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3.4.4

Number of books and chapters in edited volumes/books published per teacher during the last five years

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3.4.4 Number of books and chapters in edited volumes/books published per teacher during the last five years (5)

3.4.4.1: Total number of books and chapters in edited volumes / books published, and papers in national/international conference-proceedings year wise during last five years

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Year of publication	ISBN/ISSN number of the proceeding	Whether at the time of publication Affiliating Institution Was same Yes/NO	Name of the publisher
1	Dr. S Sunil Kumar Reddy, Dr C Sreedhar, Dr S Suresh	Smart Innovations, systems and Technologies	Investigation of Wear and Mechanical Properties of Aluminium hybrid composites: Effect of Addition of SiC/B4C through casting Process	Intellegiant Manufacturing and Energy Sustainability	2021	978-981-16-6481-6	Siddharth Institute of Engineering & Technology	Springer
2	J.Gowrishankar	Springer-Automation,signal processing, instrumentation and control	Peroformance evaluation of multi DC and singlr DC source on cascadded multilevel inverter	Springer-Automation,signal processing, instrumentation and control	2020-21	978-981-15-8220-2	Siddharth Institute of Engineering & Technology	Springer

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3	Dr Sivakumar K	Book Titled Sustainable Manufacturing for Industry 4.0 - An Augmented Approach (1st Edition)	"Guidelines for ensuring sustainability in Industry 4.0" in	"Guidelines for ensuring sustainability in Industry 4.0" in	2020-21	9.78114E+12	Siddharth Institute of Engineering & Technology	CRC Press (Taylor & Francis Group)
4	Dr Sivakumar K	Book Titled Sustainable Manufacturing for Industry 4.0 - An Augmented Approach (1st Edition),	"Big data and its importance in manufacturing"	"Big data and its importance in manufacturing"	2020-21	9.78114E+12	Siddharth Institute of Engineering & Technology	CRC Press (Taylor & Francis Group)
5	Dr P. Ratna Kamala, Dr. P.G.Kuppusamy	Artificial Intelligence Revolution In Logistics And Supply Chain Management	Artificial Intelligence Revolution In Logistics And Supply Chain Management	Artificial Intelligence Revolution In Logistics And Supply Chain Management	2020-21	waiting	Siddharth Institute of Engineering & Technology	Scrivener Publishing WILEY
6	M Bhakkiya Lakshmi	Engineering Chemistry	Engineering Chemistry	Engineering Chemistry	2019-20	978-81-942267-6-5	Siddharth Institute of Engineering & Technology	Sri Krishna Publishing Company

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Smart Innovation, Systems and Technologies 265

A. N. R. Reddy
Deepak Marla
Margarita N. Favorskaya
Suresh Chandra Satapathy *Editors*

Intelligent Manufacturing and Energy Sustainability

Proceedings of ICIMES 2021

KES International
Springer

Chapter 5
Investigation of Wear and Mechanical Properties of Aluminium Hybrid Composites: Effect of Addition of SiC/B_4C Through Casting Process

S. Sunil Kumar Reddy, C. Sreedhar, and S. Suresh

Abstract Aluminium is a binary alloy has a larger importance to engineering industries with excellent wear resistance and stiffness that have been designed for lightweight and higher strength applications in the automobile sectors. To synthesis the hybrid metal matrix composite, silicon carbide is chosen as primary reinforcement varied at different weight fraction (1, 2, 3, 4 wt%) with a constant boron carbide of 3 wt% used in the present study was carried through liquid metallurgy technique. The composites were then subjected to mechanical and wear properties study. The effect of reinforcement particles by increasing various weight fractions have been investigated and characterized mechanical and wear properties. The 4 wt% of SiC/B_4C reinforced composites tends to increases hardness and tensile strength to 29.7% and 20% as compared to the base alloy.

5.1 Introduction

Aluminium is used in a variety of industries because it is the essential aspect in a wide range of products encompassing of most industrial goods and structural components. However, due to their low wear resistance, their applications are minimal. A metal matrix is made up of two parts such as metal and secondary as reinforcement. Metal matrix composites with at least three constituents are known as hybrid composites. Aluminium metal matrix composites (AMMC) alloys are corrosion-resistant and suitable for industrial applications. AMMCs are commonly used for low-cost parts with high-material efficiency. In structural and functional high applications, aluminium composites are often used in the army, sports and manufacturing industry. High-silica content in boron, widespread incidentally with the same strength as SiC, is present in the boron carbide. The glasses are made of ceramic solid clay at elevated temperatures. Baradeswaran and Perumal [1] studied

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Performance Evaluation of Multi DC and Single DC Source on Cascaded Multi-Level Inverter

J. Gowrishankar, J. Belwin Edward, E. Kaliappan, N. Prabakaran, and G. Balasundaram

Abstract In Cascaded Multi-Level Inverter (CMLI), the multi DC source and single DC source of asymmetrical and symmetrical Multi-level Inverters (MLI) are analyzed in this research paper. In single DC source, the switching pulse generation for nine-level H-bridge CMLI is generated using Phase Disposition Pulse Width Modulation (PDPWM). Here, four H-bridge CMLI has parallel connection, and the output of each H-bridge CMLI with the primary side of the transformer is also linked in parallel. The secondary side of the transformer is connected in series with load. It consists of one H-bridge inverter, 8 diodes, and two-bidirectional switches for bidirectional current flows through two switch S_5, S_6, and S_7. The capacitor C_4, C_3, C_2, and C_1 are meant to separate the input DC voltage by V_{dc}, $3V_{dc}/4$, $V_{dc}/2$, and $V_{dc}/4$. In multi DC source of symmetrical and asymmetrical CMLI switches are controlled by using Low-Frequency Pulse Width Modulation Technique (LFPWM). The nine-level symmetrical CMLI DC voltage source are $V_{dc1} = 1$, $V_{dc2} = 1$, $V_{dc3} = 1$, and $V_{dc4} = 1$. The 31-level asymmetrical CMLI DC voltage source are $V_{dc1} = 1$, $V_{dc2} = 2$, $Vdc_3 = 4$, and $V_{dc4} = 8$. All the multi DC Source and single-DC source of CMLI are analyzed in MATLAB software platforms. Comparison of the results with these simulations has been made, and the performance of the proposed system indicated by the THD. Hardware implementations have been done for asymmetrical MLI by using TMS320F2802A processor.

Keywords Asymmetrical and symmetrical multi-level inverter · TMS320F2802A

6 Ensuring Sustainability in Industry 4.0
Implementation Framework

6.1 GUIDELINES FOR ENSURING SUSTAINABILITY IN INDUSTRY 4.0

Sivakumar K., Deepak Mathivathanan, M. Nishal, and Vimal K.E.K.

6.1.1 INTRODUCTION

In recent times, the business processes of industry have been altered due to the technological disturbance created by the rapid change in digitalisation. This is categorised as the fourth industrial revolution or Industry 4.0, where the arrival of contemporary technologies such as Big Data and analytics, blockchain technology, internet of things, augmented reality and rapid prototyping is observed (UNIDO, 2017). These technologies are employed on the assembly line to build a cyber-physical system, where they can create data regarding the activities to be executed on the manufacturing methods in real time and make these data accessible across the organisations (Braccini & Margherita, 2019). In addition to that, these technologies are used to enhance the connectivity among the various elements across the industry, to create a comprehensive and sustainable industrial development (UNDP, 2015; Hidayatno et al., 2019).

The Industry 4.0 concept can be explained in a lot of ways. A simple explanation stated that

> Industry 4.0 deals with the branch of material production through incorporating technologies (Simulation of Things-IoT, Big Data & Analytics) and innovative elements, several devices (Cloud computing, Cyber-Physical Systems (CPS) and Internet of Things (IoT)) and the operational perspectives are addressed/accessed as services and make sure of a persistent communication and relationship
>
> **(Marr, 2018).**

Furthermore, a few experts and researchers defined Industry 4.0 in a different way as 'a new level of value chain organization and product lifecycle management' (Kagermann et al., 2013) or 'collective term for technologies and concepts of chain organization' (Hermann et al., 2015). However, it is different from the definitions

3.2 BIG DATA AND ITS IMPORTANCE IN MANUFACTURING

Deepak Mathivathanan and Sivakumar K.

3.2.1 Introduction

Big Data has become an unavoidable term both with academicians and practitioners in the present information age. Since the beginning of the 21st century, technology has been playing a major role in our lives with remarkable innovations in terms of digital devices which can be used to learn about human behaviour. In 2010, Eric Schmidt, the former C.E.O. of Google, reported that 'There were five Exabytes of information created between the dawn of civilisation through 2003, but that much information is now created every two days, and the pace is increasing' (Schmidt & Cohen, 2013). Most companies are storing and utilising enormous amounts of data as information for analysing their business's progress. IBM reported that every day 2.5 quintillion (2.5×1018) bytes of data is generated from various sources like in messages, digital pictures, invoices, videos, sensors, social media posts and from numerous other digital sources (IBM, 2014). By 2020, approximately 100 billion connected devices will be producing data and thus the application of Big Data analytics has become a necessity (Walport, 2014). This enormous amount of data is referred to as 'Big Data', and it can be systematically processed and analysed to understand the current trends towards developing competitive business models. Modern manufacturing facilities include technologies such as the Internet of Things (Lo.T.s) and cyber-physical systems (C.P.S.) which are capable of recording and transmitting raw low-level granular data. These captured data can be subjected to analytics and any modelling applications to derive insights to improve the existing operations. The analysis of the captured Big Data is called Big Data Analytics. Beyond the rhetoric, this chapter is dedicated to details about what are the difficulties encountered by the manufacturing industries and how Big Data can impact manufacturing in facing the challenges.

3.2.2 Challenges in Manufacturing Industries

Manufacturing sectors have always been highly competitive and innovative technologies in the last decade have forced them to change to streamline their production and their traditional methods. With the introduction of information technology, manufacturing companies generate massive volumes of data, but only a few make use of it. Hence, the manufacturing sector has great potential to grab the opportunities Big Data can offer. Like any other sector, the manufacturing sector also handles many challenges in the current information age. This section intends to highlight the various challenges in manufacturing industries.

i) **Growing sustainability issues.** Manufacturing industries are the ones dealing with major environmental issues of the planet and they involve a lot of material and human resources. Hence, the industry faces more sustainability issues than other industries. They are considered a major contributor

3

Artificial Intelligence Revolution in Logistics and Supply Chain Management

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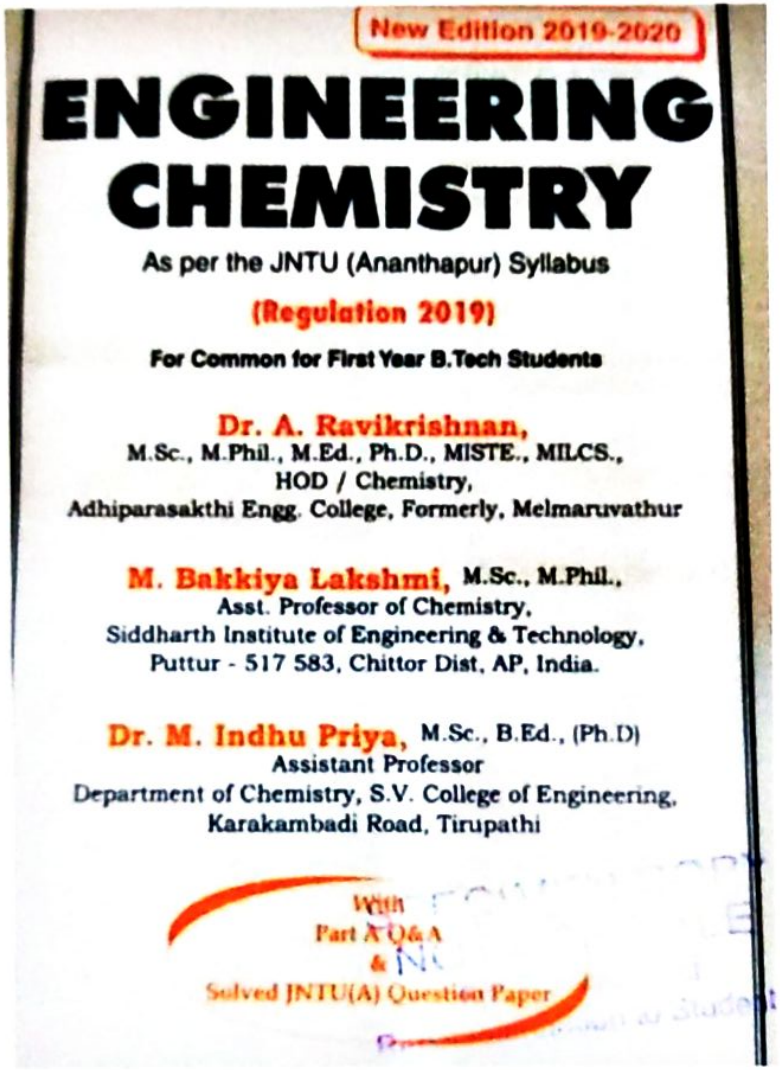
Abstract

With Artificial Intelligence (AI) and Machine Learning (ML), which will further intensify the discrepancy between winners and losers, the logistics and supplies chain business are already changing their face. By removing deep-rooted shortcomings and complexities, artificial intelligence and machine learning provide creativity with insights into all the logistics and supply chain fields that people cannot easily copy on a scale. In the sense of more accurate capacity management, better efficiency, high quality, lower cost and better quality, artificial intelligent systems aim at achieving the efficient optimization expertise necessary in the logistics and supply chains w[illegible]. We present a brief description of recen[illegible]acts in logistics and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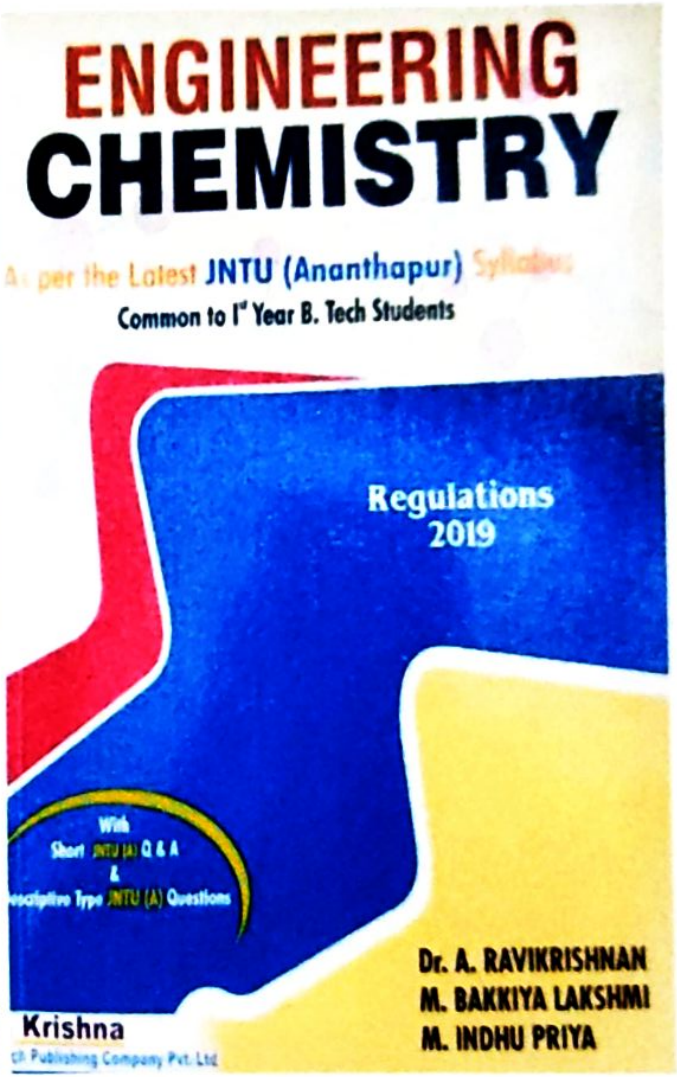
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