

Fourth International Conference on Materials Science and Manufacturing Technology (ICMSMT 2022)

IOP Conference Series: Materials Science and Engineering
Volume 1258

Online
8 – 9 April 2022

ISBN: 978-1-7138-6421-9
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

Effect of Annealing Temperature on Supercapacitive Behaviour of Manganese Dioxide (MnO ₂) Thin-Film Prepared by Electrodeposition Technique and Characterization	1
<i>Priti N Jadhav, K V Sukhatankar</i>	
Effect of ZnO on Structural, Physical and Optical Properties of Heavy Metal Oxides Doped Tellurite Glasses	13
<i>R.P. Kumbhakar, Ghizal F. Ansari, S. K. Dhiman, Afroz A. Khan</i>	
Superconducting Properties of Ta Substituted (Tl _{1-X} Tax)(BaSr)CaCu ₂ O ₇	22
<i>A. B. P. Ilhamsyah, R. Abd-Shukor, Hafizal Yazid, Syahrul Humaidi, A. N. Jannah</i>	
Equilibrium Molecular Dynamics Simulation for Investigation on the Enhancement of Thermal Conductivity in Ethylene Glycol-Based ZnO Nanofluid	31
<i>Shubhankar Sarkar, Nanda Kumar Ghosh</i>	
Effect of Next to Next-Nearest-Neighbor (NNNN) Hopping Interaction in Mixed Valence Systems and Study of the Thermodynamic Properties	35
<i>Piyali Ghosh, Nanda Kumar Ghosh</i>	
Single Step Electrosynthesis of Co-Ferrite Thin Films from Alkaline Non-Aqueous Bath	40
<i>M R Kale</i>	
Structural and Electrical Properties of Bismuth Sodium Titanate Ceramic	49
<i>B L Kuanar, H S Mohanty, B Dalai, D Behera</i>	
Preparation and Study the Structural Properties for Compound Tl _{0.9} Hg _{0.1} Sr ₂ Ca ₂ Cu ₃ O _{8+δ} Using the Modified Scherer Equation.....	57
<i>Firas Kadhim Nsaif, Jaafar Sadeq Mohammed, Intehaa Ahmed Mohammed, Kareem Ali Jasim</i>	
Synthesis and Characterization of Thermally Treated Co _{1-X} Fe _{2+x} O ₄ (x = 0.0 –0.8) Spinel Nano Ferrite	64
<i>C Parmar, R Verma, S S Modak, F Mazaleyrat, S N Kane</i>	
Template Assisted Green Synthesis of Nickel Oxide Nanoparticles for Photocatalytic Applications	73
<i>OK Nimisha, A P Reena Mary, Rajita Ramanarayanan</i>	
Synthesis, Structural and Optical Properties of Colloidal 2D Organometal Halide (C ₁₂ H _{25-NH₃}) ₂ PbI ₄ Nanoparticles	80
<i>Kshetra Mohan Dehury, G. Vijaya Prakash</i>	
Structural, Morphological and Optical Attributes of ZnO Thin Films Deposited Via Spray Pyrolysis Process: Impact of Molarity Variation	83
<i>S V Nikam, B T Jadhav, S M Chivate, S M Nikam, S H Mujawar, A P Torane</i>	
Effect of Diethylenetriamine on Mechanical and Electrical Properties of Epoxidized Natural Rubber Thin Films.....	91
<i>K Phatcharasit, T Sittiruk</i>	

Noble Metal Nanoparticles Dispersed on Nanocellulose: A Green Platform for Catalytic Organic Transformations.....	97
<i>Roya Thach-Nguyen, Trung Dang-Bao</i>	
Recent Development in Electron Transport Layers for Efficient Tin-Based Perovskite Solar Cells.....	106
<i>R Rani, K Monga, S Chaudhary</i>	
Synthesis Characterization and Luminescence Properties of B ₂ BiMg ₂ V ₃ O ₁₂ Based Phosphors with Rare Earth Activated Dy ³⁺ Phosphor for Solid State Lighting.....	118
<i>S P Tatte, N S Dhoble, G C Mishra, S J Dhoble</i>	
A Review on Barrier Properties of Nanocellulose and Polylactic Acid Composites	126
<i>S U Parvathy, S Hema, Malavika Sajith, Rashid Sultan, C Sreelekshmi, Sreedha Sambhudevan, Balakrishnan Shankar</i>	
A Framework Towards Realization of Smart Manufacturing Systems.....	138
<i>Sachin Karadgi</i>	
Telescopic Handlers: Applications, Challenges and Scope	149
<i>Ayush Verma</i>	
Modelling of Surface Roughness Effect on the Dry Turning of Duplex Stainless Steels.....	156
<i>Naresh Deshpande, Hari Vasudevan</i>	
Numerical Investigation on Vortex-Induced Vibration Over Circular Cylinder to Be Used for Energy Harvesting Application.....	164
<i>Sonawane Chandrakant, Naina Chowdhury, Mehul Rajhans, Movva Sai Chaitanya, Eshan Sarkar, Atul Kulkarni, Anand Pandey</i>	
Optimization and S-N Life Cycle Analysis of Helical Gear with Nickel Alloy MP35N.....	174
<i>Amit D Modi, K R Gawande</i>	
Machinability Studies on Hybrid Aluminum Metal Matrix Composites	186
<i>D Shrinivasa, G V Naveen Prakash</i>	
A Review on Biodiesel Production from Various Feedstocks by Transesterification.....	190
<i>Sridevi Veluru, Husam Talib Hamzah, Bai M Tukaram, Venkata Rao Poiba, Husam Salah Mahdi</i>	
A State of Art Review on Grass Fibre Reinforced Polymer Composite	212
<i>Hrithik Kumar, Debangshu Jaiswal, Hemalata Jena</i>	
Effect of Additional Heating on Corrosion of Dissimilar Friction Stir Welded Aluminum Alloys	220
<i>M Raturi, A Bhattacharya</i>	
Manufacturing Process Planning in Aerospace Systems	228
<i>N Subramanya, A R Satheesh Kumar, Vikas Yadav, R K Venkatesh</i>	
Review on Corrosion Studies of Heat Treated Al-Si Alloy	238
<i>M N Sanath, C L Nihal, Prabhulaling, P M Shivaprasad, H.V Puneeth, M K Srinath</i>	
Predicting Melt-Crystal Interface Position and Shape During the Manufacturing Process of Single Crystal Via Explainable Machine Learning Models	249
<i>Chang Zhang, Qisen Cheng</i>	

Experimental Study and Analysis on Single Slope Single Basin Solar Still with Zeolite Crystals as Storage Materials.....	261
<i>K. Senthil Kumar, A.S. Manirathnam, L. Anish, A. Ajay, S. Jaseem Ahmed, B. Kaleeswaran</i>	
Optomechanical Design and Analysis of Lens Assembly for Space Application	272
<i>M V Shah, A V Patel</i>	
Investigation of Surface Roughness in Multi Point Incremental Sheet Metal Forming	286
<i>M Shafeek, Narayanan Namboothiri VN, C Raju</i>	
A Review on Classification of Trains for Evaluate the Railway Network Capacity of Various Speed Trains.....	294
<i>Manoj Mittal, Anand Kishore Chaturvedi</i>	
Machining of High Temperature Heat Resistant Super Alloys- A Concise Review on Cooling Aspects	304
<i>Ramai Ranjan Panigrahi, Ramanuj Kumar, Ashok Kumar Sahoo, Amlana Panda</i>	
Corrosion Inhibition in Magnesium by Using Green Inhibitor	312
<i>D. Jones Joseph Jebaraj, N. Rajesh Jesudoss Hynes, Navin K Basanth</i>	
Selection of Aircraft Materials and Aircraft Air Conditioning Technologies: A Review.....	320
<i>Shankar Durgam, Sweety Rajesh Deshmukh, Preetam Selmokar</i>	
Modeling and Simulation of SI Engine Muffler for Prediction of Backpressure by Optimizing Porosity and Muffler Diameter.....	330
<i>Shankar Durgam, Snehal Thanekar, Sayali Hajare, Saharsha Bartakke, Chaitra Shet</i>	
Investigations on Fracture Characteristics of Aluminium 6082-T6 Alloy by Using Single Edge Notch Bending.....	340
<i>M S Tippeswamy, K V Arun, Shankar Naik</i>	
Study of Distribution of Magnetic Field Strength in Magnetorheological Elastomers Using Artificial Neural Network.....	348
<i>Manjeet Keshav, C Sujatha</i>	
Design of Hydraulic Biomass Briquette Machine	356
<i>Hetav Kinkhabwala, V M Bhojawala, Saumil Desai, D V Patel</i>	
Review on Li-Ion Based Battery Chemistry: Challenges and Opportunities	364
<i>A Daya, S Paul Sathiyan</i>	
Study on Performance of Ramjet Intake by Changing the Cowl Angle	374
<i>Reuben VR Levi, Amrutha Rajamani</i>	
Effect of Zn, Mg and Heat Treatment on Al Base Alloy on Hardness Using Taguchi Technique	383
<i>H. M. Pruthvi, H. Ghanashyam Shenoy</i>	
Composite Blades for Lower Extremity Amputees	390
<i>Viswanath Srinivasan, Praveen Kumar Govarthan, S Om Prakash, Dhanalakshmi Munirathinam</i>	
A Comprehensive Review on the Current Trends in Micro-Phasor Measurement Units	408
<i>Adhitya Ravi, Madhusudan Saranathan, Pa Hari Krishna Achuthan, M.C. Lavanya, V. Rajini</i>	

Analog Performance Analysis of a Novel 5nm Stacked Oxide Top Bottom Gated Junctionless FinFET	422
<i>L Gangwani, S Hajela</i>	
Design of Digital Meters for Industries Using Data Acquisition System	430
<i>J S Nancy Mary, A P Abishek Raj, A Inba Rexy, S Sathya Bharathy</i>	
CLCLP: Overlapping Community Detection in Networks Using a Combination of Link Community and Label Propagation Algorithm.....	440
<i>R Jayaprakash</i>	
Confiner Based Video Captioning Model.....	449
<i>J Vaishnavi, V Narmatha</i>	
PV Powered Neural Network Based SEPIC Converter Fed BLDC for Consumer Application	458
<i>C. Infant Vinoth, C.S. Ravichandran</i>	
Smart Helmet to Start the Motorbike and to Prevent Accidents	465
<i>J Joy Mathavan, V K D Wijesekara, N Satheeskanth, W M U J Wanasinghe, M Maathushan, V Wijenayake</i>	
A Review on Electrical Transport Properties of Thin Film Schottky Diode.....	475
<i>S D Dhruv, D K Dhruv</i>	
Bending Assessment and On-Body Investigation of a Textile Antenna for Body-Centric Wireless Communication Applications	483
<i>D Ram Sandeep, Habibulla Khan, B T P Madhav, M Gayathri, A Kalyana Priyatham, M Nikhilvarma, S Chandra Sekhar Kumar, S Salma</i>	
Hybrid Multi-Level Source Inverter Design and Validation in Solar Photo-Voltaic Renewable Energy System.....	491
<i>P Thirumalini, M Murali, R Arulmozhiyal</i>	
Accurate and High Speed Garbage Detection and Collection Technique Using Neural Network and Machine Learning.....	500
<i>S M Usha, H B Mahesh</i>	
An Overview of Load Frequency Control for Grid Using Various Control Techniques.....	510
<i>J C Vinitha, P Usha Rani</i>	
Dual Threshold Voltage Pseudo Domino Logic - Based Buffer with Reduced Power	522
<i>K A Verma, M Kumar, M Deo</i>	
Design and Implementation of Bridgeless AC/DC PFC Sepic Converter with Valley-Fill Circuit	528
<i>B Lakshmi Praba, R Seyezhai</i>	
Tversky Similarity Based Deep Neural Learning Classification for Engineering Alloys.....	541
<i>P M Siva Raja, S Vidhya, R.P. Sumithra, K Ramanan</i>	
Electronic Transport Properties of Atomic Wires on Monolayers	551
<i>K S Yadav, A K Srivastava, N Behera, B S Bhadoria, S Saxena</i>	
Electricity Consumption Forecasting System Using Deep Learning.....	557
<i>R. Sujatha, Gowtham Sukumar, V. Rajesh, R. Sathish Kumar, Judeson David</i>	
IoT Based Guided Fire Fighting Vehicle	563
<i>A R M Raafeek, N Satheeskanth, J Joy Mathavan, A Kunaraj</i>	

Survey and Analysis Long Term Deflection of Cantilever Bridge in Vietnam.....	575
<i>Duy Tien Nguyen, Xuan Tung Nguyen, Van Minh Ngo</i>	
A Critical Review on the Application of Coal Bottom Ash Inconcrete: An Indian Prospective	582
<i>P. Kiruthiga, Niragi dave, Ramesh Guduru</i>	
Effect of Outrigger-Belt Truss System on the Storey Drift and Maximum Displacement of High-Rise Building.....	599
<i>G Venkatraman, V Vanathi, S Veeraraghavan, K Sornamugi</i>	
Seashells to Lime: Swotting of a Vernacular Method and Needs for Revival	608
<i>Haritha B Nair, Binumol Tom</i>	
Modelling Approach to Develop a Multimodal Transportation Network	617
<i>K. Aravinthan, D. Deepak, Chethan, Borudregowda</i>	
A Review on Relative Linear and Nonlinear Strains Performances of Laminated Composite Shell Roofs	628
<i>Arpita Saxena, Kaustav Bakshi</i>	

Author Index