

Key Engineering Materials: Theoretical and Experimental Research

Selected peer-reviewed extended articles
based on abstracts presented at the
International Conference on Key Engineering
Materials (ICKEM 2022)

Aggregated Book

Edited by

Prof. Alexander M. Korsunsky

 *Scientific.Net*

Copyright © 2022 Trans Tech Publications Ltd, Switzerland

All rights reserved. No part of the contents of this publication may be reproduced or transmitted in any form or by any means without the written permission of the publisher.

Trans Tech Publications Ltd
Seestrasse 24c
CH-8806 Baech
Switzerland
<https://www.scientific.net>

Volume 30 of
Scientific Books Collection
ISBN 978-3-0357-1735-8

Full text available online at <https://www.scientific.net>

Distributed worldwide by
Trans Tech Publications Ltd
Seestrasse 24c
CH-8806 Baech
Switzerland
Phone: +41 (44) 922 10 22
e-mail: sales@scientific.net

Printed with permission by
Curran Associates Inc. (2023)

CURRAN ASSOCIATES INC.
proceedings
.com

Additional copies of this
publication are available from:

Web: www.proceedings.com/68418.html

Table of Contents

Preface	v
Committees	vi
Chapter 1: Polymers and Composites	
Mechanical Properties and Morphological Analysis of High-Density Polyethylene/Poly(Ethylene Glycol) Methacrylate/Rice Husk Composite	
A.S.E. Arenas, C.M. Escutin and P.A.N. de Yro.....	3
Preparation of Calcium Stearate-Coated Kapok Fibers for Oil Sorption	
A.L.M. Blaquera, M.U. Herrera, R.D. Manalo, M.C. Maguyon-Detras, C.C. Futralan and M.D.L. Balela.....	9
Influence of Seawater Treatment Duration on Physico-Mechanical Properties of Banana Trunk Lignocellulosic Fibers	
O. Akatwijuka, A. Abdel-Mawgood, M.A.H. Gepreel, M. Yamamoto and A.H. Hassanin	16
Ballistic Testing Simulation of Ultra-High Strength Steel Water Layer Sandwich Structure	
I. Ebo-Quansah, A.H. Hassanin, T. Adachi and M.A. Hassan	22
Chapter 2: Materials and Technologies for Environmental Engineering	
Elimination of Hg (II) in Water by Adsorption through Banana	
G. Espinosa-Garza, I.L. Hernández and E.J.E. Vázquez	31
Synthesis of Poly(O-Anisidine)-Coated Kapok Fibers for Removal of Methylene Blue Dye	
R.J. Bayer Jr., C.L.E. Aquino and M.D.L. Balela.....	42
Solvothermal Prepared Slag Nanocomposite as a Catalyst for Organic Dye Photodegradation	
K. Safo, H. Noby, M. Matatoshi, H. Naragino and A.H. El-Shazly	50
Mercury Bio Adsorption (Hg) in Aqueous Solution through Mexican Coast's Pelagic Sargassum	
G. Espinosa-Garza, I.L. Hernández and M.G.M. Treviño.....	56
Chapter 3: Materials and Technologies for Biomedical Application	
Design and Characterization of New Ti-Zr-Nb-(Mn) Medium Entropy Alloys for Biomedical Applications	
N.M. Eldabah, S. Kobayashi and M.A.H. Gepreel.....	65
Influence of Mo Content on the Microstructure and Mechanical Properties of Ti6AlxMo Alloy	
J. Gupta, S. Aravindan and S. Ghosh.....	71

Physical Assessment of Polyvinyl Alcohol/Polyethylene Oxide Blend Film with Antioxidant or Antibacterial Composite Toward Wound Dressing Application Y.T. Lam, R.H. Al-Ashwal and M.H. bin Sani	76
Potential of Biodegradable Magnesium Alloys for Medical Applications P.H. Quan, V. Manescu Paltanea, G. Paltanea, I. Antoniac and I.V. Nemoianu.....	83
Defect Characterization in Gel Phantom Using Ac Impedance Spectroscopy A.L.C. Jusi, A.K.G. Tapia, J.L. Reyes, R.A. Lebosada, V.J.L. Belizario and J.P.A. Ramoso	90
Preparation of Crosslinked Alginate-Cellulose Derivative Microparticles for Protein Delivery R. Guerrero, P.W.S. Heng and T.P. Tumolva.....	96
Reduced Glutathione Antioxidant Stability in Polymer Solutions Toward Wound Bioactive Dressing Application Y.T. Lam, R.H. Al-Ashwal, M.H. bin Sani and S.M. Al-Hazmy.....	103
Effect of pH on Hydroxyapatite Formation in Amino Acid Capped Gold Nanoparticles Y.W. Sari, A. Tsalsabila, B. Mahardi and Y. Herbani.....	109
 Chapter 4: Materials for Photovoltaics, Electronics and Electrical Engineering	
AAO Mould for Fabricating Anti-Reflective Polymer Nanopillar Array on Large Area A. Sharma, S. Aravindan and P. Venkateswara Rao	119
Long Term Thermal Performance of Palm Oil and Nano Graphene Filler in Nanofluids Application on Transformer Insulating Oil and Electrical Breakdown Voltage K. Wajanasoonthon and A. Suksri.....	125
Graphene Nanoplatelets Effect on Electrical Tree Inhibition in Epoxy Resin Insulator P. Khaibuth and A. Suksri.....	132
Low Temperature Synthesis of Fluorescent Carbon Dots from Pomegranate Peels P. Anagbonu, A. Allam and M. Ghali.....	139
 Chapter 5: Computational Materials Science	
Titanium-Decorated Planar Aluminene for Hydrogen Storage Using Density Functional Theory G.R. Pedrosa, A.R. Villagracia, F. Emralino and H.L. Ong	149
Finite Element Formulation and Simulation of Gamma Ray Attenuation of Single and Multilayer Materials Using Lead, Tungsten and EPDM J.K. Boahen, S.A.E. Mohamed, A.S.G. Khalil and M.A. Hassan	156
Analysis and Optimization of the Properties of High-Strength Austenitic Steels by Approximation of a Primary Database N.T. Tontchev, E.H. Yankov, V. Gaydarov and N. Hristov.....	164
Wax Appearance Temperature Prediction with Wax Inhibitor of Crude Oil from the North of Thailand K. Maneeintr, C. Kanokkaew and N. Prasongporn.....	171

Chapter 6: Defects Testing and Structural Integrity Assessment

High-Accuracy Detection and Classification of Defect and Deformation of Metal Screw Head Achieved by Convolutional Neural Networks

J.Y. Lai, Y.R. Tsao and C.Y. Liu..... 179

Qualitative to Quantitative Non-Destructive Evaluation: A Concept for D-Sight Inspections of Aircraft Structures

A. Katunin and K. Dragan 185

Keyword Index 191

Author Index 193