaluation of Materials J.S. Park, J.W. Han and C. Nguyen | 765 |
| The Evaluation of Mixing Characteristics of Dulmage Screw K. Kimura, Y. Itamochi and H. Tomiyama | 769 |
| Keyword Index | 773 |
| Author Index | 781 |