3.3.1. Number of research papers published per teacher in the Journals notified on UGC website during the Last five years

S.No.	Findings of DVV	Response of HEI
1.	Edited considering Calendar year publications (Jan- Dec)	We accept the DVV suggested input
2.	Provide Link landing to the research paper	Link landing to the research paper is Provided in supporting document
3.	Provide Link to the journal website	Link to the journal website is Provided in supporting document

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3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the Last five years

S.No	Academic Year	Number of research papers published per teacher in the Journals notified on UGC website
1	2022-23	11
2	2021-22	9
3	2020-21	5
4	2019-20	6
5	2018-19	8

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2022-23

3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the Academic Year 2022-23

S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
1	Driver Sleep and drowsiness detection using machine learning	Dr K Sreenivasa Vijaya Simha	CSE	International Journal of Research in Information Technology	2022-23	2349-6002	UGC Care list
2	Implementation of Majority Logic based Multibit approximate adders and Mulitpliers	S M K Sukumar Reddy	ECE	Journal of Engineering Sciences	2022-23	0377-9254	UGC Care list
3	Implementation of Majority Logic based Multibit approximate adders and Mulitpliers	Dr S Siddeswara Reddy	ECE	Journal of Engineering Sciences	2022-23	0377-9254	UGC Care list
4	Implementation of 16 bit Power efficient carry select adder	Dr S Siddeswara Reddy	ECE	Journal of Engineering Sciences	2022-23	0377-9254	UGC Care list
5	Implementation of 16 bit Power efficient carry select adder	S M K Sukumar Reddy	ECE	Journal of Engineering Sciences	2022-23	0377-9254	UGC Care list
6	Analysis and Design of Reversible Multiplexer and De-Multiplexer using R-Gate	Dr S Siddeswara Reddy	ECE	International Journal of Research	2022-23	2236-6124	UGC Care list
7	Analysis and Design of Reversible Multiplexer and De-Multiplexer using R-Gate	M Sreenivasulu	ECE	International Journal of Research	2022-23	2236-6124	UGC Care list
8	Flexible Real Time Operating System Co-Design Flow for Embedded Computing Systems	S M K Sukumar Reddy	ECE	International Journal of Scientific Methods in Engineering and Management	2022-23	2583-8083	UGC Care list

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S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
9	Implementation of Water Quality Management Platform for Aquaculture Based On Big Data	V Narasimha Swamy	CSE	International Journal of Research	2022-23	2236-6124	UGC Care list
10	Implementation of Water Quality Management Platform for Aquaculture Based On Big Data	S Hassain	CSE	International Journal of Research	2022-23	2236-6124	UGC Care list
11	Skin Disease Classification with integrated Machine Learning & Deep Learning	S M K Sukumar Reddy	ECE	International Journal of Scientific Methods in Engineering and Management	2022-23	2583-8083	UGC Care list

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Driver Sleep and Drowsiness Detection Using Machine Learning

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Abstract: Human drowsiness or fatigue required various approaches to be detected before or during the driving process. Nowadays, many people have managed to acquire personal vehicles which they use to travel around different regions. Arriving alive and on time is a crucial goal for all drivers en route. Drowsiness can be caused by long driving and lack of adequate rest. Several metrics proven to detect drowsy driving include eye detection and heart rate variability. Driving behavior like lane departure, use of indicators, braking and steering handle could also be used. The objective of this work is to develop drowsiness detection, a prediction system that integrates eye detection, which is the behavioral and physiological approach. The system should keep track of the driver's behavior and concentration while driving and give a voice warning or alarm whenever drowsiness is detected.

Keywords: Drowsy driving; fatigue; lane position, prediction, detection

I.INTRODUCTION

Detection of drowsy driving will have an impact on reducing road accidents. The system may also find application in industries by verifying the suitability of workers, especially those who work with hazardous objects 24/7, healthcare institutes, and safety-sensitive deployments. Whenever a person falls asleep, he or she may experience fatigue and find it difficult to stay focused [1]. Today, most professions require long-term focus to achieve intended goals. Drivers of heavy vehicles generally travel long distances without resting and are highly prone to drowsiness or fatigue while driving [2]. Therefore, it is necessary to monitor the work process as the behavior of humans may change due to the time and workload involved. At some point, a worker should be made aware of his or her state of alertness and advised to take a break whenever tired to avoid injury or the production of poor products /services. Drowsy driving claims several victims every day. In [3], sleeping while driving contributed to several road accidents. There is a need for early detection methods to minimize drowsy driving accidents [4]. Several authors have done a great job of detecting and alerting drivers during their driving time. A review of other studies highlighted that drowsy driving can affect driving performance, attitude parameters and physiological catalogs [4]. Different approaches can be used to detect drowsy driving, including steering wheel angle, eye blinking pattern, eye opening/closing, and electrocardiogram [5].

II. LITERATURE SURVEY

This work is closely related to real-time video streaming and image processing typically applied on cable television cyber surveillance monitoring systems. Studies on drowsiness systems are discussed. Routine review of driver collision avoidance technologies that continuously checked the length of eye blinks was presented [1].The method detects the blinking of the eyes via a standard webcam installed precisely in front of the driver's seat and detects the eyes according to a particular EAR (Eye Aspect Ratio).In [2], any analysis was carried out to see factors relating to tiredness.

III. APPLICATIONS

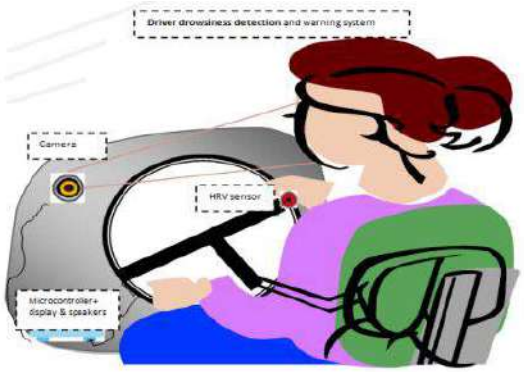

Fig. 1: Drowsiness detection architecture

Implementation of Majority Logic Based Multi Bit Approximate Adders and Multipliers

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Abstract— Approximate computing, as a new paradigm for nanoscale technologies, addresses error tolerance in the computational process in order to increase performance and minimize power consumption. Many upcoming nanotechnologies can benefit from majority logic (ML), and its fundamental building block (the 3-input majority voter, MV) has been widely employed in digital circuit design. The suggested multipliers use approximate compressors and a reduction circuitry with so-called complement bits; the proposed adders use approximate compressors and a reduction circuitry with so-called complement bits. To examine the relevance of different complement bits depending on the size of the multiplier, an influence factor is established and analyzed; a strategy for complement bit selection is also offered. Hardware measurements (such as delay and gate complexity) and error metrics are used to assess the suggested designs. When compared to other ML-based designs reported in the literature, the proposed designs are found to perform better. To demonstrate the validity of the proposed designs, case studies of error-resilient applications are shown.

Keywords: Majority logic, approximate adder, approximate multiplier, complement bits, approximate compressor, image processing.

1. Introduction

Power dissipation is increasingly becoming a challenge for advanced integrated circuit design; although emerging nanoscale technologies have been proposed to replace CMOS at the end of Moore's law, the issue of power consumption remains unabated, because integration density of these nanoelectronics devices continues to increase at a high rate. Approximate computing is a promising technique to reduce power consumption and improve performance of circuits and systems by allowing computational errors in error-tolerant applications, such as multimedia signal processing, machine learning and pattern recognition [1-2]. Approximate computer arithmetic circuits based on CMOS technology have been extensively studied. Designs of approximate adders, multipliers and dividers for both fixedpoint and floating-point formats have been proposed [3-7]. Error metrics such as the mean error distance (MED), the normalized MED (NMED) and the relative MED (RMED) [8] have been proposed to analyze the errors introduced in the operations of approximate arithmetic circuits.

However, the approximate designs of CMOS circuits cannot be immediately applied to many emerging technologies such as QCA [9-10], nanomagnetic logic[11], and spinwave devices [12] due to the very different underlying logic structure of these devices. Emerging devices rely on majority logic (ml) which is a substantially different framework from conventional boolean logic. The majority gate performs a multi-input logic operation and is shown in fig. 1;

IMPLEMENTATION OF 16 BIT POWER EFFICIENT CARRY SELECT ADDER

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Abstract: New Technology is quantum dot cellular automata at Nano metric scale, which has lower area (PLBs) requirement and low Power Consumption, quantum cells. by using the CMOS technology, layout size can't lesser than their present size, the QCA approach proves to one of the potential arrangements in beating this physical layout. Using this QCA technology, we created Majority gate, with the help of the Majority gate calculations, newBinary coded Decimal (BCD) adder has developed. The method is simulated and synthesized using Xilinx ISE software with the help of Verilog programming language. The results shown that the proposed method has better performance properties like delay (speed), power utilization, area, ADP and PDP compared to existing methods.

Keywords: QCA, CMOS, BCD

1. INTRODUCTION

Any VLSI design aims at optimization of any of three parameters namely power, area and delay. Many researchers have achieved this optimization using CMOS technology. CMOS technology gives very promising results and if we try to extend the same CMOS technology to nanometer range the length and width of the channel becomes too small and hence transistor loses its functionality. As alternative CMOS in nanometer scale a new technology QCA (Quantum Cellular Automata) has been developed. QCA is one of the promising technologies that have been employed in modern VLSI design for optimization of power and area. The crucial feature of a QCA cell is that it possesses an electric quadrupole which has two stable orientations. These two orientations are used to represent the two binary digits, "1" and "0". In simplest form QCA is four dot nano cell composed of four dots at corner of the square. The fig.1 given below represents a QCA cell. The four dots of quantum cell represents holes and electrons. White colored dots represent holes and black colored dots represent electrons. Thus, there are four dots in QCA quantum cell out of which two are filled with electrons and two are filled with

ANALYSIS AND DESIGN OF REVERSIBLE MULTIPLEXER AND DE-MULTIPLEXER USING R-GATE

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ABSTRACT –

The project presents a reversible implementation of multiplexer and de-multiplexer, and evaluation of their quantum cost, gate count, garbage outputs and depth of the circuit. The simulation results are obtained in Xilinx ISE version 14.1 Reversible logic circuits are designed and implemented using Verilog code. The circuit is beneficial for further designing of reversible digital designs with low power loss. The devices designed through this circuit are expected to have a better performance as compared to the existing circuits.

I. INTRODUCTION

Conventional irreversible logic gates like two input AND, OR, NOT map two-bit input state to one-bit output state. Erasure of one bit and impossible to construct input from output consequently leads to energy loss. To avoid such energy loss two input states can be mapped to two output states so that input states can be uniquely recovered from output states and under such circumstances, a gate is said to be reversible. Reversible logic gates differ from Conventional irreversible logic gates as they don't permit feedback. The optimized reversible logic circuit consider various metrics like quantum cost, ancillary input lines, garbage output lines.

The quantum cost of a reversible gate can be calculated by counting the numbers of NOT, Controlled-V, Controlled-V+ and CNOT gates from NCV gate library and integrated qubit gates. Integrated qubits are a combination of Feynman gate and either controlled V or controlled V+ gate. Quantum cost of integrated qubit gate as well as 1*1 and 2*2 is one. The output lines which are not required but deliberately need to be added to maintain reversibility criterion of a reversible gate are known as Garbage Outputs. Garbage outputs are always undesired in any reversible circuit.

Sometimes constant values 0 or 1 are deliberately applied to maintain reversibility criterion of a reversible gate. These constant values are also called as Ancillary Input lines. Ancillary inputs are also undesired in any reversible circuit.

II. EXISTING DESIGN

The Reversible Logic involves the use of Reversible Gates which consists of the same number of inputs and outputs i.e., there should be one to one mapping between input vector lines and output vector lines. In reversible computation [2], the reversible gates are made to run both forward and backward directions. If the device obeys above two conditions, it satisfies the second law of Thermodynamics which preserves the information bits without getting erased and guarantees that no heat is dissipated. Certain limitations are to be considered when designing circuits based on reversible logic (i) Fanout is not permitted in reversible logic and (ii) Feedback is also not permitted in reversible logic. In Reversible logic using outputs we can obtain full knowledge of inputs. To overcome the Fan-out limitation, by using additional reversible combinational circuits, the output lines are duplicated into required number of lines that are required to drive the inputs of consecutive device. Similarly for Feed-back limitation delay elements are used. Reversible logic conserves information. Some cost metrics [5] [4] like Garbage outputs, Number of gates, Quantum cost, constant inputs are used to estimate the performance of reversible circuits. Garbage outputs are the extra outputs which help to make inputs and outputs equal in order to maintain reversibility. They are kept alone without performing any operations. Number of gates count is not a good metric since more number of gates can be taken together to form a new gate. Quantum Cost is the number of elementary or primitive gates needed to implement a reversible logic gate. It is nothing but the number of reversible gates (1×1or2×2) required to construct the circuit. The quantum cost plays an important role in logical reversibility. If the quantum cost is more, then the area of the circuit increases, thereby increasing the propagation delay.

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Flexible Real-Time Operating System Co-Design Flow for Embedded Computing Systems

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Abstract: The adaptability of software portability and the strength of hardware efficiency can both benefit a system with the ability to alter its configuration. This signifies a significant shift in the way embedded programmes are conceived about and developed. There has not been a comprehensive design methodology provided for run-time reconfigurable systems that enable real-time operating systems, despite the fact that many different reconfigurable technologies and tools based on those technologies have been developed. The RTOS, or real-time operating system, is an integral part of system and co-design. A new co-design technique to meet the requirements of real-time operating systems on reconfigurable embedded systems is proposed based on the findings of this study. Co-design techniques needed to create an adaptive signal filtering system on a commercially available reconfigurable platform are highlighted in this study's presentation of a design scenario. The incident has been documented on paper. The findings indicate that, in comparison to a purely software

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Implementation of Water Quality Management Platform for Aquaculture Based On Big Data

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Abstract –

Aquaculture manufacturers, in order to guarantee both the quality and quantity of their harvest, will benefit from a big data-based water quality monitoring platform. The majority of farmers, however, must rely on manual water quality data collection, which slows down data storage and reuse. In order to analyse and show data for heterogeneous water quality prediction and real-time warning, this project will make use of the spring boot platform of acquisition automation and visualisation. At the same time, it facilitates the coordination of robots, humans, and breeding specialists. Better social benefits may be achieved via the use of these platforms for aquaculture growers.

Keywords – Aquaculture, Big Data, Aquaculture Farmers, Visualization.

1. INTRODUCTION

The coming decade will present difficulties for aquaculture in the areas of disease and epizootic control, brood stock improvement and domestication, food and feeding mechanism development, hatchery and grow out technologies, and water quality management. These are all significant ongoing technical and biological endeavours. Aquaculture informatics refers to the study of aquatic creatures from a scientific perspective.

The integration of computing and biological concepts to boost the competitiveness and profitability of biology's many manufacturing subsectors. The quantity of information on aquaculture that can be accessed online is increasing at an exponential rate, thus the right measures need to be taken to encourage cooperation and cut costs. These Aquaculture information resources obstruct information sharing because to their dispersed, app-specific locations and inconsistent data structures. Some designers of information systems also aren't familiar with common practises like design methods, data description standards, or open source software. The point of this piece is to bring together these new implementers into one place, where they can help maintain old systems and develop innovative ones.

2. RELATED WORKS

Pillay, "The Role of Aquaculture in Fishery Development and Management," Fisheries Research Board of Canada Journal, Volume 58, Issue 2, Pages 59-80. Despite shifting trends in aquaculture's growth over time, the present prioritises the establishment of financially sustainable enterprises. Major aquaculture regions continue to prioritise the production of species accessible to the broadest possible audience in terms of price.

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Skin Disease Classification with Integrated Machine Learning and Deep Learning

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Abstract: Skin conditions affect a disproportionately high number of organisms. Medical professionals encounter a challenging challenge when trying to properly record and categorise the wide variety of skin illnesses that exist. It can be difficult to accurately diagnose a skin infection because there is such a wide variety of human skin tones and the effects of skin infections can be evident nearly immediately. This highlights the need of identifying and treating skin issues as soon as possible. In recent years, there has been a meteoric rise in the number of medical applications of AI. More often than not, diagnostic procedures employ DL and ML approaches. The diagnostic procedure is not only enhanced by these solutions, but it is also accelerated by them. This approach uses deep learning also machine learning to enhance the classification of skin diseases. The results of a comparison analysis prompted researchers to develop a prediction model that combines Convolutional Neural Networks also Support Vector Machines and achieves an accuracy of 92.05%.

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3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the Academic Year 2021-22

S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
1	Implementation of Low power approximate unsigned multipliers with configurable error recovery	P M Naseer Hussain	ECE	Journal of Engineering Sciences	2021-22	0377-9254	UGC Care list
2	Implementation of Low power approximate unsigned multipliers with configurable error recovery	Dr S Siddeswara Reddy	ECE	Journal of Engineering Sciences	2021-22	0377-9254	UGC Care list
3	Design And Analysis of Area-Time Efficient Streaming Architecture for FAST and BRIEF Detector	Dr S Siddeswara Reddy	ECE	Journal of Engineering Sciences	2021-22	0377-9254	UGC Care list
4	Energy efficient VLSI Implementation of Multipliers with Double LSB Operands	P M Naseer Hussain	ECE	Journal of Engineering Sciences	2021-22	0377-9254	UGC Care list
5	Energy efficient VLSI Implementation of Multipliers with Double LSB Operands	Dr S Siddeswara Reddy	ECE	Journal of Engineering Sciences	2021-22	0377-9254	UGC Care list
6	Sentimental Analysis of Product Based Reviews Using Machine Learning Approaches	V Narasimha Swamy	CSE	International Journal of Research in Information Technology	2021-22	2349-6002	UGC Care list
7	Non-linear Radiative Williamson fluid against a wedge with aligned magnetic field	Dr. K. Subbarayudu	BSc&H	Advances in Fluid Dynamics	2021-22	2195-4365	UGC Care list

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S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
8	Implementation of High-Accuracy Approximate Multiplier using Approximate High Ordered Compressors	Dr S Siddeswara Reddy	ECE	Journal of Engineering Sciences	2021-22	0377-9254	UGC Care list
9	Numerical investigation of non-Fourier flux theory with chemical action on Maxwell radiating Nanoliquid: A biomedical application	Dr. K. Subbarayudu	BSc&H	Advances in Fluid Dynamics	2021-22	2195-4364	UGC Care list

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IMPLEMENTATION OF LOW-POWER APPROXIMATE UNSIGNED MULTIPLIERS WITH CONFIGURABLE ERROR RECOVERY

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Abstract: Inexact circuits have been considered for applications that can endure some deficiency of precision with further developed execution or potentially energy effectiveness. Multipliers are key number juggling circuits in a considerable lot of these applications including DSP. In this paper, a clever estimated multiplier with a low power utilization and a short basic way is proposed for elite execution DSP applications. This multiplier uses a recently planned estimated addition that restricts it convey spread to the closest neighbors for quick halfway item gathering. Various degrees of exactness can be accomplished by utilizing either OR entryways or the proposed surmised addition in a configurable blunder recuperation circuit. The approximate multipliers using these two error reduction strategies are referred to as AM1 and AM2, respectively. Both AM1 and AM2 have a low mean error distance, i.e., most of the errors are not significant in magnitude. Compared with a Wallace multiplier optimized for speed, an 8×8 AM1 using four most significant bits for error reduction shows a 60% reduction in delay (when optimized for delay) and a 42% reduction in power dissipation (when optimized for area).

Index Terms— Approximate computing, multiplier, adder, error recovery, low-power, image processing.

1. Introduction

We have an abundance of new information, not just from big, efficient research and business machines, but also from billions of low-power devices of different sorts. While conventional workloads like transactional or database analysis continue to develop modestly, a variety of systems are explosively computerized to achieve greater insight in large quantities of structured and unstructured data. Traditional computing implies an accuracy which is not required in most types of information. Nevertheless, though, these computational systems stay on high-precision (and reliable) frameworks for general purposes (and accelerator). The goal of approximate computing is to loosen these restrictions in order to achieve substantial computational performance improvements-while preserving reasonable output.

Design And Analysis ofArea-Time Efficient Streaming Architecture for FAST and BRIEF Detector

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Abstract: Advanced video communication requires the high speed as well as low power consumption devices. But the conventional video streaming architectures are failed to maintain this trade-off.This work presents a novel video streaming architecture using combination of features, which are generatedfrom FeatureAccelerated Segment Test (FAST) and Binary Robust Independent Elementary Feature (BRIEF) descriptors.To reduce the complexity of the BRIEF descriptor, we employ an optimized adder tree to perform summation by accumulation on streaming pixels for the smoothing operation. Since the window buffer used in existing designs for computing the BRIEF point-pairs are often poorly utilized, this work proposes an efficient sampling scheme that exploits register reuse to minimize the number of registers. All the designs are implemented and synthesized using Xilinx ISE software with verilog programming language. The simulation results shows that the proposed FAST-BRIEF descriptor consumes the low power as compared to the conventional approaches.

Keywords: Feature descriptor, embedded vision, VLSI, hardware acceleration

I. Introduction

Computer vision algorithms such as Simultaneous Localization and Mapping (SLAM), object detection, object matching and video frame correspondence, rely on video frame features [1]. The features are used for object representation, or directly matched and tracked across multiple frames. Due to the real-time nature of these applications [2], the computational complexity for detecting the features must be kept low. The FAST algorithm was introduced to detect reasonable corners at high speed. The Binary Robust Independent Elementary Feature (BRIEF) descriptor is computed by performing binary tests of n point-pairs on a square video frame patch. The combination of FAST and BRIEF (FAST-BRIEF) [3][4] has been shown to outperform other video frame features in many applications [5]. FAST-BRIEF features provide a good trade-off between robustness and compute efficiency. However, it still contributes to a significant portion of the overall application runtime. For example, the FAST-BRIEF descriptor contributes

ENERGY-EFFICIENT VLSI IMPLEMENTATION OF MULTIPLIERS WITH DOUBLE LSB OPERANDS

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Abstract: Redundant Binary Partial Product Generator technique are used to reduce by one row the maximum height of the partial product array generated by a radix16 Modified Booth Encoded multiplier, without any raise in the delay of the partial product creation Block. In this paper, we describe an optimization for binary radix-4 modified Booth recoded multipliers to reduce the maximum height of the partial product columns to [n/4] for n = 64-bit unsigned operands. This is in contrast to the conventional maximum height of [(n + 1)/4]. Therefore, a reduction of one unit in the maximum height is achieved. This Arithmetic multipliers increase the performance of ALU and Processors. We evaluate the proposed approach by comparison with Normal Booth Multiplier. Logic synthesis showed its efficiency in terms of area, delay and power. Simulation results show that the proposed Multiplier based designs significantly improve the area, delay and power consumption when the word length of each operand in the multiplier is 64 & n-bits. The proposed architecture of this paper analysis the delay and area using Xilinx 14.2.

Keywords: Modified Booth Encoding, Radix-16, Pipeline, Multiplier, Enhanced, Carry Select Adder, Binary Excess Converter.

1. Introduction

Multiplier is one of the basic hardware block used for many digital and high performance systems such as FIR filters, digital signal processors and microprocessors etc. Many high speed low power multiplication algorithms and architectures have been proposed. Advances in technology have permitted many researchers to design multipliers which offer both high-speed and regularity of layout, thereby making them suitable for VLSI implementation. Digital signal processing requires efficient multiplication operations with the highest possible speed without compromising the power budget. In general, basic multiplication algorithm can be divided into three following steps.1) partial product (pp) generation, 2) partial product reduction and 3) final carry propagated addition [1-2]. In the first step, a set of partial product rows is generated where each one is the result of the product of one bit of the multiplier by multiplicand. For example, if we consider the multiplication X x Y with both X and Y on n bits and of the form xn_1 . . . x0 and yn_1 . . . y0, then the ith row is, in general, a proper left shifting of yi x X, i.e., either a string of all zeros when yi = 0, or the multiplicand X itself when yi = 1. In this case, the number of PP rows generated during the first phase is clearly n [1-4]. Recoding of binary numbers was first hinted at by Booth [5] four decades ago.

Sentimental Analysis of Product Based Reviews Using Machine Learning Approaches

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Abstract **- With the fast growth of e-commerce, large number of products is sold online, and a lot more people are purchasing products online. People while buying also give feedback of product purchased in form of reviews. The user generated reviews for products and services are largely available on internet. Since information available on internet is so widespread, we need to extract the needful information for which we make use of sentimental analysis. Sentiment analysis extracts abstract and to the point information required for source materials by applying concept of Natural language processing. It is used to deal with identification and aggregation of the opinions given by the customers. These reviews play vital role in determining potential customer for the products as well as market trend for product. This paper provides summary of reviews for products by classifying these reviews as positive, negative or neutral. Information on internet is highly Since reviews are highly unstructured, machine learning approaches are applied including naïve Bayes and support vector machine algorithms by first taking inputs as unstructured product reviews, performs preprocessing, calculates polarity of reviews, extracts features on to which comments are made and also plots graph for the result. The algorithms precision, recall and accuracy are measured Finally.**

Index Terms **- Machine Learning, Semantic Orientation, Sentiment Analysis, Support Vector Machine, Naïve Bayes.**

1.INTRODUCTION

In past days, purchasing of products was more based on getting product review from nearby neighbors, relatives etc. as products were purchased directly from merchants. People believed relatives, and friends review about product helpful. But with change in technology, we saw development of Ecommerce industry with sites flooded by products from different brands made available to customers at the touch of one click. The availability of product-based sites with doorstep delivery has made it convenient for customers to shop online. It provides one stop shop for all needs of customers. With so much change in shopping pattern, we see merchants providing customers with feedback option about the product. Customers write reviews from all parts of the world. There are thousands, millions of reviews being written. So a question arises on how to get fundamental judgment about product without going through each of them separately. A lot of reviews are very long, making it difficult for a potential customer to review them to make an informed decision on whether the customer should purchase the product or not. A vast number of reviews also make it difficult for product manufacturers to keep log of customer opinions and sentiments expressed on their products and services. It thus becomes necessity to produce a summary of reviews. Summarization of reviews is done using sentiment analysis. Sentiment analysis tends to extract subjective information required for source materials by applying natural concept of natural language processing [4]. The main task lies in identifying whether the opinion stated is positive or negative. Since customers usually do not express opinions in simple manner, sometimes it becomes tedious task to judge an opinion stated. Some opinions are comparative ones while others are direct. Sentimental analysis helps customer visualize satisfaction while purchasing by simple summarization of these reviews into positive or negative- two broader classified classes. Feedbacks are mainly used for helping customers purchase online and for knowing current market trends about products which is helpful for developing market strategies by merchants. In this paper, we examine the effectiveness of applying machine learning techniques to the

Nonlinear Radiative Williamson Fluid Against a Wedge with Aligned Magnetic Field

K. Subbarayudu, L. Wahidunnisa, S. Suneetha, and P. Bala Anki Reddy

Abstract The foremost importance of this presentation is to explore the nonlinear thermal radiation on a Williamson liquid model on a wedge in the company of a heat generation/absorption which is not uniform. An aligned magnetic field, Brownian diffusion and thermophoresis aspects are also investigated. The flow and temperature equations are derived and solved by Runge–Kutta based *MATLAB bvp4c solver.* Results for different flow characteristics are plotted through graphs and discussed in detail. The wall temperature raises as temperature ratio parameter increases and results in a deep penetration for temperature. The concentration of the species seems to be increased with Brownian diffusion and radiation.

Keywords Williamson fluid model · Wedge shape geometry · Aligned magnetic field · Nonlinear thermal radiation

1 Introduction

The contemporary era, researchers are doing many experimental and theoretical studies on the fluid flow and transformation of energy in the non-Newtonian fluid models that have significant applications in engineering, for instance, emulsions, lubricants, polymers, and nuclear fuel slurries. Some alive rheological models are Power law, Carreau, Jeffery, Williamson fluid, and so forth. Out of these, Williamson fluid model is a simple model to suggest the viscoelastic nature and shear thin out features which were introduced by Williamson [1] in 1929. The fluid flow and transfer of heat across wedge-shaped geometries are important in several engineering applications and also in fluid dynamics. Particularly such flows occur in aerodynamics, heat exchangers, geothermal industries, and so on. A number of surveys have been found considering Williamson wedge flow in Ref. [2–4]. The study of fluid past a wedge with MHD has vital applications in nuclear reactor cooling, MHD power generators and

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IMPLEMENTATION OF HIGH-ACCURACY APPROXIMATE MULTIPLIER USING APPROXIMATE HIGH ORDER COMPRESSORS

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Abstract—To reduce the power consumption, the design of approximate multiplier appears as a promising solution for many error-resilient applications. In this paper, we propose a low-power high-accuracy approximate 8 x 8 multiplier design. The proposed design has two main features. First, according to the significance, different weights utilize different compressors (in different levels of accuracy) to accumulate their product terms. As a result, the power consumption can be saved with a small error. Second, for the middle significance weights, we use high-order approximate compressors (e.g., 15:4, 5:3 compressor) to reduce the logic of carry chains. To our knowledge, the proposed design is the first work that successfully uses high order approximate compressors in the approximate multiplier design. Compared with an exact multiplier (Dadda tree multiplier), experimental results show that the proposed approximate multiplier can achieve both low power and high accuracy.

Keywords-approximate computing; arithmetic circuits; logic design; low-power design; partial product reduction

1. Introduction

We have an abundance of new information, not just from big, efficient research and business machines, but also from billions of low-power devices of different sorts. While conventional workloads like transactional or database analysis continue to develop modestly, a variety of systems are explosively computerized to achieve greater insight in large quantities of structured and unstructured data. Traditional computing implies an accuracy which is not required in most types of information. Nevertheless, though, these computational systems stay on high-precision (and reliable) frameworks for general purposes (and accelerator). The goal of approximate computing is to loosen these restrictions in order to achieve substantial computational performance improvements-while preserving reasonable output. A main research aim in estimated calculation is to define the estimation thresholds within various layers of the machine stack (from computers to circuits and electronic components) to enable for an appropriate but probably specific outcome from the results obtained using precise calculation. Approximate computational techniques

Numerical Investigation of Non-Fourier Flux Theory with Chemical Action on Maxwell Radiating Nanoliquid: A Biomedical Application

Suneetha Sangapatnam, Subbarayudu Ketineni, Ali J. Chamkha, and Bala Anki Reddy Polu

Abstract In the modern critique, we deliberated a theoretical model of blood with carbon nanotubes (CNT's)—ejected in a Maxwell fluid with dissipative nanoparticles through binary chemical reaction lying on a stretching sheet by means of aligned field of magnetism. A customized Arrhenius function is imposed for energy activation. A non-linear radiation and a heat source/sink which is not uniform are incorporated in the energy equation which named as Cattaneo–Christov model of heat diffusion. Convective slip and suction are also added. Single and multiple walled nanotubes of carbon are employed with human blood as working liquid. A non-linear system is obtained for the considered problem, and an attempt is made by using Runge–Kutta fourth order through shooting (RK4S) method—bvp4c codes in MATLAB. The results are discussed and plotted in graphs for embedded parameters of concern. Higher activation energy improves the concentration, and a rise in chemical reaction rate constant raises Sherwood number. This study is thoughtful for medical surgeons during surgery in regulating the blood flow.

Keywords Cattaneo–Christov heat flux · SWCNT and MWCNT's · Activation energy · Binary chemical reaction · Human blood · Non-uniform heat source/sink

Nomenclature

g'	Acceleration due to gravity
T_∞	Ambient fluid temperature
T_f	Hot fluid temperature

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3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the Academic Year 2020-21

S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
1	Low Power 4-Bit Arithmetic Logic Unit Using Full-Swing GDI Technique	Dr S Siddeswara Reddy	ECE	The International journal of analytical and experimental modal analysis	2020-21	0886-9367	UGC Care list
2	Minkowski Fractal Antenna with Circular DGS for Multiband application	M Sreenivasulu	ECE	Wireless, Antenna and Microwave Symposium-IEEE	2020-21	2169-3536	UGC Care list
3	Navier Slip Condition on Time-Dependent Radiating Nanofluid with the Soret Effect	Dr. K. Subbarayudu	BSc&H	Engineering Transactions	2020-21	0867-888X	UGC Care list
4	Stability Improvement In a Distributed Generator using Virtual Synchronous Generator	D Nagendra Babu	EEE	Solid State Technology	2020-21	0038-111X	UGC Care list
5	Stability Improvement In a Distributed Generator using Virtual Synchronous Generator	R Venkata Manoj	EEE	Solid State Technology	2020-21	0038-111X	UGC Care list

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Low Power 4-Bit Arithmetic Logic Unit Using Full-Swing GDI Technique

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Abstract — This paper presents a design of a 4-bit arithmetic logic unit (ALU) by taking vantage of the concept of gate diffusion input (GDI) technique. ALU is the most crucial and core component of central processing unit as well as of numbers of embedded system and microprocessors. In this, ALU consists of 4x1 multiplexer, 2x1 multiplexer and low power full adder designed to implements logic operations. Full swing GDI cells are used in the design of multiplexers and full adder which are then associated to realize ALU. The simulation is carried out DSCH3.5 and Microwind3.5 simulator using 65nm technologies and compared with previous designs realized with Pass transistor logic and CMOS logic.

Keywords — Arithmetic Logic Unit (ALU); Gate Diffusion Input (GDI); Full-Swing GDI.

1. INTRODUCTION

In real time applications, ALU is an important component in all electronics, processors and embedded systems. In most of the circuits, power consumption as well as time depends on ALU configurations because all arithmetic and logical operations of circuits are performing in ALU. ALU is also one of the highest power density locations in the processor. The optimization of ALU can be done in three important VLSI parameters which include area, power dissipation and delay. The optimization of ALU for lower power dissipation and faster device performance is of mainly important. Power optimization is possible at every level of digital design flow; however, benefits are more at the architecture design level and transistor level.

In the design of low power digital logic circuits, CMOS is an important element which including microprocessors and ALU within it. Due to the leakage current problem, the static power consumption of CMOS device is almost negligible. However, the addition of the transient power consumption (PT) and capacitive load power consumption (PL) the dynamic power dissipation is used significantly. Mostly this type of dynamic power is dissipated in translating charges in the parasitic capacitors in the CMOS gates. In VLSI, There are different methods are used to control the power consumption at the architecture device level and module level which includes scaling, varying frequency of operation or supply voltage, changing the load capacitances, etc.

Here, in this paper, we are concentrating about optimizing power requirements and delay at the module level. Power consumption, area and delay are the main important issues in VLSI industry, which triggered many research efforts are tried to minimize the power consumption, area and delay of VLSI circuits. There is only a limited amount of power available for electronic devices heavily used on a daily basis; these devices are low power high speed VLSI circuit works simultaneously. ALU has been a key element used in many applications such as microprocessor, image processing, digital signal processing etc., An essential component of arithmetic unit and almost all other arithmetic operations includes addition therefore any improvement in the adder cell is reflected as a major improvement in the ALU. Hence, the delay also becomes one of the important design parameters which need to be reduced as less as possible. In ALU, adders play a major role not only in addition but also in performing many other basic arithmetic operations like subtraction, multiplication etc.

So many VLSI researchers are designed are several adder designs for optimizing low power requirements, area and delay. Several works have been proposed in the literature for low power ALU design. An ALU is implemented by two main modules: one module is arithmetic unit performing addition/subtraction operations and the other module is Logic unit. For a low power designs, Gate diffusion input technique is a new design style for reducing area and delay than the existing adders. Several ALU designs are implemented to design various adders even though the Full-Swing design of GDI based ALU shows high power

Minkowski Fractal Antenna with Circular DGS for Multiband Applications

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M Sreenivasulu ; E.Kusuma Kumari ; R. Ramana Reddy ; S.B.T. Abhyuday All Authors

186
Full
Text Views

Abstract
Document Sections
I. Introduction
II. Antenna Design
III. Simulation Results and Analysis
IV. Conclusion
Authors
Figures
References
Keywords
Metrics

Abstract:
To cater demand of multiband operating applications a low-profile microstrip antenna comprising Minkowski fractal architecture and defective ground structures (DGS) is proposed. The self-similar minkowski fractal developed in 4 iteration levels is presented. Circular defects are etched in ground plane of the proposed iteration 4 antenna to enhance performance of antenna and to obtain multiband operation. Results observed for basic iterations and iteration 4 for both with and without DGS configurations is presented. With 3 mm circular defect in ground plane the iteration 4 antenna operates over various frequencies within range 5.38 GHz – 20.73 GHz. In terms of gain the 7.9 dBi gain offered by the iteration 4 with 6 mm circular DGS is higher than 7.5 dBi gain offered by iteration 4 with 3 mm DGS.

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Université de Lorraine • Poznan University of Technology

Research Paper

Navier Slip Condition on Time-Dependent Radiating Nanofluid with the Soret Effect

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This work concentrates on the study of the two-dimensional hydromagnetic flow of nanofluids over an suddenly started nonlinear stretching sheet in the presence of radiation and dissipation. The Soret effect and heat generation are also taken into consideration. The transformed ordinary differential equations (ODEs) are solved numerically via the MATLAB RK4S approach bvp4c solver with the assistance of similarity variables. The effects of various parameters are explored and shown in graphs and tables. It is noted that the concentration increases as the Soret number increases within the boundary layer. An increase in velocity slip decreases the velocity and a reverse effect is observed for temperature. This model has significance in different areas such as polymer chemical and metallurgical industries, and other fields that use the latest technology and thermo-processed materials such as metallic and glass sheets.

Key words: nanofluids; MHD; thermal radiation; viscous dissipation; heat generation; Soret effect.

Notations

a – constant parameter [s^{-1}],
A – unsteadiness parameter,
B – magnetic field [$kg/(s^2 \cdot A)$],
B_0 – constant magnetic field [$kg/(s^2 \cdot A)$],
C – nanoparticle concentration,
C_∞ – concentration of nanoparticle in the free stream,
C_{f_X} – local skin friction coefficient,
C_w – concentration of nanoparticle at the wall of the sheet,
D_B – Brownian diffusion coefficient [m^2/s],
D_T – thermophoretic diffusion coefficient [m^2/s],

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Stability Improvement in a Distributed Generators using Virtual Synchronous Generator

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Abstract **—** Now a days distributed generators (DG's) utilizations were increased due to increased power demand effect over conventional generations. To maintain synchronism with grid generally phased locked loops are used in DG's. If the power demand was more than requirement then the stability is the majorly effected problem in the DG's. To eliminate this problem by using Virtual Synchronous Generators (VSG's) concept in DG's. It controls DG's to maintaining balance between generation and load and also it is a modern trending technology to this DG's. In VSG's there is no Power system stabilizers to eliminate oscillations generated in the system during abnormal conditions. For this a new control strategy is implemented by using linearizing swing equation to suppressing these unwanted oscillations in the system. This paper is analyzed effectively by considering one more control technique that is Fuzzy logic control system and its observations have been seen in MATLB-SIMULINK software.

Keywords *- Distributed generation (DG's), Fuzzy Logic Controller (FLC), Swing equation, Virtual Synchronous Generator (VSG's), PLL*

I. INTRODUCTION

Now a days the need of electrical power consumption applications was increases in each and every environment field. Generally per capita energy consumption of every nation is mainly depending on power sector growth rate. So, to meeting the demand simultaneous counter balancing electrical generation definitely needed. But most of the counties electrical power generating by using fossil fuels such as coal, petroleum, gas, diesel etc. These fuels generally producing harmful gases like Carbon Monoxide (CO), Corban Dioxide (CO2) etc., causes a severe pollution to the environment and also health problems to humans. The fossil fuels are also exhaustive in nature and they are may be not available after few years later. So, we have to depend on other sources like non-conventional source category sources such as wind energy, Hydel energy, Geothermal energy, Tidal energy, ocean energy, Solar energy and Biomass energy etc., are better than conventional energy sources (CES's). The Non-Conventional Energy sources (NCES's) are also called Green Energy sources. The NCES's have many advantages over CES's, and its main advantage is a pollution free sources.

The total installed capacity of India as of June 2020 is 371 GW power generation but out of which only NCES's generation is 17.3 % only. To handling these NCES's suitable type of system is needed for

2019-20

3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the Academic Year 2019-20

S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
1	Framing the activation energy and binary chemical reaction on CNT's with Cattaneo-Christov heat diffusion on Maxwell Nano fluid in the presence of non-linear thermal radiation	K. Subbarayudu	BSc&H	Arabian Journal for Science and Engineering	2019-20	2191-4281	UGC Care list
2	Homogeneous-heterogeneous chemical action and non-Fourier flux theory effects in a flow with carbon nanotubes	K. Subbarayudu	BSc&H	Heat Transfer	2019-20	2688-4542	UGC Care list
3	Numerical Approach for a Sutter by Fluid Impinging to a Non-Fourier Flux and a Nonlinear Radiation with a Binary Chemical Reaction	K. Subbarayudu	BSc&H	THINK INDIA JOURNAL	2019-20	0971-1260	UGC Care list
4	The assessment of time dependent flow of Williamson fluid with radiative blood flow against a wedge	K. Subbarayudu	BSc&H	Propulsion and Power Research	2019-20	2212-540X	UGC Care list
5	Structural, surface morphological, optical and thermoelectric properties of sol-gel spin coated Zn doped Cds Thin films	Munaga Venkata Veera Prasad	BSc&H	SN Applied Sciences	2019-20	(2020) 2:552	UGC Care list

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S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
6	Effect of post annealing temperature on linear and non-linear optical properties of sol-gel spin coated Cds Thin films	Munaga Venkata Veera Prasad	BSc&H	International Journal of Scientific Research in Applied Physics	2019-20	2348-3423	UGC Care list

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Arabian Journal for Science and Engineering
https://doi.org/10.1007/s13369-019-04173-2

RESEARCH ARTICLE - MECHANICAL ENGINEERING

Framing the Activation Energy and Binary Chemical Reaction on CNT's with Cattaneo–Christov Heat Diffusion on Maxwell Nanofluid in the Presence of Nonlinear Thermal Radiation

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Abstract

A theoretical model is drafted to inspect the hydromagnetic flow of carbon nanotubes (CNT's) suspended in a Maxwell nanofluid by means of activation energy with binary chemical reaction over a stretching sheet. Modified Arrhenius function is measured instead of the energy activation. Heat transport phenomena are explored in energy expression through a nonlinear thermal radiation and viscous dissipation, which is incorporated with a novel theory specifically Cattaneo–Christov model of heat diffusion—a sophisticated form of Fourier's heat flux formula. The flow analysis is reported in attendance of convective slip and suction. Two different kinds of CNT's (i.e. single and multiple walls) are consistently dispersed in the base fluid (engine oil) to illustrate the fine points of the flow. The governing system of mathematical expressions for the locally similar flow is tackled numerically by Runge–Kutta-based MATLAB bvp4c package. The procured solutions are drawn for different values of pertinent parameters of interest. The temperature of the fluid escalates with the nonlinear thermal radiation. Activation energy boosts up the concentration, and a negative trend is observed for rate of chemical reaction.

Keywords Cattaneo–Christov heat flux · Nonlinear thermal radiation · Viscous dissipation · Activation energy and binary chemical reaction

Abbreviations

g	Acceleration due to gravity
T_∞	Ambient fluid temperature
C-CHFM	Cattaneo–Christov heat flux model
h_f	Convective heat transfer coefficient
Ec	Eckert number
M	Magnetic parameter
E	Non-dimensional activation energy
Pr	Prandtl number
q_r	Radiative heat flux
Sc	Schmidt number
S	Suction/injection parameter
T	Temperature
k_{CNT}	Thermal conductivities of CNT's
k_f	Thermal conductivities of the host fluid
k_{nf}	Thermal conductivities of the nanofluid
Rd	Thermal radiation
B	Uniform magnetic field strength,
U_w	Velocity at wall
u	Velocity components along the x-axis
v	Velocity components along y-axis
A	Velocity slip factor
v_w	Wall mass flux
T_w	Wall temperature
σ	Non-dimensional chemical reaction rate constant
θ_w	Temperature ratio parameter
μ_f	Viscosity of base fluid
μ_{nf}	Viscosity of nanofluids
χ	Nanoparticles fraction
ρ_f	Density of the base fluid
ρ_{CNT}	Thermal conductivities of CNT's
$(\rho C_p)_f$	Heat capacity of a fluid
$(\rho C_p)_{nf}$	Heat capacitance of the nanofluid
$(\rho C_p)_{CNT}$	Heat capacity of CNT's
ρ_{nf}	Density of the nanofluid

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RESEARCH ARTICLE

Homogeneous-heterogeneous chemical action and non-Fourier flux theory effects in a flow with carbon nanotubes

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Abstract

A theoretical outline is sketched to figure out the stream of polyvinyl alcohol (PVA)–based CNTs along a moving surface with multiple slip effects on homogeneous and heterogeneous chemical reactions. The nonlinear radiant, heat, and nonuniform heat source/sink is incorporated in the energy equation to discuss the heat transport phenomenon. The novel theory of non-Fourier flux model of heat diffusion is also merged in the energy equation. Two kinds of nanoparticles are considered, namely, single wall carbon nanotubes and multiple wall carbon nanotubes, and are suspended in the working PVA to illustrate the flow behavior. Due to a large variety of applications, PVA is used in papermaking, textiles, and a variety of coatings. The principal structure of mathematical model is based upon the system of differential equations, which has been tackled through Runge–Kutta–Fehlberg method in MATLAB software. Graphical images are made vs different physical parameters which emerged in the model. The heat transfer of the fluid enhances with the increase of nonuniform thermal radiation. The homogeneous and heterogeneous chemical reactions slow down the concentration rate.

KEYWORDS

C-CHFM, CNTs, homogeneous/heterogeneous, nonlinear radiation, nonuniform heat source/sink

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Numerical Approach for a Sutter by Fluid Impinging to a Non-Fourier Flux and a Nonlinear Radiation with a Binary Chemical Reaction

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Abstract— Present effort is executed to read the thermal and mass transfer of Sutterby fluid by discussing sparkling characteristics of nonlinear thermal radiation and binary chemical reaction. Flow field equations for stretched surface are attained by incorporating a non-uniform heat source/sink, viscous dissipation and second order convective slip condition. The motive is to scrutinize the thermal transmission by means of a rephrased form of the Fourier law coined as Non-Fourier flux model. The formulation of physical problem convolutes a system of nonlinear partial differential expressions. To transfigure these consequent equations into non-dimensional form an appropriate scaling group of variables are used and solved numerically by RK4S method- bvp4c set of instructions in Matlab. Graphical depiction is offered for the flow manner of convoluted physical parameters of interest. In addition, the quantities which are likely to excavate the physical tendency in the environs of the stretching sheet are calculated.

Keywords: *Sutterby fluid, non-linear thermal radiation, binary chemical reaction, viscous dissipation, non-uniform heat source and sink*

I. INTRODUCTION

Many investigators and scientists have experimented on the transporting abilities of fluids. Fluid rheology is the best way to recognize the dynamical transport mechanism of fluids. In some walks of discipline transport processes and have linearity between the shear stress and shear stain. But in certain industrial and technological projects (melting of Polymers, some lubricating oils and other suspensions, mud drilling etc.) have thorny transport process. This was addressed by Navier. Hence a non-empirical strain-stress demonstrated by the above mentioned materials. Such type of fluids well-known as Non-Newtonian fluids involves a nonlinear proportionality between stress and strain. These fluids has various applications: in electronic cooling devices, medicine, for reducing friction, changing angular momentum, for heat transmission etc. To describe the physical nature, these fluids are mainly classified into three types: pseudoplastic, dilatant and thixotropic. Newly, numerous fluid patterns are recommended which express the dual nature of dilatant and pseudoplastic materials. One of the model branded as Sutterby fluid model [1, 2] has received much public interest due to its special compacted structure. This model shows the properties of shear thickening liquids or dilatent (for example: wet beach sand, starch in water) when $m > 0$, the rheological trends of pseudoplastic liquids or shear thinning (for example: paint, starch, paper pulp) when $m < 0$, and behaves like Newtonian fluid (water, light oil, kerosene) when $m=0$, m is power law index. A good amount of literature survey on this model is available in Refs. [3 - 6]

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ORGINAL ARTICLE

The assessment of time dependent flow of Williamson fluid with radiative blood flow against a wedge

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KEYWORDS

Williamson fluid model;
Wedge shape geometry;
Magnetohydrodynamic (MHD);
Thermal radiation;
Blood flow

Abstract The present pagination reports both Brownian diffusion and thermophoresis aspects subject to magnetohydrodynamic Williamson fluid model. Assuming the flow is unsteady and blood is treated as Williamson fluid over a wedge with radiation. The governing equations are transformed into ordinary differential equations by using similarity variables. The numerical solutions of the transformed governing equations are obtained by using the RK 4th order method along with shooting technique solver. The effects of various physical parameters such as Hartmann number, local Weissenberg number, radiation parameter, unsteadiness parameter, Prandtl number, Lewis number, Brownian diffusion, thermophoresis, wedge angle parameter, moving wedge parameter, on velocity, temperature, concentration, skin friction, heat transfer rate and mass transfer rate have been discussed in detail. The velocity and temperature profile deprives for larger *We* and an opposite trend is observed for concentration. The radiation parameter is propositional to temperature and a counter behavior is observed for *Pr*.

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1. Introduction

Till date, researchers are doing lots of experimental and theoretical investigations to study the non-Newtonian fluid models because of their significant applications in several biological and industrial processes. The theory of non-

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Research Article

Structural, surface morphological, optical and thermoelectric properties of sol–gel spin coated Zn doped CdS thin films

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Abstract
The present work is focussed on Zinc (2, 4, 6, 8 and 10 wt%) doped CdS thin films synthesized by sol–gel spin coating method and deposited on glass substrates. X-ray diffraction patterns of Zn doped CdS thin films exhibit cubic structure. The microstructural properties such as crystallite size, lattice constant, microstrain, dislocation density and stacking fault probability in the films were reported. The surface morphology and topography of the films was studied by using field emission scanning electron microscopy and atomic force microscopy. The incorporation of Zn in CdS and elemental composition of the films has been confirmed with X-ray photoelectron spectroscopy (XPS) and energy dispersive spectroscopy (EDS). Raman spectrum of Zn doped CdS thin films exhibits 1LO and 2LO phonon modes. The optical band gap of CdS thin films increased from 2.63 to 2.73 eV with the increase of Zn dopant from 2 to 10%. Thermoelectric power measurements show negative Seebeck coefficient indicating n-type semiconducting behaviour. The carrier concentration of Zn doped CdS thin films at room temperature are found to be in the range of 10^{19}–10^{20} cm^{-3} suggesting that the prepared films are degenerate semiconductors. The increase in thermal conductivity of Zn doped CdS thin film is due to the increase in carrier concentration of the films. The lattice thermal conductivity of Zn doped CdS thin films had an inverse temperature dependent and at high temperatures shows the dominance of phonon scattering.

Keywords II–VI semiconductor · Thin films · Structural properties · Thermoelectric properties

1 Introduction

Nowadays, ternary or quaternary chalcogenide semiconducting materials are of scientific interest because the physical properties can be tuned to meet the specific requirements in the electronic device fabrication [1]. Ternary chalcogenide semiconductors like Cd–Zn–X (X = S, Se) become more interest because of possibility in tuning the electronic properties. These chalcogenide semiconductors exhibit a wide direct band gap value in the range of 2.4–3.7 eV. Based on relative composition of Cd:Zn ratio, it is utilized in blue and ultraviolet laser diodes, window layers for solar cells, antireflection coatings for IR (infrared) devices, electroluminescence and low-voltage cathode luminescence [2, 3]. Experimental investigations on doping of Zn in CdS will enhance the optoelectronic properties and its applications in energy, electronics, and optoelectronic devices. Zinc is a worthy element with an ionic radius of 0.074 nm, smaller than the ionic radius of Cadmium (Cd^{2+} = 0.097 nm), so that the Zinc (Zn^{2+}) can incorporate in CdS lattice or substitute Cd^{2+} position in the crystal lattice [4]. The incorporation of Zn in CdS will increase the resistivity of the material and diffusion length [5]. The high band gap makes the film transparent in all the wavelengths of solar spectrum and decreases the window absorption losses [6]. Ternary semiconducting compounds

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Research Paper

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Effect of post-annealing temperature on linear and non-linear optical properties of sol-gel spin coated CdS thin films

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Abstract—Cadmium sulfide thin films were prepared by sol-gel spin coating method on glass substrates and its effect of post-annealing temperature on linear and non-linear optical properties were investigated. X-ray diffraction results showed that the grown CdS thin films exhibit cubic phase with (1 1 1) as a preferential orientation. The surface morphology of CdS thin films was characterized by using atomic force microscopy. The electrical resistivity of CdS thin films measured from the four-probe method decreased from 0.74×10^4 to 0.12×10^4 Ω.cm with the increase of post-annealing temperature from 150 to 300°C. The optical band gap of CdS thin films is found to be 2.42 eV, whereas its band gap decreased from 2.35 to 2.21 eV with the increase of post-annealing temperature from 150 to 300°C. The normal dispersion of refractive index for CdS thin films was described using Wemple-DiDomenico single-oscillator model. The optical dispersion parameters for CdS thin films were reported in this study. The Verdet constant is calculated based on the refractive index dispersion study. The first, third order nonlinear optical susceptibility ($\chi^{(1)}$, $\chi^{(3)}$) and nonlinear refractive index $n^{(2)}$ were also determined.

Keywords— Sol-gel spin coating; CdS thin films; X-ray diffraction; Atomic force microscopy; Optical properties.

I. INTRODUCTION

Cadmium sulfide (CdS) had a wide applications in electro-optic devices such as photosensors, optical wave-guides, non-linear integrated optical devices, transducers, photoconducting cells, non-linear integrated optical devices, window layer in $Cu(In,Ga)Se_2$ (CIGS), CdTe heterojunction solar cells, field effect transistors, light emitting diodes, gas sensors and diluted magnetic semiconductors in spintronic devices [1-5]. CdS belongs to II-VI group semiconducting material having a direct band gap of 2.42 eV (in cubic phase) and 2.57 eV (in hexagonal phase) at room temperature. CdS exhibit in two forms namely α-CdS (hexagonal wurtzite, space group: $P6_3mc$) and β-CdS (cubic, zinc blende crystal structure, space group: F-43m). β-CdS forms at low temperature with a metastable phase whereas α-CdS forms at high temperatures with a stable phase; however, annealing at high temperatures can transform β-CdS to α-CdS [6].

There are different chemical and physical methods to prepare CdS thin films which include spray pyrolysis [7], metal organic chemical vapor deposition (MOCVD) [8], layer adsorption and reaction (SILAR) [9], sol-gel route [10], chemical bath deposition (CBD) [11], thermal evaporation [12], sputtering [13] and pulsed laser deposition (PLD) [14]. Among these methods, the sol-gel spin coating method is a low cost, simple and able to produce uniform films with good adherence, provides a high specific surface area, narrow pore size, better microstructural control of particles and uniform particle distribution [15,16].

Here, we report the structural, transport and optical properties of CdS thin films. Studies on the nonlinear optical properties of sol-gel spin coated CdS thin films are rare to found in the literature. The main objective of the present work is to study the effect of post-annealing temperature on linear and non-linear optical properties of CdS thin films.

II. RELATED WORK

In the present work, we reported the detailed information on optical constants, optical dispersion parameters and non-linear optical properties of CdS thin films which are of much importance for its applications in integrated optic devices such as modulators, filters, switches, etc.

III. METHODOLOGY

CdS thin films were prepared by mixing 0.6 mL of polyethylene glycol (PEG 200) with 8.9 mL of ethanol and

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2018-19

3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the Academic Year 2018-19

S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
1	Design of dual quality 4:2 reverse compressor based configurable multiplier	S Siddeswara Reddy	ECE	International Journal of Scientific Research in Science, Engineering and Technology	2018-19	2394-4099	UGC Care list
2	Impact of Chemical Reaction on Radiating Falkner-Skan Flow over a Wedge Moving in a Carreau Nanofluid with Convective condition	K. Subbarayudu	BSc&H	International Journal of Technical Innovation in Modern	2018-19	2455-2586	UGC Care list
3	Effect of Viscous Dissipation Over a Riga-Plate in A Nanofluid with Heat Source/Sink: A Numerical Study"	K. Subbarayudu	BSc&H	International Journal of Technical Innovation in Modern	2018-19	2455-2585	UGC Care list
4	Fault Tolerant Parallel FFTS based on Error Correction codes and Perseval Checks	S M K Sukumar Reddy	ECE	International Journal of Merging Technology and Advanced Research in Computing	2018-19	2320-1363	UGC Care list
5	A Novel Three Phase Asymmetric Multi Level Inverter Fed to Induction Motor Drive	D Nagendra Babu	EEE	Engineering & Science (IJTIMES)	2018-19	2395-0072	UGC Care list

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S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Is it listed in UGC Care list
6	A novel technique for unsteady Newtonian fluid flow over a permeable plate with viscous dissipation, non-uniform heat source/sink and chemical reaction	K. Subbarayudu	BSc&H	International Journal for Research in Engineering Application & Management (IJREAM)	2018-19	2454-9150	UGC Care list
7	MHD falkner-skan flow of a radiative casson fluid past a static/moving wedge with viscous dissipation	K. Subbarayudu	BSc&H	International Journal of Research in Advent Technology (IJRAT)	2018-19	2321-9637	UGC Care list
8	Effect of rotational speed on linear and non linear optical properties of Sol-gel Spin Coated Nano Structured Cds Thin films	Munaga Venkata Veera Prasad	BSc&H	Journal of NanoScience and Technology	2018-19	2455-0191	UGC Care list

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Design of Dual Quality 4:2 Reverse Compressor Based Configurable Multiplier

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ABSTRACT

Reversible logic gates became very important and computing paradigm having its applications in low power CMOS technologies and Quantum computing we proposed reversible gates methodology also introduces for quantum cost reducing of circuit. Multiplier plays a vital role in many applications such as digital image processing, digital signal processing etc so it is important to design the multiplier with low power consumption and reduced delay. In order to reduce this factor we design the multiplier using four 4:2 compressor and these compressors has a switching mode and this is used to switch between the exact and approximate modes. In this paper, we introduce a novel architecture to perform high speed multiplication using ancient Vedic math techniques. A new high speed approach utilizing Dual quality 4:2 reverse compressor. The efficiencies of these compressors in a 16-bit multiplier are evaluated and by comparing their parameters with those of the state-of-the-art approximate multipliers. The results of comparison indicate, average lower delay and power consumption in the approximate mode. This paper is synthesized and simulated in XILINX software using verilog as hardware description language.

Keywords: Reversible Gates, Compressors, Vedic Multiplier.

I. INTRODUCTION

Multipliers are frequently used in DSP, Image processing architectures and microprocessors. Fast Fourier Transform (FFT), Discrete Wavelet Transform (DWT) and auto-correlation are the few important areas where multipliers are mostly used. As switching and critical computations of a multiplier are high, compared to other datapath units of a processing architecture, design of low power, high speed multipliers are carried out to reduce latency and power dissipation of a processing system.

The speed of a processor greatly depends on its multiplier"s performance. This in turn increases the demand for high speed multipliers, at the same time keeping in mind low area and moderate power consumption. Over the past few decades, several new architectures of multipliers have been designed and explored. Multipliers based on the Booth"s and modified Booth"s algorithm is quite popular in modern VLSI design but come along with their own set of disadvantages. In these algorithms, the multiplication process, involves several intermediate operations before arriving at the final answer.

The intermediate stages include several comparisons, additions and subtractions which reduce the speed exponentially with the total number of bits present in the multiplier and the multiplicand. Since speed is our major concern, utilizing such type of architectures is not a feasible approach since it involves several time consuming operations. In order to address the disadvantages with respect to speed of the above

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Impact of Chemical Reaction on Radiating Falkner-Skan Flow over a Wedge Moving in a Carreau Nanofluid with Convective Condition

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Abstract— The present endeavour is to investigate the numerical analysis of the two-dimensional unsteady flow of a Falkner-Skan radiative magnetohydrodynamic flow past over a wedge in a Carreau nanofluid by considering the convective boundary condition and chemical reaction. The governing equations of the problem are altered into dimensionless form by using the transformations. The resulting system of differential equations are solved by MATLAB bvp4c solver. The effect of significant parameters has been studied and numerical results are presented in graphs and tables. The numerical results are revealed in close relation with previously published works.

Keywords— Carreau nanofluid, Convective Boundary condition, MHD, radiation, Static/Moving wedge, chemical reaction.

I. INTRODUCTION

The fluid flow across a wedge shaped bodies are important in several engineering applications and in the area of fluid dynamics. For instance, in aerodynamics, hydrodynamics, interchanging of heat through exchangers, geothermal structures, etc. Predominantly such type of flows are often seen in improving oil recovery, ground water pollution , response of aircrafts to atmospheric explosions, geothermal fields, etc., Researchers Falkner and Skan bring a concept of an equation known as Falkner-Skan equation where a static wedge is submerged in a viscous fluid and a fluid is passed over it. This was initially proposed for a flow over a boundary with a flow wise pressure gradient. The equation and the conditions at boundary are given as: $f''' + ff'' + \lambda\left(1 - f'^2\right) = 0,\ f(0) = \beta,\ \beta$ is the strength of the mass transfer at the wall, $f'(0) = \gamma,\ f'(\infty) = 1,\ \lambda = \frac{2m}{m+1}$ is a flow wise pressure gradient. The actual Falkner-Skan equation contains zero value for β *and* γ for a non-permeable wedge flow. A lot of literature regarding the Falkner-Skan wedge flow can be found in the work of Schlichting and Gersten[1] and also in Leal[2]. The wedge is triangular shaped and is used for separating two objects, one object hold in a plane and other lifting up. It converts the lateral force into a transverse splitting force. Fang and Zhang [3] presented a solution with mass transfer and wall stretching for the Falkner-Skan equation.

Then again, due to emergent demands of advanced technologies like as power station, production of chemicals and microelectronics, there is a need to launch new types of fluids for exchanging heat more effectively. Water, ethylene glycol and engine oil are regularly used base fluids for heat transfer. These fluids have low thermal conductivity when compared with the solids. The role of tiny particles of solids can enhance the thermal conductivities of such fluids.

The concept of nanofluid was initiated by Choi and Eastman [4] for the first time. The heat conductivity of the fluid can be increased by suspending nanoparticles in a base fluid. For example, copper, carbon nanotubes, CuO, aluminia, and gold are commonly used substances as nanoparticles. Yacob et al. [5] reported the Falkner-Skan flow over a wedge by considering surface heat flux in a nanofluid.

The study of fluid which is electrically conducting passed over a heated wedge with magnetic effect has many applications such as studying about plasma, controlling the boundary layer in aerodynamics, MHD power generators, cooling the nuclear reactors so forth. Several researchers (Prasad et al., [6], Imran et al., [7], Ishak et al., [8], Vol [9], El-dabe et al., [10]) fed light on the effect of MHD heat and mass transfer flow past a wedge in different circumstances for different types of fluids. Magnetic field effects on temperature and heat transfer are very interesting because few fluids also emit and absorb thermal radiation, when the fluid is a conductor of electricity. It is noteworthy to study the heat transfer due to thermal radiation as it has many uses in space study and operating at high temperatures. Abdulhameed et

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EFFECT OF VISCOUS DISSIPATION OVER A RIGA-PLATE IN A NANOFLUID WITH HEAT SOURCE/SINK: A NUMERICAL STUDY

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Abstract - This analysis is mainly related to the study of flow of a nanofluid past a vertical convective heated Riga-plate with viscous dissipation and heat source. A riga plate is an electromagnetic mechanism made up of magnets which are stable and a span wise arrangement of electrodes alternatively set on a plane face. This sketch instigates Lorentz force which is in the direction of the arrangement and degenerates exponentially. Nanoparticle wall mass flux becomes zero at the surface. Traditional transformations provide to the similarity equations which are numerically evaluated by using shooting method. MATLAB bvp4c solver is applied for initiating the numerical results.

Keywords - Mixed convection, Nanofluid, Lorentz force, heat generation/absorption, Viscous Dissipation, Riga-plate

I. INTRODUCTION

Flow over a riga plate unlock a new research era. Gallites and Lilausis [1] introduced the concept of producing wall-parallel Lorentz force. Electromagnetic field is applied externally for attaining Lorentz force by an arranging electrodes and magnets on a flat surface having alternating polarity and magnetisation. Riga plate is very useful device which avoids the separation of the boundary layer and also diminishes the turbulence effects. It generates crossed magnetic and electric fields which are fixed on a plane surface. It is also useful to minimise the friction and pressure drag of submarines. Nanoparticle flux at the surface diminishes. Pantokratoras and Magyari [2] studied the MHD free-convection flow over a Riga-plat. Pantokratoras [3] investigated the Sakiadis flow along a vertical Riga-plate.

Nano fluids are the suspensions of solid nanoparticles in a base fluid with length 1-100 nm. The presence of nano particles enhances the heat transmission of base fluid and also the convective heat transfer coefficient. This technique was first introduced by Choi [4]. Generally the conventional base fluids are Water, glycol, ethylene and kerosene oil etc., the nanoparticles are made of copper, Carbon nanotubes, and gold etc. Bala Anki Reddy et al., [5] discussed the MHD Boundary Layer Slip Flow of a Maxwell Nanofluid over an exponentially stretching surface with convective boundary condition. Ahmad et al., [6] fed light on the effect of Lorentz force over a Riga plate and concluded that skin friction can be raised using the flow supported by Lorentz force and a decrement is observed for opposing Lorentz force.

In cooling processes, heat generation or absorption effect is very significant. Ahmed et al. [7] investigated how the heat generation/absorption effects the flow on the boundary layer of single phase nanofluid over an expanded tube. Very recently, Akilu and Narahari [8] studied the influence of heat source/sink over an inclined plate in a nanofluid.

In all the afore said literature, viscous mechanical dissipation is ignored. But such effects are vital in geophysical flows, industrial purpose and are generally regarded by the Eckert number. The natural convective flows with viscous dissipation effect are reported by Mahajan and Gebhart [9], and describes the heat transfer rates are lowered by rising the dissipation parameter. Various contributions on viscous dissipation Ahmed et al., [10] discussed the impact of radiation and viscous dissipation among the Riga Plates with carbon nanotubes. The flow of viscous fluid in the direction of a Riga plate with variable thickness was explored by Farooq et al., [11]. Also dissipation and chemical reactions are considered. Reddy et al., [12] investigated the Magnetohydro Dynamic Flow of Blood in a Permeable Inclined Stretching Viscous Dissipation, Non-Uniform Heat Source/Sink and Chemical Reaction.

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FAULT TOLERANT PARALLEL FFTS BASED ON ERROR CORRECTION CODES AND PERSEVAL CHECKS

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***Abstract*-The complexity of communications and signal processing circuits increases every year. This is made possible by the CMOS technology scaling that enables the integration of more and more transistors on a single device. This increased complexity makes the circuits more vulnerable to errors. At the same time, the scaling means that transistors operate with lower voltages and are more susceptible to errors caused by noise and manufacturing variations. Soft errors pose a reliability threat to modern electronic circuits. This makes protection against soft errors a requirement for many applications. Communications and signal processing systems are no exceptions to this trend. For some applications, an interesting option is to use algorithmic-based fault tolerance (ABFT) techniques that try to exploit the algorithmic properties to detect and correct errors. Signal processing and communication applications are well suited for ABFT. One example is fast Fourier transforms (FFTs) that are a key building block in many systems. Several protection schemes have been proposed to detect and correct errors in FFTs. Among those, probably the use of the Perseval or sum of squares checks is the most widely known. In modern communication systems, it is increasingly common to find several blocks operating in parallel. Recently, a technique that exploits this fact to implement fault tolerance on parallel filters has been proposed. In this brief, this technique is first applied to protect FFTs. Then, two improved protection schemes that combine the use of error correction codes and Perceval checks are proposed and evaluated.**

***Key Words*-Error correction codes (ECCs), fast Fourier transforms (FFTs), soft errors.**

I. INTRODUCTION

Error correction code (ECC) techniques have been widely used to correct transient errors and improve the reliability of memories. ECC words in memories consist of data bits and additional check bits becauseof linear block codes. During the write operations of memories, data bits are written in data bit arrays, and check bits are concurrently produced using the data bits and stored in check bit arrays. The check bit arrays, just like the data bit arrays, should be tested prudently for the same fault models if reliable error correction is to be insured.Fast Fourier transform is used to convert a signal from time domain to frequency & this is needed so that you can view the frequency components present in a signals. If you know the frequency components present in a signals you can play with the signals. Let's say, u want to design a low pass filter and want to decide on the cut off frequency of the filter. If you have the frequency domain details for a signals u can clearly identify the frequency components which u want to retain & the ones which u want to take out.

Environmental interference and physical defects in the communication medium can cause random bit errors during data transmission. Error coding is a method of detecting and correcting these errors to ensure information is transferred intact from its source to its destination. Error coding is used for fault tolerant computing in computer memory, magnetic and optical data storage media, satellite and deep space communications, network communications, cellular telephone networks, and almost any other form of digital data communication. Error coding uses mathematical formulas to encode data bits at the source into longer bit words for transmission. The "code word" can then be decoded at the destination to retrieve the information. The extra bits in the code word provide redundancy that, according to the coding scheme used, will allow the destination to use the decoding process to determine if the communication medium introducederrors and in some cases correct them so that the data need not be retransmitted. Different error coding schemes are chosen depending on the types of errors expected, the communication medium's expected

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A Novel Three Phase Asymmetric Multi Level Inverter Fed To Induction Motor Drive

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Abstract - A new three phase asymmetric multi level inverter fed to induction motor is proposed. The proposed topology is based on a cascaded connection of single-phase multilevel converter units and full-bridge converters. In order to generate more number of voltage levels at the output by using different magnitudes of dc voltage sources. This topology is used to generate all positive, negative and zero levels by using a lower number of IGBT's, dc voltage sources and controlling circuit parameters that leads to lower THD, reduction in installation space, cost of inverter is low, reduced electromagnetic interference (EMI) and increasing the life of inverter also. It reduces not only switching devices such as power electronic components, and also reduces the blocked voltages at each IGBT. An Asymmetric cascaded multi level inverter uses different magnitudes of voltages that leads to the more number of levels at the output as compared to that of the Symmetric cascaded multi level inverter. The performance of a new three phase asymmetric cascaded multi level inverter fed to induction motor drive have been verified by using MATLAB/SIMULINK.

Key Terms- Three phase asymmetric, multilevel inverter, h-bridge basic units, induction motor.

1. INTODUCTION

Over many years, Induction motor drives have been popularly used for variable speed control applications in industries. In recent years, Multi Level Inverters (MLI's) are more popular because of their huge advantages over than the conventional inverters. The main advantages of MLI's are lower voltage changing rate, lower total harmonic distortion (THD), lower amount of switching loss and better power quality.

The cascaded MLI's (CMLI's) are gaining popularity because of easy control, easily identification of error circuits and modularity of the devices. Cascaded MLI's are categorized based upon their using dc sources are as follows,

1) Symmetric CMLI's and

2) Asymmetric CMLI's

Symmetric CMLI's are having same magnitude of applied voltages on both sides of the inverter. Asymmetric CMLI's are having different magnitudes of applied voltages on both sides of inverter. Asymmetric CMLI's are generate more number of levels at the output than the symmetric CMLI's. Symmetric CMLI's are having bidirectional switches includes driver circuit, two number of IGBT's and power diodes if that may leads the increasing of total cost of an inverter and installation space also be increased. Different symmetric CMLI's are on [5]. Asymmetric CMLI's are having unidirectional switches from voltage point of view and bidirectional switches from the current point of view. Unidirectional switches include of an IGBT with an antiparallel diode. Different Asymmetric CMLI's are on [6].

The proposed one is developed by using a new single-phase H-bridge basic units[1].

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A novel technique for unsteady Newtonian fluid flow over a permeable plate with viscous dissipation, non-uniform heat source/sink and chemical reaction

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ABSTRACT - This work concentrates on the study of the unsteady Hydromagnetic heat and mass transfer of a Newtonian fluid in a permeable stretching plate with viscous dissipation and chemical reaction. Thermal radiation, velocity slip, concentrate slip are also considered. The unsteady in the flow, temperature and concentration distribution is past by the time dependence of stretching velocity surface temperature and surface concentration. Appropriate similarity transformations are used to convert the governing partial differential equations into a system of coupled non-linear differential equations. The resulting coupled non-linear differential equations are solved numerically by using the fourth order Runge-Kutta method with shooting technique. The impact of various pertinent parameters on velocity, temperature, concentration, skin friction coefficient and the Nusselt number are presented graphically and in tabular form. Our computations disclose that fluid temperature has inverse relationship with the radiation parameter. Comparison between the previously published results and the present numerical results for various for various special cases been done and are found to be an excellent agreement.

Key-words*: *Aligned magnetic field, chemical reaction, viscous dissipation, Thermal radiation, slip effects, heat source /sink.

I. INTRODUCTION

The study of boundary layer flow of heat and mass transfer of stretching surfaces has gained the interest of many researchers because of its extensive applications in many industrial manufacturing processes which include both metal and polymer sheets. Some examples are in the extraction of polymer and rubber sheets, wire drawing, hot rolling, spinning of fibers, metal spinning, paper production, glass blowing, crystal growing, nuclear reactors, cooling of metallic sheets or electronic chips, manufacture of foods, etc., Crane [1] computed an exact similarity solution for the boundary layer flow of a Newtonian fluid toward an elastic sheet which is stretched with the velocity proportional to the distance from the origin. Mohanty et al., [2] developed a model to investigate the heat and mass transfer effect of a micropolar fluid over a stretching sheet through porous media. Mastroberardino [3] found accurate solutions for viscoelastic boundary layer flow and heat transfer over a stretching sheet.

In addition, heat and mass transfer with chemical reaction has special significance in chemical and hydrometallurgical industries. The formation of smog represents a first-order homogeneous chemical reaction. For instance, one can take into account the emission of NO_2 from automobiles and other smoke-stacks. Thus, NO_2 reacts chemically in the atmosphere with unburned hydrocarbons (aided by sunlight) and produces peroxyacetyl nitrate, which forms a layer of photochemical smog. Chemical reactions can be treated as either homogeneous or heterogeneous processes. It depends on whether they occur at an interface or as a single-phase volume reaction. Most of the Chemical reactions involve either heterogeneous or homogeneous processes. Some reactions are very slow or not at all, except in the presence of a catalyst. A complex interaction lies between the homogeneous and heterogeneous reactions which is incorporated in the production and consumption of reactant species at different rates on the fluid and also on the catalytic surfaces, such happen in fog formation and dispersion, food processing, manufacturing of polymer production, groves of fruit trees, moisture over agricultural fields, equipment design by chemical processing, crops damage via freezing etc. Some kind of chemical reaction is observed if there is a foreign mass in air or water. During a chemical reaction, heat is generated between two species (Byron Bird R.et al. [4]). Generally, the reaction rate depends on the concentration of the mass itself. If the rate of reaction is directly proportional to concentration itself (Cussler [5]), then it is said to be first order.

Chemical reactions are classified into two categories; via homogeneous reaction, which involves only single phase reaction and heterogeneous reaction, which involves two or more phases and occur at the interface between the fluid and solid or between two fluids separated by an interface. The important applications of homogeneous reactions are the combination of common household gas and oxygen to produce a flame and the reactions between aqueous solutions of acids and bases. Themelis [6] stated that the

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MHD Falkner-Skan Flow of a Radiative Casson Fluid past a Static/Moving Wedge with Viscous Dissipation

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Abstract- The main objective of the present attempt is to investigate the numerical solutions for the Falkner-Skan flow of two-dimensional radiative Magneto hydrodynamic Casson fluid past a static/moving wedge with convective boundary condition in the presence of porous medium. In addition to the effects of viscous dissipation and heat generation /absorption are also considered. A set of suitable local similarity transformations are used to non dimensionalize the governing equations of the present problem. The system of ordinary differential equations are tackled numerically by MATLAB bvp4c solver. The impact of involved parameters on velocity, temperature and concentration skin friction coefficient and the Nusselt number has been studied and numerical results are presented graphically and in tabular form. The numerical results are in good agreement with those of the results previously published in the literature.

Keywords: Casson fluid model, Convective Boundary condition, MHD, radiation, viscous dissipation.

NOMENCLATURE		Q	heat generation/absorption coefficient
u, v	velocity components in x and y directions respectively	q_r	radiative heat flux
T_w	The temperature at the boundary layer	k^*	absorption coefficient
C_w	The concentration at the boundary layer	f	similarity function
T_∞	The temperature at free stream	R	Radiation parameter
C_∞	The concentration at free stream	Pr	Prandtl number
B	magnetic field	Gr_x	Grashof number
p_y	yield stress of the fluid	Bi	Biot number
μ_β	plastic dynamic viscosity of the non-Newtonian fluid	Ec	Eckert number
π	product of the component of deformation	Cf_x	skin friction coefficient
B_0	Strength of the magnetic field	Nu_x	local Nusselt number
M	Magnetic parameter	**Greek symbols**	
K	Porosity parameter	β	Casson parameter
λ_T	thermal buoyancy parameter	σ	electrically conductivity
k_1	permeability of porous medium	ρ	fluid density
g	gravitational force due to	γ	moving wedge parameter
β_T	volumetric coefficient of thermal	Ω	total angle of the wedge
T	fluid temperature	ν	kinematic viscosity
k	thermal conductivity of the fluid	τ_w	wall skin friction
C_p	specific heat at constant pressure	q_w	wall heat flux

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Effect of Rotational Speed on Linear and Non-Linear Optical Properties of Sol-Gel Spin Coated Nanostructured CdS Thin Films

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ABSTRACT

Cadmium sulfide thin films have been prepared by sol-gel spin coating method on glass substrates at different rotational speeds. Glancing angle X-ray diffraction patterns of CdS thin films exhibit cubic phase with (1 1 1) as preferential orientation. The surface morphology of the CdS thin films was studied by atomic force microscope. The electrical resistivity of CdS thin films decreased from 5.66×10^3 to 1.72×10^3 Ω.cm with the increase of rotational speed from 1500 to 3000 rpm. The optical transmittance of CdS thin films increased because of reduction in film thickness with the increase of rotational speed. The optical band gap of CdS thin films decreased from 2.65 to 2.46 eV with the increase of rotational speed due to quantum confinement effect. The normal dispersion of refractive index for CdS thin films is described using Wemple-DiDomenico single-oscillator model. The optical dispersion parameters such as single-oscillator energy (E_o), the dispersion energy (E_d) and the static refractive index n_o were calculated. The Verdet coefficient (V) is determined based on the refractive index dispersion study. The first and third order nonlinear optical susceptibility ($\chi^{(1)}$, $\chi^{(3)}$), nonlinear refractive index (n_2) are determined for CdS thin films.

1. Introduction

Cadmium sulfide (CdS) belongs to II-VI semiconducting material with a direct band gap of 2.42 eV (in cubic phase) and 2.57 eV (in hexagonal phase) at room temperature. CdS exhibit in two forms namely α-CdS (hexagonal wurtzite, space group: $P6_3mc$) and β-CdS (cubic, zinc blende crystal structure, space group: F-43m). β-CdS forms at low temperature with a metastable phase where as α-CdS forms at high temperatures with a stable phase; however, annealing at high temperatures β-CdS can transform to α-CdS [1]. CdS had a bulk refractive index of 2.52 at wavelength 600 nm which is well suited for solar cell applications [2]. Cadmium sulfide (CdS) is most widely used in heterojunction thin-film photovoltaics as a window layer in CdTe thin-film solar cells and as a buffer layer in $Cu(In,Ga)Se_2$ (CIGS) thin-film solar cells. CdS most widely found applied material in electro-optic devices such as photoconducting cells, photosensors, transducers, optical wave-guides and non-linear integrated optical devices, diluted magnetic semiconductors in spintronic devices, light emitting diodes, field effect transistors and gas sensors [3-7].

CdS thin films has been prepared by different workers using different methods which includes pulsed laser deposition (PLD) [8], sputtering [9], thermal evaporation [10], metal organic chemical vapor deposition (MOCVD) [11], chemical bath deposition (CBD) [12], layer adsorption and reaction (SILAR)[13], spray pyrolysis [14] and sol-gel route [15] . Each method produces the films with different physical properties, which should be optimized for specific applications. Among these methods, the sol-gel spin coating method is a simple, low cost, and ability to produce uniform films with good adherence, provides a high specific surface area, narrow pore size, better microstructural control of metallic particles and uniform particle distribution [16]. Many researchers reported the structural, electrical and optical properties of CdS thin films. Studies on the nonlinear optical properties of sol-gel spin coated CdS thin films are very rare to find in the literature. The main objective of this paper is to study the effect of rotational speed on the linear and non-linear optical properties of CdS thin films and to report the detailed information on optical constants, optical dispersion parameters and non-linear optical parameters which are of considerable importance for its applications in integrated optical devices such as switches, filter, modulators, etc.

2. Experimental Methods

CdS thin films have been prepared by mixing 0.6 mL of polyethylene glycol (PEG 200) with 8.9 mL of ethanol and 0.5 mL of acetic acid under stirring continuously for 90 minutes. Cadmium nitrate ($Cd(NO_3)_2.4H_2O$) and thiourea ($SC(NH_2)_2$) (chemicals of analytical grade from Sd Fine Chem. Pvt. Ltd., Mumbai, India) were used as precursors for cadmium and sulfur source. These precursors were dissolved in an ethanol with stirring for 90 minutes. The as-prepared solution was slowly added to PEG sol with stirring for 6 hours in order to obtain the final sol, which is used for depositing CdS thin films. The spin coating method was used to deposit CdS thin films using the above sol on glass substrates. The glass substrates were cleaned thoroughly with detergent laboline and then rinsed with double distilled water. Then the substrates were kept in concentrated chromic acid for 12 hours. After chromic acid treatment, the substrates were cleaned ultrasonically in double distilled water and acetone for 10 min. Finally, the substrates were dried under an infra-red (IR) lamp. These glass substrates were used for the preparation of CdS thin films. CdS thin films were prepared on glass substrates by spin coating method with varying rotational speed from 1500 to 3000 rpm and annealed in vacuum at 200 °C. The thickness of the CdS thin films was measured by using Talysurf thickness profilometer.

Structural properties of CdS thin films were analyzed by Glancing angle X-ray diffraction (GAXRD) using a Rigaku X-ray diffractometer with a CuKα radiation (λ=0.154 nm) source operated at 40 kV and 40 mA. X-ray diffraction measurements were recorded in the 2θ range of 20°-90° at a glancing angle of 2° with a scan speed of 1° min^{-1}. The surface morphology of the CdS thin films was studied by using atomic force microscope (AFM; Model: Park NX20). The thickness of the CdS films is measured by Dektak surface profilometer. The electrical measurements of CdS thin films were carried out by four-probe method and Hall effect setup. The optical transmittance spectra of the CdS thin films were recorded by using UV-Vis-NIR spectrometer (Shimadzu MPC3600) in the wavelength range of 300-2500 nm.

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3.3.1

Link to re-directing to journal source-cite website in case of digital journals

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Title of paper	**Name of journal**	Link to website of the Journal
Driver Sleep and drowsiness detection using machine learning	International Journal of Research in Information Technology	https://ijirt.org/index
Implementation of Majority Logic basedMultibit approximate adders and Mulitpliers	Journal of Engineering Sciences	https://jespublication.com/
Implementation of Majority Logic basedMultibit approximate adders and Mulitpliers	Journal of Engineering Sciences	https://jespublication.com/
Implementation of 16 bit Power efficient carry select adder	Journal of Engineering Sciences	https://jespublication.com/
Implementation of 16 bit Power efficient carry select adder	Journal of Engineering Sciences	https://jespublication.com/
Analysis and Design of Reversible Multiplexer and De-Multiplexer using R-Gate	International Journal of Research	https://ijrpublisher.com/
Analysis and Design of Reversible Multiplexer and De-Multiplexer using R-Gate	International Journal of Research	https://ijrpublisher.com/
Flexible Real Time Operating System Co-Design Flow for Embedded Computing Systems	International Journal of Scientific Methods in Engineering and Management	http://www.ijsmem.com/
Implementation of Water Quality Management Platform forAquaculture Based On Big Data	International Journal of Research	https://ijrpublisher.com/
Implementation of Water Quality Management Platform forAquaculture Based On Big Data	International Journal of Research	https://ijrpublisher.com/

Skin Disease Classification with integrated Machine Learning & Deep Learning	International Journal of Scientific Methods in Engineering and Management	http://www.ijsmem.com/
Implementation of Low power opproximate unsigned multipliers with configurable error recovery	Journal of Engineering Sciences	https://jespublication.com/
Implementation of Low power opproximate unsigned multipliers with configurable error recovery	Journal of Engineering Sciences	https://jespublication.com/
Design And Analysis of Area-Time Efficient Streaming Archltecture for FAST and BRIEF Detector	Journal of Engineering Sciences	https://jespublication.com/
Energy efficent VLSI Implementation of Multipliers with Double LSB Operands	Journal of Engineering Sciences	https://jespublication.com/
Energy efficent VLSI Implementation of Multipliers with Double LSB Operands	Journal of Engineering Sciences	https://jespublication.com/
Sentimental Analysis of Product Based Reviews Using Machine Learning Approaches	International Journal of Research in Information Technology	https://ijirt.org/index
Non-linear Radiative Williamson fluid against a wedge with aligned magnetic field	Advances in Fluid Dynamics	https://link.springer.com/book/10.1007/978-981-15-4308-2
Implementation of High-Accuracy Approximate Multiplier using Approximate High Ordered Compressors	Journal of Engineering Sciences	https://jespublication.com/
Numerical investigation of non-Fourier flux theory with chemical action on Maxwell radiating nano liquid: A biomedical application	Advances in Fluid Dynamics	https://link.springer.com/book/10.1007/978-981-15-4308-1
Low Power 4-Bit Arithmetic Logic Unit Using Full-Swing GDI Technique	The International journal of analytical and experimental modal analysis	https://ijaema.com/

Minkowski Fractoral Antenna with Circular DGS for Multiband application	Wireless, Antenna and Microwave Symposium-IEEE	https://ieeexplore.ieee.org
Navier Slip Condition on Time-Dependent Radiating Nanofluid with the Soret Effect	Engineering Transactions	https://et.ippt.gov.pl/index.php/et
Stability Improvement In a Distributed Generator using Virtual Synchronous Generator	Solid State Technology	https://solidstatetechnology.us/
Stability Improvement In a Distributed Generator using Virtual Synchronous Generator	Solid State Technology	https://solidstatetechnology.us/
Framing the activation energy and binary chemical reaction on CNT's with Cattaneo-Christov heat diffusion on Maxwell Nano fluid in the presence of non-linear thermal radiation	Arabian Journal for Science and Engineering	https://link.springer.com/journal/13369
Homogeneous-heterogeneous chemical action and non-Fourier flux theory effects in a flow with carbon nanotubes	Heat Transfer	https://onlinelibrary.wiley.com/journal/26884542
Numerical Approach for a Sutter by Fluid Impinging to a Non-Fourier Flux and a Nonlinear Radiation with a Binary Chemical Reaction	THINK INDIA JOURNAL	https://thinkindiaquarterly.org/index.php/think-india
The assessment of time dependent flow of Williamson fluid with radiative blood flow against a wedge	Propulsion and Power Research	https://www.sciencedirect.com/journal/propulsion-and-power-research
Structural,surface morphological, optical and thermoelectric properties of sol-gel spin coated Zn doped Cds Thin films	SN Applied Sciences	https://link.springer.com/article/10.1007/s42452-020-2358-3
Effect of post annealing temperature on linear and non-linear optical properties of sol-gel spin coated Cds Thin films	International Journal of Scientific Research in Applied Physics	https://www.isroset.org/journal/IJSRPAS/full_paper_view.php?paper_id=1386

Design of dual quality 4:2 reverse compressor based configurable multiplier	International Journal of Scientific Research in Science, Engineering and Technology	https://ijsrset.com
Impact of Chemical Reaction on Radiating Falkner-Skan Flow over a Wedge Moving in a Carreau Nanofluid with Convective condition	International Journal of Technical Innovation in Modern	https://www.ijtimes.com/IJTIMES/index.php/ijtimes
Effect of Viscous Dissipation Over a Riga-Plate in A Nanofluid with Heat Source/Sink: A Numerical Study"	International Journal of Technical Innovation in Modern	https://www.ijtimes.com/IJTIMES/index.php/ijtimes
Fault Tolerant Parallel FFTS based on Error Correction codes and Perseval Checks	International Journal of Merging Technology and Advanced Research in Computing	http://ijmtarc.in
A Novel Three Phase Asymmetric Multi Level Inverter Fed to Induction Motor Drive	Engineering & Science (IJTIMES)	www.irjet.net
A novel technique for unsteady Newtonian fluid flow over a permeable plate with viscous dissipation, non-uniform heat source/sink and chemical reaction	International Journal for Research in Engineering Application & Management (IJREAM)	https://www.ijream.org/
MHD falkner-skan flow of a radiative casson fluid past a static/moving wedge with viscous dissipation	International Journal of Research in Advent Technology (IJRAT)	www.ijrat.org
Effect of rotational speed on linear and non linear optical properties of Sol-gel Spin Coated Nano Structured Cds Thin films	Journal of NanoScience and Technology	https://www.jacsdirectory.com/jnst
Low latency and less complexity of approximate multiplier	International Association of Engineering and Technology for Skill Development- Journal for advanced Research in Applied Sciences	https://iaetsdjaras.org

3.3.1 Links to papers published in the Journals listed in UGC CARE list during the last five years

s.no	Title of paper	Name of journal	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number	
			Link to article / paper / abstract of the article	Is it listed in UGC Care list
1	Driver Sleep and drowsiness detection using machine learning	International Journal of Research in Information Technology	https://ijirt.org/master/publishedpaper/IJIRT157151_PAPER.pdf	Yes
2	Implementation of Majority Logic based Multibit approximate adders and Mulitpliers	Journal of Engineering Sciences	https://jespublication.com/upload/2023-V14I164.pdf	Yes
3	Implementation of Majority Logic based Multibit approximate adders and Mulitpliers	Journal of Engineering Sciences	https://jespublication.com/upload/2023-V14I164.pdf	Yes
4	Implementation of 16 bit Power efficient carry select adder	Journal of Engineering Sciences	https://jespublication.com/upload/2023-V14I163.pdf	Yes
5	Implementation of 16 bit Power efficient carry select adder	Journal of Engineering Sciences	https://jespublication.com/upload/2023-V14I163.pdf	Yes
6	Analysis and Design of Reversible Multiplexer and De-Multiplexer using R-Gate	International Journal of Research	DOI:16.10089.IJR.2023.VXII05.285311.13912	Yes
7	Analysis and Design of Reversible Multiplexer and De-Multiplexer using R-Gate	International Journal of Research	DOI:16.10089.IJR.2023.VXII05.285311.13912	Yes
8	Flexible Real Time Operating System Co-Design Flow for Embedded Computing Systems	International Journal of Scientific Methods in Engineering and Management	https://doi.org/10.58599/ijsmem.2023.1604	Yes
9	Implementation of Water Quality Management Platform forAquaculture Based On Big Data	International Journal of Research	https://ijrpublisher.com/index.php/volume-xii-issue-ix-september-2023	Yes
10	Implementation of Water Quality Management Platform forAquaculture Based On Big Data	International Journal of Research	https://ijrpublisher.com/index.php/volume-xii-issue-ix-september-2023	Yes
11	Skin Disease Classification with integrated Machine Learning & Deep Learning	International Journal of Scientific Methods in Engineering and Management	https://doi.org/10.58599/ijsmem.2023.1805	Yes

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12	Implementation of Low power opproximate unsigned multipliers with configurable error recovery	Journal of Engineering Sciences	https://jespublication.com/upload/2022-V13I1026.pdf	Yes
13	Implementation of Low power opproximate unsigned multipliers with configurable error recovery	Journal of Engineering Sciences	https://jespublication.com/upload/2022-V13I1026.pdf	Yes
14	Design And Analysis of Area-Time Efficient Streaming Archltecture for FAST and BRIEF Detector	Journal of Engineering Sciences	https://jespublication.com/issue.php?cid=24&scid=87	Yes
15	Energy efficent VLSI Implementation of Multipliers with Double LSB Operands	Journal of Engineering Sciences	https://jespublication.com/issue.php?cid=24&scid=87	Yes
16	Energy efficent VLSI Implementation of Multipliers with Double LSB Operands	Journal of Engineering Sciences	https://jespublication.com/issue.php?cid=24&scid=87	Yes
17	Sentimental Analysis of Product Based Reviews Using Machine Learning Approaches	International Journal of Research in Information Technology	https://ijirt.org/master/publishedpaper/IJIRT153553_PAPER.pdf	Yes
18	Non-linear Radiative Williamson fluid against a wedge with aligned magnetic field	Advances in Fluid Dynamics	https://link.springer.com/chapter/10.1007/978-981-15-4308-1_21	Yes
19	Implementation of High-Accuracy Approximate Multiplier using Approximate High Ordered Compressors	Journal of Engineering Sciences	https://jespublication.com/issue.php?cid=24&scid=87	Yes
20	Numerical investigation of non-Fourier flux theory with chemical action on Maxwell radiating nano liquid: A biomedical application	Advances in Fluid Dynamics	https://link.springer.com/chapter/10.1007/978-981-15-4308-1_61	Yes

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			Link to article / paper / abstract of the article	Is it listed in UGC Care list
21	Low Power 4-Bit Arithmetic Logic Unit Using Full-Swing GDI Technique	The International journal of analytical and experimental modal analysis	DOI:18.0002.IJAEMA.2022.V14I04.200001.0156859693 3	Yes
22	Minkowski Fractoral Antenna with Circular DGS for Multiband application	Wireless, Antenna and Microwave Symposium- IEEE	https://ieeexplore.ieee.org/document/9847789	Yes
23	Navier Slip Condition on Time-Dependent Radiating Nanofluid with the Soret Effect	Engineering Transactions	https://et.ippt.gov.pl/index.php/et/article/view/925	Yes
24	Stability Improvement In a Distributed Generator using Virtual Synchronous Generator	Solid State Technology	https://solidstatetechnology.us/index.php/JSST/article/view/5276	Yes
25	Stability Improvement In a Distributed Generator using Virtual Synchronous Generator	Solid State Technology	https://solidstatetechnology.us/index.php/JSST/article/view/5276	Yes
26	Framing the activation energy and binary chemical reaction on CNT's with Cattaneo-Christov heat diffusion on Maxwell Nano fluid in the presence of non-linear thermal radiation	Arabian Journal for Science and Engineering	https://link.springer.com/article/10.1007/s13369-019-04173-2	Yes
27	Homogeneous-heterogeneous chemical action and non-Fourier flux theory effects in a flow with carbon nanotubes	Heat Transfer	https://onlinelibrary.wiley.com/doi/epdf/10.1002/htj.21590	Yes
28	Numerical Approach for a Sutter by Fluid Impinging to a Non-Fourier Flux and a Nonlinear Radiation with a Binary Chemical Reaction	THINK INDIA JOURNAL	file:///C:/Users/LENOVO/Downloads/16954-Article%20Text-23571-1-10-20200104.pdf	Yes
29	The assessment of time dependent flow of Williamson fluid with radiative blood flow against a wedge	Propulsion and Power Research	https://www.sciencedirect.com/science/article/pii/S2212540X19300562?ref=pdf_download&fr=RR-2&rr=89a2e13c9e3d9a90	Yes

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			Link to article / paper / abstract of the article	Is it listed in UGC Care list
30	Structural,surface morphological, optical and thermoelectric properties of sol-gel spin coated Zn doped Cds Thin films	SN Applied Sciences	https://doi.org/10.1007s42452-020-2358-3	Yes
31	Effect of post annealing temperature on linear and non-linear optical properties of sol-gel spin coated Cds Thin films	International Journal of Scientific Research in Applied Physics	https://doi.org/10.26438/ijsrpas/v7i3.182189	Yes
32	Design of dual quality 4:2 reverse compressor based configurable multiplier	International Journal of Scientific Research in Science, Engineering and Technology	https://ijsrset.com/paper/4830.pdf	Yes
33	Impact of Chemical Reaction on Radiating Falkner-Skan Flow over a Wedge Moving in a Carreau Nanofluid with Convective condition	International Journal of Technical Innovation in Modern	https://www.ijtimes.com/IJTIMES/index.php/ijtimes/article/view/1966	Yes
34	Effect of Viscous Dissipation Over a Riga-Plate in A Nanofluid with Heat Source/Sink: A Numerical Study"	International Journal of Technical Innovation in Modern	https://www.ijtimes.com/IJTIMES/index.php/ijtimes/article/view/1864	Yes
35	Fault Tolerant Parallel FFTS based on Error Correction codes and Perseval Checks	International Journal of Merging Technology and Advanced Research in Computing	http://ijmtarc.in/Papers/Current%20Papers/IJMTARC-180918.pdf	Yes
36	A Novel Three Phase Asymmetric Multi Level Inverter Fed to Induction Motor Drive	Engineering & Science (IJTIMES)	https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:e2ea3edc-0e52-3f63-979a-8c976208ab48	Yes
37	A novel technique for unsteady Newtonian fluid flow over a permeable plate with viscous dissipation, non-uniform heat source/sink and chemical reaction	International Journal for Research in Engineering Application & Management (IJREAM)	http://ijream.org/papers/IJREAMV04I1046019.pdf	Yes

3.3.1 Links to papers published in the Journals listed in UGC CARE list during the last five years

s.no	Title of paper	Name of journal	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number	
			Link to article / paper / abstract of the article	Is it listed in UGC Care list
38	MHD falkner-skan flow of a radiative casson fluid past a static/moving wedge with viscous dissipation	International Journal of Research in Advent Technology (IJRAT)	https://ijrat.org/downloads/Vol-7/april-2019/PaperID-742019201.pdf	Yes
39	Effect of rotational speed on linear and non linear optical properties of Sol-gel Spin Coated Nano Structured Cds Thin films	Journal of NanoScience and Technology	https://doi.org/10.30799/jnst.238.19050210	Yes

3.3.1

Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

Additional Information
Journal Certificates

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From

VITS, Proddatur, AP

Has been published in

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