

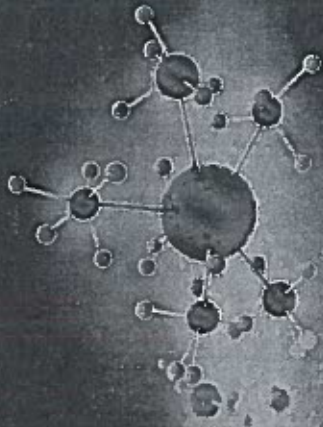


Books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during academic year 2020-21

S.No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	ISBN number of the proceeding	ISBN number of the proceeding (Link)	Page No.
1	Chandra Sekhar Beera	Synthesis and Characterization of La ₃₊ doped ferroelectric ceramics	NA	NA	NA	International	978-620-2-56496	https://www.lap-publishing.com/catalog/details/store/gb/book/978-620-2-56496-0/synthesis-and-characterization-of-la3+doped-ferroelectric-bnn-ceramics?search=Synthesis%20and%20Characterization%20of%20La3+%20doped%20ferroelectric%20ceramics	3
2	M.Dhanalakshmi Bhavani	The concept of fusion for clear vision of hazy roads in ADAS	NA	NA	NA	International	978-3-030-46335-9	https://link.springer.com/book/10.1007/978-3-030-46335-9	5
3	Chitturi S., Mohana Krishna C.K., Bhaumik M., Ammisetti D.K.	NA	Improvement of Weld Joint Strength by Applying Random Vibrations along with External Magnetic Field	IOP Conference Series: Materials Science and Engineering	3rd International Congress on Advances in Mechanical Sciences 27-28 August 2020, Hyderabad, India	International	1757-899X	https://iopscience.iop.org/article/10.1088/1757-899X/998/1/012035	6
4	Bhaskara Raju V.V.S., Sevanam S.R., Varadala A.B., Chitturi S.	NA	Effect of Two Stages Artificial Ageing on Microstructure and Mechanical Behavior of Lm 25 Aluminium Alloy	IOP Conference Series: Materials Science and Engineering	3rd International Congress on Advances in Mechanical Sciences 27-28 August 2020, Hyderabad, India	International	1757-899X	https://iopscience.iop.org/article/10.1088/1757-899X/998/1/012029	7

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5	Swathi Boosala S., Darapu S.S.K.	NA	Numerical modelling of right circular cylindrical fin of finite length subjected to conduction and convection losses in transient state	Journal of Physics: Conference Series	International Conference on Thermo-fluids and Energy Systems (ICTES2019) 27-28 December 2019, Bengaluru, India	International	10.1088/1742	https://iopscience.iop.org/article/10.1088/1742-6596/1473/1/012007	8
6	Shaik Ahemedali	NA	Comparative analysis of 16-tap FIR filter design using different adders	IEEE	International conference on computing and communication and network	International	978-1-7281-6851-7	https://ieeexplore.ieee.org/document/9225691	9
7	Dr. J.Sudhakar	NA	A Heuristic Review on Analog Performance and Accomplishment of Activation Functions at RTL Level	IOP Conference Series: Materials Science and Engineering	International Conference on Applied Scientific Computational Intelligence using Data Science	International	1757-899X	https://iopscience.iop.org/article/10.1088/1757-899X/1099/1/012028	10
8	Mrs.Ch.Anitha bhavani	NA	FPGA implementation of Nested Binary Phase Codes using DDS approach for Radar Pulse Compression	Advances in Intelligent Systems and Computing	International Conference on Soft Computing for Security Applications ICSCS 2021	International	2194-5357	http://iciotc.com/	11
9	Dr. J.Sudhakar	NA	Multi Precision Multi-Mode Floating Point Multiplier	Advances in Automation, Signal Processing, Instrumentation, and Control	International Conference on Automation, Signal Processing, Instrumentation and Control	International	978-981-15-8221-9	https://www.researchgate.net/publication/349817303_Multi-precision_Multi-mode_Floating_Point_Multiplier	12

Ferroelectrics have begun a large number of applications in a variety of electronic, electro-optic, computer and communication devices such as memories, displays, printers, logic circuits, light modulation and deflectors, frequency changers, photograph pick-ups, microphones, filters and detectors etc. During its history the study of ferroelectricity has been closely linked with device applications some have extensive use and are of great economic importance, while others of a specific nature. Usually a new material will be introduced into devices and systems owing if it often economic and/or performance advantages. Barium Sodium Niobate (BNN) has been found to be the one of the most versatile ferroelectric because of their many useful non linear, electro optic and piezoelectric properties. To obtain a high quality ferroelectric for a specific use it is necessary to understand various phenomena concerning structural and electrical properties of ferroelectrics. The material group of the tetragonal tungsten bronzes (TTBs) is very attractive due to its outstanding ferroelectric properties.



Chandra Sekhar Beera

Synthesis and characterization of La³⁺ doped ferroelectric BNN ceramics



Dr. Chandra Sekhar Beera, Associate Professor in Physics at Vignana's Institute of Engineering for Women, Visakhapatnam, affiliated to JNTU Kakinada. Received his M.Sc, M.Phil and Doctoral degree in Physics from ANDHRA UNIVERSITY, Visakhapatnam. He has a passion for Physics and flamboyance for teaching physics to the students of technology.



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The Concept of Fusion for Clear Vision of Hazy Roads in ADAS

M. Dhana Lakshmi Bhavani and R. Murugan

1 Advanced Driver Assistance Systems

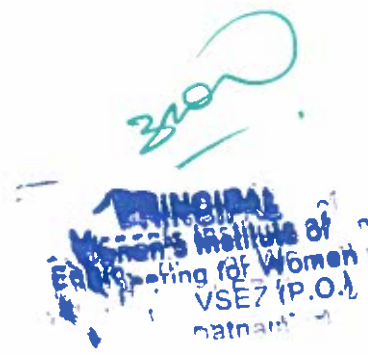
Advanced driver assistance systems, or ADAS, is the fast-growing advancement in vehicle technology which is designed to improve the safety to passengers sitting in the car as well as the pedestrians crossing the road. Such systems are very helpful in reducing the probability of motor vehicle accidents. The driver assistance system is embedded with lot of controlling units which can warn passengers of sudden dangers, and control is passed immediately to avoid the severity or prevent from accidents. In simple words, an ADAS is designed to compensate the human mistakes, non-activeness, and erroneous control while driving a vehicle [1].

In simple view, ADAS or *Advanced Driver Assistance Systems* are designed to assist the manual driver in the process of driving the vehicles, maintaining the safe drive, comfortable driving experience [2]. There are various modes of operations available in ADAS; some are built-in traits and others are available as add-on features. Afterwards, it is going to be *Automatic Driver Assistance System*. Such systems should be undergone multiple verifications and expanding the other innovative technologies to improve the each and every assistance system. The need for such an expansion of innovatory driving ideas are to manage a comfortable and convenient journey for passengers. A computerized arrangement of ADAS system in the vehicles are advised to reduce the causalities of road accidents and loss of life due to human errors. As the technology advances, the manufacturing companies are taking more responsibility for maintaining the self-calibrating sensors to reduce the complexity of overall assistance unit. Additionally, there are aftermarket solutions

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IMPROVEMENT OF WELD JOINT STRENGTH BY APPLYING RANDOM VIBRATIONS ALONG WITH EXTERNAL MAGNETIC FIELD

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Abstract. Welding is a metal joining process induces high residual stresses. These are strongly influencing the mechanical properties of weldment. In earlier days heat treatment and shot peening techniques were used to relieve these stresses. Due to the time consuming of these processes, in this research work we have applied random vibrations to relieve the residual stresses to improve mechanical properties. Along with that, welding arc may get affected by magnetic field during welding. This leads to arc instability which is responsible for welding defects like lack of fusion, porosity. These reduce the quality and strength of weld. To overcome this, arc spattering with external magnetic field need to be reduced. In this research work, a setup has been designed for vibration assisted welding along with external magnetic field set up to improve the mechanical properties of Mild Steel weld joints by means of hardness and ultimate tensile strength. Welding had been performed with and without these setups. After performing welding work pieces have been tested both welding conditions and results have been compared.

Keywords: Hardness; Magnetic field; Mild Steel; Ultimate tensile strength; Vibration assisted welding

1. Introduction

Welding is a permanent joining process widely used in automobile, naval & construction applications. In all types of welding techniques shielded metal arc welding is most commonly used because of its advantages like cheap and easy. In shield metal arc welding (SMAW) flux coated consumable electrodes were used, during welding the flux melts and protect the weld pool from the atmosphere. In SMAW magnetic field is induced around the workpieces, electrodes & arc. The magnetic disturbance surrounding the arc may cause arc instability which is responsible for welding defects. This obviously reduces the quality and strength of weldment. The conventional shield metal arc welding induces residual stresses which influence the mechanical properties of the weldment. The following literature survey indicates the effect of vibrations and external magnetic field on mechanical properties of the weldments.



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EFFECT OF TWO STAGES ARTIFICIAL AGEING ON MICROSTRUCTURE AND MECHANICAL BEHAVIOR OF LM 25 ALUMINIUM ALLOY

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Abstract. In the present investigation the influence of two stages artificial ageing, 1st stage at 160°C followed by 2nd stage at 140°C on microstructure and mechanical properties of LM 25 alloy was studied. It is observed that the microstructure changed under the influence of two stages ageing. It is also observed that the decrease in ageing temperature in the second stage, increases mechanical properties of the alloy. The tensile strength of the alloy in single stage ageing at 160°C is studied and compared with two stages ageing.

Keywords: Artificial ageing; Microstructure; Tensile strength; Hardness.

1. Introduction

Aluminium and its alloys exhibit multiple desirable properties like high resistance to corrosion, light weight and good strength, which made it possible for its extensive use in very broad range of applications from regular house hold to advanced applications in defence. Aluminum alloys are primarily classified as wrought and cast alloys depending upon the ability of fabrication. The wrought and cast alloys are labelled with four-digit numerals from 1xxx to 9xxx groups but in cast alloys a decimal is introduced before the fourth digit as 1xx.x to 9xx.x. Mechanical properties of aluminum alloys possessing high solid solubility, which are called heat-treatable alloys are enhanced by thermal treatment, quenching and age hardening, whereas other Aluminum alloys which are non-heat treatable are subjected to Strain hardening or Cold-working. Aluminum alloys with silicon as a main alloying element form the most significant part of critical shape castings, especially in under water applications because of its high strength to weight ratio, good processability, weldability and corrosion resistance. Apart from casting process, microstructure of cast Al-Si is influenced by solidification rate, dendrite arm space. The micro structural characteristics such as morphology of silicon and intermetallic compounds depend upon the presence of alloying element. Factors like solutionizing time & temperature, quenching temperature & cooling rate, artificial ageing delay period are strategic heat treatment methods which are essential for control of mechanical and microstructure properties. Of late a variety of studies have been carried to study the affect of age hardening on Al-Si alloys with microstructure and mechanical properties as main objective. In age hardening of these alloys, the alloy was heated to solutionizing temperature and then water quench followed by a single stage artificial ageing, to enhance the mechanical properties. Elagin et al. [1] experimentally studied methods for producing high strength and high temperature structural aluminum alloys, observed improvement in strength with the incorporation of transition metals and rare earth metals in to their composition.



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Numerical modelling of right circular cylindrical fin of finite length subjected to conduction and convection losses in transient state

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Abstract: Fins are employed for the purpose of enhancing heat transfer from the base of the component, a known fact. In this paper, the performance calculation for uniform cross-sectional circular fin was done by transient analysis. The necessary numerical equations were derived by applying energy balance. Obtained results were compared with standard results. Variation of temperature over the surface of the fin is assumed to be in one dimension only. The equations were checked for forced convection. Stability criteria were obtained for different boundary conditions. Steady state analysis eliminates the influence of temperature increase when subjected to constant heat flow. This condition was considered, and calculations were done for nodes as well as the complete system. The performance parameters for extended surfaces such as effectiveness and efficiency also vary from steady state to transient state. In this context the energy balance for fin was made at macro and micro levels i.e., by finite difference method employing nodes and overall energy balance.

Nomenclature

- r – radius of the fin (m)
 Δx – Nodal distance (m)
 ρ – Density of material (kg/m³)
 c_p – Specific heat of material (kJ/kg-K)
 Δt – Time (s)
 T_1^p – First nodal temperature at present instant (°C)
 T_2^p – Second nodal temperature at present instant (°C)
 T_3^p – Third nodal temperature at present instant (°C)
 T_4^p – Fourth nodal temperature at present instant (°C)
 T_5^p – Fifth nodal temperature at present instant (°C)
 T_6^p – Sixth nodal temperature at present instant (°C)
 T_1^{p+1} – First nodal temperature at next instant (°C)
 T_2^{p+1} – First nodal temperature at next instant (°C)


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Comparative analysis of 16-tap FIR filter design using different adders

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In this paper, concentrating on the real time demands of digital signal processing, a delay and power efficient 16-tap direct form low pass FIR filter is realized using FPGA. The filter coefficients are generated using Kaiser Window function of MATLAB FDA tool. For obtaining the high speed operation at reasonable power, various adder architectures are considered for the filter design along with vedic multiplier. The designs were implemented on Artix-7 xc7a100tcs324-1 FPGA board and debugged using Virtual Input/output IP of Xilinx Vivado to validate the results. Experimental results show that efficiency in power-delay product can be obtained by using Carry Increment Adder for FIR filter design than that of various other multi-bit adder structures.

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A Heuristic Review on Analog Performance and Accomplishment of Activation Functions at RTL Level

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Abstract. In this article, the behavior of many functional activities used for Artificial Neural Networks (ANNs) study is demonstrated together with their similar performance under transistor conditions. ANN plays an important role in computer science, technology, machine learning, automation, speech and voice processing. The accuracy of any automated device largely depends on ANN training. Therefore, choosing an appropriate operating system affects the performance of the entire system. Performing operational movements at the transistor levels with low power, latency, and power requirements without adjusting their properties is a major challenge. Process actions are performed on an analog or digital one. Analog performance simulations are clearly demonstrated in this article, as the field and power limit for simulation applications is greater than for digital applications. The efficiency of the operating system relies on the % of errors between its manufacture and quality.

1. Introduction

Neural network information originates from human Neurology. It was safely said that the area of neural network development moves as the front to the front, from attracting people to understanding and simulating the human mind, to the broader problems of copying talented people. of speed, action, science, business and honor engineers to identify designs and models [1].

The arrangement of neuron is depicted in figure 1. Each neuron constitutes of four [2]:

- Dendrites: receive more signals from neurons.
- Soma (neuronal body): produces / transmits a peak signal to the axon in a state of unification of the received peak signal from the dendritic beyond a certain threshold voltage.
- Axon: transmits a peak signal generated by the soma to other neurons; and interact with other neurons through synapses.
- Synapses: they act as memory neurons in the brain. Connect the last axon neuron to the next dendritic neuron. The power of the signal can be altered by multiplication of the peak signal.



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FPGA Computing for Security Applications pp. 235–257 | [Details](#)

FPGA Implementation of Nested Binary Phase Codes Using DDS Approach for Radar Pulse Compression

Antra Eshwar Chakka & Naga Kothi Appala

Conference paper | First Online: 26 October 2021

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Abstract

Binary Phase codes such as Barker codes are widely used in radar pulse compression



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Multi-precision Multi-mode Floating Point Multiplier

Advances in Automation, Signal Processing, Instrumentation and Control pp 3071-3082

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Abstract

The purpose of this paper is to design multi-precision floating point multiplier. A multi-precision includes single precision (SP) and double precision (DP) FPM. FPM is one of the basic building block for digital processors. In present scenario, utilization of digital processor/devices has tremendous growth. To increase the span time of digital processor circuits (IC's) such as processors, these have to be made with less complexity and power consumption/dissipation. A standard to represent FPM is Institute of Electrical and Electronics Engineer-754 (IEEE-754), which is popular for various applications. Digital signal processing (DSP), arithmetic and logic unit (ALU), multi-mode applications involving a large dynamic range. This standard consists three floating point exponent and mantissa part, which segregated based on precision mode. General FPM with single DP occupies large area, more power consumption, less speed and increases complexity in circuit design. By overcoming these drawbacks, this paper presents a multi-precision floating point multiplier using Karatsuba algorithm mantissa multiplier block. The operation of multi-mode can be changed during runtime by varying the precision of the mantissa. The proposed multiplier was implemented on Zynq board (ZC706), which provides less count of DSPs, LUTs, FPGAs, and hence low power consumption.

Keywords

Precision • Mantissa multiplier • Karatsuba algorithm
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