

Table of Contents

Preface

Chapter 1: Applied Mechanics and Manufacturing Processes Engineering

| | |
|---|----|
| Particleboard Manufactured with Additions of Eucalyptus Bark in Different Percentages in the Internal Layer | |
| C.I. de Campos, B.S. Ferreira, J.C. Barbosa, E.A.M. Morales, A.L. Christoforo and F.A. Rocco Lahr | 3 |
| Screening for Welding Defects Using Acoustic Emission Technique | |
| A. Aboali, M. El-Shaib, A. Sharara and M. Shehadeh | 7 |
| Medium Density Particleboard (MDF) Produced with <i>Pinus caribaea</i> Fibers and Castor Oil Based Polyurethane Resin | |
| S.A.M. da Silva, R. Gonçalves, A.L. Christoforo and F.A. Rocco Lahr | 13 |
| Fatigue Evaluation of Trough Splice Joints in Orthotropic Steel Decks | |
| H. Yun, Q.H. Zhang, Y.Z. Bu, H.L. Liu and S.L. Yang | 17 |
| Design of Pressurized Vaulted Rectangular Conduits Using the Rough Model Method (Part 2) | |
| B. Achour and M. Khattaoui | 24 |
| Thermo Elastohydrodynamic Lubrication with Liquid-Solid Lubricant | |
| K. Wongseedakaew and J. Panichakorn | 32 |
| The Influence of the Production Process on Mechanical Properties of Rubber Testing Samples | |
| A. Skrobak, M. Stanek, D. Manas, M. Ovsik, V. Senkerik and M. Reznicek | 37 |
| Influence of Moisture Content in some Mechanical Properties of Two Brazilian Tropical Wood Species | |
| L.A.M.N. Branco, E. Chahud, A.L. Christoforo, F.A. Rocco Lahr, R.A.G. Battistelle and I.D. Valarelli | 42 |
| Physical and Mechanical Properties of <i>Dipteryx odorata</i> (Aublet) Willd | |
| D.H. de Almeida, E. Chahud, F.S. Ferro, S.F.S. Poleto, T.H. de Almeida, A.L. Christoforo and F.A. Rocco Lahr | 46 |
| Modelling of Fretting Wear under Partial Slip Conditions Using Combined Isotropic-Kinematic Hardening Plasticity Model | |
| A.L. Mohd Tobi, M.Y. Ali, M.H. Zainulabidin and A.A. Saad | 50 |
| Modeling Errors in Coordinate Measuring Machines and Machine Tools Using Homogeneous Transformation Matrices (HTM) | |
| B. di Giacomo, C.A.G. de Morais, V.A. de Souza and L.C. Neves | 56 |
| Extraction and Thermal Processing of Beke Oil Sands | |
| Y. Ongarbayev, Y. Tileuberdi, B. Tuleutaev, Z. Mansurov, F.R. Sultanov and F. Behrendt | 60 |
| Influence of Storage Period of Pieces in Stiffness of <i>Pinus elliottii</i> Glulam Beams | |
| A.L. Christoforo, F.A. Rocco Lahr, E. Chahud, L.A.M.N. Branco, R.A.G. Battistelle and I.D. Valarelli | 64 |
| The Cracking Mechanism and Anti-Cracking Measures for Hydraulic Mass Concrete | |
| Z. Peng | 68 |
| Approach to the Ear Plate and Round Steel Connection | |
| B. Li, F. Xiao and S.N. Zhang | 74 |
| Numerical Modelling of Nonlinear Vibration Isolation System Free Oscillations | |
| V. Smirnov | 80 |
| Study about the Stone Curves and the Development of Polygonal Shape Cutting Device | |
| S.H. Oh | 85 |
| About Verification of Discrete-Continual Finite Element Method for Two-Dimensional Problems of Structural Analysis Part 1: Deep Beam with Constant Physical and Geometrical Parameters along Basic Direction | |
| P.A. Akimov, M.L. Mozgaleva and O.A. Negrosov | 89 |

| | |
|---|-----|
| About Verification of Discrete-Continual Finite Element Method for Two-Dimensional Problems of Structural Analysis Part 2: Deep Beam with Piecewise Constant Physical and Geometrical Parameters along Basic Direction | |
| P.A. Akimov, M.L. Mozgaleva, M. Aslami and O.A. Negozov | 95 |
| Fatigue Evaluation of Autofrettaged Thick-Walled Cylinders with a Radial Cross-Bore | |
| H.J. Li, X. Huang, D. Liu and Q. Ding | 104 |
| Testing of Mechanical Protection of Data Distribution Mechanisms | |
| J. Hart and V. Nídlová | 112 |
| Utilization of Mosaic Sludge Waste into Fired Clay Brick: Properties and Leachability | |
| A. binti Abdul Kadir, A.S.B.A. Rahim and H.H.B. Jamil | 117 |
| Experimental and Numerical Investigation on Flow Characteristics of a Water Jet Impingement | |
| C. Kitcharoenpaisarn and V. Tangwarodomnukun | 122 |
| Structural Design and Improvement of Wind-Driven Generator Cooling System | |
| X.H. Qian, Y.L. Jiang and D.F. Cheng | 128 |
| A Ground Test Method and the Error Analysis of the Heat Exchanger in the Intake of Aircraft | |
| Y.F. Cai, C.L. Zhu and S.Q. Shi | 137 |
| Refined FEM Analysis of 1000MW Generator Stator during Integral Transportation on Railway | |
| C.G. Nie, Y.D. Wang and W.Z. Zhao | 143 |
| 3D Ice Accretion Simulation for Complex Configuration Basing on Improved Messinger Model | |
| C.X. Zhu, C.L. Zhu and B. Fu | 148 |
| Automatic Machine for Sorting Colored Objects with Conveyor Belt | |
| K. Prewthaisong | 156 |
| Research into Fatigue Crack Life Characteristics of Bellows Operated under High-Frequency Load | |
| K.N. Figura, I.M. Yefremov and D.V. Lobanov | 162 |
| Effect of Thermocycling on Shear Bond Strength of the Three No-Mixed Bonding Adhesives | |
| S. Dechkunakorn, N. Anuwongnukroh, J. Arunakol and P. Tua-Ngam | 167 |
| Comparisons of the Mechanical Properties of 3 Commercial Brands of Non-Latex Orthodontic Elastics | |
| V. Jittanonda, S. Dechkunakorn, N. Anuwongnukroh, W. Wichai and P. Tua-Ngam | 173 |
| Study on the Performance of an Open Loop Cycle CO₂ Refrigeration System in the Extreme Limit Condition | |
| L. Xu, Y.L. Jiang, N.Y. Zhou and J. Li | 178 |
| Dynamic Characteristic Analysis of Hydraulic Servo System in a Mold Oscillating Mechanism | |
| Y.H. Park and H.C. Park | 183 |
| Evaluation of Longitudinal Modulus of Elasticity in Wood Species for Structural Application | |
| E. Chahud, L.A. Melgaço Nunes Branco, A.L. Christoforo, F.A. Rocco Lahr, R.A.G. Battistelle and I.D. Valarelli | 192 |
| Evaluating a Test Parameter in Static Bending for <i>Pinus sp.</i> Wood | |
| E.A.M. Morales, H.K. Kondo, J.C. Barbosa, C.I. de Campos, F.A. Rocco Lahr and A.L. Christoforo | 196 |
| The Influence of Different Carbon Type Fillers on the Mechanical and Physical Properties of Co-Extruded PP-Based WPC | |
| I. Turku and T. Kärki | 200 |
| Tensile Properties during Solidification of Aluminium Die Casting Alloys Grade ADC5, ADC6 and ADC12 | |
| S. Pongsugitwat, T. Umeda and P. Sricharoenchai | 208 |
| Mechanical Property Improvement of Poly(Butylene Succinate) by Reinforcing with Modified Fumed Silica | |
| S. Weerasunthorn and P. Potiyaraj | 215 |
| Mechanical Properties of PLA/LLDPE Films Reinforced with Silica from Rice Husk | |
| S. Sareeladdanon and P. Potiyaraj | 221 |

| | |
|---|-----|
| Effect of Wood Moisture Content in Edge Glued Panel Bonding for Furniture Industry: Analysis of Shear-Stress and Rupture in Bondline | |
| F.A. de Araújo Ferraresi, J.C. Barbosa, C.I. de Campos, B.S. Ferreira, V.A. de Araujo and M. Gava | 227 |
| Simulation Analysis of In-Service Bamboo and Pine EGP Composite Flooring | |
| J.C. Barbosa, J.R.M. da Silva, F. de Alvarenga, A.J.D. de Souza, V.A. de Araujo and J.N. Garcia | 233 |
| Characterization of Mechanical and Thermal Properties of PP/Mineral Composites | |
| E. Dulebová, E. Spišák, B. Duleba, F. Greškovič and T. Garbacz | 241 |
| Use of Macadamia Nutshell in the Production of Eucalyptus Salign Particleboards | |
| B.S. Ferreira, C.I. de Campos and M.T.T. Gonçalves | 246 |
| Effect of Ionizing Beta Radiation on the Strength of Bonded Joints of Polycarbonate | |
| M. Bednarik, D. Manas, M. Manas, M. Stanek, J. Navratil and A. Mizera | 251 |
| Temperature Stability of Modified PBT by Radiation Cross-Linking | |
| A. Mizera, M. Manas, D. Manas, Z. Holík, M. Stanek, J. Navratil and M. Bednarik | 256 |
| Tensile Behaviour of Modified PBT by Radiation Cross-Linking | |
| A. Mizera, M. Manas, D. Manas, Z. Holík, M. Stanek, J. Navratil and M. Bednarik | 261 |
| Influence of Recycled Irradiated HDPE on Mechanical Behavior of LDPE/HdpeX Blends | |
| J. Navratil, M. Manas, M. Stanek, D. Manas, M. Bednarik and A. Mizera | 265 |
| Creep Test Evaluation | |
| M. Reznicek, D. Manas, M. Stanek, M. Ovsík, V. Senkerík, A. Skrobák and P. Kratky | 270 |
| Behavior of Recycled Material at Higher Temperature in Compression Test | |
| V. Senkerík, M. Stanek, D. Manas, M. Manas, A. Skrobák and J. Navratil | 274 |
| Size Effect of Recycled Material to Tensile Properties of PC | |
| V. Senkerík, M. Stanek, D. Manas, M. Manas, A. Skrobák and J. Navratil | 278 |
| Injection Molding of Rubber Compound Influenced by Injection Mold Surface Roughness | |
| M. Stanek, D. Manas, M. Manas, M. Ovsík, V. Senkerík and A. Skrobák | 283 |
| Particulate Composites with Wastes from Treated Wood and Tire Rubber | |
| M. da Silva Bertolini, A.L. Christoforo, C. Calil Neto and F.A. Rocco Lahr | 288 |
| Effect of Linear Sliding Speed on Wear Behavior of Al₂O₃/TiC Ceramic Composite and Diamond Slicing Blade | |
| W. Penglao, L. Tachai and B. Lohwongwatana | 292 |
| Temperature Prediction at the Blow End of the Converter via Control Model | |
| A.F. Ferreira | 298 |
| Wear Response of Composition-Modulated Multilayer Ni-W Coatings | |
| N. Udompanit, P. Wangyao, S. Henpraserttae and Y. Boonyongmaneerat | 302 |
| Study of Weld Hardness of Pipes at Elevated Temperature Application in Power Plants | |
| M. Sarwar and M.A. bin Abd Majid | 310 |
| Cutting Ceramic Materials: Influence of Abrasive Machining and Coating Deposition on the Performance Potential | |
| S.N. Grigoriev, M. Volosova, Y.A. Melnik, N. Cherkasova and A. Gurkina | 317 |
| Effect of Temperature on Deactivation Force of Three Commercial NiTi Orthodontic Archwires | |
| N. Anuwongnukroh, S. Dechkunakorn, N. Tangit and S. Tongkoom | 325 |
| Comparison of Horizontal and Vertical Deactivation Force, Length and Superelasticity in Three Commercial NiTi Orthodontic Archwires | |
| S. Dechkunakorn, N. Anuwongnukroh, N. Nanthavannich and S. Tongkoom | 330 |
| Stacking Design of Composite Laminate in Wheelchair Structure under Seat Loading | |
| T.J.C. Liu, J.W. Liang, W.L. Chen and T.H. Chen | 336 |
| Self-Tapping Screws without Pre-Drilling for Brazilian Reforestation Species | |
| C. Calil Neto, A.L. Christoforo, M. da Silva Bertolini, F.A. Rocco Lahr and C. Calil Junior | 345 |
| Optimization of Eutectic Si Particles Morphology in Secondary Al-Si Cast Alloys after Different Heat Treatment | |
| L. Hurtalová, E. Tillová and M. Chalupová | 349 |
| Prognosis the Erosion-Corrosion Rates for Slurry Seawater Flow in Steel Pipeline Using Neural System | |
| A. El-Shenawy and M. Shehadeh | 355 |
| The Influence of Cross-Section Shape Changing on Work of Cold Formed Beam | |
| A. Tusnin and I. Selyantsev | 361 |

| | |
|---|-----|
| The Dynamics Model Analysis of Drying Process in Gelcasting Method | 366 |
| X.L. Zhang, B. Li, J.X. Ye and J. Zhou | |
| New Method for Evaluating Dynamic Characteristics of Cantilever Spring of Vibration Sensor | 372 |
| M. Djamel, I.A. Prayogi, K. Watanabe, A. Takita and Y. Fujii | |
| Multiscale Model of Shape Rolling Taking into Account the Microstructure Evolution – Finite Element Modeling | 379 |
| L. Łach and D. Svyetlichnyy | |
| Comparison of the Initial Repeated Bond Strength among Three Orthodontic Bonding Systems | 385 |
| N. Anuwongnukroh, S. Dechkunakorn, J. Arunakol and W. Wichai | |
| Finite Element Analysis of the Fine Blanking Process for Seat Recliner Plate Holder of Recreation Vehicle | 391 |
| J.D. Kim and Y.M. Heo | |
| Effects of Al Additions and Reheat Treatments on Microstructures of Modified Nickel-Based Superalloy, Grade Inconel 738, by Vacuum Arc Melting Process | 395 |
| P. Wangyao, P. Jariyasakuntham, S. Polsilapa, A. Promboobpa and S. Pongsugitwat | |

Chapter 2: Material Science and Technology

| | |
|--|-----|
| Effect of Beta Low Irradiation Doses on the Micromechanical Properties of Surface Layer of LDPE | 405 |
| D. Manas, M. Ovsik, M. Manas, M. Stanek, K. Kocman, M. Bednarik and M. Spanhelova | |
| Nanohardness of Electron Beam Irradiated HDPE | 410 |
| D. Manas, M. Ovsik, M. Manas, M. Stanek, K. Kocman, M. Bednarik and V. Senkerik | |
| Effect of Beta Low Irradiation Doses on the Filled PA66 Measured by Micro-Indentation Test | 415 |
| M. Ovsik, D. Manas, M. Manas, M. Stanek, M. Reznicek and P. Kratky | |
| Effect of the Calcination Temperature on Ni₂P/TiO₂-Al₂O₃ Catalyst Structure and Catalytic Activity for Hydrodesulfurization | 419 |
| F. Li, Z.S. Jin, H.L. Song, Y.S. Li and J.Z. Xu | |
| Effect of Heat Treatment on Grain Growth of Beta Titanium Alloy | 423 |
| D.G. Lee, C.L. Li and Y.T. Lee | |
| Frequency and Temperature Dependence of Dielectric Properties of Orthorhombic HoMnO₃ Thin Films | 427 |
| P. Gao, W. Zhang and W.T. Wang | |
| Evaluation of Bamboo Particleboards Produced with Urea-Formaldheyde Resin | 432 |
| I.D. Valarelli, R.A.G. Batistelle, L.A.M.N. Branco, E. Chahud, A.L. Christoforo, F.A. Rocco Lahr and B.S. Bezerra | |
| Physical Characterization of Particleboard Produced with Waste from Ethanol and Sugar Mill | 436 |
| R.A.G. Batistelle, I.D. Valarelli, A.L. Christoforo, F.A. Rocco Lahr, E. Chahud, L.A.M.N. Branco and B.S. Bezerra | |
| Study the Effect of the Substitution of Ba with Pr in Barium Ferrite Powder on Magnetic Properties | 440 |
| P. Marawichayo, W. Keawwattana, N. Koonsaeng and P. Jantaratana | |
| Influence of Rate of Heating to Aging Temperature on Precipitation Hardening in a Metastable β Titanium Alloy | 445 |
| A. Pande, S. Sainis, S. Rajaraman, G. Manivasagam and M.N. Rao | |
| Influence of Reactive Organic Flame Retardants on Properties of Resol Phenoplast Foams | 451 |
| M.G. Bruyako, L. Grigorieva and E.V. Sokoreva | |
| New Nickel Based Superalloys Development by Vacuum Arc Melting Process Based on Aluminum Addition of GTD-111 | 455 |
| S. Polsilapa, P. Wangyao, P. Boonpou, A. Promboobpa and S. Pongsugitwat | |
| Toughening of Poly(Lactic Acid) by Blending with Poly(Ethylene-co-Octene) | 461 |
| S. Wongsampanwech and P. Potiyaraj | |
| A Simple and Efficient Route for Preparing 4-Chloro-3,5-Dinitropyrazole | 466 |
| Q. Rui, Y.H. Wang and Y.X. Li | |

| | |
|---|-----|
| Sterilization of Oil Palm Fruits by Microwave Heating for Replacing Steam Treatment in Palm Oil Mill Process | 470 |
| R. Nokkaew and V. Punsvon | |
| Effects of Soybean Antioxidant Peptides (SAP) on SOD, GSH-Px, CAT Activity and MDA Level in Vivo | 476 |
| J. Wang, R.W. Yang, J.B. Liu and S.Y. Lin | |
| Optimization Statistical Condition of Incubation for the Growth State of a Recombinant Strain Produced Alkaline Protease | 482 |
| M.S. Zhang, Y.A. Yang, J.B. Liu and S.Y. Lin | |
| Removal of Humic Material from Mineralized Algerian Water Using Alum and Local Clay as Coagulant Aid | 487 |
| S. Achour and N. Bacha | |
| Comparison Study of Oxidation Behavior of Copper at Elevated Temperatures | 494 |
| J.S. Lee, B.Y. Jang, J.S. Kim, Y.S. Ahn, G.H. Kang and J.P. Wang | |
| Analysis of Structural Transformations of Fe80Ni10Si5B5 Amorphous Alloy Based on Temperature Changes of Electrical Resistivity | 499 |
| A. Kotvitckii, G.S. Kraynova, A.M. Frolov, V. Ivanov and V.S. Plotnikov | |
| Comparison Study of Oxidation Behavior of Low Carbon Steel at Elevated Temperatures | 504 |
| S.A. Ha, D.K. Kim, W.J. Lee, C.Y. Kang, K.H. Kim and J.P. Wang | |
| Synthesis of Vanadium Powder by Magnesiothermic Reduction | 509 |
| D.W. Lee, H.S. Lee, J.Y. Yun, Y.H. Kim and J.P. Wang | |
| Hydrothermal Synthesis of Porous Materials Using Calcined Kaolin with Small Molecular Amine Templates | 515 |
| J.T. Li, S. Qiu, R.Y. Chen, C.H. Gan, X. Zeng and X.T. Luo | |
| Nickel Recycling by Magnesium Reaction of Fe-Ni Alloy Scrap | 519 |
| D.W. Lee, H.S. Lee, S.M. Shin and J.P. Wang | |
| Effect of ZnO Nanoparticles Synthesized by Precipitation Method on Cure Characteristics and Morphology of EPDM Foam | 525 |
| R. Suntako | |
| Exhaust Dyeing Poly(Lactic Acid) Fabrics with Indigo Dye Obtained from Indigofera Tinctoria | 531 |
| R. Sidarkote, P. Suwanruji and J. Suesat | |
| Experimental Study on the Thermal Conductivity of Thermal Insulation Materials Used in Residential Buildings | 535 |
| Y.S. Jeong | |
| Life Cycle CO₂ Emission Assessment for Non-Steam Curing Precast Concrete | 539 |
| T.Y. Kim, S.H. Tae and K.H. Yang | |
| Medium Density Particleboard with Addition of Impregnated Paper | 543 |
| J.C. Barbosa, A.L. da Silva Michelon, E.A.M. Morales, C.I. de Campos, A.L. Christoforo and F.A. Rocco Lahr | |
| Utilization of Terahertz Spectroscopy for Optical Behavior Determination of Recycled Modified HDPE | 547 |
| J. Navratil, M. Manas, M. Stanek, D. Manas, M. Bednarik, A. Mizera and T. Gavenda | |
| Ionizing Radiation Effect of HDPE Measured by Nano-Hardness | 551 |
| M. Ovsik, D. Manas, M. Manas, M. Stanek, A. Skrobak and P. Kratky | |
| Creep of Radiation Cross Linked HDPE at Elevated Temperature | 555 |
| M. Reznicek, D. Manas, M. Stanek, M. Ovsik, M. Bednarik, A. Skrobak and A. Mizera | |
| Multilayer Medium Density Particleboard Using Castor Oil-Based Polyurethane Resin and Hevea Brasiliensis Wood | 559 |
| S.D. Muzel, L.R. de Lima, M. Gava, J.N. Garcia, J.C. Barbosa and B.S. Ferreira | |
| Evaluating the Effect of PCD & TiAlN Coated Carbide End Mill's Rake Angle on Machinability of Titanium Alloy Ti-6Al-4V | 564 |
| S.A. Abbasi and P.F. Feng | |
| Hydrolyzed Fish Collagen Inhibits Inflammatory Cytokines Secretion in Lipopolysaccharide-Induced HUVECs | 570 |
| C. Liu, Y. Xue and J. Sun | |
| New Insight Technique for Synthesis of Silica Gel from Rice Husk Ash by Using Microwave Radiation | 574 |
| N. Pijarn and P. Galajak | |

| | |
|--|-----|
| Toughness Enhancement of Polylactic Acid by Employing Glycolyzed Polylactic Acid-Cured Epoxidized Natural Rubber | 580 |
| P. Sukpuang, M. Opaprakasit, A. Petchsuk and P. Opaprakasit | |
| Alloying of Molybdenum Disilicide with Aluminum by SHS | 585 |
| Y. Zhou, J. Xiao, G.T. Ye and C.Y. Liu | |
| Corrosion of Inconel 625 at 600-800°C in N₂/H₂O/H₂S Atmospheres | 591 |
| M.J. Kim and D.B. Lee | |
| Influence of Thermo-Chemical Treatment on the Surface of CP Titanium | 597 |
| C.L. Kim, D.G. Lee, Y.H. Park and Y.T. Lee | |
| Microstructural Behaviors of Boron Modified LCB Titanium Alloy | 601 |
| T.Y. Kim, D.G. Lee, K.R. Lim, K.M. Cho and Y.T. Lee | |
| Compatibilization of Thermoplastic Polyurethane and Polypropylene with a SEBS Compatibilizer | 605 |
| O.B. Vesna, G.B. Emi and F. Veljko | |
| Strength of Bonded Joints of Linear Low – Density Polyethylene after Radiation Cross – Linking | 615 |
| M. Bednarik, D. Manas, M. Manas, M. Stanek, J. Navratil and A. Mizera | |
| Three-Dimensional Periodic Hematite Photocatalysts Fabricating by Direct Writing Method | 621 |
| Q.M. Peng, B. Li, J. Wang, J.J. Li and J. Zhou | |
| Electrical Discharge Grinding (EDG) of Polycrystalline Diamond - Effect of Machining Polarity | 628 |
| M.Z. Rahim, S.L. Ding and J. Mo | |
| Study of Degradation of Fiber - Cement Plates with Different Types of Non - Metalic Fibers | 633 |
| M. Kostelecká and J. Kolísko | |
| Influence of Mould Release Agent on Surface Properties of Concrete with Special Matrix | 637 |
| R. Pernicová and M. Kostelecká | |
| Analysis of Formation and Testing of Efflorescence on Concrete Elements | 641 |
| R. Pernicová | |
| Preparation of Iron Catalysts Generated from Fe-Coagulated Sludge Produced by Ferric Chloride Coagulation of Wastewater | 645 |
| S. Foowut, T. Palothaisit, N. Boonlor, P. Prompinit and P. Viravathana | |
| Effect of Liquefying Agents Mixed with Lower Alcohols and Catalyst on the Microwave Driven Liquefaction of Wood | 651 |
| Z. Wang and Z. An | |
| Polarization Behavior of Steel Corrosion in Laterite, Yellow Soil and Kaolin | 656 |
| R. Sundari and A.W.M. Sa'adan | |
| A Fundamental Study on the Processing of Heavy Metals Contained in Underground Water by Composite Modulation Electromagnetic Field Processing | 661 |
| S.A. Ha, D.K. Kim, D.W. Lee, B.H. Jung, J.M. Lee and J.P. Wang | |
| Anti-Corrosive Performances of Environmental Friendly Materials on Al-Mg-Si Alloy | 668 |
| R. Rosliza, W.B. Wan Nik and S. Izman | |
| 3-Dimensional Porosity in Electroless Ni-YSZ Composite Coating | 672 |
| N.B. Baba, M.A.H. Lamshah and M.A. Mohd Amin | |
| Acid Value Reduction Process in Mixed Crude Palm Oil by Using Low-Grade Ethanol | 677 |
| N. Intarat, K. Somnuk, T. Theppaya and G. Prateepchaikul | |
| The Synthesis and Properties of Emulsion Copolymerization of Styrene with N-Substituted Phenyl Maleimide | 683 |
| Q. Yu | |
| Evaluations of Performance and Thermal Properties in Porous Asphalt Concrete Containing Steel Slag | 688 |
| D.M. Kusumawardani and J.D. Lin | |
| Determination of OSB Wood Composites with Resin Derived from a Renewable Natural Resource | 693 |
| A.M. de Souza, L.D. Varanda, F.S. Ferro, F.M. Dias, A.L. Christoforo and F.A. Rocco Lahr | |
| Contribution of Electrostriction in Polyurethane/Polyaniline Blends | 697 |
| D. Jaaoh, C. Putson and N. Muensit | |
| The Research of Concrete Sealer Penetrating Depths | 703 |
| L.W. Teng, R. Huang, H.M. Hsu, J. Chen, S.J. Chao and S.H. Chen | |

| | |
|--|-----|
| Influence of the Electrodeposited Co-Fe Alloys' Characteristics on their Magnetic Properties | |
| T. Chotibhawaris, L. Tachai, P. Jantaratana and Y. Boonyongmaneerat | 709 |
| Synthesis and Crystal Structure Studies on 6-Amino-5,5,7-Tricyano-3,3a,4,5-Tetrahydro-2H-Indene-4-Spirocyclopentane | |
| H.M. Guo, Q. Wu and Y.F. Li | 717 |
| Finite Difference Kinetics Modeling for Galvanized Steels with Post Heat Treatments | |
| L. Kanapa, Y. Boonyongmaneerat and M. Supradist | 723 |
| Diffusion Coefficient of Nickel in Ni₂Al₃ Intermetallic Compound | |
| M. Kkieokae, R. Hanamornroongruang, R. Ramasoot, A. Taechakaesaree, P. Ngamchaliew and L. Tachai | 731 |
| Effect of Cr Plating and Plasma Nitriding on Hardness and Corrosion Resistance of H13 Steel | |
| L. Tanakorn, Y. Boonyongmaneerat and V. Patama | 737 |
| Phase Field Simulations of Dendritic Crystal Growth with Focus on the Computational Efficiency | |
| A.F. Ferreira and J.A. de Castro | 745 |
| Experience of Replacing Basalt Aggregate by Limestone's in Porous Asphalt Concrete | |
| C.H. Zhou, S.H. Liu and Q. Yuan | 749 |
| Ocimum americanum L. Essential Oil Exhibits Antimicrobial Activity Against Oral Bacteria Related to Periodontal Disease | |
| S. Thaweboon and B. Thaweboon | 755 |
| Lamellar Liquid Crystalline Materials Modulated by 1-Ethyl-3-Methylimidazolium Hexafluorophosphate | |
| G.D. Zhang, W.C. Zhuang, J. Tian, C.C. Zhang, L.L. Zhang and X.F. Lin | 760 |
| Development of Effective Technique for Irradiating Samples of Thin Films Using the Focused Ion Beam | |
| A. Kotvitckii, A. Dubinetc, K. Ermaov, E.B. Modin, E.V. Pustovalov and V.S. Plotnikov | 765 |
| Preparation and Characterization of Matrimid-Based Carbon Membrane Supported on Tube for CO₂ Separation | |
| W.N.W. Salleh, N.A.I.M. Isa, N. Sazali and A.F. Ismail | 770 |
| Determination of Nonlinear Refractive Index and Two-Photon Absorption Coefficients of New Nanocomposite Materials Based on Biosilicates Using Z-Scan Method | |
| D. Proshchenko, A. Mayor, O. Bukin, S. Golik, I. Postnova, Y. Shchipunov and Y.N. Kulchin | 776 |
| Effect of the Reduction Temperature on Nickel Phosphide Catalyst Structure and Catalytic Activity for Hydrodesulfurization | |
| H. Song, F.Y. Zhang, Z.S. Jin, H.Y. Wang, Y.J. Zhu and H.L. Song | 782 |
| An Investigation of Fluoride Release from Orthodontic Elastomeric Ligatures | |
| N. Viriyakosol, S. Dechkunakorn, N. Anuwongnukroh, P. Tua-Ngam and W. Wichai | 787 |
| Comparative Study of the Synthesis Condition for Orthodontic Polymethylmethacrylate Powder | |
| P. Roongrujimek, T. Saen-Isara, S. Yodmongkol, S. Dechkunakorn, N. Anuwongnukroh, T. Srikririn and S. Tanodekaew | 792 |
| Effect of Interchanging Liquid Components of Two Auto-Polymerizing Orthodontic Acrylic Resins in their Flexural Properties | |
| T. Saen-Isara, S. Dechkunakorn, N. Anuwongnukroh, T. Srikririn and S. Tanodekaew | 797 |
| The Distinguishing Quality of Water Droplets on Insulating Surface under AC and DC Electric Field Stress | |
| S. Chandavong, K. Tonmitr and A. Kaewrawang | 803 |
| Increasing User Comfort for Public Seating - User Interaction with Materials | |
| V. Gaja | 809 |
| Research on Selective Reduction of Laterite Nickel Ore by CO₂/H₂ Mixed Gas | |
| S. Chen, S.Q. Guo, Y.L. Xu, L. Jiang and W.Z. Ding | 814 |
| Hyperpressed Calcium Sulfate Dihydrate Structure | |
| V. Petropavlovskaya, A.F. Buryanov and T.B. Novichenkova | 820 |
| Investigation of Interaction Effects of Environmental Conditions on Improvement of Zn Heavy Metal Adsorption Mechanism by Na-Nano Bentonite | |
| S. Barakan and G. Karimi | 824 |

| | |
|---|-----|
| On the Structural and Optical Properties of Lead Selenide Nanolayers | |
| A.M. Pashaev, O.I. Davarashvili, M.I. Enukashvili, Z.G. Akhvlediani, L.P. Bychkova and R.G. Gulyaev | 831 |
| On Pretreatment Experimental Study of Yunnan Phosphorus Building Gypsum | |
| S. Han, Z.M. Zhao, Y.H. Cheng, Y.C. Liu and S.C. Quan | 837 |
| Oil Production from Polyethylene Plastics by Thermal Pyrolysis Using a Reflux Condenser | |
| T. Wajima, Z.H. Zar and N. Hideki | 842 |

Chapter 3: Civil and Structural Engineering

| | |
|--|-----|
| Experimental Research of New Tram Track Construction Operating Fatigue Capacity | |
| A. Benin, E.P. Dudkin and I.G. Paraskkevopulo | 849 |
| Bridge Fire Risk Assessment on the Highway in South Korea | |
| C. Jeoung, W.S. Kim, H.B. Gil, I.K. Lee and S.H. Yun | 854 |
| Vertical Anchor Bolt Performance Finite Element Analysis of Modular Road Slab | |
| S.B. Park, W.S. Kim, J.J. Song, S.Y. Lee and C. Jeoung | 858 |
| Finite Element Analysis of Reinforce RC Beams Considering Loading History with Pre-Stressed CFRP Sheets | |
| X.P. Liu and C. Guo | 862 |
| Study of Bridge Piers Lateral Stiffness in Railway Vehicle-Bridge System | |
| J.Y. Yuan, Z.P. Zeng, C. Liu, X.F. He and K.T. Zhu | 868 |
| Buckling Behavior of Catheter Reinforced with Braids under Combined Loading of Axial Compression and Torsion: Effect of Displacement Speed on Buckling Region under Proportional Deformation Path | |
| Y. Kato | 872 |
| New Bolted End-Plate Connection Design | |
| J.W. Hu and J.H. Ahn | 878 |
| The Key Technology Research of the Pushing Closure Process about Jiashao Bridge Based on Geometric Control Method | |
| X.W. Wang, B. Zhu and H.X. Li | 885 |
| Vibration and Load Suppression of Offshore Floating Wind Turbine | |
| E.M. He, Y.Q. Hu, Y. Zhang and G.L. Yin | 891 |
| Model of Two-Link Planar Robot on SimulationX | |
| A. Jomartov | 897 |
| Behavior and Design Recommendations of Splice Connection in Weak-Axis Column-Tree Steel Moment Frames | |
| K.M. Lee, L.Y. Chen, Y. Yang, K.Y. Oh and S.B. Hong | 902 |
| Seismic Performance Evaluation on Cyclic Testing of Weak-Axis Column-Tree Connections | |
| K.M. Lee, Y. Yang, L.Y. Chen, K.Y. Oh and S.B. Hong | 906 |
| Simulation of Interference Characteristics of the Model Supporting Beams with Different Forms of Section in Wind Tunnel Test | |
| X.J. Hu and Y.X. Miao | 910 |
| Aeroelastic Vibration of Super-Tall Buildings | |
| Y.C. Kim and S.W. Yoon | 914 |
| Time History Analysis of Steel Tall Buildings | |
| Y.C. Kim and S.W. Yoon | 918 |
| Coherence of Fluctuating Wind Speed and Along-Wind Force Power Spectrum of Tall Building | |
| Y.C. Kim and S.W. Yoon | 922 |
| Comprehensive Evaluation and Analysis of Water-Inrush Source in Wolonghu Coal Mine | |
| T. Peng, H.C. Zhang, S.H. Shen and Z.Q. Ren | 926 |
| Weight-in-Motion-Based Ambient Truck Characteristic Identification in Highway Bridges | |
| J.W. Seo and J.W. Hu | 930 |
| Reinforced Concrete Deep Beams with Openings Strengthened Using FRP – A Review | |
| S.C. Chin, N. Shafiq, A. Kusiantoro and M.F. Nuruddin | 938 |
| Eigenvector Centrality Measurement Using Patent Information of Wind Power Energy | |
| Y.I. Kwon and D.H. Jeong | 944 |

| | |
|---|------|
| Effect of Loading Frequency on Fatigue Life of Extended Hollobolt in Concrete Filled Hollow Section | 950 |
| N. Abd Rahman and W. Tizani | |
| Numerical Simulation of Galloping for Iced Quad-Bundled Conductor | 955 |
| J.J. Shi, Y.N. Li and L. Qin | |
| Pressure Transient Modeling in Geothermal Reservoir by Using Picard-McLaurin Iteration | 959 |
| A. Singarimbun, Y. Fujimitsu, M. Djamal and R.D. Andajani | |
| The Performance of a Vertical Well Subject to Edge Water Drive | 974 |
| I. Eiroboyi and P.O. Obeta | |
| Analytical Models for Determining Rotational Capacity of Clip-Angle Connections under Seismic Loading | 979 |
| J.W. Hu and H.M. Son | |
| Evaluation of Noise Characteristics of Drainage and Water Supply Systems in Apartment Bathrooms | 987 |
| J.O. Yeon, K.W. Kim, K.S. Yang and B.K. Lee | |
| Study on the Influence of Different Supporting Point Stiffness on External Suspension Tower Crane and Supporting Structure | 991 |
| J.M. Luo, Y. Liu, B. Li and X.W. Sun | |
| Effects of Fibres on Improvement the Cracking in Concrete Slabs | 997 |
| A. Dautaj, N. Kabashi, C. Krasniqi and P. Ahmeti | |
| The Determination of Frost Resistance on Ultra High Performance Concrete | 1005 |
| M. Kostecká and J. Kolísko | |
| Development of Materials Used in Pedestrian Bridges | 1010 |
| P.F. Li and S. Wan | |
| Study on the Influence of Different Strut and Beam's Stiffness on the Horizontal Force of the Tower Crane Supporting Structure | 1014 |
| B. Li, Y.H. Deng and X. Tian | |
| Durability Quality Research of Cement Mortar Containing Solar PV Cells | 1020 |
| S.C. Chen, R. Huang, H.M. Hsu, L.W. Teng and Y.P. Lai | |
| Strength Quality Research of Cement Mortar Blended with Solar PV Cells | 1025 |
| L.W. Teng, R. Huang, H.M. Hsu, A. Cheng, J.R. Chang and P.H. Yu | |
| Insulation Systems and Green Sustainable Construction | 1031 |
| A.D. Zhukov, Y. Bobrova, D. Zelenshchikov, R. Mustafaev and A. Khimich | |
| Soil Grouting as Seismic Liquefaction Countermeasure | 1035 |
| A. Pamuk, P. Gallagher and K. Adalier | |
| Fuzzy Set Approach in the Fatigue Damage Analysis of Composite Structures | 1041 |
| P. Kędziora and A. Muc | |

Chapter 4: Other Related Topics

| | |
|---|------|
| Diversity Measurement of Fuel Cell Field Using Patent Information | 1049 |
| D.H. Jeong and Y.I. Kwon | |
| Modelling and Characterization of Planar Components | 1055 |
| M. Ourabia | |
| Development of Automatic Corner Stone Trimming Working Machine for Boundary Stones | 1062 |
| S.H. Oh | |
| Analysis on the Application of PV Technology in Terms of Traditional Roof House. Case Study: Julang Ngapak Sundanese Traditional Roof Form | 1066 |
| H. Religiana and W. Wiyatara | |
| A Study on the Deduction of Major Construction Wastes in Construction Phase through Environmental Impact Assessment | 1070 |
| R.Y. Kim, S.H. Tae and S.J. Roh | |
| Assessment of GHG Emission Reduction Performance for Certification Criteria of Korea Green Building Scheme (G-SEED) - Focusing on Materials and Resources Category - | 1074 |
| S.J. Roh, S.H. Tae and S.W. Shin | |
| Analysis of CO₂ Emission in the Waste Disposal Process Based on Computation of Construction Waste | 1079 |
| Y.J. Bok, S.H. Tae and R.Y. Kim | |

| | |
|---|------|
| The Origins of Nanotechnology in Latvia | 1083 |
| T. Staube, G. Ciemleja and I. Geipele | |
| Deciding the Recycling Progress of Refrigerator Compressor Based on Naïve Bayes | 1088 |
| X.P. Liu, Y. Cui and L. Gao | |
| Ambient Energy Harvesting for Wireless Sensor Nodes: A Review | 1093 |
| M.H. bin Omar and M.H. Lim | |
| Energy Performance Analysis on the Design Conditions of High-Rise Apartment Houses in South Korea | |
| H.K. Jung, K.H. Yu and Y.S. Jeong | 1099 |
| Fast Transmission Schemes in Substation Automation System | |
| Y.K. Ke | 1103 |
| Monitoring and Fault Identification in Aeronautical Structures Using an ARTMAP-Fuzzy-Wavelet Artificial Neural Network | |
| F. Parra dos Anjos Lima, S. Silva Frutuoso de Souza, F.R. Chavarette, M.L. Martins Lopes, A.E. Turra and V. Lopes Júnior | 1107 |
| Analysis of Structural Integrity of a Building Using an Artificial Neural Network ARTMAP-Fuzzy-Wavelet | |
| F. Parra dos Anjos Lima, S. Silva Frutuoso de Souza, F.R. Chavarette, M.L. Martins Lopes, A.E. Turra and V. Lopes Júnior | 1113 |
| Research on Anti-Windup Controller of Autonomous Navigation Vehicle Based on Improved Adaptive Filter | |
| Y. Zhang, D. Zhao, J. Zhang and Y. Liu | 1119 |
| Experimental Investigation of Thermoelectric Power Generation Using Radiative Heat Exchange | |
| N. Watcharodom, W. Puangsombut, J. Khedari, N. Vatcharasatien and J. Hirunlabh | 1125 |
| Product Data Management Systems as a Tool in Engineering Change Management | |
| M. Huhtala, M. Lohtander and J. Varis | 1134 |
| Modeling Interior Environment of Historical Building and Determination of Critical Places for Application of Nanotextiles Protection | |
| J. Souček and P. Tichá | 1141 |
| Augmented Reality Aided Control of Industrial Robots | |
| J. Novak-Marcincin, M. Janak and L. Novakova-Marcincinova | 1145 |
| Researches on the Chaotic Characteristics of Fluctuating Pressure in Slit-Type Energy Dissipater | |
| B.E. Luo, J.X. Wang and Y.Y. Zhang | 1150 |
| A Study on Proposal of Environmental Assessment Method in Materials and Resource Category of Korea Green Building Certification | |
| Y.R. Gong, S.H. Tae and S.J. Roh | 1160 |
| Control Instability Applied to a Micro Electro Mechanical Actuator System (MEMS) | |
| K.E. de Conde and F.R. Chavarette | 1164 |
| Advanced Methods of Three Dimensional Data Obtaining for Virtual and Augmented Reality | |
| J. Novak-Marcincin and J. Torok | 1168 |