

# Table of Contents

## Committees

## Preface

### Cyclodextrins in Textile Finishing: Fixation and Analysis

A. Bereck 1

### Polymer Substrates for Flexible Electronics: Achievements and Challenges

I. Yakimets, D. MacKerron, P. Giesen, K.J. Kilmartin, M. Goorhuis, E. Meinders and W.A. MacDonald 5

### Photon Interaction in Borate Glass System Containing $\text{Bi}_2\text{O}_3$ , $\text{PbO}$ and $\text{BaO}$ at 60 keV:

#### Theoretical Calculation

K. Kirdsiri, J. Kaewkhao, W. Chewpraditkul and P. Limsuwan 9

### Bimetallic Group 6 Tricarbonyls Triply-Bridged by Bis(phenylthio)alkane Bidentate Ligands

K.J. Asali 13

### Study of Carboxymethyl Cellulose from Papaya Peels as Binder in Ceramics

P. Rachtanapun, S. Eitssayeam and K. Pengpat 17

### Comparison of $\text{TiO}_2/\text{RH-MCM-41}$ and $\text{TiO}_2/\text{TEOS-MCM-41}$ Hybrid Catalysts in Characteristics and Photodegradation of Tetramethylammonium

S. Artkla, W.Y. Choi and J. Wittayakun 22

### Synthesis of Superhydrophobic Raspberry-Like Polymethylmethacrylate/Silica Core/Shell Particles

H.S. Hwang, D.S. Yuk, S.H. Ko and I. Park 27

### Composite Polymer Electrolyte for Dye-Sensitized Solar Cells: Role of Multi-Walled Carbon Nanotubes

A. Chindaduang, P. Duangkaew, S. Pratontep and G. Tumcharern 31

### Using Polymer Electrolyte Membranes as Media to Culture Fractals: A Simulation Study

S. Amir, M. Nor Sabirin and S.A. Hashim Ali 35

### Graft Copolymerization of Methyl Methacrylate onto Natural Rubber by Microwave Irradiation

S. Piyaauksornsak, B. Paosawatyanyong and N. Hinchiranon 39

### Design Net-Grid Subwavelength Gratings for High Quantum Efficiency Photodetectors

Y.S. Yang, Y.Q. Huang, X.M. Ren, X. Ye, X.F. Duan, H. Huang and Q. Wang 43

### Polarization Switching Behavior of Ferroelectric $(\text{NH}_4)_{0.39}\text{K}_{0.61}\text{NO}_3$ Films

N. Dabra and J.S. Hundal 49

### Performance of Bioactive Hydroxyapatite Coating after Soaking in Simulated Body Fluid

W. Suvannapruk, K. Wasoontararat and J. Suwanprateeb 59

### Effect of Layer Thickness on the Phosphorization of 3DP Gypsum Based Monolith

K. Wasoontararat, W. Suvannapruk and J. Suwanprateeb 63

### Nanostructured Polycaprolactone-Inorganic Phosphate Hybrid Scaffold for Medical Applications

L. Kaewsichan, J. Kaewsrichan and T. Chuchom 67

### Gamma-Rays Absorption Studies of $\text{PbO-SiO}_2$ Glass System

N. Chanthima, J. Kaewkhao, W. Chewpraditkul and P. Limsuwan 71

### Influences of Water on the Hydration of Calcined Natural Calcite: Properties and Transesterification Activity Improvement

P. Udomsap and B. Yoosuk 75

### Nd:YAG Laser Perforation of Plastic Films for Enhanced Breathability

C. Winotapun, N. Kerdonfag and W. Chinsirikul 79

### Preparation of Nanoparticles by Laser Ablation on Copper Target in Distilled Water

H.L. Aye, S. Choopun and T. Chairuangsri 83

### Photoactivity of $\text{TiO}_2$ Films on Glass Substrate for Cyanide Degradation

C. Junin, P. Limthongkul and C. Thanachayanont 87

### Effect of 3-Aminopropyltrimethoxysilane-g-Rice Husk Silica on Flame Retardant of ABS/Organomontmorillonite Nanocomposites

S. Boonkrai and D. Aht-Ong 91

<b>Surface Modification of Alumina Nano-Particles by UV-Induced Grafting Polymerization of 2-Hydroxyethyl Methacrylate</b>	95
K. Yantaboot, S. Maensiri, P. Khansawai and S. Amnuaypanich	
<b>Microstructure and Mechanical Properties of Sintered Ti-Cu Alloys</b>	99
P. Pripappong and L. Tachai	
<b>A Disposable Polydimethylsiloxane Microdevice for DNA Amplification</b>	105
A. Lekwichai, S. Porntheeraphat, W. Bunjongpru, W. Sripumkhai, J. Supadech, S. Rahong, C. Hruanun, A. Poyai and J. Nukeaw	
<b>Application of Double Gate Ion Sensitive Field Effect Transistor for Detection of Fluid Flow Rate in Micro-Channel</b>	109
T. Jiemsakul, O. Trithaveesak, W. Bunjongpru, C. Hruanun, A. Poyai and J. Nukeaw	
<b>Ultra-Thin Al<sub>2</sub>O<sub>3</sub> Formation at Room Temperature</b>	113
P. Limnonthakul, A. Pokaipisit and P. Limsuwan	
<b>Effect of Plasticizers on the Mechanical Properties of Cellulose Laurate Films</b>	117
P. Hongphruk and D. Aht-Ong	
<b>Gelatin/Hydroxyapatite Scaffolds: Studies on Adhesion, Growth and Differentiation of Mesenchymal Stem Cells</b>	121
N. Vachiraroj, S. Damrongsakkul and S. Kanokpanont	
<b>Grafting of Phosphonate Monomer onto Natural Rubber Latexes via Emulsion Polymerization</b>	125
K. Kokklin, V. Tangpasuthadol and W. Bhanthumnavin	
<b>On-Chip Platinum Micro-Heater with Platinum Temperature Sensor for a Fully Integrated Disposable PCR Module</b>	129
W. Sripumkhai, A. Lekwichai, W. Bunjongpru, S. Porntheeraphat, B. Tunhoo, E. Ratanaudomphisut, T. Kamsri, C. Hruanun, A. Poyai and J. Nukeaw	
<b>The Effect of Ion Implantation on ISFET-Sensing Membrane</b>	133
R. Piyananjaratsri, W. Bunjongpru, E. Chaowicharat, O. Trithaveesak, K. Saeteaw, C. Hruanun and A. Poyai	
<b>Mixed Matrix Membranes from Crosslinked Poly(vinyl alcohol)(PVA) Composited with Zeolite 4A Grafted with Poly(2-hydroxyethyl methacrylate)(zeolite-g-PHEMA)</b>	137
S. Khoonsap, P. Khansawai and S. Amnuaypanich	
<b>Study of PDMS Compounds Using the Adhesion Force Determined by AFM Force Distance Curve Measurements</b>	141
S. Vanitparinyakul, P. Pattamang, A. Chanhom, B. Tunhoo, T. Thiwawong, S. Porntheeraphat and J. Nukeaw	
<b>SnO<sub>2</sub>-Based Thin Film Gas Sensors with Functionalized Surface</b>	145
G. Korotcenkov, B.K. Cho and V. Tolstoy	
<b>Surface Morphology and Optical Property of Silver Nanoparticle Thin Film Prepared by Electrostatic Spray Deposition</b>	149
Y. Boonnuk, A. Chanhom, B. Tunhoo, T. Thiwawong and J. Nukeaw	
<b>Chemical Synthesis and Characterization of Bismuth Vanadate Powder</b>	153
P. Pookmanee, S. Paosorn and S. Phanichphant	
<b>Effect of Temperature and Dwell Time on Phase Formation and Microstructure of β"-Alumina Solid Electrolyte</b>	157
A. Kamonlert, A. Niyompan and R. Tipakontitkul	
<b>Photocatalytic Degradation of Geosmin by Titanium Dioxide Powder Synthesized by the Hydrothermal Route</b>	161
P. Pookmanee, H. Ninsonti, S. Sangsrichan, W. Kangwansupamonkon and S. Phanichphant	
<b>Fabrication of Porous Polyethylene by Two-Stepped Heat Treatment and Powder Printing Technique</b>	165
J. Suwanprateeb, K. Wasoontararat and W. Suvannapruk	
<b>Effect of Compatibilizers on Mechanical Thermal and Morphology Properties of HDPE/TiO<sub>2</sub> Nanocomposites</b>	169
N. Wiriyankul and S. Wacharawichanan	
<b>Effect of Coloring Agents on Starch Properties: In Powder and Paste Form</b>	173
S. Kongmuang, N. Phakdisirivichai, N. Detwattanadet, N. Samma, D. Anurakchanaphon and T. Choodam	
<b>Methylene Blue Degradation over Photocatalyst Bismuth Vanadate Powder Synthesized by the Hydrothermal Method</b>	177
P. Pookmanee, K. Pingmuang, W. Kangwansupamonkon and S. Phanichphant	

<b>Synthesis of Stainless Steel/CNTs Nanocomposite Powders</b>	181
D. Kaewsai, P. Singjai, P. Niranatlumpong, A. Watcharapasorn and S. Jiansirisomboon	
<b>Study on Chemical Vapour Sensing Property of Esterified Poly(vinyl Alcohol)</b>	185
S. Sangngern, S. Sahasitthiwat, N. Koonsaeng and A. Laobuthee	
<b>Effective Properties of Electro-Elastic Composites with Multi-Coating Inhomogeneities</b>	190
F. Biscani, Y. Koutsawa, S. Belouettar and E. Carrera	
<b>Performance and Stability of Dye-Sensitized Solar Cells with Quasi-Solid State Electrolytes Base on N-Methyl-Quinoline Iodide</b>	194
S. Wantawee, S. Saenthaweesuk, S. Pukird, T. Saipin and U. Tipparach	
<b>Synthesis and Characterizations of PLLA/PEG Block Copolymers</b>	198
T.H. Nguyen, A. Petchsuk, P. Tangboriboonrat, M. Opaprakasit, A. Sharp and P. Opaprakasit	
<b>Carrier Design for Astaxanthin Delivery</b>	202
N. Cheeveewattanagul, K. Jirasripongpun, N. Jirakanjanakit and W. Wattanakaroon	
<b>Coloration in Soda-Lime-Silicate Glass System Containing Manganese</b>	206
N. Srisittipokakun, C. Kedkaew, J. Kaewkhao and P. Limsuwan	
<b>The Effect of Glass Fiber Aspect Ratio on Mechanical and Thermal Properties of PU/GF Foam Composites</b>	210
B. Hararak, N. Prakymoramas, W. Rungseesantivanon and D. Thamumjitr	
<b>Effect of Sulphur Hexafluoride (<math>SF_6</math>) Plasma on Hydrophobicity of Methylcellulose Film</b>	214
P. Rachtanapun, P. Wongchiaya and D. Boonyawan	
<b>Effect of Powder Surface Oxide on Compressive Properties of Aluminium Foams</b>	219
S. Asavavisithchai	
<b>Natural Fiber/PLA Composites: Mechanical Properties and Biodegradability by Gravimetric Measurement Respirometric (GMR) System</b>	223
T. Tayommai and D. Aht-Ong	
<b>Studies on the Preparation and Gas Sensing Properties of <math>SnO_2</math> Nanostructures at Room Temperature</b>	227
K. Noipa and S. Pukird	
<b>Synthesis and Characterizations of Strontium Substituted Hydroxyapatite Thin Films</b>	231
B. Hongthong, S.K. Hodak and S. Tungasmita	
<b>Charge Transfer Mechanism in Organic Memory Device</b>	235
K. Onlaor, S. Khantham, B. Tunhoo, T. Thiawong and J. Nukeaw	
<b>Adsorption Study of Soybean Oil on PEI-Modified Silica Particles</b>	239
S. Janhom	
<b>Deformation of the Extracellular Matrix Due to Osmotic Pressure in Cartilaginous Tissues</b>	243
B. Punantapong	
<b>Effect of Annealing Ambient on Self-Cleaning Properties of <math>TiO_2</math> Films Prepared by Reactive DC Magnetron Sputtering</b>	247
S. Pudwat, P. Rakkwamsuk and S. Dumrongrattana	
<b>Effects of La-Dopant on Phase, Microstructure and Dielectric Properties of <math>Bi_4Ti_3O_{12}</math> Ceramics</b>	251
P. Siriprapa, A. Watcharapasorn and S. Jiansirisomboon	
<b>Novel Modified Aromatic Polyamides and Polyimides Derived from a Diphenyl Ether-Based Diamine Containing Laterally-Attached Phenoxy Phenylene Groups</b>	255
H. Behniafar, S. Khosravi-Borna and P. Boland	
<b>Characteristics of Microwave-Esterified Cellulose Film from Corn Husk and Cotton: Effects of Degree of Substitution</b>	259
J. Saeng-On and D. Aht-Ong	
<b>Properties and Photocatalysis of Nanostructured Titania Prepared by Sol-Gel Method for Solar Hydrogen Production</b>	263
U. Tipparach and P. Limsuwan	
<b>Membranes Prepared from a Blend of Poly(acrylic Acid) and Natural Rubber-Graft-Poly(vinyl Alcohol) (PAA/NR-g-PVA)</b>	268
W. Wongthep, C. Ruksakulpwat and S. Amnuaypanich	
<b>The Effects of <math>Al_2O_3</math> Source on Phase Formation, Crystallite Size and Microstructure of Na-<math>\beta''</math>-Alumina Solid Electrolyte</b>	272
W. Prachamon, A. Niyompan and R. Tipakontitkul	
<b>Characterization of (Ti,Al)N Thin Film Coated by PVD Cathodic Arc Using TiAl Target</b>	276
C. Chokwatvikul, S. Surinphong, C. Busabok, P. Termsuksawad and S. Larpkiattaworn	

<b>Investigation on Degradation of Methyl Parathion Using Visible Light in the Presence of Cr<sup>+3</sup> and N-Doped TiO<sub>2</sub></b> J. Senthilnathan and L. Philip	280
<b>Acetophenone and Benzophenone Derivatives as Catalysts in Photodegradation of PE and PP Films</b> T. Manangan, S. Shawaphun and S. Wacharawichanant	284
<b>Photo-Catalytic Activity of Quencher Impurity Doped ZnS Nanocrystals</b> M. Chitkara, K. Singh, T. Bansal, I.S. Sandhu and H.S. Bhatti	288
<b>Improving Malaria Diagnosis via Latex Immunoagglutination Assay in Microfluidic Device</b> R. Thiramanas, R. Wanotayan, S. Rahong, K. Jangpatarapongsa, P. Tangboriboonrat and D. Polpanich	292
<b>Preparation and Applications of Precious Metals Adsorbed Activated Carbon Cloth</b> S. Saipanya and T. Sarakonsri	296
<b>The Effect of Surface Modification of TiO<sub>2</sub> on Mechanical Properties of Polyethylene Composite Film</b> N. Tangchantra, J. Kruenate, C. Aumnate and T. Sooksomsong	300
<b>Alteration of Thermal Characteristics of Polymer for the Purpose of Creating a Two-Stage Shape Memory Polymer</b> H. Tamagawa	304
<b>The Spectroscopic Analysis of Iron-Doped Soda-Lime-Silica Glass by Spectrophotometer and ESR Spectrometer</b> Y. Ruangtawee, T. Kittiauchawal, J. Kaewkhao, K. Thamaphat and P. Limsuwan	312
<b>Gas Sensing Properties of CuO Nanostructures Synthesized by Thermal Evaporation of Copper Metal Plate</b> P. Kasian and S. Pukird	316
<b>Photocatalytic Destruction of Methyl Orange by Titanium Dioxide Powder Synthesized by an Oxalate Co-Precipitation Method</b> P. Pookmanee, S. Angkana and S. Phanichphant	320
<b>Preparation and Characterization of Heparin-Retinoic Acid-Folic Acid Conjugates for Targeted Cancer Therapy</b> I.K. Park, Y.J. Kim, K.M. Huh and Y.K. Lee	324
<b>Preparation and Properties of Natural Rubber - Cellulose Microfibril Nanocomposite Films</b> M. Phiriyawirut, N. Chotirat, S. Phromsiri and I. Lohapaisarn	328
<b>Study of the Relationships between the Chemical Structures of Azo Disperse Dyes and their Dyeing Properties on Polyester</b> T. Mungmeechai, S. Jantip and P. Suwanruji	332
<b>Optical Investigation of Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub> Glass System</b> K. Boonin, J. Kaewkhao and P. Limsuwan	336
<b>Characterization of Aluminium Titanium Nitride Thin Films Deposited by Reactive Magnetron Co-Sputtering</b> A. Buranawong, S. Chaiyakhun and P. Limsuwan	340
<b>Synthesis of 8 %mol Yttria-Stabilized Zirconia Powders by Mechanochemical Processing of ZrOCl<sub>2</sub>.8H<sub>2</sub>O and YCl<sub>3</sub>.6H<sub>2</sub>O with Li<sub>2</sub>CO<sub>3</sub></b> K. Kumproa, A. Nuntiya, Q.W. Zhang and F. Saito	344
<b>Ameliorating Soil Sodicity Using Calcium Salt Incorporated Hydrogels</b> L.T. Ng and J. Aiken	350
<b>Inhibition of Aluminum Alloy 2024 Corrosion by 4-Amino-5-Phenyl-4H-1, 2, 4-Trizole-3-Thiol in Highly Sulfuric Acid Solution</b> A.Y. Musa, A.B. Mohamad, A.A.H. Kadhum, M.S. Takriff, A.R. Daud and S.K. Kamarudin	354
<b>Microwave-Assisted Modification of Arrowroot Starch for Pharmaceutical Matrix Tablets</b> P. Sriamornsak, M. Juttulapa and S. Piriyaprasarth	358
<b>Evaluation of Yam (<i>Dioscorea sp.</i>) Starch and Arrowroot (<i>Maranta arundinacea</i>) Starch as Suspending Agent in Suspension</b> S. Piriyaprasarth, V. Patomchaiwiat, P. Sriamornsak, N. Seangpongchawal, P. Katewongsa, P. Akeuru, P. Srijarreon and P. Suttiphratya	362
<b>Photocatalytic Hydrogen-Generation of Polyoxotungstate Nano-Clusters from Biomass</b> K. Fukaya, A. Srifa, A. Soottitantawatb and N. Grisdanurak	366

<b>Surface Modification of Silica Nanoparticles for Reinforcement of Epoxidized Natural Rubber</b>	370
M. Jarnthong, Z. Peng, C. Nakason and N. Lopattananon	
<b>Preparation and Characterizations of Electrospun Lactide-Based Polymeric Nanofibers</b>	377
C. Thammawong, A. Petchsuk, M. Opaprakasit, N. Chanunpanich, P. Tangboriboonrat and P. Opaprakasit	
<b>The Investigation on Ionic Conduction of PEMA Based Solid Polymer Electrolytes</b>	381
S. Amir, M. Nor Sabirin and R.H.Y. Subban	
<b>Effect of Thai Silk Sericin and its Extraction Methods on L929 Mouse Fibroblast Cell Viability</b>	385
P. Thitiwuthikiat, P. Aramwit and S. Kanokpanont	
<b>Development of Transdermal Patch Comprising Centella Asiatica Extract</b>	389
K. Suwannachote and G.C. Ritthidej	
<b>Dense Manganese Doped Biphasic Calcium Phosphate for Load Bearing Bone Implants</b>	393
I. Sopyan, N. Ahmad Nawawi and Q.H. Shah	
<b>Porous Alumina through Protein Foaming-Consolidation Method: Effect of Stirring Time and Drying Temperature on the Physical Properties</b>	397
A. Fadli and I. Sopyan	
<b>Fabrication and Characterization of Strontium-Doped Hydroxyapatite Bioceramics Scaffolds for Bone Implant Application: A Preliminary Study</b>	401
M.C. Murad, I. Sopyan, C. Rohaida, Z. Ahmad and M. Reusmaazran	
<b>Concentration Effect of Aqueous Synthesis on Biphasic Hydroxyapatite – <math>\beta</math>-Tricalcium Phosphate Composition</b>	405
A.S.F. Alqap, I. Sopyan and S.A. Zubir	
<b>Potentiation of Lignin, Lignin Sulfonate and Lignin Acetate from Palm Empty Bunch as an Additive Substance in Urea Fertilizer as an Effort to Reduce the Solubility of Urea Nitrogen</b>	409
L. Arianie	
<b>Silver Thin Films Deposited by Compact Magnetron Sputtering System</b>	413
N. Promros and B. Paosawatyanyong	
<b>Spray-Dried Pectic Polysaccharide Powders: Evaluation of Physicochemical Properties for Pharmaceutical Preparations</b>	417
T. Nutithawat, C. Kusonwiriyawong and G.C. Ritthidej	
<b>Synthesis and Characterization of SnO<sub>2</sub> Nanowires Materials Prepared from Tin Powder</b>	421
P. Inchidjuy, K.S. An and S. Pukird	
<b>Development of Prolonged Action, Bioadhesive and Slowly Dissolving Minitablets</b>	425
N. Choudbua, T. Phaechamud and G.C. Ritthidej	
<b>Conductivity and Dynamic Mechanical Studies of PVC/PEMA Blend Polymer Electrolytes</b>	429
N.A. Zakaria, S.Y.S. Yahya, M.I.N. Isa, M. Nor Sabirin and R.H.Y. Subban	
<b>Gallic Thermosensitive Gel</b>	433
K. Yodkhum, S. Wannachaiyosit and T. Phaechamud	
<b>Structural Studies of Lead Sodium Borate Glasses</b>	439
P. Limkitjaroenporn, J. Kaewkhai, S. Tuscharoen, P. Limsuwan and W. Chewpraditkul	
<b>Chemical Characterization and Electrical Properties of Indium Oxynitride Grown by Reactive Gas-Timing RF Magnetron Sputtering</b>	443
A. Sungthong, P. Khomdet, S. Porntheeraphat, C. Hruanun, A. Poyai and J. Nukeaw	
<b>An Effect of Viscosity of Coating Materials on Silicon Micro-Patterning Arrays for Superhydrophobic Surface</b>	447
N. Atthi, O. Nimittrakoolchai, S. Supothina, J. Supadech, W. Jeamsaksiri, A. Pankiew, C. Hruanun and A. Poyai	
<b>Preparation of Polypropylene Graft Maleic Anhydride (PP-g-MA) via Twin Screw Extrusion</b>	451
R. Pruthtikul and P. Liewchirakorn	
<b>Effect of Nd<sup>3+</sup> Concentration on the Physical and Absorption Properties of Soda-Lime-Silicate Glasses</b>	455
P. Chimalawong, J. Kaewkhai and P. Limsuwan	
<b>Electrochemical Synthesis of Polyaniline as Ethylene Gas Sensor</b>	459
P. Pattananuwat and D. Aht-Ong	
<b>Production of Polysaccharides and Corresponding Sugars from Red Seaweed</b>	463
J.J. Yoon, Y.J. Kim, S.H. Kim, H.J. Ryu, J.Y. Choi, G.S. Kim and M.K. Shin	

<b>Effect of 2-Amino 2-Methyl 1,3 Propanediol on Enteric Properties of Film Prepared from Ammoniated-Based Shellac Composite Salts</b>	467
N. Meenabun, C. Limmatvapirat (1) and S. Limmatvapirat	
<b>Synthesis of SrTiO<sub>3</sub> Nanoparticles by a pH-Varying Sol-Gel Process</b>	471
N. Yongvanich and P. Visuttipitukkul	
<b>Effect of Ethylene Vinyl Acetate on the Rheological and Mechanical Behavior of Low-Density Polyethylene-Based Greenhouse Film</b>	475
C. Aumnate, C. Gamonpilas and J. Kruenate	
<b>Role of Zinc Oxide on Rheology of Thermosensitive Gel Developed for Periodontitis Treatment</b>	479
J. Mahadlek, J. Charoenteeraboon, S. Choopun and T. Phaechamud	
<b>Applications of Non-Linear Dynamics in the Production of Functionalised and Sensing Material</b>	485
N.D. Subasinghe	
<b>Characterization of PVDF-HFP-LiCF<sub>3</sub>SO<sub>3</sub>-ZrO<sub>2</sub> Nanocomposite Polymer Electrolyte Systems</b>	489
S. Ibrahim, S.A. Hashim Ali and M. Nor Sabirin	
<b>Investigation of Oxygen Contamination in Indium Nitride Thin Film by X-Ray Absorption Fine Structure</b>	493
K. Amnuyswat, P. Thanomngam, S. Sopitpan, A. Sungthong, S. Porntheeraphat and J. Nukeaw	
<b>Improvement in the Tensile Strength of Epoxy Resin and Hemp/Epoxy Resin Composites Using Carbon Nanotubes</b>	497
H. Longkullabutra, W. Thamjaree and W. Nhuapeng	
<b>Conductivity Enhancement of PEDOT/PSS Films with Ionic Liquids as Dopants</b>	501
S.K. Lee and K.K. Lee	
<b>Thermo- and Photo-Degradation of LDPE and PP Films Using Metal Oxides as Catalysts</b>	505
S. Shawaphun, T. Manangan and S. Wacharawichanant	
<b>Properties of La<sub>2-x</sub>Sr<sub>x</sub>Mo<sub>2-y</sub>W<sub>y</sub>O<sub>9-δ</sub> Oxide-Ion Conductor Synthesized by Citrate Gel Method</b>	509
W. Thepsuwan and S. Kuharuangrong	
<b>Ionic Conductivity of β"-Alumina Solid Electrolyte Prepared by Liquid Phase Sintering Method</b>	513
K. Srisurat, A. Niyompan and R. Tipakontitkul	
<b>TiO<sub>x</sub> Concentration Dependence of OPV Efficiency Optimization</b>	517
A. Keawprajak, P. Piaykulawat, J. Wlosnewski, P. Iamraksa, C. Saekung and U. Asawapirom	
<b>Preparation of Highly Monodisperse Polymeric Particles Incorporating Polymerizable Perylene-Bisimide Fluorophore</b>	521
P. Piaykulawat, D. Polpanich, R. Thiramanas and U. Asawapirom	
<b>In Situ Silica Filled Styrene Grafted Natural Rubber by the Sol-Gel Process</b>	525
T. Sittiphan, P. Prasassarakich and S. Poompradub	
<b>Compositional Changes of Enamel and Dentine after Er:YAG Laser Irradiation</b>	529
A. Choeysuppaket, A. Pokaipisit and P. Limsuwan	
<b>Property Modification of Copper Phthalocyanine Film by Nitrogen Dioxide Gas</b>	533
R. Jaisutti, J. Theerasak, O. Chamlek and T. Osotchan	
<b>Nanocrystal-ZnO Thin Film Deposition by a Novel Reactive Gas-Timing RF Magnetron Sputtering Provided for UV Photodetectors</b>	537
P. Panprom, S. Porntheeraphat, W. Bunjongpru, T. Tiwawong, W. Yamwong, C. Hruanun, A. Poyai and J. Nukeaw	
<b>Oxygen Gas-Timing Control for Variety Properties of Sputtered-ZnO</b>	541
K. Limwichean, S. Porntheeraphat, W. Bunjongpru, P. Panprom, A. Pankiew, C. Hruanun, A. Poyai and J. Nukeaw	
<b>High Refractive Index Dielectric Prepared by Electron Beam Evaporation for Photonic Crystal Optical Biosensor Application</b>	545
B. Saekow, S. Porntheeraphat, S. Rahong, S. Jaruvanawat and J. Nukeaw	
<b>Physical Properties of Sr<sub>3</sub>Fe<sub>2-x</sub>Co<sub>x</sub>O<sub>7-δ</sub> (x = 0 - 1.0) as SOFC Anode</b>	549
P. Sittipon and S. Kuharuangrong	
<b>Development of Bioactive Ceramics to Control Mite and Microbial Diseases in Bee Farms</b>	553
B. Boopha, S. Eittsayeam, K. Pengpat and P. Chantawannakul	

<b>Effects of Sr and Ni-Dopants on the Structure and Conductivity of Lanthanum Chromite</b>	558
A. Ruangvittayanon and S. Kuharuangrong	
<b>The Effect of Quartz Nano-Particles on the Damage Monitoring of Adhesive Joint at Cryogenic Temperature</b>	562
S.H. Yoon, B.J. Kim, K.H. Lee and D.G. Lee	
<b>Electrical Property of Mn and Co Dopants on <math>\text{La}_3\text{Ni}_2\text{O}_{7\pm\delta}</math> and <math>\text{La}_{2.9}\text{Sr}_{0.1}\text{Ni}_2\text{O}_{7\pm\delta}</math></b>	566
W. Singkha and S. Kuharuangrong	
<b>CoPc/CdS Hybrid Photovoltaic Device</b>	570
P. Keeratithivakorn, B. Tunhoo, T. Thiwawong and J. Nukeaw	
<b>Optical and Electrical Properties of Modified Polythiophene with Tetrafluorobenzene Thin Film</b>	574
M. Sittishokram, U. Asawapirom and T. Osotchan	
<b>The Optimization of TiN Film Deposited by DC Magnetron Sputtering Provided for Al Diffusion Barrier</b>	578
A. Pankiew, W. Bunjongpru, N. Somwang, S. Porntheeraphat, S. Pratontep, S. Sophitpan, J. Nukaew, C. Hruanun and A. Poyai	
<b>Effect of pH on the Formation of a Bovine Serum Albumin Layer on a Poly(styren-co-maleic Acid) Surface</b>	583
T. Hongkachern, V. Champreda, T. Srikririn, T. Wangkam and T. Osotchan	
<b>Effect of Annealing on Material Properties of Both Electrodes in Dye Sensitized Solar Cell Structure</b>	587
P. Prachopchok, C. Thanachayanont, K. Sriprapha, A. Heawchin, S. Kaewket, P. Vijitjanya, C. Sac-Kung and T. Osotchan	
<b>All-Solid-State pH Sensor Based on Conducting Polymer</b>	591
W. Natedungta and W. Prissanaroон-Oujai	
<b>Characteristics of Cholesterol-Grafted Gelatin Micelles</b>	595
M. Wareechuensook, Y. Tabata and S. Kanokpanont	
<b>Viscoelastic Properties of Galactomannan Solutions</b>	599
K. Khounvilay and W. Sittikijyothin	
<b>Photocatalytic Decolorization of Dyes for Nano-Structures of Titanium Dioxide (<math>\text{TiO}_2</math>) Films</b>	603
K. Hathaisamit, W. Pengmula, T. Wesamula and S. Pudwat	
<b>Morphology and Structure of Modified Oil Palm Empty Fruit Bunch Cellulose Fibre</b>	607
S. Ouajai, P. Ruangwilairat, K. Ongwongsakul, T. Leejarkpai and R.A. Shanks	
<b>Effect of Co-Monomer Content on Rheological Property of Sawdust/ABS Composites</b>	611
P. Threepopnatkul, W. Teppinta and N. Sombatsompop	
<b>Performance of a Micro Pump Driven by Conducting Polymer Soft Actuator Based on Polypyrrole</b>	615
M. Fuchiwaki, Y. Naka and K. Tanaka	
<b>Control of Mechanical Properties and Permeability of Electrospun Natural Rubber with Different Composite Systems</b>	619
S. Sithornkul and P. Threepopnatkul	
<b>Partial Characterization of Biosurfactant Produced under Anaerobic Conditions by <i>Pseudomonas sp</i> ANBIOSURF-1</b>	623
J. D. Albino and I.M. Nambi	
<b>Titanium Dioxide Powder Prepared by a Low Temperature Hydrothermal Method</b>	627
P. Pookmanee, T. Kuntatun, W. Kangwansupamonkon and S. Phanichphant	
<b>Cure Characteristic and Mechanical Properties of Epoxidized Natural Rubber/Chloroprene (ENR/CR) Blends</b>	631
C. Thongpin, P. Niltui, P. Sornwaneenawakhun, T. Maneeprom, S. Malithong and E. Wimolmala	
<b>The Synthesis of Titanium Dioxide Emulsion as UV Blocking</b>	635
T. Panyatanmaporn, J. Kruenate, C. Aumnate and T. Sooksomsong	
<b>The Modification of Asphalt Emulsion Using Pre-Vulcanized Natural Rubber Latex for Highway Application</b>	639
S. Malithong and C. Thongpin	
<b>Microwave-Assisted Synthesis and Characterization of Zinc Oxide Micropowder</b>	643
P. Pookmanee, S. Makarunkamol, S. Satienperakul, J. Kittikul and S. Phanichphant	
<b>Development of Composite Film for Improving Gas Permeable Properties</b>	647
S. Siraratprapa, C. Aumnate, W. Phompan, S. Kongniam and J. Kruenate	

<b>Color Tolerance of Identity Color of Chulalongkorn University on General Print</b>	651
N. Naovaprateep, C. Koopipat and P. Katemake	
<b><math>\beta</math>-Crystal Development of Isotactic Polypropylene during Sheet Extrusion Process</b>	655
N. Kerddonfag, W. Chinsirikul, B. Hararak, C. Winotapun and P. Kumsang	
<b>Synthesis and Characterization of CoFe<sub>2</sub>O<sub>4</sub> Particle by PVA Sol-Gel Method</b>	659
A. Hunyek, C. Sirisathitkul and P. Harding	
<b>Preparation of Mesoporous Silica from Rice Husk Ash: Effect of Depolymerizing Agents on Physico-Chemical Properties</b>	664
S. Suttiruengwong, P. Puathawee and M. Chareonpanich	
<b>The Superconducting Magnetic Properties of YBCO Effect on the Inductance of Coil</b>	668
P. Chuamuangphan, C. Chuamuangphan and K. Treechairusme	
<b>Product of Spray Dried Rice Starch (Era-Tab<sup>®</sup>) and its Utilization in Pharmaceutical Industry</b>	672
V. Vongsurakrai and S. Varavinit	
<b>Product of Modified Rice Starch (Era-Gel<sup>®</sup>) and its Utilization in Pharmaceutical Industry</b>	675
V. Vongsurakrai and S. Varavinit	
<b>Effect of Nano Silicon Dioxide on Tablet Properties of Rice Starch</b>	679
V. Vongsurakrai and S. Varavinit	
<b>Influence of Octenyl Succinate Rice Starch (NurtureCare<sup>®</sup>) on Rheological Properties of Gelatinized Rice Starch before and after Retrogradation</b>	683
V. Vongsurakrai and S. Varavinit	
<b>Investigation of Structural Properties of CuPc/TiO<sub>2</sub> Nanocomposites</b>	687
C. Saributr, W. Makprasat, P. Thanomngam and W. Pecharapa	
<b>Effect of pH on Zinc Oxide Powder Prepared by a Chemical Co-Precipitation Method</b>	691
P. Pookmanee, I. Attaveerapat, J. Kittikul and S. Phanichphant	
<b>The Effects of Composition and Sintering Conditions on Zirconia Toughened Alumina (ZTA) Nanocomposites</b>	695
H. Esfahani, A. Nemati and E. Salahi	
<b>Electrical Characteristics of DLC Deposited by RF Inductively Coupled Plasma Process</b>	699
B. Paosawatyanyong, A. Muakngam and S. Thitianan	
<b>Anti-Tumour Effect of a Chitosan Delivery System for Doxorubicin</b>	703
M.L. Tan, P.F.M. Choong and C.R. Dass	