

Table of Contents

Foreword, Message from Chairman of the Organizing Committee, Organizing Committee and Sponsors

Ferroelectric Properties of Polyvinylidenefluoride-Trifluoroethylene (PVDF-TrFE) Annealed Thin Film

M.H. Mohd Wahid, R. Mohd Dahan, S.Z. Sa'ad, A.N. Arshad, M.N. Sarip, M. Rusop, W.C. Gan and W.H. Abd. Majid 1

Interaction between Binder and Powder in Injection Moulding of 316L Stainless Steel

I. Subuki, J. Jai, I. Muhammad Hussain, N. Hassan and M.A. Omar 7

Physical and Mechanical Properties of WC-Co Submicron Powders Using P/M Technique

A.A. Mahaidin, M.A. Selamat, S.A. Manaf and T.R. Jaafar 12

Effects of Ball Milling on the Electrochemical Performance of Li₂FeSiO₄ Cathode

A. Mokhtar, M.I. Ishak and S.M. Hasanaly 16

Physical, Mechanical and Electrical Properties of W-20 wt.% Cu Composite Produced by Liquid Phase Sintering Process

F. Ismail, M.A. Selamat, N. Muhamad, A.B. Sulong and N.A. Majid 21

Optimization of TiAlN Coatings on HSS Inserts by Physical Vapour Deposition Process Using Taguchi Technique

F.S. Mohamed Fadzil, A.M. Samsiah, M.A. Selamat, M. Amin and R.J. Talib 27

Structural and Photoluminescence Properties of Co-Doped ZnO Nanorods Prepared by RF-Magnetron Sputtering

H.S. Al-Salman and M.J. Abdullah 32

Characteristic and Corrosion Studies of Rare Earth (Ree) Based Anodizing on AZ91D Magnesium Alloy

M.A.K. Azadi, M.Z.M. Zamzuri, S.N.M. Badari, M.R.N. Liyana, M. Marina, K. Alir and M.N.B. Derman 38

Characterization of PM Fe-Cr-Y₂O₃ Composites Prepared by Microwave Sintering Technology

M. Marina, M.Z.M. Zamzuri, M.N. Derman, M.A. Selamat, W. Rahman and Z. Nooraizedfiza 43

Effect of Surface Roughness on Mechanical Properties of Aluminium-Carbon Laminates Composites

M. Mohamad, H.F.A. Marzuki, E.A.E. Ubaidillah, M.F.Z. Abidin, S. Omar and I.M. Rozi 51

Benzene and Cyclohexane Separation Using 1-Propanenitrile-3-butylimidazolium Dicyanamide Ionic Liquid

B. Mohamad Azmi, A.H. Muhamad, G. Gonfa and Z. Man 58

Analysis of the Rheological Behavior and Stability of Inconel 718 Powder Injection Molding (PIM) Feedstock

A.N. bin Abdullah, N. binti Johari, M.J. bin Suleiman Ahmad, R. Ibrahim and A.R.A. Talib 63

Effects of Papain Incorporation on the Photo-Transformation Stability of 5-Bromo-8-Methoxy-6-Nitro Bips

M.Z.A. Malik, S.A.A.A. Nazri, M.T. Zainuddin, N.Z.M. Islam, N.M.A.N.A. Aziz and K.M. Isha 73

Investigation of Biomechanical and Biosafety of Injection Moulded Implant Materials

M.A. Omar, N. Abdullah, N. Mohd Zainon, N. Roslani and A.H. Zulkifly 79

Physical and Mechanical Properties of Sintered Titanium Alloy Produced through Metal Injection Molding (MIM) Process for Craniofacial Application

M.J. bin Suleiman Ahmad, A.N. bin Abdullah, R. Ibrahim, M. Mohamad, N.B. Abu Kasim, M.R. Abdul Kadir, S. Muhamad, Y. Itoh, K. Hanada and T. Shimizu 85

Effect of Filler Compositions on the Mechanical Properties of Bamboo Filled Polyester Composite

A.R. Noor Leha and N.A. Nordin 90

Photo Characterization of Spirooxazine and Naphthopyran Organic Dyes upon UV Irradiation

N.Z.I. Mohamed, M.Z.A. Malik, S.A.A.A. Nazri, M.T. Zainuddin, N.M.A. Aziz and M.I. Khairuldin 96

Innovative Metal Injection Molding (MIM) Method for Producing CoCrMo Alloy Metallic Prosthesis for Orthopedic Applications	
N. Abdullah, M.A. Omar, S.B. Jamaludin, N.M. Zainon, N. Roslani, B. Meh, M.N.A. Jalil, M.B.M. Hijazi and A.Z. Omar	102
The Compatibility of TPU and NR Blends	
N.A. Ahad, S.H. Ahmad and N.M. Zain	107
Rapid Debinding of Injection Moulded M2 High Speed Steel Using Palm Stearin/Waste Rubber Binder	
N.A. Wahab, M.A. Omar, R. Sauti, N.A. Nordin and I.N. Ahmad	112
Influence of Isocyanate Structures on Mechanical Performance of Aluminum Bonded with Green Polyurethane Adhesive	
N. Muhammad Zain, S.H. Ahmad, N.A. Ahad and S.A. Ernie	119
Synthesis and Characterization of Magnetic Mesoporous -$\text{FE}_2\text{O}_3/\text{SIO}_2$	
N.S. Shaari, S.M. Ibrahim, F. Md Jamil, Z.A. Zubir, A.M. Abdullah, N.A. Muhammad, W.M.N. Wan Jaafar and M.Z.A. Malik	128
Tribological Properties of 316L Stainless Steel Fabricated via Metal Injection Molding	
N. Mohd Zainon, N. Abdullah, N. Roslani and M.A. Omar	134
The Effect of Sintering Temperature on Physical Properties of Sintered Inconel 718 for Potential Aerospace Industry Application	
N. binti Johari, R. Ibrahim, A.N. bin Abdullah, M.J. bin Suleiman Ahmad and A.R.A. Talib	139
Modification of Thin Film Surface Morphology by Thermal Annealing Process to Enhance Organic Photovoltaic Solar Cell Performance	
N.H. Yusoff, N.I.A. Azes and S. Buniran	144
Solid Supported [hmim][Tf₂N] for CO₂ Adsorption	
S. Md Nurul, M. Azmi Bustam, N.M. Yunus and Z. Man	149
Synthesis of Fe²⁺ Ion Doped ZnS Nanoparticles	
R. Mohd Ibrahim, M. Masturah and H. Abdullah	155
Effect of Solid Loading on the Physical Properties of the Sintered Inconel 718 Using Metal Injection Moulding (MIM)	
R. Ibrahim, A.N. bin Abdullah, M.J. bin Suleiman Ahmad, N. binti Johari, M. Mohamad and A.R.A. Talib	164
The Influence of Sintering Atmosphere for Metal Injection Moulding M2 High Speed Steel	
R. Sauti, N.A. Wahab, M.A. Omar and I.N. Ahmad	169
Structural Properties of PbI₂ Thin Film	
S.I. Mohammed, N.M. Ahmed, Y. Al-Douri and U. Hashim	175
Effect of Heat Treatment Process of Sintered M3/2 High Speed Steel Parts	
S.A. Manaf, M.A. Selamat, T.R. Jaafar and A.A. Mahaidin	180
Synthesis and Surface Modification of Biocompatible Water Soluble Core-Shell Quantum Dots	
S. Abd. Rahman, N. Ariffin, N.A. Yusof, J. Abdullah, Z.A. Zubir, N.M.A. Nik Abdul Aziz, N.E. Azmi, H. Sidek and N.I. Ramli	184
Estimation of Burst Pressure of Corroded Pipeline Using Finite Element Analysis (FEA)	
S. Karuppanan, A.A. Wahab, S. Patil and M.A. Zahari	191
Structural Behavior of Ni-Doped TiO₂ Nanoparticles and its Photovoltaic Performance on Dye-Sensitized Solar Cell (DSSC)	
S.N.F. Zainudin, M. Masturah and H. Abdullah	199
Magnetic Properties of Irradiated Nickel Ferrite Thermoplastic Natural Rubber Nanocomposite	
S. Appadu, S.H. Ahmad, C.T. Ratnam, M.Y. Razali, M.H. Flaifel and L.J. Yu	206
Mechanical Properties and Microstructures of WC-Co Cutting Tool Inserts with Addition of VC	
R.J. Talib, A.A. Mahaidin, S.A. Manaf and M.A. Selamat	213
Optimization of Sintering Temperature on Microwave Sintering of the Composite Iron-Chromium Reinforced with Alumina Particles	
W. Rahman, S.B. Jamaludin and M. Mohd Noor	218
Blending of Polyvulcanize Natural Rubber	
W.M.F.W.M. Ridzwan, D. Kamarun, A. Samsuri, A.F. Mohd and C.M.S. Said	224
Recovery of 1-Butyl-3-Methylimidazolium-Based Ionic Liquids	
N.F. Idaham, B. Mohamad Azmi, C.F. Kait and Z. Man	230

Bending Strength of Glulam from Selected Malaysian Hardwood Timber

W.H. Wan Mohamad, Z. Ahmad and A. Abd. Jalil

237

Effect of Feedstock Preparation and Forming Temperature to the Characteristics of Green Compacts

M.M. Rahman and A.M. Nor

245