

4th International Conference on Materials Research and Innovation

IOP Conference Series: Materials Science and Engineering
Volume 1280

Bangkok, Thailand
15-16 December 2022

Editors:

**Wirasak Smittipong
Saree Phongphanphanee
Jirasak Wong-ekkabut**

ISBN: 978-1-7138-7280-1
ISSN: 1757-8981

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence.
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2023)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Preface	
Peer Review Statement	
Antibacterial Coating of Corona Treated Poly(lactic Acid) / Poly(butylene Succinate) Film with Chitosan and Zinc Oxide Nanoparticle.....	1
<i>N Hongsriphan, J Nualyung, N Yaothaisong, P Patanathabutr</i>	
Application of the Reference Interaction Site Model Self-Consistent Field Method Based on the Dirac-Hartree-Fock Wave Function to a Chemical Reaction.....	6
<i>K Kanemaru, Y Watanabe, N Yoshida, H Nakano</i>	
Development of Bio-Based Polybenzoxazine Composite Post : Effect of Glass Fiber Content on Mechanical Properties and Fracture Behaviors	10
<i>P Mora, C Nunwong, S Rimdusit, U Srisorachat, S Jampa-ngern, C Jubsilp</i>	
Optimization of Microwave-Assisted Biodiesel Production Using Iron (III) Oxide - Calcium Oxide / Activated Charcoal Derived from Waste Asian Green Mussel Shell as Heterogeneous Catalyst.....	15
<i>V Loryuenyong, S Kaewmanee, S Rattanawaraporn, N Chimpenapanon, A Buasri</i>	
Effects of Lignocellulose Contents in Bamboo Charcoal on Mechanical and Thermal Properties of Polybenzoxazine-Based Friction Materials	19
<i>N Jantapanya, C Jubsilp, P Mora, S Kaewluan, S Srisorachat, S Rimdusit</i>	
Transparent Flexible Fluorescent Films Based on Natural Rubber Composited with Quantum Dots for Traffic Equipment.....	24
<i>O Suntijitrungruang, W Pon-On, S Boonchui</i>	
Synthesis and Characterization of Calcium Carbonate/Carbon from Water Lettuce Via Hydrothermal Carbonization Process	28
<i>N Chaiammart, M M Thu, N Srisuk, N Mueanpun, G Panomsuwan</i>	
Bacterial Cellulose: An Eco-Friendly Low Cost Biomaterial for Dye Removal	33
<i>S Sukphan, P Buapho, N Laingaumnuay, P Jaturapiree</i>	
Production of Dextran by Lactobacillus Fermentum OR1 Isolated from Pickle Mango Juice.....	38
<i>N Karnthanachotikul, P Jaturapiree</i>	
Preparation and Characterization of Novel Membrane from Waste Polyethylene Terephthalate and Bio-Based Polymer.....	42
<i>L Jareonsri, S Nawalertpanya, W Jantaporn</i>	
Theoretical Analysis of High-Harmonic Generation in Silicon Nanotubes.....	47
<i>C Summueang, O Suntijitrungruang, S Boonchui</i>	
Synthesis of Self-Organic Assembly Monolayers to Improve the Stability of Perovskite Films	51
<i>P Phonglumjiakngam, N Pootrakulchote</i>	
Biosynthesis of Silver Nanoparticles Using Extract of Banana Peel Waste Assisted by Microwave Irradiation	56
<i>T Phoemthaisong, B Ksapabutr, N Chaiyut, M Panapoy</i>	

Dry Electropolishing of Laser Powder Bed Fusion Manufactured Cobalt-Chrome	61
<i>T Rautio, M Jaskari, J Päkkilä, A Järvenpää</i>	
Preparation and Properties of Carboxymethyl Cellulose / β -Cyclodextrin Hydrogel.....	65
<i>N Panyakaew, C Thongpin, S Hemsri</i>	
Microwave-Assisted Green Synthesis of Silver Nanoparticles Using Extract of Mint Leaves	70
<i>A Thanasakonpong, B Ksapabutr, M Panapoy</i>	
Effects of Fiber Surface Modification on Mechanical Properties of Short Pineapple Leaf Fiber-Carbon Black Reinforced Natural Rubber Hybrid Composites.....	75
<i>S Thaiwattananon, S Thanawan, T Amornsakchai</i>	
Mechanical Properties of the Laser Powder Deposition and Laser Powder Bed Fusion Printed 316L	80
<i>M Hietala, T Rautio, J Mäkikangas, A Järvenpää</i>	
Fabrication and Properties of Gelatin/Dialdehyde Chitosan Films	84
<i>S Hemsri, N Junwattarunggu, W Rueangsawang, S Aramsrithum</i>	
Effect of Blowing Agents on Properties of Cellular Rubber of Natural Rubber / Chloroprene Blends.....	89
<i>C Thongpin, L Angsupanich</i>	
Development of Natural Rubber Foam by In-House Talalay Method.....	94
<i>H Klommueang, W Smitthipong</i>	
Incorporation of Rubber Waste to Fiber Cement Composite: Comparative Study of Rubber Tire Waste and Rubber Band Waste	99
<i>S Kajon, K Hancharoen, P Kamhangrittirong, P Suwanna</i>	
Artificial Neural Network Model for Predicting the Energy Loss of Natural Rubber Foam.....	104
<i>P Kaewpradit, N Uthaipan, C Dechwayukul</i>	
The Study of Electrical Resistance of Silver Nanowires in Isopropanol for Heater Application	109
<i>R Jaisutti, N Indrarit, K Pattanarat, T Khamla, N Petchsang</i>	

Author Index