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Professor, Department of Electronics and Telecommunication, Maharashtra Institute of Technology Satara Parisar, Aurangabad, Maharashtra, India

Dr. T.V. Rajini Kanth
Professor, Department of Computer Science Engineering, Sreenidhi Institute of Science and Technology, Hyderabad, India

Dr. Anuj Kumar Gupta
Associate Professor, Department of Computer Science & Engineering, RIMT Institute of Engineering & Technology, NH-1, Mandi Godindgarh, Punjab, India

Dr. Hasan Ashrafi-Rizi
Associate Professor, Medical Library and Information Science Department of Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Dr. Golam Kibria
Associate Professor, Department of Mechanical Engineering, Aliah University, Kolkata, India

Dr. Mohammad Jannati
Professor, Department of Energy Conversion, UTM-PROTON Future Drive Laboratory, Faculty of Electrical Engineering, Universiti Teknologi Malaysia,

Dr. Mohammed Saber Mohammed Gad
Professor, Department of Mechanical Engineering, National Research Centre- El Behoos Street, El Dokki, Giza, Cairo, Egypt

Dr. V. Balaji
Professor, Department of EEE, Sathagiri College of Engineering Periyanaahalli,(P.O) Palacode (Taluk) Dharmapuri,

Dr. Naveen Beri
Associate Professor, Department of Mechanical Engineering, Beant College of Engg. & Tech., Gurdaspur - 143 521, Punjab, India

Dr. Abdel-Baset H. Mekky
Associate Professor, Department of Physics, Buraydah Colleges Al Qassim / Saudi Arabia

Dr. T. Abdul Razak
Associate Professor, Department of Computer Science Jamal Mohamed College (Autonomous), Tiruchirappalli – 620 020 India

Dr. Preeti Singh Bahadur
Associate Professor, Department of Applied Physics Amity University, Greater Noida (U.P.) India

Dr. Ramadan Elaiss
Associate Professor, Department of Information Studies, Faculty of Arts University of Benghazi, Libya

Dr. R. Emmaniel
Professor & Head, Department of Business Administration ST, ANN, College of Engineering & Technology Vetapaliem. Po, Chirala, Prakasam. DT, AP, India
Dr. C. Phani Ramesh  
Director cum Associate Professor, Department of Computer Science Engineering, PRIST University, Manamai, Chennai Campus, India

Dr. Rachna Goswami  
Associate Professor, Department of Faculty in Bio-Science, Rajiv Gandhi University of Knowledge Technologies (RGUKT) District-Krishna, Andhra Pradesh, India

Dr. Sudhakar Singh  
Assoc. Prof. & Head, Department of Physics and Computer Science, Sardar Patel College of Technology, Balaghat (M.P.), India

Dr. Xiaolin Qin  
Associate Professor & Assistant Director of Laboratory for Automated Reasoning and Programming, Chengdu Institute of Computer Applications, Chinese Academy of Sciences, China

Dr. Maddila Lakshmi Chaitanya  
Assoc. Prof. Department of Mechanical, Pragati Engineering College 1-378, ADB Road, Surampalem, Near Peddapuram, East Godavari District, A.P., India

Dr. Jyoti Anand  
Assistant Professor, Department of Mathematics, Dronacharya College of Engineering, Gurgaon, Haryana, India

Dr. Nasser Fegh-hi Farahmand  
Assoc. Professor, Department of Industrial Management, College of Management, Economy and Accounting, Tabriz Branch, Islamic Azad University, Tabriz, Iran

Dr. Ravindra Jilte  
Assist. Prof. & Head, Department of Mechanical Engineering, VCET Vasai, University of Mumbai , Thane, Maharashtra 401202, India

Dr. Sarita Gajbhiye Meshram  
Research Scholar, Department of Water Resources Development & Management Indian Institute of Technology, Roorkee, India

Dr. G. Komarasamy  
Associate Professor, Senior Grade, Department of Computer Science & Engineering, Bannari Amman Institute of Technology, Sathyamangalam, Tamil Nadu, India

Dr. P. Raman  
Professor, Department of Management Studies, Panimalar Engineering College Chennai, India

Dr. M. Anto Bennet  
Professor, Department of Electronics & Communication Engineering, Veltech Engineering College, Chennai, India

Dr. P. Keerthika  
Associate Professor, Department of Computer Science & Engineering, Kongu Engineering College Perundurai, Tamilnadu, India

Dr. Santosh Kumar Behera  
Associate Professor, Department of Education, Sidho-Kanho-Birsha University, Ranchi Road, P.O. Sainik School, Dist-Purulia, West Bengal, India

Dr. P. Suresh  
Associate Professor, Department of Information Technology, Kongu Engineering College Perundurai, Tamilnadu, India

Dr. Santosh Shivajirao Lomte  
Associate Professor, Department of Computer Science and Information Technology, Radhai Mahavidyalaya, N-2 J sector, opp. Aurangabad Gymkhana, Jalna Road Aurangabad, India

Dr. Altaf Ali Siyal  
Professor, Department of Land and Water Management, Sindh Agriculture University Tandojam, Pakistan

Dr. Mohammad Valipour  
Associate Professor, Sari Agricultural Sciences and Natural Resources University, Sari, Iran

Dr. Prakash H. Patil  
Professor and Head, Department of Electronics and Tele Communication, Indira College of Engineering and Management Pune, India

Dr. Smolarek Malgorzata  
Associate Professor, Department of Institute of Management and Economics, High School of Humanitas in Sosnowiec, Wyższa Szkoła Humanitas Instytut Zarządzania i Ekonomii ul. Kilińskiego Sosnowiec Poland, India
Dr. Umakant Vyankatesh Kongre
Associate Professor, Department of Mechanical Engineering, Jawaharlal Darda Institute of Engineering and Technology, Yavatmal, Maharashtra, India

Dr. Niranjana S
Associate Professor, Department of Biomedical Engineering, Manipal Institute of Technology (MIT) Manipal University, Manipal, Karnataka, India

Dr. Naseema Khatoon
Associate Professor, Department of Chemistry, Integral University Lucknow (U.P), India

Dr. P. Samuel
Associate Professor, Department of English, KSR College of Engineering Tiruchengode – 637 215 Namakkal Dt. Tamilnadu, India

Dr. Mohammad Sajid
Associate Professor, Department of Mathematics, College of Engineering Qassim University Buraidah 51452, Al-Qassim Saudi Arabia

Dr. Sanjay Pachauri
Associate Professor, Department of Computer Science & Engineering, IMS Unison University Makkawala Greens Dehradun-248009 (UK)

Dr. S. Kishore Reddy
Professor, Department of School of Electrical & Computer Engineering, Adama Science & Technology University, Adama

Dr. Muthukumar Subramanyam
Professor, Department of Computer Science & Engineering, National Institute of Technology, Puducherry, India

Dr. Latika Kharb
Associate Professor, Faculty of Information Technology, Jagan Institute of Management Studies (JIMS), Rohini, Delhi, India

Dr. Kusum Yadav
Associate Professor, Department of Information Systems, College of Computer Engineering & Science Salman bin Abdulaziz University, Saudi Arabia

Dr. Preeti Gera
Assoc. Professor, Department of Computer Science & Engineering, Savera Group of Institutions, Farrukh Nagar, Gurgaon, India

Dr. Ajeet Kumar
Associate Professor, Department of Chemistry and Biomolecular Science, Clarkson University 8 Clarkson Avenue, New York

Dr. M. Jinnah S Mohamed
Associate Professor, Department of Mechanical Engineering, National College of Engineering, Maruthakulam.Tirunelveli, Tamil Nadu, India

Dr. Mostafa Eslami
Assistant Professor, Department of Mathematics, University of Mazandaran Babolsar, Iran

Dr. Akram Mohammad Hassan Elentably
Professor, Department of Economics of Maritime Transport, Faculty of Maritime Studies, Ports & Maritime Transport, King Abdul-Aziz University

Dr. Ebrahim Nohani
Associate Professor, Department of Hydraulic Structures, Dezful Branch, Islamic Azad University, Dezful, Iran

Dr. Aarti Tolia
Faculty, Prahaldbhai Dalmia Lions College of Commerce & Economics, Mumbai, India

Dr. Ramachandra C G
Professor & Head, Department of Marine Engineering, Srinivas Institute of Technology, Valachil, Mangalore-574143, India

Dr. G. Anandharaj
Associate Professor, Department of M.C.A, Ganadipathy Tulsi's Jain Engineering College, Chittoor- Cuddalore Road, Kanyambadi, Vellore, Tamil Nadu, India
A Simulated Case Study of Office Building in Pakistan to Improve the Energy Efficiency

Abstract: Office buildings are one of the basic consumers of energy everywhere including Pakistan. As a case study, the present research effort focuses on estimation of energy consumption of a three-storey office building located in Islamabad Pakistan. Essential data was collected and simulated through eQuest Software. Important parameters like window size, double glazing, energy saving lighting, higher thermostat set point and efficient air-conditioning equipment, are then taken as decision variables and are simulated to study their impact on energy consumption. Cost factor in the prevailing market and the payback period including comparison with the baseline model is also presented in this research effort. Results showed that 37.7% of electrical energy used for cooling and heating, which are then taken as decision variables and are simulated to study their impact on energy consumption parameters like window size, double glazing, energy saving lighting, higher thermostat set point and efficient air-conditioning equipment, are then taken as decision variables and are simulated to study their impact on energy consumption. Cost factor in the prevailing market and the payback period including comparison with the baseline model is also presented in this research effort. Results showed that 37.7% of electrical energy used for cooling.

Keywords: EEM, Energy Efficient, HVAC, Area Lights

References:
Auxetic Cellular Structures for Custom Made Orthopedic Implants using Additive Manufacturing

Abstract:
Auxetic structures exhibit negative Poisson's ratios in one or more directions. When stretched, they will become fatter or become thinner when compressed, in contrast to conventional materials. The present work aims to provide an overview of the current state of the art in the area of auxetic cellular structures for customized orthopedic implants, using advanced AM techniques. The present work also highlights the existing limitations in addition to future prospects in fabrication via AM techniques.

Keywords:
Auxetic cellular structures, Additive manufacturing, Solid free foam fabrication, Orthopedic implants

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44. S. Zameer, Research Center: Department Of Mechanical Engineering, Visvesvaraya Technological University Belgaum (2007).
Abstract: Speed and Voltage sensor-less control requires current measurement that Provides accurate control with low cost, noise and Complexity. Engine current measurement is essential to eliminate torque distortion achieving uniform torque.

The most common method of current estimating is inserting sensing resistance in the path of unknown current. This method incurs massive power dissipation in high output current. The resistance depends on temperature changes and tolerance. Using self-tune method is preferred for eliminating bad effect of heat temperature, components tolerance and noise.

In this paper, we solve this problem with using filter-based self-tune current measurement. But the sensed current of filter based method is low and can be cut by noise and is not accepted for current control. So we can use combined method to improve SNR.

Keywords: current measurement, combined sensing, filter, compensation, calibration.

References:
6. LINFINTY Application Note AN-7: A simple-current sense technique eliminating a sense resistor. (Last visited: 7th November 2007)
Abstract: The aim of the project is to estimate of the aerodynamic coefficients of the ONERA M4 using section positioning mounting mechanism, six component balance and integrated data acquisition system. A wing-body-tail with and without winglets model of ONERA M4 model of suitable scale to fit in the test section of our subsonic wind tunnel is designed and fabricated with pressure ports at suitable points. The model is to be tested at various pitch angles from -10° to 30°, in steps of 10 degrees and yaw angle is varied from -30 degree to +30 degree in steps of 10 degrees. For each pitch and yaw angle the rpm is varied from 300 to 600 in steps of 60 and the variation of coefficient of pressure on the surface of the model is determined using a suitable data acquisition system. The experiment is done for all yaw angle and readings are taken for the model. The aerodynamic coefficients are calculated for the model. Aerodynamic coefficient plots are made for different rpm and pitch angle. Comparison charts are made by keeping rpm as constant in one case and pitch angle as constant in the other. Variations are

Authors: Sagar P R, N.Muthuswamy, C.Senthil Kumar
observed and are validated using theoretical results. Similar experimental procedure should be followed for all the yaw angles in case model with winglets and finally a comparative study is made on the experimental studies. The experimental observations should be compared with computational results for validation.

**Keywords:** Aerodynamic testing, subsonic flow, wind tunnel, force measurements, ONERA M4 model

**References:**

**Authors:** B.K.Narendra, T.M.Mahadeviah

**Paper Title:** Flexural behavior of Reinforced Fly Ash Concrete in Comparison to Reinforced Normal Concrete Beams in Terms of Cracking Load and Ultimate Load Carrying Capacity

**Abstract:** Fly ash or pulverized fuel ash is the residue of the combustion of finely ground coal used in thermal power plants. It is removed by the dust collection system as fine particle residue from the flue gases before they are discharged into the atmosphere. Use of fly ash in concrete will not only solve the problem of disposal, but will also reduce the consumption of cement, which is a material whose production is energy intensive. Fly ash concrete has found extensive application in mass concrete, pre-cast concrete, concrete used for pavements, structural concrete and roller compacted concrete with the added advantages of increased workability, impermeability, resistance to chemical attack and increased durability in comparison to ordinary Portland cement concrete. Hence, this paper presents the investigation of comparison between the flexural behavior of reinforced fly ash concrete beams with that of reinforced normal concrete beams and increase the confidence levels of designers and other beneficiaries in using reinforced Fly ash concrete as a structural material. The flexural behavior of reinforced Fly ash concrete beams with different cement replacement levels (20%, 35% and 50%) are compared with reinforced normal concrete beams (without containing Fly ash) under similar conditions. All the beams are reinforced as balanced sections, cured and tested at 28 days. These investigations were conducted with three grades of concrete i.e. M30, M40 and M50. The flexural behaviour of these beams is discussed in terms of its cracking load and ultimate load carrying capacity.

**Keywords:** Fly ash, cement replacement material, concrete beams, flexural behavior of reinforced Fly ash concrete, cracking load capacity and ultimate load capacity.

**References:**

**Authors:** B.K.Narendra, T.M.Mahadeviah

**Paper Title:** Flexural behavior of Reinforced Fly Ash Concrete in Comparison to Reinforced Normal Concrete Beams in Terms of Ductility Index

**Abstract:** Ductility is a measure of the ability of a material section, structural element or structural system to sustain inelastic deformation prior to collapse, without significant loss in resistance. The ductility index describes the inelastic deformation capacity of the structural member. The ductility index in case of flexural members like beam is generally defined in terms of deflection ductility, since it can be measured in test more easily. The ductility indices of RFAC beams with 20%, 35% and 50% CRLs are 0.86, 0.75 and 0.63 times the ductility index of RNC beam respectively. There is considerable difference in the ductility indices between the different CRLs considered and the values range between 1.68 to 2.30. The cracking behaviour observed for RFAC beams clearly shows that performance of RFAC beams is satisfactory when compared to RNC beams with respect to crack widths. In design, the theory applied for strength prediction of RNC beams is equally valid for RFAC beams. The experimental investigation clearly demonstrates that the there was no major difference in the strength, deformations and structural performances.

**Keywords:** Ductility, Fly Ash Concrete, Beams, Ductility Index, Cracking Behaviour, Ultimate Load Carrying Capacity.

**References:**
between the RFAC beams with different CRLs and RNC beams.

**Keywords:** Fly ash, cement replacement material, concrete beams, flexural behaviour of reinforced Fly ash concrete, ductility index.

**References:**

**Authors:** B.K.Narendra, T.M.Mahadeviah

**Paper Title:** Flexural behavior of Reinforced Fly Ash Concrete in Comparison to Reinforced Normal Concrete Beams in Terms of Load Deflection

**Abstract:** Fly ash is an excellent cement replacement material, either for blending during manufacturing of cement or as a separate addition at the batching plant during the manufacture of concrete at site or at ready mixed concrete facility. The 85 thermal power stations in India generate a huge quantity of Fly ash every year (140 million tonnes per year) as a by-product almost matching the annual production of cement. The dumping of Fly ash in open fields results in ecological and environmental problems. In such a situation, three factors – environmental protection, energy savings and the inherent advantages arising from the use of Fly ash demand that the construction industry examine closely the implication of the incorporation of Fly ash in concrete construction. Thus, there is worldwide interest in Fly ash utilization in concrete and this is reflected in the development currently taking place in the concrete industry. Hence, this paper present the investigation of comparison between the flexural behaviour of reinforced Fly ash concrete beams with that of reinforced normal concrete beams and increase the confidence levels of designers and other beneficiaries in using reinforced Fly ash concrete as a structural material. The flexural behaviour of reinforced Fly ash concrete beams with different cement replacement levels (20%, 35% and 50%) are compared with reinforced normal concrete beams (with out containing Fly ash) under similar conditions. These investigations were conducted with three grades of concrete i.e. M30, M40 and M50. Deflection is one of the important serviceability limit states to be satisfied in the design of concrete structures. So the flexural behaviour of these beams is discussed in terms of load deflection behavior.

**Keywords:** Fly ash, cement replacement material, concrete beams, flexural behaviour of reinforced Fly ash concrete, load deflection

References:

**Authors:** B.K.Narendra, T.M.Mahadeviah

**Paper Title:** Flexural behavior of Reinforced Fly Ash Concrete in Comparison to Reinforced Normal Concrete Beams in Terms of Moment-Curvature Relation

**Abstract:** The plastic behavior of any structural member is limited by the amount of deformation that occurs at a critical section when it is subjected to applied loads. Curvatures are obtained by dividing the sum of extreme fiber strains by the corresponding effective depth. Study of curvature assists in evolving the rotation capacities of the beam and also helps in assessing the capacity of the structure to redistribute the moment after yielding. In this paper moment curvature variation of RFAC beams considered are compared with RNC beams for each grade of concrete. Comparison of RFAC beams (with 20%, 35% and 50% replacement of cement by Fly ash) with RNC beams designed as balanced section cured for 28 days. From the study of the moment curvature relations of all three grades of concrete, it is observed that the trend of moment curvature relation of RFAC beams is similar to that of RNC beams at any load level, the curvature of the RFAC beams are lesser than RNC beam. It is also observed that as the CRLs by Fly ash increases, the curvature in RFAC beams decrease in M30 and M40 concretes and are all almost same in M50 concrete.

**References:**
Keywords: Fly ash, cement replacement material, concrete beams, flexural behaviour of reinforced Fly ash concrete, movement curvature relation.

References:

Authors: Zahra RAMZI, Samira TOUHTOUHI, M’Hamed TAIBI, Mohammed BETTACH, Abdelawahed HAJAJI, Wafaa NACHIT, Khalil BENKHOUJA

Paper Title: Synthesis and Characterization of New Amorphous Phases in Bi2O3-P2O5-SrO System

Abstract: In the present work Bi2O3-P2O5-SrO glasses have been prepared via melt quenching method. A glass-forming domain is found and studied within Bi2O3-P2O5-SrO system. The glasses obtained in the system P2O5-SrO was investigated by Infrared Spectroscopy. FTIR studies have been performed in these glasses to examine the distribution of different phosphate structural groups. The effect of strontium on these distributions has been examined.

Keywords: IR Spectroscopy, phosphates, glasses, Bi2O3-P2O5-SrO System

References:

Authors: Ritika Bansal, Sonal Chawla

Paper Title: An Approach for Semantic Information Retrieval from Ontology in Computer Science Domain

Abstract: Ontology plays a pivotal role in exchange of information, use of knowledge and its re-use, shared and common understanding of a domain specific knowledge that can be communicated between people and across application systems which is the goal of semantic web. Ontology is used to capture knowledge about any domain of interest with the objective of incorporating the machine understandable data on the current human-readable web. Ontology is a broad term including a wide range of activities, complexities and issues in which Ontology Development is one of the most fundamental and significant concern[1]. There may be various methodologies or tools for ontology development. This paper has three main objectives. Firstly, it considers the computer science domain and demonstrates the development of Ontology in this domain using Protégé 3.4 Editor. Secondly, this paper focuses on the techniques and query language SPARQL for data retrieval from Ontology. Thirdly, this paper discusses an approach for retrieving information from Ontology through natural language queries by demonstrating the layout of IRSCSD (Information retrieval system for computer science domain).

Keywords: Ontology, RDF, Semantic Searching, SPARQL, NLQ, Protégé, Jena API, Query.

References:
2. Guowei Chen,Pengzhou Zhang, “Keywords Retrieval Based On Ontology Inference”, Communication University of China, International Conference on Industrial Control and Electronics Engineering 2012.
Abstract: Helical antennas have long been popular in applications from VHF to microwaves requiring circular polarization, since they have the unique property of naturally providing circularly polarized radiation. One area that takes advantage of this property is satellite communications. Where more gain is required than can be provided by a helical antenna alone, a helical antenna can also be used as a feed for a parabolic dish for higher gains. The helical antenna can be an excellent feed for a dish, with the advantage of circular polarization. One limitation is that the usefulness of the circular polarization is limited since it cannot be easily reversed to the other sense, left-handed to right-handed or vice-versa. This paper deals with applying an electronic technique to control the helical feed of the parabolic reflector feed. The control of the helical feed leads to the control of the antenna gain. The proposed design is based on implementing a microcontroller connected to an interface to control stepper motor.

Keywords: Helical Antenna, Parabolic Dish feed, parabolic helical feed reflector, antenna, antenna gain, microcontroller, interface, stepper motor

References:
system performance has been conducted. Since the front end module has a direct impact on vehicle drag and vehicle cooling performance, it plays an important role in vehicle design. The current study investigates the effects of grill area, horn blockage, condenser, and fan capacity on engine cooling performance. A 1-dimensional CFD modeling methodology is used with different sub-systems such as coolant, engine oil circuit, intercooler, condenser and other components such as thermostats, radiators, fans and pump etc. using GT-SUITE. A pre-processing tool called COOL3D which is part of GT-SUITE is used to build the 3D underhood of vehicles using a component-by-component build approach, and therefore allowing inclusion of much more details than a usual 1D simulation model. GT-SUITE object-based code helps us to build reliable cooling systems and optimize the front end module for various operating conditions and reduces our effort on real time testing. With above considerations and methodologies we significantly improved the engine cooling performance.

Keywords: Automotive cooling system, Front end module, Underhood, 1D CFD simulation, GT Suite

References:
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Authors: Ayesha Syeda, Barvaliya Shrujal Jayesh Kumar

Paper Title: A Case Study on Bamboo as Green Building Material

Abstract: In this world of constantly increasing population and depleting resources there is urge to adopt cost effective and ecofriendly structures. These papers discuss the potential of bamboo and project the possibilities of usage of bamboo in the construction field. Bamboo is an ancient solution for the present day problem. Bamboo is an appropriate substitute for the present convention building material such as steel and wood. The main characteristic of the bamboo which makes it a suitable building material is it’s high tensile strength which is equivalent to mild steel at the yield point and very good weight strength ratio making it high resilient against the forces created by the earth quakes and hurricanes. Bamboo can replace 70% of steel and wood used in the construction and reduce the cost by 40%. Bamboo can be used from scaffolding to every stage of construction like in footings, beams, columns, slabs, stair cases, doors, windows etc. Bamboo is the renewable resource with amazing growth rate, rejuvenates the soil and grows in varied climatic conditions. Bamboo absorbs carbon dioxide and releases 35% more oxygen into the atmosphere than other hardwood trees. There are few building codes also available for the usage of bamboo in the construction such as ISO 22156: 2004 Bamboo structural design, ISO 22157: 2004 Bamboo physical and mechanical properties, IS 9096: 1979 Code of practice for preservation of bamboo, IS 1064: 1982 Environmental friendly, energy efficient and cost effective material.

Keywords: Bamboo, ISO 22156:2004, ISO 22157: 2004, IS 9096: 1979

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Authors: B.M.S. Rani, A. Jhansi Rani, T. Ravi, M. Divya Sree

Paper Title: Basic Fundamental Recognition of Voiced Unvoiced and Silence Region of A Speech

Abstract: Speech which is a natural and very easy way of exchanging the information if used as a medium to interact with the computer and can solve all these problems. Speech recognition technology has made it possible for computers to follow human voice commands and understand human languages. The main goal of speech recognition area is to develop techniques and systems for speech as input to machine.Objective is (a) Load, display and manipulation of speech signals.(b) Study and understand the time and frequency domain characteristics of voiced speech.(c) Classification of the voiced/unvoiced/silence features of speech signals in both time domain and frequency domain.(d)auto-correlation sequence of voiced,unvoiced,silence features of thespeech signals.

Keywords: voiced,un voiced, silence, time domain, frequency domain, auto correlation.
Supply Chain Management in Residential Construction Sector

Abstract: Supply chain management (SCM) is a concept which originated from manufacturing industry to control logistics. SCM is a management process by which organization control the worldwide network of stockholder such as supplier retailer and distributor through which raw material are procure, manufacture final product and delivered to customers. In construction process, procurement activities occur during all stage of a project. Construction process is fragmented so supplier of resources like man, material, money and machine are not available at right time and right quantity. It is difficult to control all the activity, so SCM process is more essential to control over all the activity on the construction process. In this paper introduce the concept of supply chain management in construction sector. Also explain the problem to adopt the supply chain management process in the residential construction projects and describe the benefits in effective implementation of SCM. Finally explain simple model of SC in residential project.

Keywords: Residential construction firm, Supply chain management, social housing

References:

Seismic Analysis of RC Silos Dynamic Discharge Phenomena

Abstract: This paper presents the characteristics of the flow pattern and wall pressures observed during filling and emptying of cylindrical silo during gravity discharge. The paper presents recent and current researches on these phenomena. The dynamic discharge phenomenon is influenced by various factors related to the type of flow pattern developed in the silos and the flow properties of the bulk material of particular, and the velocity at critical sections in the silo during discharge. Moreover, In order to ensure the accuracy for modified finite element model that is presented in paper; it is verified with other’s experimental results. Under different three types of earthquake ground excitations; Al-Aqba, 1995, Northridge, 1994, and El-Centro, 1940; the paper is dissected the silo discharge phenomenon; which has a stress peak during the dynamic discharge of the silo. Caused by that fact, the modeling of silo should be taken this phenomena effect in the simulation. Especially, this phenomenon has great effect on the silo mass distribution which reflects on the flow of granular material during filling and discharge. In order to ensure the presented finite element results; it is investigated for a real case study, Silo of Royal El-Menia Factory in Upper Egypt to be checked a model results with ACT 313-97 provision results to evaluate and comment on results.

Keywords: Silo, Seismic analysis, Dynamic discharge phenomena

References:
Steganography is the technique of information hiding. In steganography, a secret message can be hidden in a piece of data that appears normal. This can be done in any number of carriers, such as images, audio, video, and network protocols. In Network layer covert channels are used for data hiding. Covert channels violate security policies of the system. Covert channels are either used for steal the information or communicate to other network.

Abstract: The purpose of this study was to access the waste water quality of SHIATS and to provide suitable treatment option in the form of waste-stabilization ponds. Two sites were selected for waste water quality analysis. Assessment was carried from March to June. The analysis were done at laboratory using standard method. Parameter selected for the assessment were pH, turbidity. Electrical conductivity, Dissolved oxygen and Biological oxygen demand (BOD) at all the sampling sites all the parameter were at the pollutants exceeding the pollution limits. The value of pH, Turbidity, EC, DO and BOD ranges from 6.05 to 6.85, 6.55 NTU to 13.00 NTU, 0.008 to 2.00, 12mg/l to 22mg/l, 6.00 to 9.00 mg/l and total area required for waste stabilization ponds were 799.4 m2.

Keywords: Parameter, pH, Turbidity, Electrical Conductivity, Dissolve oxygen, Biological oxygen demand, waste stabilization pond.

References:
Abstract: An evaporative cooling tower is a heat exchanger where transformation of heat takes place from circulating water to the atmosphere. The warm water from the condenser is taken as an inlet water to the cooling tower and it is allowed to flow through the nozzles. As it falls down across baffles or louvers, the water is broken into small droplets. Simultaneously air is drawn in through the air inlet louvers provided at the base of the tower and then this air travels upward through the tower in the opposite direction of water flow. In this process a small portion of water gets evaporated which removes the heat from the remaining water causing it to cool down. This water is collected in a basin and is reused in the cooling water system process. Because of evaporation, some quantity of water gets lost and thus to make up this loss, the fresh water is constantly added to the cooling water basin. In a Natural Draft Cooling Tower, warm water is cooled by evaporation process. Here, water gets cooled when a boundary layer is formed between saturated water and saturated air. If the mass flow rate is ideal, then the performance of cooling tower as well as the power plant will be improved. In this study, it is showed that by minimizing the size of water droplet, the performance of Natural Draft Cooling Tower can be enhanced. Study of Sensitivity Analysis is done which shows the dependency of parameters like air temperature, water temperature, relative humidity and rate of heat loss. Further, efficiency is also checked by using power generation data.

Keywords: Cooling Tower, Rate of Heat loss, Sensitivity Analysis, Efficiency.

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Authors: Mutahir Ahmed, Rafi Ullah Khan, Saeed Badshah, Sakhi Jan

Paper Title: Finite Element Investigation of Geometry Effect on Pressure Vessel under Combined Structural and Thermal Loads

Abstract: Pressure vessels are commonly used for large industrial and commercial applications such as storage, filtration and softening purposes. Pressure vessels usually bear pressure and thermal loadings namely thermo-mechanical loadings and experiences expansion loads due to change in temperature. In this study, design and analysis are performed using commercial code to compare the stresses between different geometries. Structural design of pressure vessel is also optimized to accommodate thermal as well structural loads. Von-mises stress, hoop stress and deformation are plotted for all case studies.

Keywords: Stress distribution, stress concentration, Geometric non-linearity, pressure vessels.

References:
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Authors: Zine-Eddine Meguetta, Blaise Conrad, Mireille Bayart

Paper Title: Multi-Criteria Design Optimization of Control System Instrumentation using Principal Component Analysis (PCA) and Structural Modeling Approaches

Abstract: this article presents general approach of multi-criteria design of the control system instrumentation. The work reported here aims at defining that principal component analysis PCA can be used as method of design phase for non-linear system based on data measurements from the sensors and the available actuators for dynamical control system. The PCA consists to select inputs variables for quantifying the speed v+8 using structural modeling, despite the environmental disturbance is the slope of the road and uncertainties in measurements from the sensors and actuators implemented in the control system instrumentation in design phase.

Keywords: Multi criteria design, principal component analysis, structural modeling, optimization.

References:
Effect of Solar Drying on the Nutritive Value of Fenugreek Leaves

Abstract: A cabinet solar dryer with varying width of chimney has been designed and fabricated. In this work an attempt has been made to evaluate the performance of cabinet solar dryer (CSD) and open sun drying (OSD) to dry the fenugreek leaves. Result obtained showed that drying time for cabinet solar drying was found 43% less than that of open sun drying. After drying, samples were powdered and nutritive tests were carried out at national agricultural and Food research institute (NAFARI). The results showed significant increase in the nutrients studied of the dried samples except for vitamin C. The quantitative retention of nutrients like, energy, carbohydrates, calcium and sodium was found 4%, 2.5%, 66.47%, and 181.66% more in sample dried in cabinet solar dryer as compared to open sun.

Keywords: Cabinet solar dryer, open sun drying, fenugreek, Nutrients

References:

Nonlinear Modeling and Analysis of DC-DC Buck Converter and Comparing with Other Converters

Abstract: the design of power electronic converter circuit with the use of closed loop scheme needs modeling and then simulating the converter using the modeled equations. This can easily be done with the help of state equations and MATLAB/SIMULINK as a tool for simulation of those state equations. An attempt has been made in this paper to simulate all basic non-isolated power converters. So that these models can be readily used for any close loop design (say using PI, fuzzy, or sliding mode control etc.).

Keywords: Switching converters, MATLAB/SIMULINK, system modeling, cascade control, subsystems

References:
Abstract: This study examines the crashworthiness performance of the octagonal thin wall tube, based on numerical simulation. The purpose is to find the optimal design with the lowest weight and best crashworthiness parameters in order to protect the passengers’ life. Octagonal members with various trigger mechanisms (circular, square and elliptical triggers) with different distributions from the free end of tube were compared with aluminium alloy (AA6060) tube of 5 mm wall thickness, filled with hollow aluminium foam. The filled aluminium tube has given better results by enhancing the energy absorption by 7.1%, CFE by 29.4% and peak force 16% in case axial loading.

Keywords: dynamic compression, thin wall, energy absorption, direct and oblique loading, aluminium foam

References:

Authors: Yachana Gaikwad, Yogesh Rathore
Paper Title: Emotion Recognition from Chhattisgarhi Speech using Neural Network
Abstract: Speech Emotion Recognition (SER) is emerging as a crucial research area. Many works have been done in field of SER for example speaker dependent/ independent SER system, language dependent/independent SER system, extracting different emotions like happiness, anger, sadness, disgust, boredom, neutral. All these works have been achieved by working on speech sample, for which we need speech emotion database. In this work we have developed speech emotion database in Chhattisgarhi language. Speech emotions can be recognized by using different features of speech, which may be prosodic feature (pitch, energy) or phonetic features (MFCC, Format Frequency) etc. Thus for selecting feature of speech for emotion identification, a review of works on speech emotion recognition
is given in this paper. The aim of this paper is to present the works which are important to design and develop SER system for Chhattisgarhi language using neural network and analyze it.

Keywords: Energy, Format Frequency, MFCC, Pitch, Neural Network.

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26. http://cn.mathworks.com/matlabcentral/fileexchange/27059-speaker-recognition-system/content/sharks_1.0/melcepst.m

Authors: Prachi Patil, S. V. Patil, D. D. Chaudhari

Paper Title: Conversion of DICOM Multi-frame Medical Image into Multimedia Format using MATLAB

Abstract: Conversion of DICOM Multi-frame medical image to multimedia format is implemented. Parse DICOM file using Matlab programming and pixel data in DICOM multi-frame images are written in to Multimedia format. Numbers of images are tested from different imaging equipment such as Computed Tomography (CT), Magnetic Resonance (MR), X-ray Angiography (XA), Ultrasound Multi-frame Image (US) etc and all of them can be converted to multimedia format. It is necessary to parse DICOM files and convert DICOM multi-frame medical images into multimedia format in order to reflect the dynamic process of the multi-frame of the images and facilitate physician to observe dynamic information for diagnosing patients. 1) Convert multi-frame DICOM images in AVI multimedia format. 2) Convert multi-frame DICOM images in WMV multimedia format. 3) Convert multi-frame DICOM images in MP4 multimedia format. 30.

References:
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3. University of Zagreb, Faculty of Electrical Engineering and Computing Department of Wireless Communication
6. ISO 12882:2006, Health informatics -- Digital imaging and communication in medicine (DICOM) including workflow and data management
Abstract: Disease conditions invariably affect the activities and physiology of common buzzards irrespective of whether they are non-infectious or infectious. The impact of these diseases is further compounded by the stress of captivity in rehab facilities. Fifty common buzzards were studied in five batches of 10 birds at a time. The conditions the buzzards were diagnosed at entry were divided into infectious and non-infectious diseases. The main thrust of this investigation was to statistically compute the average daily food consumption and weight gain by common buzzards with non-infectious, infectious diseases and those with both non-infectious and infectious diseases over the study period, analyze and interpret the results statistically. The buzzards were kept singly in perforated paper boxes with their food weighed daily with an electronic scale. A control was set up daily in a box without any buzzard to determine and correct for weight loss through moisture by evaporation. The left-over was weighed the next day and subtracted from the quantity of meat served to get the relative quantity of meat consumed. The absolute quantity of meat was gotten after taking cognizance of moisture lost by the control. Birds with non-infectious, infectious and those with both non-infectious and infectious diseases on the average consumed 116.6g, 111.9g and 110.3g of food daily respectively. In the same order their weight gain was 12.2%, 18.8% and 17.6%. While there are obvious differences mathematically in the amount of food consumed and percentage weight gained by the 3 categories of birds as shown, Anova shows no significant difference in the values obtained since the P-value (0.38741) is greater than the level of significance of 0.05. This result could be attributed to the unbiased, equal and good care given to all the studied buzzards as the study lasted in tandem with world best standard practice and ethics. It also underscores the necessity and effectiveness of wildlife rehabilitation programmes.

Keywords: Diseases Food Consumption, Weight Gain, Captive, Common Buzzards.

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Authors: G. Bhala Bharath, R. Ramana Reddy

Paper Title: A Reduced Clock Power Flip-Flop for Sequential Circuits

Abstract: In most Very Large Scale Integration digital circuits, clock system is one of the major power consuming component. It consumes around 40% of the total system power. There is need to reduce the power consumption because power budget is severely limited on portable digital circuits. In this paper, a new Low Power Clocked Pass Transistor Flip-Flop is proposed, which will considerably reduce the number of transistors in the discharging path and also reduces the capacitive load by minimizing number of clocked transistors leading to reduction in clocking power which will improve the overall power consumption. Proposed reduced clock power flip-flop is compared with conventional flip-flops and Parallel In Parallel Out shift register is designed using this proposed flip-flop. Simulations are done using Microwind & Tanner software tools.

Keywords: Flip-flop, Low Power Clocking System, Microwind, Pass transistors, Shift register, Tanner.

References:
Wide-range level shifters play critical roles in ultralow-voltage circuits and systems. In this paper level shifter circuits that are capable of converting subthreshold to above threshold signal levels are presented. Level shifters are designed using current mirrors. The circuit has a distinctive current generation scheme using a logic error correction circuit that works by detecting the input and output logic levels. The proposed level shifter circuit can convert low-voltage digital input signals to high-voltage digital output signals. The circuit achieves low-power operation because it dissipates operating current only when the input signal changes. Simulations are carried out using Mentor Graphics 130-nm technology. Performances of the proposed level shifters are compared in terms of delay, power consumption and duty cycle.

Keywords: Level Shifters, Current mirrors, Logic Error Correction Circuit, Mentor Graphics.

References:
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9. "A Low-Power Subthreshold to Above-Threshold Voltage Level Shifter", S.Rasool Hosseini, Mehdi Saberi, Member, IEEE, and Reza Lotfi, Senior Member, IEEE, 1549-7747 (c) 2013 IEEE.
10. "CMOS current mirrors with reduced input and output voltage requirements”, V.I. Prodanov and M.M. Green.
Abstract: In mathematics, digital communication and information theory, error detection and correction has great practical importance in maintaining information integrity across noisy channels. Error coding is considered as a method of detecting and correcting these errors to ensure that the information is transferred intact from its source to its destination. There are various error correcting techniques to detect and correct the error. One of the popular techniques based on forward error correction is Hamming Code. This paper focuses on design and its hardware implementation on Field programmable Gate Array (FPGA). The design includes both of the encoder and decoder systems to be used for the serial data transmission and reception of the wireless transceiver systems. The design has been simulated and verified using Xilinx simulator and Verilog HDL. Spartan-3 FPGA trainer kit for Xilinx 14.3 has been used for the implementation.

Keywords: Error coding, Hamming code, encoder, decoder, Verilog HDL, FPGA, Xilinx, Spartan 3.

References:

Authors: Suman Anil Kumar, Saxena Anil Kumar, Arora T.R.

Paper Title: Effect of Fly Ash as A Cement Replacement on The Strength of Concrete

Abstract: This study is an attempt to find a suitable utilization for a particular fly ash depending upon its properties and thus reduce the need for vast areas for disposal of fly ash which in turn causes considerable damage to the environment. In India, around 110 million tones of fly ash get accumulated every year at the thermal power stations. Internationally fly ash is considered as a byproduct which can be used for many applications. Fly Ash mission was initiated in 1994 to promote gainful and environment friendly utilization of the material. One of the areas identified for its bulk utilization was in construction of roads and embankments. Concrete is being widely used for the construction of most of the buildings, bridges, etc throughout the world. Hence it is the backbone to the infrastructure development of a nation. India is taking major initiatives to improve and develop its infrastructure by constructing express highways, power projects and industrial structures. A huge quantity of concrete is required to meet out infrastructure development. Fly ash is a by-product of burned coal from power station. Considerable efforts are being taken worldwide to utilize natural waste.

Keywords: Fly Ash mission was initiated in 1994 to promote gainful and environment friendly utilization of the material.

References:
2. The investigation on the compressive strength of silica fumes concrete; Sen Gupta, s bhanja (2003)

Authors: Rakhi R. Naidu, Sweety S. Nawale, Neha P. Pawar, Preeti R. Sharma, Rashajree R.S

Paper Title: A Study on Online Contract Signing Protocols

Abstract: Security services becomes crucial to many applications such as e-commerce payment protocols. Online contract signing protocol is fair as it allows two users to exchange their digital signatures in a secure manner such that both the users remain loyal to the transaction. The trusted third party is involved only in the situations where one party is cheating other or the communication channel is interrupted. Also, if the protocol is executed unsuccessfully, none of the parties can show the validity of intermediate results to others. As more business is conducted over the internet, the fair-exchange problem is gaining greater importance. In this paper, we make a comparative study of different online contract signing protocols and give the best efficiency results.

Keywords: Fair-exchange protocols, TTP, digital signatures, security.

References:
Abstract: In the recent days, the development in the field of communication devices leads to the wide usage of spectrum. Since the availability of spectrum was limited, cognitive radio technique was adopted for spectrum sensing. In spectrum sensing number of uncertain conditions were present which may degrade the sensing performance and require much time to achieve target sensing algorithm. In the existing system the energy based spectrum sensing technique and sequential detection algorithm were used. In this proposed system, Sequential Detection CUSUM algorithm is used to improve the probability of false alarm by applying the cumulative distribution function, trapezoidal rule for the distribution function of the secondary user. In this wavelet based spectrum sensing technique is used, the wavelet decomposition can find the vacant frequency bands effectively.

Keywords: Cognitive radio, Spectrum sensing, wavelet based sensing, CUSUM algorithm.

References:

Authors: P. Kalpana Devi, J. Rajalakshmi
Paper Title: Improved Wavelet-Cusum Spectrum Sensing Algorithm in Cognitive Radio Network

Abstract: Continuous aggregation is required in sensor applications to obtain the temporal variation information of aggregates. It helps the users to understand how the environment changes over time and track real time measurements for trend analysis. In the continuous aggregation, the attacker could manipulate a series of aggregation results through compromised nodes to fabricate false temporal variation patterns of the aggregates. Existing secure aggregation schemes conduct one individual verification for each aggregation result. Due to the high frequency and the long period of a continuous aggregation in every epoch, the false temporal variation pattern would incur a great communication cost. In this cost, we detect and verify a false temporal variations pattern by checking only a small part of aggregation results to reduce a verification cost. A sampling based approach is used to check the aggregation results and we also proposed a security mechanism to protect the sampling process.

Keywords: Data aggregation, Sampling, Wireless Sensor Networks

References:

Authors: Asawari Dudwadkar, Praveen Ahuja

Paper Title: 3 Phase Multilevel Inverter using Bidirectional Chopper Cell

Abstract: The paper presents the simulation of the operation of 3 phase multilevel inverter using bidirectional chopper cells. The input provided is a DC supply of 12V which is further distributed into two 6V supplies. To convert DC into AC, configuration of Bidirectional Chopper cell are used two in each phase. Thus 3 phases are working simultaneously to give a 3 phase AC supply using the concept of Multilevel Inverters. The hardware is broken down into Main and Driver circuits where the main circuit includes the switching circuitry and the driver board comprises of the triggering circuitry.

Keywords: Multilevel Inverter, Bidirectional Chopper, Main circuit, Driver circuit.

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Authors: R. MadhuSudhan, N. Ramanaiyah, K. Praveen Kumar

Paper Title: Evaluating Optimal Process Parameters in Dissimilar Friction Stir Welding of Al Alloys

Abstract: This study is made to determine the near optimal process parameters (speed, feed, axial force) of Friction Stir Welding (FSW) of dissimilar aluminum alloys AA 6262 and AA7075 using gray relational analysis by simultaneously considering multiple output parameters tensile strength (UTS) and hardness (VHN). Experiments were performed with three process parameters such as tool rotational speed, weld speed and axial force considering three levels of each. All the possible combinations are used for the experimentation. Optimum process parameter combination of the FSW of dissimilar aluminum alloys was obtained via gray relational grade obtained from the gray relational analysis. Confirmation experiment has been conducted to validate the optimized parameters. The predicted and initial parameters have the better aspect ratio. The optimal process parameters were identified in order to find the quality of the welded specimens.

Keywords: FSW, Gray Relational Analysis, Dissimilar Aluminium alloys.

References:

Authors: Jagdish Patel, Rana Mahajan, Manohar Wagh

Paper Title: BER Analysis of MIMO-OFDM System Using Different Equalization Techniques under Multipath Fading Channels for Different Modulations

Abstract: With the rapid growth of digital communication in recent years, the need for high speed data transmission is increased. OFDM is a promising solution for achieving high data rates in mobile environment, due to its resistance to ISI, which is a common problem found in high speed data communication. A multiple-input multiple-output (MIMO) communication System combined with the orthogonal frequency division multiplexing (OFDM) modulation technique can achieve reliable high data rate transmission over broadband wireless channels. MIMO-OFDM system has been currently recognized as one of the most competitive technology for 4G mobile wireless systems. In this paper we discuss the BER performance of the MIMO-OFDM system with two different equalizers (ZF and MMSE) for various modulation techniques such as BPSK, QPSK, 16-QAM and 64-QAM using multipath fading channels such as AWGN (Additive White Gaussian Noise), Rayleigh and Rician channel. The simulation results show that, with MMSE and ZF equalizers, the BER performance is better in MMSE equalizer. Further we analyzed in different fading channels for various modulation techniques in both the equalizers.

Keywords: MIMO, OFDM, ZF and MMSE Equalizer, Multipath fading channels, M-QAM

References:

Authors: Farooq Saed

Paper Title: Experimental and Numerical Study of Side-Slapping 65-deg Delta and Double-Delta Wings

Abstract: The paper presents the results of an experimental and numerical investigation to determine aerodynamic characteristics of side-slapping 65-deg Delta and Double-Delta Wings.
characteristics in terms of lift, drag, side force, pitching moment, yawing moment and rolling moment coefficients for 65-deg delta and 65/40 double-delta wings at various pitch and sideslip angles. The study was carried out due to scarcity of such data in literature. The experimental tests were conducted at the KFUPM low-speed wind tunnel facility whereas the numerical tests were performed using the commercial CFD software FLUENT. Results for zero sideslip angles from both experiments and numerical predictions were compared with experimental data found in literature as well as to the theory of Polhamus. The comparison of force and moment data, surface pressure coefficient distribution and vortex breakdown location show good agreement with experiments and CFD predictions found in literature as well as theoretical calculations at zero sideslip angles. Experimental and computational results for non-zero sideslip angles at various pitch angles were then determined and have been reported in this study.

**Keywords:** Delta wing, double delta wing, sideslip, vortex lift, vortex breakdown

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28. FLUENT (v5.0.29) and GAMBIT (v2.0.4) software: www.fluent.com.
Abstract: The continuous flow isotope ratio mass spectrometer (CF-IRMS) coupled with automated sample preparation device Gasbench II and equilibration system measures oxygen and hydrogen isotope ratios with typical external precision of around ±0.1‰ for δ18O and ±1‰ for δD, although internal analytical precision is better than 0.06‰ for oxygen and 0.5‰ for hydrogen. In CF-IRMS method, an aliquot of the gas (CO2/H2 + Helium), equilibrated with water sample, is transferred from the head-space of the exetainer into the mass-spectrometer for isotope ratio measurement. The observed difference between external and internal precision is governed by the operating procedures that influence the online chemistry for equilibration and transfer of the gas in to IRMS. These procedures also govern the sample throughput and long term stability of the machine. With a view to minimize the difference between external and internal precision and to maximize the throughput with high reliability at minimum cost experiments were undertaken. The experiments investigated: (i) optimum duration of equilibration for oxygen analyses, (ii) modes for manual introduction of water sample in the exetainer i.e. before or after flush-filling with equilibrating gas, (iii) effects of the difference between room temperature and sample tray temperature, (iv) effects of septum reuse, and (v) reuse of platinum rod on long term basis. In addition, important maintenance related issue pertaining to analytical needle for the injection and flushing is addressed. The experiments achieved external precision better than 0.07‰ for δ18O and 0.8‰ for δD with large sample throughput and long term stability using 300 l of water sample. Other optimized parameters for oxygen are; equilibration duration of 16 hrs at 32ºC, 540 seconds of flushing duration and introduction of water sample after flush-filling. The parameters for hydrogen are 45 minutes and 320 seconds after flush-filling.

Keywords: Water Stable Isotope, Protocols, Flush filling, Maintenance.

References: