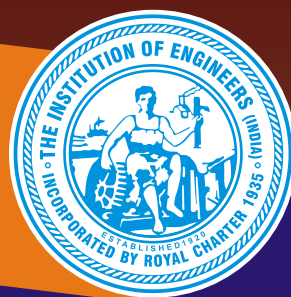


IEI EPITOME



Volume 9 | Issue 11 | November 2024

A Century of Service to the Nation

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Notification for IEI R&D Grant-in-Aid

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To promote appropriate technology, assist in building up design & research talents and, most importantly, to help in nurturing potential R&D venture amongst engineering students pursuing Diploma/UG/PG/PhD courses. The Institution of Engineers (India) had instituted the R&D Grant-in-Aid program way back in 2001.

Every year, the Institution invites applications for funding industry-oriented R&D projects and research initiatives aimed at improving the life-style of common people from engineering students pursuing full time Diploma/UG/PG/PhD engineering program in AICTE/UGC/NAAC approved Institutions / Colleges / Universities. The application form and guidelines are available in our website <https://www.ieindia.org>. The projects should be carried out under the guidance of faculty members who are Corporate Members of IEI. Membership criteria for student(s), guide(s) and institution(s) are as follows:

Project Category	Student/Applicant Membership	Guide(s) Membership	Institutional Membership
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2. UG (BE/BTech/ Equivalent)	'Student Member' (SMIE)	AMIE/MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank
3. PG (ME/MTech/ Equivalent)	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank
4. PhD	AMIE/MIE/FIE	MIE/FIE	Applicant's Institute should preferably be an Institutional Member with NBA/NAAC Accreditation or valid NIRF Rank

The soft copy of the duly filled-up applications (in editable format), as per the proforma available on our website www.ieindia.org, should be sent through email to research@ieindia.org and one printed copy of the same should reach the following address:

The Deputy Director (Technical)

The Institution of Engineers (India)
8 Gokhale Road, Kolkata 700 020

Kindly go through the guidelines (visit link: <https://www.ieindia.org/webui/IEI-Activities.aspx#RnD-Initiative>) before filling up the application.



Dr Visvanathan Rangaraju, FIE

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Department of Food and Agricultural Process Engineering, Agricultural Engineering College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu

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Title of Paper: Effect of Fermentation Methods and Turning Interval on the Quality of Cocoa Beans (*Theobroma cacao*)

Agricultural Research, Springer, 13, 2024, pp 586–598, Electronic ISSN: 2249-7218, Print ISSN: 2249-720X

DOI: <https://doi.org/10.1007/s40003-024-00715-9>

Co-author : R Arulmari

Abstract: Cocoa (*Theobroma cacao* L.) is the main ingredient in the manufacture of chocolates and confectionery undergoes different unit operations, viz. fermentation, drying and roasting for a quality product. Fermentation followed by drying is an important farm level processing of cocoa. Fermentation studies were conducted by holding the cocoa beans (mixed F1 progeny varieties) in the bamboo basket, heaping on the floor and wooden box, and allowed to ferment for 6 days. During fermentation, the fermenting mass was manually turned at 12, 24 and 48h interval with a control. During the fermentation, pH of the pulp and beans, quantity of sweat collected temperature of the fermenting mass, moisture content of the mass and microbial population were determined following the standard procedures. After fermentation, the beans were dried by sun-drying, and the physical and biochemical qualities of dried cocoa beans, viz. bean count, number of beans per 100 g, bean texture, cut test, pH, titratable acidity and free fatty acid were determined. The method of fermentation and tuning intervals were non-significant on pH of pulp, moisture content, sweat produced, microbial population and free fatty acid. The method of fermentation and tuning intervals were significant on temperature profile, bean count, cut test and pH of bean. The microbial population varied with fermentation duration in all fermentation methods. In heap method with 48-h turning interval, pH, temperature and hardness (texture) were found higher than other fermentation methods. The per cent brown beans, considered as healthy beans, were at par with the turning interval and significant with the method of fermentation and were higher under the heap method at 12 and 24 h of turning intervals. Turning at 12h interval in heap method resulted in less acidic nature (titratable acidity) and desirable quality attributes, which is considered as optimum.

Keywords: pH; Brown Beans; Cut Test; Bean Texture; Bean Count; Titratable Acidity

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Deputy Director (Membership)

The Institution of Engineers (India)

8 Gokhale Road, Kolkata 700020

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Publication by Members

Volume 9 | Issue 11 | November 2024



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Title of Paper: **Micro and Nano-sized Bubbles for Sanitation and Water Reuse: From Fundamentals to Application**

Frontiers of Environmental Science & Engineering, Springer, 18, 2024, Electronic ISSN: 2095-221X, Print ISSN: 2095-2201

DOI: <https://doi.org/10.1007/s11783-024-1907-1>

Co-authors : Abudukeremu Kadier, Gulizar Kurtoglu Akkaya, Raghuveer Singh, Noorzalila Muhammad Niza, Anand Parkash, Ghizlane Achagri, Perumal Asaithambi, Zakaria Al-Qodah, Naser Almanaseer, Magdalena Osial, Sunday Joseph Olusegun, Agnieszka Pregowska & Eduardo Alberto López-Maldonado

Abstract: The global scarcity of drinking water is an emerging problem associated with increasing pollution with many chemicals from industry and rapid microbial growth in aquatic systems. Despite the wide availability of conventional water and wastewater treatment methods, many limitations and challenges exist to overcome. Applying technology based on microbubbles (MBs) and nano-bubbles (NBs) offers ecological, fast, and cost-effective water treatment. All due to the high stability and long lifetime of the bubbles in the water, high gas transfer efficiency, free radical generation capacity, and large specific surface areas with interface potential of generated bubbles. MBs and Nbs based technology are attractive solutions in various application areas to improve existing water and wastewater treatment processes including industrial processes. In this paper, recent progress in NBs and MBs technology in water purification and wastewater treatment along with fundamentals, application, challenges, and future research were comprehensively discussed.

Keywords: Nanobubbles; Microbubbles; MNB; Wastewater Treatment; Water Pollution Utilization

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The eligible candidate can submit application in the prescribed format to: The Deputy Director (Technical), The Institution of Engineers (India), 8 Gokhale Road, Kolkata 700020;
For any query and assistance, please send email to: pe@ieindia.org

Publication by Members

Volume 9 | Issue 11 | November 2024



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Title of Paper: Efficient Energy Consumption in Hybrid Cloud Environment using Adaptive Backtracking Virtual Machine Consolidation

Scientific Reports, Springer, 14, October 2024, ISSN 2045-2322 (online)

DOI: <https://www.nature.com/articles/s41598-024-72459-z>

Co-authors : E Elakiya, K C Rajheshwari & K Sivakumar

Abstract: Virtualization is the process of sharing physical machine resources into multiple Virtual Machines (VMs) for the effective utilization of resources. The major issues are in handling physical resources such as high demand of resources, infrastructure issues and operational issues. Also violating Service Level Agreement (SLA) is another problem to lead the violations. In this case, VM consolidation method is used to migrate the VMs and optimize the efficient way to use the resources. So we get minimized energy consumptions. Existing methods has increased energy consumption and overhead issues. In this paper we propose adaptive backtracking methods to provide VM consolidation based on less energy consumptions. We use Adaptive Hill Climbing and Pursuit algorithms to consolidate the VMs and use the VMs with efficient energy consumption. We implement this simulations using Matlab in Hybrid Cloud Environment. The performance factors are obtained with less energy consumption and compare the results with existing methods. Overall our proposed system is achieving 95% of accuracy index with lower energy consumption such as 28%, 30% and 32% with multiple VMs consolidations.

Keywords: Virtual Machine Consolidation; Hybrid cloud; Accuracy; Backtracking; Energy Efficiency

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Title of Paper: **Predicting Electricity Consumption in Commercial and Residential Buildings using A-CNN-LSTM Model**

Proceedings of 2024 International Conference on Intelligent Algorithms for Computational Intelligence Systems (IACIS), Hassan, India, IEEE, 2024, Electronic ISBN:979-8-3503-6066-0, Print on Demand (PoD) ISBN:979-8-3503-6067-7

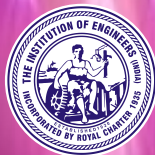
DOI: <https://doi.org/10.1109/IACIS61494.2024.10721849>

Co-authors : Neeraj Kumar, Kantimahanti Padmaja, V Bhoopathy, Mohammad Shabbir Alam & S Rukmani Devi

Abstract: In this proposed approach an A-CNN-LSTM model that, over the medium to long term, can forecast, down to the hourly level, the patterns of electricity use in commercial and residential buildings. Institutional and residential buildings account for the vast bulk of America's overall energy usage. Thanks to developments in smart technologies and sensors, there is a need to forecast the medium- to long-term hourly electricity consumption of home and business buildings. This is to help with decision-making for operations, demand response strategies, and distributed generation system installations. To achieve the best possible results during model training, feature selection, and preprocessing, it is essential to adhere strictly to this strategy. Since some data on daily precipitation was lost during pre-processing, the Lagrange interpolation method was used to fill in the gaps. Feature selection makes use of PSO-K-means clustering technique. An A-CNN-LSTM was employed for the purpose of training the model. Traditional methods, such as LSTM and CNN, are surpassed by the suggested approach. Applying the strategy resulted in a 93.15 % improvement in accuracy.

Keywords: Electricity; Computational Modelling; Buildings; Predictive Models; Feature Extraction; Long Short Term Memory

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Publication by Members

Volume 9 | Issue 11 | November 2024



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Title of Paper: A Review on Mechanical and Wear Characteristics of Magnesium Metal Matrix Composites

Journal of Tribology, The American Society of Mechanical Engineers, 147(2), 2024, Online ISSN 1528-8897, Print ISSN 0742-4787

DOI: <https://doi.org/10.1115/1.4066416>

Co-authors : Dhanunjay Kumar Ammisetti & S S Harish Kruthiventi

Abstract: Magnesium (Mg) and its alloys provide a desirable mixture of characteristics, including minimal density and an excellent strength/weight ratio. Nevertheless, these materials have limitations in relation to their thermal conductivity, wear and corrosion resistance, among various other attributes. The limits described above place restrictions on the use of these alloys in various applications. Currently, various methods are being employed to efficiently address and alleviate those limitations through the utilization of composite materials. The incorporation of micro/nanosized elements has been utilized to elevate the properties of Mg. Various methods are utilized to provide a homogeneous dispersal of reinforcement throughout the matrix, resulting in the production of magnesium metal matrix composites (MgMMCs). The use of MgMMCs has experienced a notable rise across many sectors such as aerospace, defense, automotive, and biomedical. This may be attributed to their exceptional attributes, which consist of enhanced specific strength, reduced weight, and congruence with biological systems. The current study objective is to perform an exhaustive examination of the different reinforcements employed in the fabrication of MgMMCs and their impact on mechanical and tribological characteristics. Furthermore, the study presented in this paper showcases the development of prediction models for the wear properties of MgMMCs through the utilization of diverse machine learning approaches.

Keywords: Magnesium, Reinforcements, Composites, Mechanical Properties, Wear, Machine Learning, Wear Mechanisms

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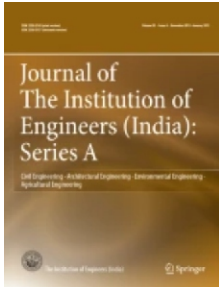
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Articles Published in latest issue of IEI Journals

Volume 9 | Issue 11 | November 2024



Journal of The Institution of Engineers (India): Series A

[Agriculture, Architecture, Civil & Environmental Engineering]

(Electronic ISSN: 2250-2157; Print ISSN: 2250-2149)

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[SCOPUS Indexed & UGC-CARE (India) listed]

For download, use Membership ID through: www.ieindia.org

Volume 105, Issue 4, December 2024

- Title: **Enhancing Weak Soil Strength in an Eco-friendly and Sustainable Manner: Reusing Waste from Indigenous Bamboo Dwellings in Arunachal Pradesh**
- Authors: **Jeelek Rigia & Ajanta Kalita**
Department of Civil Engineering, North Eastern Regional Institute of Science and Technology, Nirjuli, Arunachal Pradesh, 791109, India
- DOI: <https://doi.org/10.1007/s40030-024-00825-1>
- Online publication date: 18 August 2024
- Pages: 819–834
- Title: **Bridging the Gap: Assessing Performance and Planned Importance in Watershed Projects Using Participatory Methods**
- Authors: **Bhabesh Mahanta, Arup Kumar Sarma & Sashindra Kumar Kakoty**
Research Scholar, School of Agro and Rural Technology, Indian Institute of Technology, Amingaon, Guwahati, Assam, 781039, India
Civil Engineering Department, Indian Institute of Technology, Amingaon, Guwahati, Assam, 781039, India
Mechanical Engineering Department, Indian Institute of Technology, Amingaon, Guwahati, Assam, 781039, India
- DOI: <https://doi.org/10.1007/s40030-024-00827-z>
- Online publication date: 09 August 2024
- Pages: 835–850
- Title: **Reliability Analysis of Durability of RC Structural Element Coupled with COMSOL Multiphysics Modelling Under Marine Exposure Condition**
- Authors: **Lakkur Gurunarayan Santhosh, S. A. Santhosh Kumar, Lakshmikanth Srinivasamurthy & M. C. Nataraja**
Department of Civil Engineering, M S Ramaiah Institute of Technology, MSR Nagar, Bengaluru, Karnataka, 560054, India
Department of Civil Engineering, Tata Steel Rural Development Society, West Bokaro, Hazaribagh, Jharkhand, 825314, India
Department of Civil Engineering, JSS Science & Technology University (SJCE), Mysuru, Karnataka, 570017, India
- DOI: <https://doi.org/10.1007/s40030-024-00830-4>
- Online publication date: 10 August 2024
- Pages: 851–863
- Title: **Suitability of Satellite Data for Urbanization Study: A Comparative Analysis**
- Authors: **Nishant Mehra & Janaki Ballav Swain**
School of Civil Engineering, Lovely Professional University, Punjab, 144001, India
- DOI: <https://doi.org/10.1007/s40030-024-00832-2>

Articles Published in latest issue of IEI Journals

Volume 9 | Issue 11 | November 2024

Online publication date: 23 August 2024

Pages: 865–874

Title: **Torsion Analysis of Functionally Graded Iso/Orthotropic Sections Using Differential Quadrature and pb2-Rayleigh Ritz Methods**

Author: **Sundaramoorthy Rajasekaran**

Visiting Professor of Civil Engineering, PSG College of Technology, Coimbatore, Tamilnadu, 641004, India

DOI: <https://doi.org/10.1007/s40030-024-00833-1>

Online publication date: 19 September 2024

Pages: 875–912

Title: **Approximate Solutions for Bending of Beams and Buckling of Columns Made of Functionally Graded Materials**

Authors: **Karim S. Numayr, Madhar A. Haddad & Mosab H. Al-Taani**

Department of Civil Engineering, Isra University, P.O. Box 33, Amman, Jordan

Department of Architectural Engineering, United Arab Emirates University, P.O. Box 15551, Al Ain, UAE

DOI: <https://doi.org/10.1007/s40030-024-00834-0>

Online publication date: 16 August 2024

Pages: 913–937

Title: **Assessment of Noise Pollution Levels in a Fully Residential Academic Institute in India**

Authors: **Sahlathasneem Kallankandy & Surinder Deswal**

Department of Civil Engineering, National Institute of Technology Kurukshetra, Kurukshetra, Haryana, 136119, India

DOI: <https://doi.org/10.1007/s40030-024-00835-z>

Online publication date: 31 August 2024

Pages: 939–953

Title: **Sub-Surface Characterisation and Site-Specific Response Spectra Studies for RRCAT Indore**

Authors: **Nikunj Binnani, R. K. Khare & Govind Parchani**

Department of Civil Engineering & Applied Mechanics, Shri G. S. Institute of Technology & Science, Indore 23, Park Road, Indore, M.P., 452003, India

Chief Engineer & Head, Construction & Services Division, Raja Ramanna Centre for Advanced Technology, Indore, M.P., 452013, India

DOI: <https://doi.org/10.1007/s40030-024-00836-y>

Online publication date: 13 September 2024

Pages: 955–975

Title: **Impact of Urbanization on Runoff and Its Potential Solution Through the Viability Study of RWH Systems for Households**

Authors: **R. S. Mohril, A. D. Vasudeo & A. D. Ghare**

Department of Civil Engineering, VNIT Nagpur, Nagpur, 440010, India

DOI: <https://doi.org/10.1007/s40030-024-00837-x>

Online publication date: 15 September 2024

Pages: 977–985

Title: **An Experimental Study of Manning's Roughness Coefficient with an Acoustic Doppler Current Profiler (ADCP) Method of the River Ganga at Gandhi-Ghat Site, Patna, India**

Authors: **Malti Mardi & Sunil Kumar Murmu**

Department of Civil Engineering, National Institute of Technology, Ashok Rajpath Patna, Bihar, 800005, India

DOI: <https://doi.org/10.1007/s40030-024-00838-w>

Articles Published in latest issue of IEI Journals

Volume 9 | Issue 11 | November 2024

Online publication date: 14 September 2024

Pages: 987–1001

Title: **AHP-Based Impact Assessment Methodology for Selecting Land Application Strategies for Biochar Amended Sewage-Based Compost**

Authors: **Vasudevan Mangottiri, Pandiyan Balaganesh, Sanchu Sukumaran, Ariyagoundar Jayaraman, Ramaswamy Geethamani, Mariappan Ranjitham & Narayanan Natarajan**

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DOI: <https://doi.org/10.1007/s40030-024-00839-9>

Online publication date: 20 September 2024

Pages: 1003–1015

Title: **UV-Based Degradation of Fluoroquinolone Antibiotic in Wastewater: Effects of Process Parameters, Identification of Degradation Products and Evaluation of Residual Toxicity**

Authors: **Bijoli Mondal, Shib Sankar Basak, Arnab Das, Sananda Sarkar & Asok Adak**

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Department of Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur, Howrah, 711103, India

DOI: <https://doi.org/10.1007/s40030-024-00840-2>

Online publication date: 21 September 2024

Pages: 1017–1028

Title: **Optimization Design and Experimental Analysis of Spraying Device for High Ground Clearance Plant Protection Machine**

Authors: **Changkun Zhang, Jinliang Gong & Yanfei Zhang**

School of Agricultural Engineering and Food Science, Shandong University of Technology, Zibo, 255000, China

School of Mechanical Engineering, Shandong University of Technology, Zibo, 255000, China

DOI: <https://doi.org/10.1007/s40030-024-00841-1>

Online publication date: 30 September 2024

Pages: 1029–1039

Title: **Assessment of Heavy Metals in the Sediments of Delhi Stretch of River Yamuna, India: Impact of Wastewater Discharge**

Authors: **Raman Sharma, Priyanka Saxena, Mamta Prakash & S K Goyal**

Delhi Zonal Centre, CSIR-National Environmental Engineering Research Institute, A-93-94, Naraina Industrial Area Phase-I, Delhi, 110028, India

DOI: <https://doi.org/10.1007/s40030-024-00842-0>

Online publication date: 06 October 2024

Pages: 1041–1057

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Journal of The Institution of Engineers (India): Series B

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Volume 105, Issue 6, December 2024

- Title:** **Authentication-Centric and Access-Controlled Architecture for Edge-Empowered SDN-IoT Networks**
- Authors:** **D S Sahana & S H Brahmananda**
Department of CSE, GITAM School of Technology, GITAM University, Bengaluru, Karnataka, India
- DOI:** <https://doi.org/10.1007/s40031-024-01053-8>
- Online Publication Date:** 23 April 2024
- Pages:** 1497–1509
- Title:** **Power Quality Improvement in Solar Energy Conversion System Integrated to Weak AC Grid**
- Authors:** **Gaurav Modi & Bhim Singh**
Department of Electrical Engineering, Indian Institute of Technology, Delhi, Hauz Khas, New Delhi, 110016, India
- DOI:** <https://doi.org/10.1007/s40031-024-01046-7>
- Online Publication Date:** 25 April 2024
- Page:** 1511–1526
- Title:** **A Single-Switch High-Gain Cascaded Boost–SEPIC Converter Using Small Wind Turbine for Renewable Energy Applications**
- Authors:** **Rubi Kumari, Rabin Dahal, Moumi Pandit & Karma Sonam Sherpa**
Sikkim Manipal Institute of Technology, Majitar, Sikkim, India
Sikkim Manipal of Technology University, Gangtok, Sikkim, India
- DOI:** <https://doi.org/10.1007/s40031-024-01061-8>
- Online Publication Date:** 26 April 2024
- Page:** 1527–1535
- Title:** **A Comprehensive Multi-modal Approach for Enhanced Product Recommendations Based on Customer Habits**
- Authors:** **Jyostna Devi Bodapati, N Veeranjanyulu & Lakshmana Kumar Yenduri**
Advanced Computer Science and Engineering, Vignan's Foundation for Science Technology and Research, Guntur, Andhra Pradesh, India
Department of IT, Vignan's Foundation for Science Technology and Research, Vadlamudi, 522213, India
San Francisco Bay Area, USA
- DOI:** <https://doi.org/10.1007/s40031-024-01064-5>
- Online Publication Date:** 27 April 2024
- Pages:** 1537–1545

Articles Published in latest issue of IEI Journals

Volume 9 | Issue 11 | November 2024

- Title:** **Critical Breakdown Electric Field of Sulfur Dioxide at 1–10 Bar and 300–4000 K for Applications in Power Transmission and Switching Elements**
Authors: **Akhilesh Kumar Pandey, Pushendra Singh, Mohd. Shahnawaz Khan & Jitendra Kumar Singh**
JK Lakshmipat University (JKLU), Jaipur, India
Present address: Energy Sciences, Atria University, Bengaluru, India
DOI: <https://doi.org/10.1007/s40031-024-01063-6>
Online Publication Date: 27 April 2024
Pages: 1547–1556
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Authors: **Jie Li & ZhanJun Wang**
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Authors: **D Y Dhande & C S Choudhari**
Department of Mechanical Engineering, AISSMS College of Engineering, Pune, 411001, Maharashtra, India
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- Title:** **An IoT-Enabled Smart Net-Metering System for Real-Time Analysis of Renewable Energy Generation in MATLAB/Simulink**
Authors: **Akshay Ashok Pathare, Ravindra Pratap Singh & Dinesh Sethi**
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- Title:** **Design of Type III Fuzzy Controller for Buck/Boost Converter**
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- Authors:** **Amit S Patil, V K Sunnapwar, K S Bhole, S V Ingle & Deepak Singh**
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- Authors:** **Zahid Hussain, Muhammad Umar, Muhammad Faisal, Muhammad Ahmad Bilal, Saqlain Abbas & Masood ur Rehman**
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Pages: 1335–1350
Title: **On 3D Dispenser Printing of MnO₂ Reinforced PVDF Matrix for Recycling of Dry Cell**
Authors: **Ankush Mehta, Rupinder Singh & B S Pabla**
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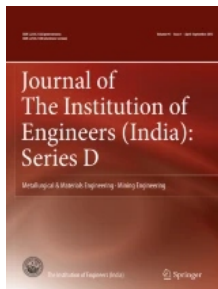
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Authors: **Ankush Mehta, Rupinder Singh, B S Pabla & Ranvijay Kumar**
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Authors: **Firdoos Afzal Bhat & Saad Parvez**
Department of Mechanical Engineering, National Institute of Technology Srinagar, Srinagar, 190006, India
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- Authors:** **Retno Wulandari, Fitri Ayu Radini, Muhammad Yunus, Dewi Kusuma Arti, Harianingsih, Dasep Rusmana & Ade Pratama**
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- DOI:** <https://doi.org/10.1007/s40033-023-00599-z>
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- Authors:** **S H Adarsh & M G Vijay Kashimatt**
Department of Mechanical Engineering, Siddaganga Institute of Technology, Tumkur, Karnataka, India
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- Online Publication Date:** 21 December 2023
- Pages:** 1341–1354
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- Authors:** **Ayush Trivedi, Vijay Kumar Dwivedi & Mayank Agarwal**
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Institute of Engineering Technology, Dr. Ram Manohar Lohia Avadh University, Ayodhya, India
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- Authors:** **Rimpa Mondal, Sk. Faruque Ahmed & Nillohit Mukherjee**
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Authors: **Neetesh Kumar Pandey, Sunil Kumar, A C Tiwari & Ramkishor Anant**
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Authors: **B M Santhosh Kumar, G M Swamy, C R Aprameya, Saravana Bavan, B N Venkatesh, Prakash Kumar & T K Nagaraja**
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Mechanical Engineering Department, Dayananda Sagar College of Engineering, Bangalore, India
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Department of Mechanical Engineering, Amrita School of Engineering, Bengaluru, Amrita Vishwa Vidyapeetham, Bengaluru, India
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Authors: **Sandeep Kumar, Brijesh Gangil, Lalit Ranakoti, Prabhakar Bhandari, Deepak Gupta & Manoj Kumar Gupta**
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Authors: **Matta Anil Kumar, K N S Suman & Naresh Kumar Konada**
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Authors: **Chetan Prasad SundaraRaj, Mahantesh M Math, V A Girisha, A Bharatish, Vivekanand S Gogi, S Gowreesh Subramanya, Anandkumar R Annigeri & B P Dileep**
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Research Centre for Polymer Technology, National Research and Innovation Agency Republic of Indonesia, South Tangerang, Banten, 15314, Indonesia
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Authors: **Benni Ramadhoni, Annisa Rifathin & Frita Yuliati**
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Authors: **Saurabh Dewangan, Aaluri Praveen Reddy, Salian Sagar Shyam Sunder, Stanislaw Legutko, Jaka Burja & Uday Kumar**
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Authors: **Annisa Rifathin, Ida Bagus Putra Budiana & Onny Ujianto**
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Authors: **Syed Asghar Husain Rizvi, Sanjay Agarwal & Shavej Ali Siddiqui**
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Authors: **Manik Barman, Tapan Kumar Barman & Prasanta Sahoo**
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Department of Mechanical Engineering, Jadavpur University, Kolkata, India
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Authors: **P Sasikala & R Madhusudhan**

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Title: **Exploring the Metallurgical and Mechanical Characteristics of Magnesium/Silicon Carbide Surface Composites Manufactured via Friction Stir Processing**

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Online Publication Date: 26 October 2023

Pages: 1793–1800

Title: **Experimental Analysis of the Rice Husk and Eggshell Powder-Based Natural Fibre Composite**

Authors: **K S Lokesh, K Shashank Kumar, N Keerthan, R Revanth, S Sandeep, Sunil B Lakkundi, V Bharath, Harish Hanumanthappa, Prasad C Durga & Bharath Kumar Shanmugam**

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Department of Mechanical Engineering, RV Institute of Technology and Management, Bangalore, India

DOI: <https://doi.org/10.1007/s40033-023-00557-9>

Online Publication Date: 20 October 2023

Pages: 1801–1808

Title: **Fatigue Behaviour of HVOF-Sprayed WC–Co–VC and Cr₃C₂–NiCr–VC Coatings on AISI 4340 Steel**

Authors: **G Padmavathi, B N Sarada, S P Shanmuganatan, H Ramesha, B V Padmini & P Sampathkumaran**

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Sambhram Institute of Technology, Bangalore, Karnataka, 560004, India

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Online Publication Date: 03 December 2023

Pages: 1809–1826

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Title: **Optical Microstructural and Hardness Analysis of an Al–Si Alloy-Based Piston**

Authors: **Mahesh Sharma & Vijay Kumar Dwivedi**

GLA University, Mathura, India

DOI: <https://doi.org/10.1007/s40033-023-00620-5>

Online Publication Date: 06 January 2024

Pages: 1827–1831

Title: **Removal of Cadmium in Process of Nickel Production Out of Cold Purification Waste of Zinc Factories**

Authors: **Farzad Zahmati, Keivan Shayesteh & Vahid Vahidfard**

Department of Chemical Engineering, Faculty of Engineering, Mohaghegh Ardabili University, Ardabil, Iran

DOI: <https://doi.org/10.1007/s40033-023-00617-0>

Online Publication Date: 12 January 2024

Pages: 1833–1842

Title: **CanDetEnsemble: A Model for Determining and Forecasting Lung Cancer in Humans by Exploiting Various Machine Learning Algorithms**

Authors: **Amit Singh, Rakesh Kumar Dwivedi & Rajul Rastogi**

College of Computing Sciences and Information Technology, Teerthanker Mahaveer University, Moradabad, UP, 244001, India

Department of RadioDiagnosis TMMCRC, Teerthanker Mahaveer University, Moradabad, UP, 244001, India

DOI: <https://doi.org/10.1007/s40033-023-00586-4>

Online Publication Date: 29 November 2023

Pages: 1843–1855

Title: **Effect of Aging Temperature on Microstructure, Hardness and Thermal Property of AA7085 Alloy**

Authors: **A G Shivasiddaramaiah, L Shivaramu, U S Mallik & R Suresh**

Dept. of Mechanical Engineering, Siddaganga Institute of Technology, Tumakuru, 572103, Karnataka, India

Department of Mechanical and Manufacturing Engineering, M. S. Ramaiah University of Applied Sciences, Bangalore, 560058, Karnataka, India

DOI: <https://doi.org/10.1007/s40033-023-00566-8>

Online Publication Date: 19 October 2023

Pages: 1857–1863

Title: **Characterization of Microstructure and Mechanical Behaviour in Activated Tungsten Inert Gas Welded Dissimilar AA Joint of AA 5083 and AA 6061 Alloys**

Authors: **Sundar Vettum Perumal, Vijay Ananth Suyamburajan, Vettivel Singaravel Chidambaranathan & Leema Nelson**

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Online Publication Date: 17 October 2023

Pages: 1865–1873

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Authors: **Rayappa Shrinivas Mahale, Shamanth Vasanth, P C Sharath, R Shashanka, Vijay Tambrallimath & Abhinandan Badari**

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Department of Mechanical and Aerospace Engineering, Monash University, Clayton Campus, Melbourne, 3168, Australia

DOI: <https://doi.org/10.1007/s40033-023-00624-1>

Online Publication Date: 11 January 2024

Pages: 1875–1888

Title: **Enhancing Tribological Characteristics of AA6061-SiC Composites via Response Surface Methodology**

Authors: **B N Venkatesh, Umamaheshwar Hebbal, K B Yogesha, M Mruthunjaya & G M Swamy**

Department of Mechanical Engineering, JSS Academy of Technical Education, Bangalore, India

DOI: <https://doi.org/10.1007/s40033-023-00610-7>

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Pages: 1889–1903

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Authors: **M Vinod, C Anil Kumar, Shrishail B Sollapur, Sameer Y Bhosale, Mahesh M Kawade, Mangesh Y Dakhole & Prakash Kumar**

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Department of Metallurgical and Materials Engineering, National Institute of Technology, Jamshedpur, India

DOI: <https://doi.org/10.1007/s40033-023-00605-4>

Online Publication Date: 12 December 2023

Pages: 1905–1916

Title: **Effect of Delamination Size on the Natural Frequency of Twintex and Natural Fibre/Poly-Propylene Hybrid Composite Cantilever Beam**

Authors: **C Venkate Gowda, K B Yogesha, H R Manjunath, N Pushpa, Rajashekhar Hosalli, Nagraj**

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Authors: **Dheeraj Kumar & Rajesh Kumar Porwal**

Faculty of Mechanical Engineering, Institute of Technology, SRMU, Lucknow, U.P., India

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Authors: **Avaneesh Rajesh Kulkarni, P Venkateshwar Raju, Partha Pratim Sarma, Saurabh Dewangan & Senthil Kumaran Selvaraj**

Department of Mechanical Engineering, Manipal University Jaipur, Jaipur, Rajasthan, 303007, India

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Pages: 1945–1960

Title: **Study on Structural Behavior of HVOF-Sprayed NiCr/Mo Coating**

Authors: **C Venkate Gowda, T K Nagaraja, K B Yogesha, R Prem Chand, M C Manjunatha, Shrishali Sollapur, C J Manjunath & N Pushpa**

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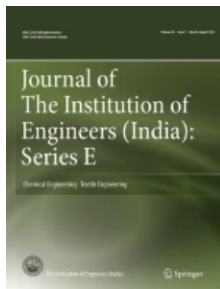
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Department of Mathematics, Reva University, Bengaluru, Karnataka, India
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Title: **Cryogenic Treatment of Chromium–Molybdenum–Vanadium Steels: Unveiling Microstructural Features and Improved Mechanical Properties**
Authors: **S S Reddy, K V D Rajesh & M F L King**
Koneru Lakshmaiah Education Foundation, Vaddeswaram, Andhra Pradesh, India
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Department of Metallurgical Engineering, Kazi Nazrul University, Asansol, 713340, India
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Authors: **Sumalatha Boddu, Kondiboina nagarjuna, Sandeep Jajula, Vivek Kumar, Bhanu Prasad Marri, Srinu Nagireddi & Subbaiah Tondepu**
Department of Chemical Engineering, Vignan's Foundation for Science, Technology and Research (VFSTR), Vadlamudi, Guntur, Andhra Pradesh, 522213, India
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Authors: **David Natanael Vicarneltor, Herry Purnomo, Muhammad Johan Rifa'i, Mahfud Ibadi, Purwoko, Muhamad Hananuputra Setianto, Ara Gradiniar Rizkyta & Ade Mundari Wijaya**
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School of Mines and Engineering, Mining and Mineral Processing Engineering, Taita Taveta University, P.O Box 635-80300, Voi, Kenya
School of Engineering and Engineering Technology, Metallurgical and Materials Engineering Department, Federal University of Technology, Akure, P.M.B 704, Akure, Ondo State, Nigeria
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Department of Metallurgical Engineering, Kazi Nazrul University, Asansol, 713340, India
Department of Mechanical Engineering, Aditya University, Surampalem, 533437, India
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Online Publication Date: 27 September 2024
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Title: **A Study on Prehistoric Archaeometallurgical Craft ‘Dokra’**
Authors: **Sanjoy Chatteraj, Rahul Samanta, Sandip Kunar, Arijit Sinha, Varsha Mitra & Gurudas Mandal**
Department of Metallurgical Engineering, Kazi Nazrul University, Asansol, 713340, India
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Department of Applied Psychology, Kazi Nazrul University, Asansol, 713340, India
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Online Publication Date: 23 August 2024
Pages: 2039–2044
Title: **Fine Porous Stainless Steel TPMS Cellular Structures: Printability and Post-Processing Evaluation**
Authors: **Shivank A Tyagi & M Manjaiah**
Department of Mechanical Engineering, National Institute of Technology, Warangal, Telangana, 506004, India
- DOI: <https://doi.org/10.1007/s40033-023-00598-0>
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Volume 105, Issue 2, December 2024

- Title: **Testing Cut-Resistance of Protective Textiles: ISO 13997 and ASTM F 2992**
Authors: **Shubham Srivastava, Nandan Kumar & Chandra Shekhar Malvi**
Mechanical Engineering Department, Madhav Institute of Technology and Science, Racecourse Road, Gwalior, Madhya Pradesh, 474005, India
High Performance Textiles Pvt. Ltd, Panipat, Haryana, 132103, India
DOI: <https://doi.org/10.1007/s40034-024-00290-2>
Online Publication Date: 08 June 2024
Pages: 103–117
- Title: **The Significance of the Critical Stress Ratio in the Formulation of Nonlinear Constant Life Diagrams for CFRP Laminate Life Prediction**
Authors: **Alok Behera, Sandeep Kale, Manjusha M Thawre & Atul Ballal**
Department of Mechanical Engineering, Indian Institute of Science, Bangalore, Karnataka, India
Department of Metallurgical and Materials Engineering, Visvesvaraya National Institute of Technology, Nagpur, India
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Online Publication Date: 03 July 2024
Page: 119–128
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Authors: **Sujith bobba & Bachina Harish Babu**
Department of Mechanical Engineering, VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad, India
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Online Publication Date: 03 July 2024
Page: 129–136
- Title: **Exploration of Cajanus Cajan Husk for Natural Dye Extraction: Its Characterization and Application on Cotton Fabric**
Authors: **Ruta D Khonde & Amol A Bhusari**
Department of Chemical Engineering, Priyadarshini College of Engineering, Nagpur, Maharashtra, 440019, India
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Authors: **Satendra Singh & B S Butola**

Department of Textile and Fibre Engineering, Indian Institute of Technology, Delhi, India

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Pages: 145–153

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Authors: **Fahmida-E-Karim, Md. Redwanul Islam & Kazi Imrul Kayes Shawon**

Department of Textile Engineering, Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh

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3.	Procurement Rules for Goods & Services incldg Gem Portal & GFR 2017 Guideline	02 - 06 Dec 24
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8.	Software Testing & Quality Assurance	09 - 12 Dec 24
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