

Indian Journal of Engineering & Materials Sciences

<http://www.niscpr.res.in>; <http://nopr.niscpr.res.in>; Impact Factor: 0.615 (JCR 2021)

VOLUME 30

NUMBER 2

APRIL 2023

CODEN : IEMSEW 30(2) 189-356

ISSN : 0971-4588 (Print); 0975-1017 (Online)

CONTENTS

Review Articles

- Effect of Elevated Temperature on Diverse Properties of Concrete Containing Waste Materials 195
Sudipta Ghosh, Amiya K Samanta, & Ashok K Sahani
- A Study on Microstructural Behaviour and Mechanical Properties of Composites Fabricated by Friction Stir Processing 212
Smriti Mishra, Jatinder Kumar, & Hari Singh
- Development and Performance Investigation of Solar Concrete Collector at Different Climatic Conditions 226
Pratik M Waghmare, & Shrishail B Sollapur
- Parametric Study of Earth-Air Heat Exchanger Based on Physical Experimentation 232
Vaishali Goyal, Arun Kumar Asati, Rajeev Kumar Garg, & Amit Arora

Research Articles

- Enzymatic Synthesis of Castor Oil Hexyl Ester in Liquid Carbon Dioxide Medium and its Potential Application as Biolubricant 240
Chandu S Madankar, Subhalaxmi Pradhan, Narendra Kumar Sahoo, & S N Naik
- Microwave-Based Transesterification of Waste Cooking Oil using Waste Aluminium Foil (NaOH/ γ -Al₂O₃) as Catalyst 249
Naveen Kumar Garg, & Amit Pala
- Lepidium Didymium Plant Extract as Eco-Friendly Corrosion Inhibitor for Steel in Acidic Medium 256
Jasdeep Kaur, Akhil Saxena, V Phaninder Reddy, Dan Sathiaraj, Manoj Agrawal, & Kuldeep K Saxena
- Tensile and Fracture Toughness Behavior of Centrifugally Cast Al/Al₂O₃ Functionally Graded Materials 265
Bhupendra Kumar, Amit Joshi, Krishan Kant Singh Mer, Lalta Prasad, & Indradeep Kumar
- Analysis of Rotating Detonation Wave Engine 274
Ramanujachari V, & Amrutha Preethi P
- Effect of Porosity on Hydromagnetic Boundary Layer Flow with Forced Convective Heat Transfer 283
K Sharma, R Goyal, VK Joshi, SB Bhardwaj, RM Singh, & OD Makinde
- Polyvinyl Alcohol Composite Films Reinforced with Taro (Colocasia esculenta) Stem Fiber: Thermal, Mechanical and Biodegradation Studies 290
Kapil Gulati, Rachna, Seema Rani, Mahesh Kumar, Geetanjali Jagdeva, Suresh Kumar, Sohan Lal, & Sanjiv Arora
- Graphene Oxide-Silver Nanocomposite Induced Apoptosis in Human Hepatoma (HepG2) Cells Through Oxidative Stress and Caspase Dependent Signalling Pathway 298
Neelima Sharma, Surajit Mondal, Hari Om Yadav, & Rishi Sharma
- Experimental Investigation on the Synthesis of Al₅₀86-GRN- η SiC Hybrid Surface Composite using Additive Powder Fed Friction Stir Processing 305
Gagandeep Singh Raheja, Chander Prakash, & Shankar Sehgal
- Design, Fabrication and Performance Tests of a Double-sided Sheet Hydroforming Test System 314
Mustafa Kemal URMAMEN, Gürkan ATAŞ, Murat DİLMEÇ, Mevlüt TÜRKÖZ, Osman ÖZTÜRK, & Hüseyin Selçuk HALKACI

- Mechanical, Physical, Morphology and Properties of Multi-Functional Natural fiber and nano SiO₂ Reinforced Epoxy Hybrid Composite** 323
Roopesh Kumar, Abhijeet Ganguly, Rajesh Purohit, & Naveen Krishna Alla
- Tensile Behaviour of Natural Polymer Composite Materials at Ambient and Elevated Temperatures** 331
Phani Prasanthi. P, N Raghu Ram, V V Venu Madhav, Manoj Kumar Agrawal, Prasanta Kumar Mohanta, Kuldeep K Saxena, Ch Sri Chaitanya, Karrarhazim Salem, & Barno Sgyfutdinovna Abdullaeva
- An Energy-Efficient Routing Model for Scale-free Wireless Sensor Networks** 338
Pearl Antil, & Amita Malik
- Effect of Interfaceon Elastic Properties for Hybrid Smart Nanocomposites using Micromechanics based Mori Tanaka Technique** 346
S S Godara, P K Mahato, Indradeep Kumar, & Mukul Shukla