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SOUVENIR

2nd Global Conference

(Virtual Mode)

On

EMERGING TRENDS IN RESEARCH & DEVELOPMENT

ETRD – 2023

June 17 – 18, 2023

Organized by IJIRG

In Association

Department of Physics, School of Life & Basic Sciences,

Jaipur National University, Jaipur, Rajasthan, India.

&

K. P. S. Science Academy, M. P. India

&

A Fourth Dimension Group, M. P. India

Dr. Manish Kumar Srivastava
Vice-Chancellor
Vikrant University, Gwalior.

Message from Special Guest

Research and development are very important for any organization. The sustainable growth of any organization is depended that how they are taking research in a positive way. How they are making the policies and execution on the basis of effective research outcomes. For example, the technology innovation and uses in positive way can increase your company's positive growth, smooth operations, help you cope with changes in the marketplace, and hence, keep your company relevant in the eyes of consumers. During Covid 19 we have learnt that development can also give a negative impact if we are destroying our natural resources. Our research and development must focus on sustainable development i.e., we must innovate the finding ways for continuous development without the risk of running out of resources or causing irreparable damage to environment. Our research must be in the direction of efficient use of available natural resources for the advance growth. In the current era, every day many new changes are in front of us. The time is moving so fast with changes and we also have to move further with changes. Therefore, for the development of any industry continuous research, up gradation of systems, processes and up skilling manpower are very much essential. Agriculture, Education, Health care, Banking, Insurance, Rural tourism, Arts and culture, Textile & Designing, Transport, Solar energy, Local remedies for disaster management, and many sectors where tremendous scope of innovation is required for a sustainable growth. I hope this Global conference will definitely be a big platform for all researchers of different area specific, Academicians and Industry people to discuss various issues related with research and Innovations for sustainable advancements, and will come out with some good conclusions. Wish you all the Best.

Dr. Manish Kumar Srivastava

Dr. Vishwa Nath Maurya
Distinguished Professor
M.Sc., MBA, M. Tech., Ph.D. (India & USA), D.Litt.,
D.Sc. (USA), D.Litt. H.C., D.Sc. HC (LLU Nigeria)
Executive Vice-Chancellor
Chartered International Da Vinci University (CIDVU), Delaware, USA

Message from the Guest of Honour

It is a great pleasurer that the International Journal of Innovative Research & Growth (IJIRG) is organising a Global Conference on Engineering Trends in Research and Development (ETRD 2023) to be held on 17-18 June 2023 on virtual mode. I would like to heartily thank its Patron Prof. P.L. Verma and Editor-in-Chief Dr. P. Singh for their cordial invitation to honour me as Guest of Honour of the Global Conference.

As Guest of Honour on this very exciting occasion I feel great pleasure to share with you today that I am delighted to have the opportunity to address such a talented gathering of hard-working students, researchers, learned speakers, and other participating professionals. This is a great day for all of you and I am very happy to sharing it with you! In fact, mixing and mingling with young researchers, scientists, academicians and tother talented people is one of the great pleasures of my educational profession.

As an Executive Vice-Chancellor of the Chartered International Da Vinci University, USA, it is vital that I understand the youth of new generation of this modern technological era. Such type of international conference is really a scientific platform for boosting, exploring and sharing scientific knowledge, innovative ideas, latest technologies and tools in research ambiance at the global level. I am confident and sure that the Global Conference on Engineering Trends in Research and Development (ETRD 2023) will be beneficial for all participants.

At the end, as Guest of Honour I express again my sincere thanks again to the Patron Prof. P.L. Verma and Editor-in-Chief Dr. P. Singh and his associate editors, managing team members, and research committee members for their so valuable constructive efforts and significant contributions to provide and facilitate such type of scientific platform by way of organising the Global Conference on Engineering Trends in Research and Development

(ETRD 2023). Finally, I wish for the grand success of the Global Conference on Engineering Trends in Research and Development (ETRD 2023).

Thank You

Prof. Vishwa Nath Maurya

Prof. (Dr.) P.L. Verma
Chief Patron

Message

It is my proud privilege to be the part of this 2nd Global Conference on "Emerging Trends in Research and Development" ETRD-2023 is being organized by International Journal of Innovative Research & Growth (IJIRG) in association with Department of Physics, School of Life & Basic Sciences, Jaipur National University, Jaipur, Rajasthan, India, KPS Science Academy M.P., India and A Fourth Dimension Group M.P. India on 17th-18th June 2023.

This International event is another small endeavor in the direction to bring together the experienced intellectual on one hand, and the young inquisitive minds on the other hand, to develop new thoughts, new ideas and new strategies to combat the challenges of changing pattern of world demand.

I extend a warm welcome to all the participants from across the world to this mega event and hope that two days scientific deliberations of this august congregation will go a long way in shaping the philosophy and action, and make a valuable contribution to the field of Research and Development.

I wish a grand success to ETRD 2023.

Thank You

Prof. P. L. Verma

Prof. A. K. Shrivastava
Patron

Message

I feel extremely happy that the International Journal of Innovative Research & Growth (IJIRG) is going to release a souvenir on its 2nd Global conference on" Emerging Trends in Research & Development" (ETRD-2023) from 17-18 June, 2023.

It is matter of great pride for me to be a part of such occasion.

I personally convey my good wishes to the entire team of your organising committee. This effort will certainly provide opportunity to our researchers and inculcate moral ethics among our new generation. Now a days the main emphasis is on plagiarism in research publications and this makes such conferences to be the need of the hour.

No doubt, it is a great initiative by your society and my good wishes are always with you.

Thanks

Prof. A. K. Shrivastava

(Prof. A.K. Shrivastava)

Prof. R. P. Singh
Patron

Message

It is quite quantifying to note that the International Journal of Innovative Research & Growth (IJIRG) India is hosting its 2nd Global Conference on "**Emerging Trends in Research and Development" ETRD-2023 2023** in association with Department of Physics, School of Life & Basic Sciences, Jaipur National University, Jaipur, Rajasthan, India, KPS Science Academy M.P., India and A Fourth Dimension Group M.P. India on 17th-18th June 2023.

Organizing such an event at this point of time reinforces our objective of developing an environment for the exchange of ideas towards research and developments. I wish the conference would be able to deliberate on current issues of national and international relevance, particularly in the field of science, engineering, cloud computing, image processing, big data analytics, architecture and urban planning etc.

I am sure that this Conference will provide an affable environment for the researchers and academicians to freely exchange their ideas with others.

I convey my warm greetings and felicitations to the organizing committee and the participants and extend my best wishes for the success of the conference.

Thank You

Dr. R. P. Singh

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Dr. Preetam Singh
Convener

Message

It gives me immense pleasure that the 2nd Global Conference on "**Emerging Trends in Research and Development" ETRD-2023** is being organized by International Journal of Innovative Research & Growth (IJIRG) in association with Department of Physics, School of Life & Basic Sciences, Jaipur National University, Jaipur, Rajasthan, India, KPS Science Academy M.P., India and A Fourth Dimension Group M.P. India on 17th-18th June 2023.

Science is always considered a boon because without the auspices of science, it would have been impossible for us to stay in this world with such a great comfort. Science is readily and rapidly generating new laws and theories, but still, we are in the infancy stage, we have to uncover lot of mysteries of the nature. New theories in combination with the innovative technologies are finding place in the laboratories every year thus generating new ideas for industrial and economic growth. The industries are eagerly waiting for the progress and innovations in the field of science and technology and look towards their R&D wings with great expectations.

The ETRD 2023 aims to provide a scientific platform for all the participants to congregate and interact with subject specialist. I am sure the deliberation of the conference will be an enlightening and enriching experiences for all the participants.

I welcome you all to ETRD 2023 and extend my best wishes for the grand success of the Conference.

Thank You

Dr. Preetam Singh

ISSN: 2455-1848

Dr. Naveen K Singh
Convener

Message

It gives me immense pleasure that the International Journal of Innovative Research & Growth (IJIRG) is organizing 2nd Global Conference on **Emerging Trends in Research and Development (ETRD-2023**) in association with Department of Physics, School of Life & Basic Sciences, Jaipur National University, Jaipur, Rajasthan, India, KPS Science Academy M.P., India and A Fourth Dimension Group M.P. India to be held on 17-18 June 2023.

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The ETRD 2023 aims to provide a scientific platform for all the participants to congregate and interact with subject specialist. I am sure the deliberation of the conference will be an enlightening and enriching experiences for all the participants.

I welcome you all to ETRD 2023 and extend my best wishes for the grand success of the Conference.

Thank You

Dr. Naveen K Singh

ISSN: 2455-1848

Dr. Nitin P. Singh
Co-Convener

Message

On behalf of the organizing committee of "2nd Global Conference on Emerging Trends in Research & Development (GCETRD-2023) in Association with Department of Physics, School of Life & Basic Sciences, Jaipur National University, Jaipur, Rajasthan, K. P. S. Science Academy, and a Fourth Dimension Group, M. P. India, I have great pleasure in welcoming all the delegates to the Conference during June 17-18, 2023 through virtual mode. The main goal of organizing this conference is to share and enhance the knowledge of each and every individual in this digital world. We have given a good opportunity for those who have a thirst in knowing the present technological developments and also share their ideas. Furthermore, this conference will also facilitate the participants to expose and share various novel ideas.

I look forward to celebrating and enhancing our amazing profession with you at this 2nd Global Conference.

I thank the conference committee for extending their valuable time in organizing the program and all the authors, reviewers, and other contributors for their sparkling efforts and their belief in the excellence of GCETRD-2023.

Thank You

Dr. Nitin P. Singh

ISSN: 2455-1848

Dr. Vatsala Pawar
Organizing Secretary

Message

The fact that the International Journal of Innovative Research & Growth (IJIRG) is organizing the 2nd Global Conference on "Emerging Trends in Research and Development" ETRD-2023 in conjunction with the Department of Physics, School of Life & Basic Sciences, Jaipur National University, Jaipur, Rajasthan, India, KPS Science Academy, M.P., India, and A Fourth Dimension Group, M.P., India, on June 17-18, 2023 gives me a great deal of pleasure.

I am sure the conference will provide an interactive platform for eminent scholars, faculties, academicians and research scholars to have a comprehensive discussion on the interdisciplinary topics included in the conference. A souvenir is also been published to mark the occasion.

I wish the journey would continue to cultivate the scientific temper for inspiring the young generations in India as well as globally.

I wish all success to the endeavour.

Thank You

Dr. Vatsala Pawar

Dr. Shivanshu Bhadoria
Organizing Secretary

Message

Still water has no value but flowing has power to cultivate and bring life to orgasm. Similarly, study and knowledge has value but without research its importance and value ceases. The journey of life and of development both blooms if newness and new findings are added to it. Research has always made the life easier and smooth whether it has been done in the field of art, life, culture and science. There are many brilliant minds that are remarkably doing great and appreciable in the various field of life and science.

The International Journal of Innovative Research & Growth (IJIRG) has always endeavoured to bring such brilliant minds at a place who can illumine the society of scholars, learners and academicians through their innovative research and findings.

I am very pleased to be the witness of such great scholars, academicians, researchers and specialist of their field again on this platform.

I welcome you all warmly and heartiest congratulation to the organizing team for the success of the very event in advance.

Thank You

Dr. Shivanshu Bhadoria

About IJIRG

The International Journal of Innovative Research & Growth (IJIRG) is a globally acclaimed, meticulously peer-reviewed quarterly periodical committed to an unwavering double-blind evaluation system. As a globally encompassing publication, we profoundly encompass the pioneering and revolutionary research related to the forthcoming wave of cutting-edge science and technologies. Each constituent of our IJIRG Reviewer Panel rigorously scrutinizes the manuscripts to detect any instances of plagiarism, perpetually focusing on ensuring the novelty and originality of every research paper we publish.

The journal earnestly invites exclusive, previously unpublished scholarly articles, comprehensive review papers, technical reports, and succinct communications that provide fresh perspectives in any scientific discipline. We particularly encourage contributions that have not been submitted or are not currently under consideration for publication elsewhere.

Our aspiration is to be the conduit for scholarly articles across a broad array of disciplines including Engineering and Technology, Physical Sciences, Life Sciences, Chemical Sciences, Food Science, Earth Science, Biomedical Sciences, Biological Sciences, Biodiversity, Biotechnology, Clinical Sciences, Animal and Veterinary Sciences, Agricultural Sciences, Environmental sciences, Home Science, Horticulture, Hospitality and Tourism Management, Geology, Library & Information Science, Management, Yoga, Economics, Education, Languages and Literature. We strive to be the platform of choice for researchers to disseminate their work and contribute to the global academic dialogue.

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Contents

ISSN: 2455-1848

Abstracts of Key Note Speakers

ETRD-2023
K P S Science Academy
ISSN: 2455-1848

Dr. Arpana Parihar
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"Healthcare Management Employing Advanced Diagnostics"

The role of diagnostic technologies is crucial in the health care management. Advanced-biosensor-based diagnostics are cost-effective, sensitive and selective when compared to conventional diagnostic approaches. A number of biosensors for the clinical diagnosis of malignant and non-cancerous disorders have been made using nanomaterials on a large scale. As a result of its remarkable physical, chemical, electrical, optical, mechanical, and thermal capabilities, graphene nanomaterials have a wide range of applications in sensors, biomedicine, electrodes, electrocatalysis, energy storage, and converters. It is possible to create high-performance electrochemical sensors with a femtomolar limit of detection of analyte using graphene nanomaterials, especially when they have been suitably functionalized. These sensors hold promise for use in the diagnosis and prognosis of diseases. The selectivity, sensitivity, and speed of detection for a variety of analytes have all been improved by the use of graphene-based nanomaterials in combination with highly specific aptamers (antibody mimics). In this study, we concentrate on recent developments in graphene nanomaterial for the fabrication of electrochemical point-of-care testing devices for the development of cancer diagnostics as well as the fundamentals of conventional detection methodologies that would open the door for the next generation sensing methodology. Additionally, the detection processes of graphene nanomaterials-based electrochemical sensors are examined along with the structure-related features of graphene nanomaterials and various ways of surface functionalization. We will also discuss the constraints and difficulties associated with creating electrochemical biosensors based on graphene nanomaterials for cancer diagnostic applications.

Keywords: - Graphene, Electrochemical devices, POCT, Diagnostics

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"Eco-Villages the New Paradigm for Sustainable Human Societies"

Eco-villages are small-scale settlements designed to be self-sustaining through a variety of sustainable strategies such as renewable energy, closed-loop systems, and permaculture. These strategies can provide a blueprint for sustainable development in areas of the world that lack resources, infrastructure, and economic development. This is to also highlight the importance of eco-villages as a sustainable development tool and propose strategies for their successful implementation. Additionally, examining the challenges that come with eco-villages, such as health concerns due to changing environmental conditions, as well as potential for conflict in rural communities. In conclusion, eco-villages offer a feasible and sustainable development tool that can provide a pathway to a more equitable and sustainable future.

Keywords: - Sustainable development, eco-villages, Renewable energy.

ETRD-2023

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Dr. Ritu Agarwal
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"An Insight to Study Epidemic Dynamics in A Systematic Way Through Mathematical Modelling"

I'll talk about the epidemic's overall dynamics in this session, as well as how compartmental differential equations can be utilised to simulate it. The significance of the reproductive number and the several aspects that are considered during modelling, including the death-birth, vaccination coverage, immunity, exposure, and others, will also be discussed.

ETRD-2023
K P S Science Academy
ISSN: 2455-1848

Dr. Sachin Gupta
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"Skill, Entrepreneurship & Employability in The Digital Era"

The 21st century is known as the "Digital Era" at the moment. In this technologically advanced era, progress depends on innovation and the development of people's relevant employability and entrepreneurial skills and abilities. If both employees and employers possess the necessary employability and entrepreneurial abilities, unemployment can be simply managed. Entrepreneurial skills and employability are similar and dissimilar in many ways. Entrepreneurial skills of employers influence the growth and expansion of employability skills. Today's biggest issue is unemployment, which has a number of causes, including a lack of skilled workers. Employers are very unhappy with freshly hired graduates' employability skills.

The modern market, business, economy, and industry environment are the digital workplaces. Digital services, such as various online applications, online learning platforms, online medical facilities, online payment banking, etc., are offered over the internet and other mobile computing devices. Digital and entrepreneurial skills are essential for boosting economic prosperity, productivity, sustainability and national wealth. These skills are intended to boost economic growth and help in raising productivity. The study will discover that entrepreneurial skills that are necessary to develop a set of employability skills since employers and organisations play a significant role in this process.

Keywords: Entrepreneurial Skills, Employability, Digital era, employment opportunities

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"Improving Mechanical and Dielectric Properties of PVDF Composites by Employing Modified Strong Polarized Cacu3ti4o12 Particles Derived by Solid State Method"

Miniaturization of electronics devices creates a strong desire to place capacitors on the circuit board in the form of integrated passive components. To realize this, lot of research is being carried out by several researchers to develop polymer ceramic composites with high dielectric constant. Need for high dielectric constant materials have been driven by the continuous demand for miniaturization of electronic devices. To fulfil this material with high or giant dielectric constant is required. Recently, CaCu3Ti4O12 (CCTO) has attracted lot of scientific and technological interest because of its giant dielectric constant (εr ~104) with weak temperature/frequency dependence in a wide range of temperature (100–600 K) and frequency. High density, brittleness and challenging processing conditions are few drawbacks which impede its use as high-k materials. So polymer ceramic composites have become a promising material for these applications. As they possess hardness, stiffness and high dielectric constant of ceramics and the flexibility, elasticity and low density of polymers. In the present work, we investigated the structural and dielectric properties of Poly(vinylidene fluoride)/modified CCTO composites.

Extrusion process was used to prepare high dielectric constant ceramic reinforced PVDF composites. The structure and morphology of the composites were characterized using X-ray diffraction and scanning electron microscope. SEM micrographs show that homogeneous distribution of ceramics has taken place in PVDF matrix with small trails of agglomeration. Tensile tests were performed to measure young's modulus which increases significantly in

composites in presence of ceramic filler. Dielectric measurements were carried out between frequencies 10-2 to 106 Hz using four probe Novocontrol set up (ZG4) from room temp to 120°C. With addition of CCTO there is substantial increase in the dielectric constant of matrix PVDF. Dielectric loss in composite slightly increases in presence of CCTO.

Keywords: - Polymer, Ceramics, XRD, SEM.

ETRD-2023
K P S Science Academy
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"Single Crystals for Nonlinear Optics, Thermo-Electrics and Detector Applications"

Single Crystalline Materials are of great importance owing to existence in most stable state due to minimum Gibb's free energy and their usage in wide variety of applications like in semiconductors, photonics, thermo-electrics, spintronics, detectors etc. The talk will focus on fundamentals of Single Crystal Growth, various techniques and about some of the potential organic and inorganic single crystals grown using solution and melt techniques, studies performed over them to find their suitability in Nonlinear Optics, Thermo-electrics and detector applications. The grown crystals have shown quiet good results for the said applications. The observations shall be presented in detail.

Keywords: - Single Crystalline, Nonlinear Optics, Thermo-electrics, Gibb's free energy, Solution Technique, Melt Technique.

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"The process of Innovation and Technology Readiness Level"

The process of Innovation and Technology Readiness Level (TRL) is a systematic approach used to assess the maturity and readiness of a technology or innovation for deployment or commercialization. The TRL scale is a commonly used framework that helps organizations and researchers evaluate the progress and potential of their technologies. It consists of a series of numerical levels, from TRL 1 to TRL 9, each representing a specific stage of technological development.

Here is an outline of the different TRL levels and their characteristics:

TRL 1: Basic principles observed and reported

This stage represents the initial concept or idea.

Scientific research may have been conducted, but no experimental evidence or detailed analysis is available.

TRL 2: Technology concept formulated

This stage involves the formulation of the concept and identification of potential applications.

The concept is typically validated through analytical studies or laboratory experiments.

TRL 3: Experimental proof of concept

At this stage, researchers conduct experiments to validate the basic functionality and feasibility of the technology.

The experiments may be conducted in a controlled laboratory environment.

TRL 4: Technology validated in lab

The technology is further validated in a laboratory setting.

This stage focuses on refining the technology and evaluating its performance characteristics.

TRL 5: Technology validated in relevant environment

The technology is tested and validated in a simulated or representative environment.

The testing is conducted to assess its performance under realistic conditions.

TRL 6: Technology demonstrated in relevant environment

The technology is demonstrated in an operational or production-like environment.

This stage typically involves a prototype or pilot-scale implementation.

TRL 7: System prototype demonstration in operational environment

The technology is demonstrated in an operational environment, representing a near-final product.

The focus is on evaluating the system's performance and integration with other systems.

TRL 8: Actual system completed and qualified

The technology is fully developed, and the final system is completed.

Testing and qualification processes are conducted to ensure the technology meets all requirements and specifications.

TRL 9: Technology proven through successful deployment

The technology is successfully deployed and used in its intended operational environment.

It is considered mature and has a track record of successful implementation.

The TRL scale provides a common language for stakeholders to discuss the maturity and readiness of a technology. It helps decision-makers understand the progress and potential risks associated with a technology, guiding the allocation of resources, investment decisions, and further development efforts.

ETRD-2023
ISSN: 2455-1848

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"IOT Applications Enhancing Renewable Energy Systems Infrastructure Efficiency and Effectiveness"

The global IoT in energy market size is expected to reach $357.4 billion by 2028, rising at a market growth of 19.7% CAGR during the forecast period. The Internet of Things (IoT) platform comprises web-connected smart devices that gather, analyze, and maintain data utilizing sensors, communication hardware, and CPUs. IoT symbolizes a new production reality. The Internet of Things in the energy market was valued at USD 168.57 billion in 2020 and expected to reach USD 298.26 billion by 2026 and grow at a CAGR of 10% over the forecast period (2021-2026). According to the International Energy Agency, as a critical enabler of modern life, the energy sector despite being significantly affected by the COVID-19 pandemic, is also essential for global and national response and recovery efforts.

Top 5 applications of IoT in renewable energy sector

In the renewable energy sector, the internet of things (IoT) is being used in a number of different ways to improve efficiency and performance. Here are five of the top applications of the IoT in renewable energy:

1. More efficient use of energy

One of the biggest applications of IoT in the energy sector is that it facilitates the optimization of renewable energy resources. By placing smart monitors that automatically control the room temperature of a factory, hall, or even a room, energy consumers can optimize and potentially reduce the amount of energy that they consume

2. Giving communities the power to create their own energy microgrids

In order to fully establish IoT in the energy sector, we must go beyond reducing our energy footprint. Smarter energy grids need to be put into place that can justify the power of IoT

technology. A smart grid is a network of electric circuits that support two-way communication and have self-diagnosing maintenance abilities.

3. Predictive systems for disasters

Another major use of IoT in the energy sector is that it can be used to predict disasters and raise alarms. By using past data to develop predictive patterns and forecast manmade or natural disasters, the energy sector can place smart sensors that can regulate energy consumption, distribution, and management.

4. Smart Meters

IoT applications can also be used in the energy sector by bringing in smart meter technology. Smart meters can help one analyze the areas where the most energy is spent and how substantial conserving energy would be. By placing these IoT-enabled meters in houses and buildings, customers will receive a report of their consumption patterns.

5. Proactive repair mechanism

IoT technology has the ability to quickly identify any errors or issues in an energy circuit that could have previously gone unnoticed for months or even years. This is possible by monitoring and collecting data from various points along the vast networks of wires and energies that support consumption. By having access to this information, officials are able to address problems as they arise instead of after long periods of time.

Conclusions

Combining renewable energy and energy efficiency can facilitate sustainable energy transitions and prevent climate change. Internet of Things (IoT) becomes a disruptive technology which has facilitated a beneficial transformation in the energy sector by reducing demand. IoT applications include energy supply, transmission, generation, and distribution, among others. In addition, IoT may be deployed to enhance energy efficiency, increase the use of renewable energy, and reduce the environmental effect of energy consumption. The growth of IoT in the energy sector has been substantial in recent years, and this trend is anticipated to continue in the coming years. In particular, IoT is expected to have a significant influence on the energy industry. During the pandemic, IoT had proved extremely beneficial for the energy industry, with sensors allowing surveillance of room temperatures as well as remote control of energy use.

ETRD-2023
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"Printing Inks - The Silent Killer"

Across the world printing industry plays a very vital and prominent role in overall growth, development, and educating society. It is the most important means of mass communication method to communicate with all sorts of individuals at all level. As India is a developing country, and so the printing industry plays a very important role in overall development of nation.

Since from older times printing industry exists in world, and has created several revolutions, and changes. Since from old times to present modern technology, printing industry has seen so many changes both in printing technique and inks used for printing.

Inks play a very prominent role in printing industry, because for every printing process required inks, and inks also plays a very important role in our daily lives. As our every morning starts with newspapers and toiletries to breakfast table, nearly all objects we touch contains inks in different forms. In Schools, offices, homes, everywhere most of the time when our fingers touch surfaces, we touch inks.

Ink is a liquid that contains various different types of pigments and/or dyes as per the printing technique. Inks are used to colour a surface to produce an image, text, or design. Ink is also used for drawing and/or writing with a pen, brush, or quill. Ink formulation according to printing technique can be a complex medium, composed of specific solvents, dyes, resins, pigments, solubilizers, surfactants, lubricants, fluoresces particulate matter, and other materials. The components of inks serve many purposes; as with the help of components we can maintain ink property like colour, thickness and appearance.

We can say that most of the time when our fingers touch the surfaces the surface is either coated with a specific type of ink, and therefore we can say that we are in maximum touch with these inks and their derivatives. This regular touch imparts the effects of these inks on our skin and indirectly we are consuming inks, and thereby the inks get inside our body and cause severe damage to the organs.

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Abstracts of Delegates

ETRD-2023

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IJIRG GCETRD23 1001	STRUCTURE AND FUNCTION OF GILL EPITHELIUM ON POLLUTANTS IN AN AIR BREATHING FISH CHANNA GACHUA

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The gill epithelium is the site of gas exchange for the ionic regulation of acid base balance and nitrogenous waste excretion by fishes. Various environmental pollutants such as heavy metals acid rain and organic xenobiotics have been found to affect the morphology of the gill epithelium in fishes. Associated with the morphological pathologies one finds alterations in blood ionic levels as well as gill Na^+ K activated ATPase activity and ionic fluxes. Such physiological disturbances may undergo the toxicities of these pollutants. In addition, the epithelial transport steps which are affected in the fish gill model resemble to those described in the gut and kidney sites of action of the variety of environmental toxins. Detergents represent another class of xenobiotic compounds that produce gills structural pathologies. The diffusion in flow of water across perfused fish gills was enhanced when linear alkylate sulfonate (LAS) was added to irrigate at concentration of less than 100 ppm exclusive of vascular effects. However other studies have shown that major site of action of pollutants may be adreno receptors on vessels controlling the perfusion of various regions of the gill epithelium rather than on cellular ionic transport. The changes in the pattern of blood flow increased lamellar perfusion or increased flow into the central venous sinus which under lies the majority of the chloride cells could have profound secondary effects on gill transport in *Channa gachua*. The fish *Channa gachua* gill is covered by complex epithelium whose function is to controlled by perfusion through rather intricate vascular system. In addition of being the site of gas exchange for these aquatic animals the gill epithelium possesses transporting steps which mediate to active and passive movements of ions counteracting the dissipative movements down of electro chemical gradients between the fish's blood and either

fresh water or sea water. It is clear that variety of aquatic pollutants produce gross histopathology of the gill epithelium which is often associated with osmo-regulatory acid base or hemodynamic malfunction. It is proposed that such symptoms are secondary to toxic interaction with specific transport steps or membrane bound receptors. Since similar pathways and receptors are common to the variety of human issues which are affected by environmental pollutants and the fish *Channa gachua* gill presents model system which may be used to more carefully to investigate general epithelial pathologies produced by toxic substances in fishes.

Key words: Function, Gill Epithelium, Pollutants, *Channa gachua.*

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IJIRG GCETRD23 1002	EFFECTS OF HEAVY METAL NICKEL CHLORIDE ON ENZYME SUCCINATE DEHYDROGENASE OF AN AIR BREATHING FISH CHANNA GACHUA

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Nickel is one of many trace metals widely distributed in the environment being released from both natural sources and anthropogenic activity with input from both stationary and mobile sources. It is present in the air water soil and biological material. Environmental pollution due to toxic heavy metals in air soil and water is a major global problem. Heavy metals cannot be degraded or destroyed and hence they are persistent in all parts of the environment. The reduction amount of these metals from effluents to the permissible limit before discharging them into streams and rivers is very important for human health and environment. Since Nickel (Ni) is the 24th most abundant element in the earth does crust comprise about 3% of the composition of the earth. It is the 5th most abundant element by weight after iron oxygen magnesium and silicon. It is a member of the transition series and belongs to group VIII B of the periodic table along with iron cobalt palladium platinum and five other elements. Nickel is a naturally occurring element that can exist in various mineral forms. As a member of the transition metal series it is resistant to corrosion by air water and alkali but dissolves readily in dilute oxidizing acids. Natural nickel is a mixture of five stable isotopes and nineteen other unstable isotopes are known. Succinate dehydrogenase is the oxidative enzyme which was drastically affected by the action of heavy metals. Succinate dehydrogenase is chosen as a representative of metabolic enzyme. It is a marker enzyme for detecting the presence of TCA cycle in tissues. The aim of the present study was to assess the enzyme succinate dehydrogenase activities in gill liver kidney brain and muscle of the air breathing fish *Channa gachua* exposed to sub lethal concentration of nickel chloride 1/5th (high) 1/10th (medium) and 1/15th (low) of the 96 hour of LC 50 values for the period of 15,

30 and 45 days. The fish exposed to nickel chloride showed the decrease of enzyme succinate dehydrogenase activities for 15, 30 and 45 days in gills liver kidney brain and muscles. However no information is on record concerning the three different sub lethal concentration of heavy metal Nickel chloride on the enzyme succinate dehydrogenase of the fish *Channa gachua*. The objective of the work was to observe the effect of Nickel on succinate dehydrogenase activities in gills liver and kidney of an air breathing fish *Channa gachua.*

Key words: Nickel Chloride, Succinate Dehydrogenase, Sub Lethal Conc. *Channa gachua.*

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IJIRG GCETRD23 1003	A STUDY ON TEENAGERS PERCEPTION TOWARDS MUTUAL FUNDS: A CASE STUDY

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Today, the One of the best options of investment in complex and modern financial scenario. Mutual fund is said to be the best options for mobilizing the funds of the teenagers contribute significantly to the capital markets. The present study explains briefly about the mutual fund industry. The study also helps to know the role of investment mode and preferences of teenagers behind investing in mutual fund. Financial markets are constantly becoming more efficient by providing more promising solutions to the teenagers. Being a part of financial markets although mutual funds industry is responding very fast by knowing the dynamics of venture capitalist's perception towards rewards, still they are continuously following this race in their endeavour to differentiate their products responding to sudden changes in the economy. Thus, it is high time to know and analyze venture capitalist's perception and expectations, and unveil some extremely valuable information to support financial decision making of mutual funds. In few years Mutual Fund has emerged as a tool for ensuring one's financial well-being. Mutual Funds have not only contributed to the India growth story but have also helped families tap into the success of Indian Industry. As information and awareness is rising more and more people are enjoying the benefits of investing in mutual funds. In India, when thinking about investment, the first and foremost challenge that all teenagers face is an overabundance of options. From bonds to fixed deposits, gold to stocks, money market securities and a combination of all these, each has its set of benefits and challenges. Furthermore, teenagers need to consider the time horizon of their investments, risk appetite and returns based on the goals they want to achieve.

Keywords: - Mutual Fund, Teenagers, Perception, NAV, SIP.

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IJIRG GCETRD23 1004	RESTORING THE PRISTINE CONDITION OF YAMUNA RIVER IN MATHURA DISTRICT

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Yamuna River is one of the most sacred rivers of India ever since the human civilization started. Besides Delhi, the Capital of India, there are two other major cities holding great historical significance lying within the 200km distance downstream Delhi i.e. Mathura and Agra. However, this very area is one of the most heavily polluted and degraded rivers stretches in the nation. The restoration of Yamuna River, especially at Mathura district, religious hub of Uttar Pradesh is one of the most typical and multifaceted endeavor. Domestic wastewaters, industrial effluents, idol immersion, pesticide residue, open defecation, disposal of dead animals and untreated sewageare contributing factors of pollution of Yamuna so diverting the routes of drainage carrying wastewaters and installing sewage treatment plants is not just enough to minimize the hazardous effects of pollutants like phosphorous and Hydrogen Sulphide that has more corrosive impact than Sulphur dioxide. Being the river of religious and commercial significance the required strategy for pollution control should not only be a multi-line approach but also fool proof action plan. The various sources of pollution and possible defensive strategies along with some proactive approach to restore the ailing river to its pristine status would be presented in this paper.

Keywords: - Yamuna River, Industrial Effluents, Idol Immersion, Pesticide Residue.

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IJIRG GCETRD23 1005	EVALUATING THE AIR QUALITY AROUND MATHURA REFINERY

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One of the greatest flagellums of the era is Air pollution, not only because of its impact on the climate but also because of the smack on the public and individual health due to increasing morbidity and mortality. There are many harmful pollutants present in the air that are contributing factors for the decline of air quality. Mathura refinery was commissioned in 1982 with a capacity of 6.0 MMTPA (million metric ton per Annum) to meet the demand of petroleum products in the north western region, located along the Delhi-Agra highway 154km downstream Delhi. It was first refinery in India to produce BS VI grade fuels. The refinery produces low and high Sulphur crude, toxic gases like sulphur dioxide (SO_2) and significant levels of suspended particulate matter which are released into the air by this oil refinery. Five of the nearing villages Kurkanda, Bhai, Bad, Bhainsa and Dhanateja have comparatively higher levels of sulphur dioxide and Nitrogen dioxide than rest of the areas in the Mathura District. SPM (suspended particulate matter) values were also higher in these areas of the district. The paper analyses the air quality in bordering villages of Mathura refinery and the possible measures taken by the organization to prevent the decline of the air quality.

Keywords: - Air Pollution, BS VI Grade Fuels, Mathura Refinery.

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IJIRG GCETRD23 1006	ENVIRONMENTAL CRISIS IN THE AGE OF KALIYUGA

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The concept of the "Kaliyuga" is a central theme in Hindu mythology, referring to the age of degeneration and decay in human civilization. In the modern era, the world is facing an environmental crisis that is reminiscent of the predicted characteristics of the Kaliyuga. This research paper delves into the environmental challenges that humanity is confronting in the age of Kaliyuga, drawing on interdisciplinary perspectives from environmental science, history, and cultural studies.

The paper begins by exploring the ecological implications of the Kaliyuga as described in Hindu texts, which include rampant greed, exploitation of natural resources, loss of moral values, and disregard for environmental ethics. It then examines the current state of the environment, highlighting pressing issues such as climate change, biodiversity loss, deforestation, pollution, and overconsumption. The paper further delves into the socio-political and economic factors that have contributed to the environmental crisis, including globalization, industrialization, population growth, and unequal distribution of resources.

Furthermore, the paper discusses the impact of the environmental crisis on vulnerable populations, including indigenous communities, marginalized groups, and future generations. It also explores the role of technology, policy, and governance in addressing the challenges posed by the environmental crisis in the age of Kaliyuga. The paper concludes by emphasizing the need for holistic and sustainable solutions that integrate cultural, ethical, and scientific perspectives to address the multifaceted environmental crisis of the modern era.

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Overall, this research paper sheds light on the environmental crisis in the age of Kaliyuga, drawing on ancient wisdom and contemporary knowledge to highlight the urgent need for concerted action to address the current ecological challenges and create a sustainable future for humanity and the planet.

Keywords: - Kaliyuga, Environmental Degradation, Hinduism.

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IJIRG GCETRD23 1007	BIO-BOTANICAL PRODUCTS FOR HUMAN HYGIENE AND SUSTAINABLE ENVIRONMENT: EFFECTIVENESS OF HERBAL HAND SANITIZER

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Human hygiene is an important concept and practice in preventing, controlling, and reducing healthcare-acquired infections. The ideal way of achieving it is by proper hand washing and drying methods that break the chain of transmission of deadly pathogens from hands to other parts of the body. The usage of effective hand sanitizer reduces nosocomial infection occurring due to various bacteria. Most healthcare products in the category comprise harmful chemicals and polymer derivatives from petroleum. The long-term use of sanitizers containing chemical antimicrobial agents may pose the hazards like the development of resistant microbes, adverse effects on the human immune system, and skin infections. Customary additives used for fragrance like aldehydes and phthalates can cause disruption and imbalance in endocrine secretions. During pre- and post-COVID times, the need for more hand sanitizer uses around the world made it important and opportune to develop a recipe for hand sanitizers that is sustainable and free of derivatives from fossil fuels. One argument for reducing the usage of fossil fuels and consequently, the amount of greenhouse gases released into the atmosphere to stop climate change is sustainability. Herbal hand sanitizer solutions produced from plant extracts and natural oils seem to be the perfect answer. These healthcare products are free from harsh chemicals and are termed as natural disinfectants. These herbal products do not provoke an allergic reaction and have no negative side effects, are biodegradable, skin-friendly, cause less irritation and dryness

The goal of this study is to make a herbal hand sanitizer with leaves extracts of Ocimum sanctum (Tulsi) and Azadirachta indica (Neem) and Zingiber officinale (Ginger) and lemon.

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The study tests are concentrated on testing its antimicrobial efficacy and hand safety against *E. coli*, and *S. aureus*.

The research suggests and supports the use of natural herbs in the formulation for a better tomorrow.

Keywords: - sustainability, pathogens, antimicrobial

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IJIRG GCETRD23 1009	INVESTIGATIONS ON MAXWELL FLUID PAST A FLAT POROUS PLATE WITH THE EFFECT OF HEAT GENERATION

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This article investigates the mathematical and graphical analysis to evaluate the magnetohydrodynamic flow in a horizontal flat plate of Maxwell viscoelastic fluid in a porous medium in the presence of thermal radiation and heat generation. Darcy model is considered for the porous medium. Nonlinear equations were used to calculate velocity, temperature, and concentration profile. Nonlinear partial differential equations are transformed to ordinary differential equations using similarity variables and by applying non dimensional quantities. The shooting technique is used to solve the nonlinear boundary value problem in MATLAB software using the Runge-Kutta Fehlberg method. The primary idea behind this strategy is to convert the boundary value problem into its initial value problem. Several plots illustrate the effects of different governing parameters Deborah number *(De)*, Magnetic parameter *(M)*, Prandtl number *(Pr)*, Heat generation parameter *(Q)*, Eckert number *(Ec)*, Radiation parameter *(Rd)*, Lewis number *(Le)*, and thermal slip parameter *(β)* on fluid velocity and heat transfer behaviour. The most important finding of this study is that the Nusselt number decreases as the Eckert number increases and rises when the heat radiation increases. Skin friction increases as Deborah's number grows.

Keywords: - Heat generation, Porous plate, Lewis number.

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IJIRG GCETRD23 1010	VENDOR & BUYER 2-ECHLON WITH SCREENING PROCESS & SHORTAGE MODEL

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The paper specifies deterministic inventory model for vendor - buyer with coordination and non-coordination situations. In coordinate situation, the vendor provides quantity discount to the buyer for bulk purchase. In both situations total cost is developed for both buyer and vendor and order quantity are determined by analytically tractable solutions. Shortages are permitted in this inventory system for buyer only under non coordination situation. The damaged items are screened for resale by the vendor for non-coordination situation and buyer for coordination situation. To compare with non-coordination, quantity discount coordination situation proves equal benefits of buyer and vendor. Our objective is to find the optimal order quantity to minimize the total inventory cost. This study is made to determine the optimal order quantity to lesser the total inventory costs. Numerical examples are provided to revels the developed model.

Keywords: - Optimal order quantity, Inventory cost, Shortage model.

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IJIRG GCETRD23 1011	CALOTROPIS GIGANTEA ASSISTED GREEN SYNTHESIS OF IRON OXIDE AND ACETATE NANOMATERIALS AND THEIR APPLICATIONS IN CONTROLLING THAR DESERT PROBLEMS BY STUDY INSECTICIDAL AND NEMATICIDAL PROPERTIES

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Number of nanomaterials could successfully be biosynthesized using calotropis gigantea extract or its latex. These green synthesized nanomaterials have many applications in the health care system and technology. To fulfill our daily food requirement, we need to develop a systematic agriculture management system to overcome economically important pests, especially Phyto nematodes, which destroy the whole crops and make them unsuitable for human consumption.

Regular use of chemicals nematicides cause environmental pollution which gives rise to various human diseases due to bio magnification. To eliminate these problems, we require eco-friendly and nontoxic alternative substances which can help in sustaining agriculture. Nanotechnology now a days a power full tool to give new nematicides and anthelmintic drugs which are less toxic to the environment and to the host.

This project will be focused on iron oxide and acetate, which are compounds with favorable and exclusive features for various applications. Iron NPs have been reportedly produced through green synthesis procedures by using plant extracts. Here we will report a simple, cost effective and environmentally friendly green synthesis method of iron oxide and acetate Nps from 10mM Fecl3 using calotropis gigantea aqueous leaf extract solution as reducing as well as capping agent.

Iron oxide and acetate Nps will be characterized by using XRD TEM these analyses will show the average particle size of Iron oxide Nps to be 3to 6 nm and will reveal their cubic structure

We shed light on the role of Iron based Nps as bioactive agents against the root knot nematode meloidogyne spp. along with the plant enhancement properties on the nematode infested host. All the tested compositions will berevealed nematicidal activity. Here we will try to manage nematodes by healthy metal-based nanoparticles which will be developed by desert plant calotropis gigantea.

Keyword: - Green synthesis, XRD, Nanoparticles.

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IJIRG GCETRD23 1012	MICROSCOPIC ANALYSIS OF SILICA/ETHYL CELLULOSE NANOCOMPOSITES

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In this present contribution silica (SiO_2)/ethyl cellulose (EC) polymer nanocomposites have been fabricated and characterized. These composites are light weight, high corrosion resistance. Silica has filler or nanofiller of polymer matrix composite. Silica filled polymer matrices gives higher biocompatibility of the materials. These properties are used in bone tissue applications. X-ray diffraction confirms crystalline phases in composites. FT-IR spectroscopy confirms bonding orientation between SiO_2 and ethyl cellulose. SEM images confirms homogeneous distribution of SiO_2 in composites. Electrochemical impedance spectroscopy (EIS) confirms the capacitive nature of the composites.

Keywords: - FTIR spectroscopy, EIS, Cellulose polymer.

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IJIRG GCETRD23 1013	FIXED POINTS OF MEROMORPHIC FUNCTION WITH NONLINEAR DIFFERENTIAL MONOMIALS

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In this paper, we investigate $f(z)$ to be a transcendental meromorphic function of finite order $\sigma(f)$ and $c_1, c_2, \dots, c_k$ be complex constants satisfying that at least one of them is non-zero. The authors establish the fixed points for the linear differential monomials. $(f^{(1)}(z+c_1))^{n_1}, (f^{(2)}(z+c_2))^{n_2}, \dots, (f^{(k)}(z+c_k))^{n_k}$, where $\sum_{j=1}^{k} n_j$. These results extend recent results obtained by Zhang and Chen (Acta Mathematica Sinica, English Series, 32(10):1189–1202, 2016).

Keywords: Nevanlinna Theory, Fixed point, linear differential monomials, Meromorphic functions.

AMS subject classification (2020): 30D35, 39A10

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IJIRG GCETRD23 1014	A GENERALIZED LOCAL FRACTIONAL LWR MODEL OF VEHICULAR TRAFFIC FLOW AND ITS SOLUTION

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In this study, a generalized nonlinear local fractional Lighthill-Whitham-Richards (LFLWR) model has been developed. The local fractional variational iteration method (LFVIM) solves and analyzes the proposed model. Numerous works have been described in past to address linear LWR and linear LFLWR models. This research highlighted on generalized nonlinear LFLWR model and LFVIM is employed to derive non-differentiable solutions of the suggested model. The existence and uniqueness of the resolution of LFLWR model have also been established. Furthermore, several exemplary instances are discussed to demonstrate the success of implementing LFVIM to the proposed model. The numerical simulations for each of the cases have also been shown. Additionally, the obtained solutions of the suggested model have been compared with the solutions of the classical LWR model with non-differentiable conditions in few examples. The study demonstrates that the employed iterative scheme is quite efficient and can be utilized to obtain the non-differentiable solution to the proposed generalized nonlinear LFLWR traffic flow model.

Keywords: - LWR model, LFVIM, Traffic flow model.

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IJIRG GCETRD23 1015	EFFECT OF SOLAR FLARES ON IONOSPHERIC TEC AT JAIPUR, DURING SOLAR MAXIMUM PERIOD

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A solar flare is a sudden release of energy usually near a complex group of sunspots. The interaction of solar flare radiations with constituents of ionosphere produces immediate increase in the electron density in the ionosphere. The present paper describes the effect of solar flare on ionospheric total electron contents (TEC) using International Reference Ionosphere (IRI) data recorded at Jaipur, during solar maximum period. In this study, total two solar flares have been selected to study the effect of solar flares on ionosphere during the year 2012 on solar cycle 24, which is a solar maximum period. The enhancements on ionospheric TEC have been observed during the period of solar flares. The maximum enhancement of TEC during solar flare compared to quiet mean TEC up to 12-16 TEC units have been observed. A significant enhancement in TEC is observed at regions around the EIA crest region during the flare in association with: (a) the flare related EUV flux enhancement and consequent increased production of ionization, and (b) changes in the equatorial electrodynamics. The magnitude of enhancement in ionospheric TEC appears to be dependent on the class of the solar flare.

Keywords: - Ionospheric total electron content (TEC), Solar flare, EUV flux, Solar flares, Solar cycle.

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IJIRG GCETRD23 1017	MICROSTRUCTURE AND PHOTOLUMINESCENCE PROPERTIES OF YTTRIUM DOPED ZnO NANOPARTICLES

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Yttrium-doped ZnO nanoparticles were synthesized via the hydrothermal method. The X-ray diffraction studies confirmed the wurtzite phase of Yttrium in ZnO nanoparticles. The lattice parameters increase with increasing Yttrium content due to the large ionic radius of Y^{3+} compared to that of Zn^{2+}. The morphology of ZnO nanoparticles constituted by rod-like morphologies changed significantly after incorporating yttrium into the lattice. The vibrational modes of the metal oxide groups have been identified from the IR transmission spectra. The change in yttrium concentration results in a difference in the morphology of the ZnO particles helping to tune the photoluminescence properties of ZnO.

Keywords: - ZnO nanoparticles, X-ray diffraction, Photoluminescence.

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IJIRG GCETRD23 1018	THE ANALYSIS OF THE LATEST PARAMETRIC DIVERGENCE MEASURES

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Divergence measures are being utilized in measuring the distance or like among a limited number of likelihood dispersions or probability distributions (both discrete and continuous), so it is always desirable to find a new measure.

In this work, some parametric divergence measures have been introduced, these are six in numbers and each of which is having infinite number of elements. Additionally, these measures' qualities and a few relationships with other measures need to be evaluated. For further comprehension, graphic comparison is also performed.

Index terms: Parametric convex functions, Csiszar's divergence measure, New divergence measures, Intra and inter relations, Graphic comparison.

Mathematics Subject Classification: Primary 94A17, Secondary 26D15.

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IJIRG GCETRD23 1019	TOTAL COST MINIMIZATION TRANSPORTATION PROBLEM

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Optimization models can be used to determine the lowest cost solution to ship products from the manufacturing origin to the end customer. This Caps tone developed a mixed integer linear programming model for Carlstar, a global leader in the specialty tire and wheel industry. The objective was to identify the optimal routing solution of problem to minimize total cost transportation and tariff costs for each of the company's five product market segments. The model provided for multiple possible routing options, including shipping direct to the customer from the manufacturer or through a distribution center. Multiple scenarios were run using different rates for transportation costs, tariffs, and customer demand. Model constraints included manufacturing location, demand, and flow balance through the distribution centers. Results indicate that Carl star could save almost 20% on distribution costs by increasing the number of direct to customer shipments. The impacts of tariffs, demand fluctuations and handling costs were smaller than expected, indicating that once an updated transportation network is established, it would not have to be updated very often to maximize potential cost savings.

Keywords: - Transport problem, Cost minimization, Carlstar model.

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IJIRG GCETRD23 1020	SEPARATION AXIOMS OF BINARY S_α SET IN BINARY TOPOLOGICAL SPACE

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The main Objective of this paper is to introduce and study a new set of Separation axioms called Binary $S_\alpha T_0$ space, Binary $S_\alpha T_1$ space, Binary $S_\alpha T_2$ space, Binary $S_\alpha T_3$ space, Binary $S_\alpha T_4$ space. Further the inter linked relations between these axioms are also studied and proved with suitable and appropriate examples.

Keywords: - Topological space, Binary space, Axioms.

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IJIRG GCETRD23 1021	A CONTEMPORARY APPROACH ON VARIOUS TYPES OF BINARY ALPHA Gs CONTINUOUS FUNCTIONS

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The primary focus of the paper is to introduce strongly binary alpha gs continuous functions and totally binary alpha gs continuous functions in binary topological spaces. Furthermore, it's properties were discussed and theorems were contemplated and analyzed using the examples. Also, it's relationship with various other continuous functions were studied and the contrary part is verified using the examples.

Keywords: - Contemporary approach, Binary alpha, Topological space.

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IJIRG GCETRD23 1022	A COMPARATIVE STUDY AND ANALYSIS ON MEDICAL IMAGE DENOISING BY USING FILTERING AND TRANSFORM METHODS

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Accurate disease diagnosis is crucial in today's era. since once it is done correctly, effective treatment in the right direction follows. Therefore, medical images should be noiseless for effective diagnosis, hence the concept of a medical image Denoising has a big part to play. Different sorts of noises, such as speckle noise, Gaussian noise, salt and pepper noise, etc., were also present while recording X-rays, CT scans, MRI images, etc. So by using different types of techniques, we need to reduce the noise to a certain extent or removal of noises is essential. In this paper, we are going to compare different types of denoising techniques by using traditional spatial filter methods and transform methods and finally the quality of the denoised images is measured for analysis.

Keywords: Spatial domain, transform domain, image denoising, medical images

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IJIRG GCETRD23 1023	CUBIC-DOMINATION IN GRAPHS

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A set $D \subseteq V$ is a dominating set of G if every vertex in $V - D$ is adjacent to one or more vertices in D. Let $G = (V, E)$ be a graph. A subset D ⊆ V of vertex set of G is said to be Cubic-dominating (CD) set if

(i) For every $v \in D$ there exist u$\in V - D$ such that u$v \in E(G)$.

(ii) $\sum_{v \in D} d_G(v)^3 \, d_G = sum\{u \in V - D\} d_G(u)^3$.

The minimum cardinality among all CD-sets of the graph G is called the cubic-domination number $\gamma_{cz}(G)$. In this paper, we initiate the study on cubic domination and obtained some sharp bounds on $\gamma_{cz}(G)$.

AMS Subject Classification: 05C90; 05C35; 05C12.

ETRD-2023

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IJIRG GCETRD23 1024	FEATURE SELECTION USING NATURE INSPIRED OPTIMIZATION TECHNIQUES

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The dimensionality problem of high dimensional data is a key difficulty in the era of healthcare and its related study disciplines since it is essential to find important genes when researching diseases like cancer. Therefore, in the field of bioinformatics, disease detection, sample classification, and early disease prediction are all crucial analysis of high-dimensional biomedical data. Many data mining and machine learning techniques have recently been used to identify diseases. However, because of the difficulty of large dimensions, or the vast characteristics (genes) with a very low sample space, these approaches are ineffective for disease prediction. As a result, choosing highly discriminative characteristics from a large feature collection has grown an importance. When a lot of noisy, redundant features are eliminated, this can not only enhance classification performance but also lower the cost of system diagnosis. This research provides the hybrid feature selection approach for choosing the best features in order to improve the efficacy of detecting performance. Additionally, the quantile normalization and missing data imputation methods are used to fill in the missing value from the input data. The best features useful for detecting diseases are chosen using the hybrid Congruence coefficient and Kumar-Hassebrook similarity that has been proposed. Further best features are chosen using one of the nature inspired algorithms i.e., Honey badger algorithm (HBA) which mimics the foraging behavior of honey badger. In addition, disease is predicted using KNN which is tuned by HBA. Moreover, the experiment's findings show that the HBA-KNN approach achieved a maximum accuracy of 0.976991, sensitivity of 0.946825, and specificity of 0.994836.

Keywords: - HBA, Optimization techniques, KNN.

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IJIRG GCETRD23 1025	STRATEGIC HUMAN RESOURCE: ENHANCING PERFORMANCE WITH SIX SIGMA APPROACH

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Since its inception at Motorola, Six Sigma has been widely adopted by many different types of organizations. The effectiveness of Six Sigma is well supported by anecdotal evidence. However, academic research on Six Sigma is still in its early stage. This paper first reviewed the current literature on Six Sigma, and then performed a critical analysis of Six Sigma in light of the management literature. The review and analysis suggested that Six Sigma is best defined as a new approach to quality management. Consequently, Six Sigma provides an interesting context for a number of research questions. We then discussed these prospective research questions. This study laid a foundation for future research on Six Sigma. While still being debated, Six Sigma is strongly supported by the theoretical notion of zero defects. The Six Sigma's problem-solving methodology DMAIC has been one of several techniques used by organizations to improve the quality of their products and services. Six Sigma deployments in HR transforms typical HR practices with a proactive approach and leads to better, faster and more cost-effective services; improve internal customer satisfaction and greater motivation and job satisfaction of employees. The research develops various frameworks for Six Sigma deployment in HR and provides case studies of successful Six Sigma deployment in various areas of HR.

Keywords: - Six Sigma, employee turnover, compensation and benefits, non-financial rewards, financial rewards, training, efficiency and effectiveness, recruitment, DMAIC, Covid-19.

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IJIRG GCETRD23 1026	HEAVY METAL TOXICITY IN THE SOIL OF LUNI RIVER AND ITS IMPACT ON HUMAN HEALTH

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The Luni River and other water sources are surrounded by dye factories, which discharge noxious, discoloured, liquid effluent. That pollutes water because it is absorbed by the land in enormous quantities. Farmers are irrigating their crops with this dirty water. Humans then eat these dangerously contaminated fruits, vegetables, and other crops. Ground water is also being harmed by this alkaline and saline water. Large quantities of water are needed by the textile industry for the dyeing process, and this need is met by wells dug in the agricultural sector. Hundreds of litres of wastewater is dumped into the Luni River every day by these dyeing and printing facilities. Due to subterranean water recharge, the hazardous components of the effluents make their way into the wells. The chemicals used in the textile industry vary with the kind of inputs and final goods. The release of wastewater from these enterprises is a major contributor toenvironmental degradation. Discharging textile effluents into a river that locals rely on during the monsoon to replenish their wells' fresh water supplies leads towidespread pollution of the subterranean water table. Effluents include an excessively high concentration of hazardous metals due to the careless usage of organic dyes.

Keywords: - Chemicals, river, pollute.

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IJIRG GCETRD23 1027	PROCESS PARAMETER OPTIMIZATION OF ABRASIVE WATER JET MACHINING AND HOT ABRASIVE JET MACHINING PROCESSES USING RAO ALGORITHMS

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Abrasive water jet machining (AWJM) and Hot abrasive water jet machining (HAJM) are non-traditional machining process used to machine a wide range of materials without any contact between tool and workpiece, making it an environmentally friendly and flexible process. The optimization of process parameters is crucial to achieving the optimum value of response parameters. This study proposes the use of the Rao algorithms, a recently developed optimization algorithm, to optimize the process parameters of AWJM and HAJM. The effects of various process parameters, are investigate in two different case studies which were previously optimized by using different optimization techniques. The optimal combination of parameters was determined using the Rao algorithms, which was found to be highly effective in finding the optimal solution quickly and accurately. The results of the study showed that the optimal set of parameters significantly improved the value of response parameters. This study concludes that the Rao algorithms are promising and effective approach for process parameter optimization in AWJM and HAJM, which can enhance the machining efficiency and quality in various industrial applications.

Keywords: - Rao algorithms, HAJM, AWJM.

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IJIRG GCETRD23 1028	SOME PROPERTIES RELATED TO HYPERGEOMETRIC AND EXTENDED HYPERGEOMETRIC FUNCTION

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Numerous branches of mathematics and science depend extensively on the hypergeometric function and its extensions, such as the extended hypergeometric function. To better understand the behavior and uses of these special functions, we investigate a number of aspects that are connected to them in this study. We start by going through the essential definitions and characteristics of the hypergeometric function, including its differential equation and power series representation. We then focus on particular facets of its behavior, like convergence features and connections to other special functions. We also explore identities and transformations involving the hypergeometric function, emphasizing its usefulness in resolving challenging mathematical issues. This work tries to give a thorough grasp of these unique functions by exploring the characteristics and uses of the hypergeometric function and its extended counterparts. It makes contributions to the broader field of mathematical analysis and offers helpful resources for academics and professionals working in a variety of fields.

Firstly, our objective in the present work is to obtain an integral involving a hypergeometric function by combining an integral obtained by MacRobert with one obtained by Bateman. Get some interesting results by altering the hypergeometric function argument.

Secondly, this study aims to establish a new generalization of the Bessel-Maitland function using the extension of the beta function involving the Mittag-Leffler function, followed using the Pathway fractional operator and Caputo fractional derivative operator, which are expressed in terms of the generalized Wright Hypergeometric function. Also, discuss Some of its properties, special cases and their other representation formulas with the help of changing the beta function in the definition.

Keywords: Bessel-Maitland Function, Beta Function, Gauss Hypergeometric Function, Mittag-Leffler Function, Wright Hypergeometric Function, Pathway Fractional Operator, Gamma Function, Integral Representation.

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HEAVY METAL TOXICITY IN THE AGRICULTURAL LAND NEAR INDUSTRIAL AREA

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Heavy metal pollution in soils is a serious environmental problem. Heavy metals in the environment at certain quantities are known to be harmful tohuman and animal health. High concentrations of dangerous heavy metals can be found in the soil around many factories because of the untreated liquid effluents that are dumped there. The presence of heavy metals in quantities far above their background level in soil is indicative of soil contamination. Soil components like clay and organic matter can form semipermanent bonds with these elements, preventing them from leaching into surface or groundwater or being taken up by plants. The intensive urbanization of terrestrial environment and industries have an adverse effect on accumulation of risky metals in soil. This variation in composition adversely affects plant growth and genetic variations. The objectives of present study is to determine the level of pollution in agricultural soil of industrial area by determining contamination by heavy metals. The concentration of heavy metals is determined by high resolution plasma mass spectroscopy. The results of this study provide new insight about heavy metal pollution in soil resulting in adverse effect on plant growth, crop cultivation and genetic diversity of species.

Keywords: Metals, effluents, pollutants.

ETRD-2023

IJIRG
GCETRD23
1030

PERFECT HOP DOMINATION NUMBER OF p-REGULAR GRAPH OF EVEN DEGREE VERTICES

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Let R_n^E be a p-regular graph of even degree. A set $S_{ph} \subseteq V(R_n^E)$ is a perfect hop dominating set of $G = R_n^E$ if for every $v \in V(R_n^E) - S_{ph}$, there is exactly one vertex $u \in S_{ph}$ such that $d(u, v) = 2$. The perfect hop dominating set with smallest cardinality is called perfect hop domination number of R_n^E denoted by $\gamma_{ph}(R_n^E)$. In this paper, we discuss about the perfect hop domination number of p-regular graph of even degree.

Keywords: - Even degree vertices, Hop domination, p-regular graph.

ETRD-2023

IJIRG
GCETRD23
1031

PERFECT HOP DOMINATION NUMBER OF p-REGULAR GRAPH OF ODD DEGREE VERTICES

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Let R_n^o be a p-regular graph of odd degree. A set $S_{ph} \subseteq V(R_n^o)$ is a perfect hop dominating set of $G = R_n^o$ if for every $v \in V(R_n^o) - S_{ph}$, there is exactly one vertex $u \in S_{ph}$ such that $d(u, v) = 2$. The perfect hop dominating set with smallest cardinality is called perfect hop domination number of R_n^o denoted by $\gamma_{ph}(R_n^o)$. In this paper, we have discussed about the perfect hop domination number of p-regular graph of odd degree.

Keywords: - Perfect hop domination, perfect hop domination number, regular graph.

ETRD-2023

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IJIRG GCETRD23 1032	A STUDY ON IMPORTANCE AND CHALLENGES OF WOMEN EMPOWERMENT IN INDIA

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India is a country where Women are titled as Goddess Lakshmi, Durga and Saraswati. We also call our Nation as 'Bharat Mata' symbolizing as the mother of every Indian citizen. Western India celebrates Navratri festivals an incarnation of Goddess Durga with speaks about the great battle towards between the Goddess Durga and Mahishasura.

This paper attempts to analyze the importance of women empowerment in India and also challenges of women empowerment. Today everyone is talking about women empowerment but in reality, the picture is just an illusion. This study is based on primary data sources where data has been collected through questionnaire containing 15 questions. The result shows that still females feel restrictions to participate in the social, economic and religious activity. Still some families prefer to have male child only. Girl child is not wished. The number of rapes in the country still a great matter. Hence it is concluded that gender equality is very much required for women empowerment. Women empowerment will be real only when all the women will be going to stand on their own feet and will also build their own image in the society.

Keywords: Women, Women Empowerment, Society, Education.

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IJIRG GCETRD23 1033	PREPARATION AND MECHANICAL CHARACTERIZATION OF UNIDIRECTIONAL GLASS FIBER REINFORCED EPOXY COMPOSITES

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Composites are one of the most advanced and adaptable engineering material. The strength of any composite depends upon volume/weight fraction of reinforcement, orientation angle and other factors. The present work focuses on determination of mechanical properties of pure epoxy and unidirectional glass fiber reinforced epoxy. Nowadays, glass fibers are being used in several engineering applications like electronics, aviation, automobile, sport industry etc. Glass fibers are having excellent properties like high strength, flexibility, stiffness and resistance to chemical attack. With an increase in the content of unidirectional glass fiber volume the properties of unidirectional glass fiber reinforcement polymer composite were improved. It may be used in different forms like chopped, woven mat, short fibers and long fibers etc. Each type of glass fibers has unique properties and are used for different applications. The mechanical and thermal properties of various polymer composite reinforced with glass fibers when subjected to mechanical loading have been studied and reported.

Keyword: - Composite, Glass fibers, Epoxy, Tensile Strength.

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IJIRG GCETRD23 1034	MEMORIAL STONES OF JUNAGARH- A PRELIMINARY STUDY

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The literary meaning of the word Junagarh means 'old fort'. Junagarh was the old capital of undivided Kalahandi district of Odisha. According to the Odia inscription of 1718 C.E. found from the Dadhivaman temple of Junagarh issued by Juga Shahi Deo III of Nagavamsi dynasty, the place is called "Kalahandi Nagara". After Cuttack, Junagarh is the only town of Odisha which has completed her 1000 years. From 6thth century to 12th century Kalahandi (Mahakantara, Chakrakota Mandala, Karunda Mandala) was reigned by dynasties like- Nala, Parvatadwaraka, Somavamsi, Kalachuri, Gangavamsi and Nagavamsi etc. and for political supremacy there were constant battle among these dynasties. These battles caused casualty of many soldiers. And for their memory large numbers of Memorial stones (Sati stone and Hero stone) are erected. It is generally considered that glorification of death and commemoration of the dead is a practice that characterizes most cultures and erecting of Memorial stones is a part of this tradition. Memorial stones are considered as a symbolic representation of the deceased individuals and constitute the tangible manifestations of a significant cultural ethos that stressed upon the glorification of death and commemoration the dead. The stones are erected to honour an individual for his valour, loyalty and fidelity. In case of woman, they may be installed to deify a woman who burns herself of the funeral pyre of her husband to accompany him to heaven or kills herself to protect her chastity. So many Memorial stones found scattered in different parts of Junagarh and they commemorate the heroic death of many warriors and self-immolation of their wives. Symbol of sun and crescent moon, worshiping Shiv Linga, female palm with bangles, holding of sword and shield by a Male person etc. are the basic iconographical features of Memorial stones. Lack of previous study and research unable to reveal the importance and significance of this tradition. The present

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paper focused to highlight the Memorial stone culture, its origin and nature etc. To assess this culture the current research paper deals with different methods and techniques.

Keywords: - Junagarh, Kalahandi Nagara, Memorial Stones, Hero Stones, Sati Stones, Commemorate, Self-immolation.

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IJIRG GCETRD23 1035	OPTIMIZING THE WEAR PROPERTIES OF EPOXY-BASED COMPOSITES REINFORCED WITH Al_2O_3 NANOPARTICLES AND METAL WIRES USING DOE TECHNIQUES

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This study investigates the mechanical properties of an epoxy-based composite material reinforced with Al_2O_3 nanoparticles and metal wires, and uses design of experiments (DOE) and machine learning (ML) techniques to optimize its attributes. The Al_2O_3 nano powder was characterized by SEM and used in volume ratios of 0-5% to create composites with 50-100 nm nano powder. ANN models were trained on the resulting data to predict the tensile strength of the composite under different conditions, with mean absolute errors of 5% and 10% for the training and test sets respectively. The results demonstrate the effectiveness of machine learning in predicting the mechanical properties of composite materials and optimizing their design. Overall, this research provides valuable insights into the use of Al2O3 nanoparticles and metal wire reinforcement for improving the mechanical characteristics of epoxy-based composites.

Keywords: - Mechanical Properties, Epoxy, Metal Wire, nano particle, machine learning, ANN, Error analysis.

ETRD-2023

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IJIRG GCETRD23 1036	A STUDY ON DIFFERENT TYPES OF OPERATORS IN HEXA TOPOLOGICAL SPACES

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The Primary aim of the paper is to study about hexa topological spaces. Here we defined some new operators called hexa open, hexa closed, hexa interior, hexa closure, hexa exterior, hexa frontier etc. Also, some of the theorems are framed and the examples are formed for the keen understanding of the concepts and investigate the relationship between the associated topology.

Keywords: - hexa open, hexa closed, hexa interior, hexa closure, hexa exterior, hexa frontier.

ETRD-2023

K P S Science Academy

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IJIRG GCETRD23 1037	A REVIEW ON ROLE OF TRADITIONAL KNOWLEDGE SYSTEMS IN BIODIVERSITY CONSERVATION

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Indigenous people actively participate as partners in the conservation of biodiversity, and local places are home to biodiversity. They have extensive understanding of the behavior of complex natural systems in their own communities, where resource-use traditions have persisted historically. Traditional knowledge is the body of information that different societies throughout the world have accumulated over time. Such information has been used and passed down across numerous generations after amassing throughout time. It typically relates to the community's natural surroundings and includes agricultural knowledge, such as how to cultivate, environmental knowledge, and understanding of herbal remedies. Traditional knowledge incorporates the customary use of biological resources in conformity with traditional cultural practices in its definition of sustainable use of biodiversity. Traditional knowledge of animals, plants, soils, and landscapes for the sustainable use of resources; traditional resource management system with an appropriate set of tools, techniques, and practices; social institutions or organizations for coordination, co-operation, rule-making, and rule enforcement; and finally, environmental perception and gives meaning to social behavior are all considered as roles of traditional knowledge for biodiversity conservation.

Keywords: - Traditional Knowledge, landscape, sustainable use, environmental perception & biodiversity.

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IJIRG GCETRD23 1038	ASSERTION OF THE TRIBAL IN THE KINGDOM OF SAMBALPUR IN EARLY MODERN WESTERN ORISSA

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The aim of the paper is to discuss 'why [*reason*] and how [*manner*]' the tribal communicated, negotiated and asserted themselves against the authority of state and caste Hindus in the kingdom of Sambalpur in the early modern Orissa. The state and her caste Hindu agents interfere with the socio-economic-cultural domain of the tribal in early modern western Orissa. Consequently, the tribal asserted politically, socially, and culturally to preserve their as old distinct character. The finding of the studies suggests that, as homogeneous units, these tribes were politically challenging the authority of the state, socially claimed themselves at par with the contemporary high caste Hindu Varna society, and culturally denounce the influence of Tantraism and Hinduism.

Keywords: - Sambalpur, Chauhan, Orissa, Hinduism, Vaishnavism.

ETRD-2023

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IJIRG GCETRD23 1039	ACYCLIC COLORING AND CORONA PRODUCT OF SOME GRAPHS

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A vertex coloring of a graph G is called acyclic if no two adjacent vertices have the same color and there is no two-colored cycle in G. The acyclic chromatic number of G is denoted by A (G), is the least number of colors in an acyclic coloring of G. The minimum number of colors needed to color the vertices of a graph G is called acyclic chromatic number and is denoted by χ a (G).

In this paper the exact value of the acyclic chromatic number of middle and total graph of Double Triangular Snake Graph and Dutch Wind Mill Graph are obtained.

In particular we drive the corona product of Double Triangular Snake graph and path graph as well as Dutch wind mill graph and path graph.

Keywords: - Dutch graph, Snake graph, Acyclic coloring.

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IJIRG GCETRD23 1040	GREEN METHOD OF SYNTHESIS SOME BIOLOGICALLY ACTIVE HETEROCYCLIC DERIVATIVES INCORPORATING BENZOTHIAZOLE MOIETY

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Green chemistry is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green chemistry applies across the life cycle of a chemical product, including its design, manufacture, use, and ultimate disposal. Green chemistry is also known as sustainable chemistry. Heterocyclic compounds containing N and S hetero atoms are useful material in drug research. Being a heterocyclic compound benzothiazole find use in research as a starting material for the synthesis of many bioactive structures. Several benzothiazole derivatives have been used against cervical cancer, antifungal, antibacterial, anticonvulsant, anti-inflammatory antitumor, anti-tuberculotic, anti-allergic. The title compounds shall also be synthesized under Microwave irradiation using ionic liquids. Results shall be compared by conventional method and Microwave irradiation technique**.** All the synthesized compounds were characterized by elemental analysis and their spectral data. all synthesized compounds were tested for their Antibacterial activity using standard.

Keywords: - Green chemistry, Benzothiazole, Ionic-liquids (green solvent), Microwave irradiation, Antibacterial.

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IJIRG GCETRD23 1041	HYDROPONICS: A KEY TO REVOLUTIONIZING AGRICULTURE

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Hydroponics is a method of growing plants without soil, in which plants are grown in a nutrient- rich water solution. The use of hydroponic systems has gained popularity due to its ability to produce high yields of vegetables, fruits, and herbs with minimal land usage and water consumption. This method of cultivation also allows for greater control over plant growth factors, such as temperature, lighting, and pH levels, resulting in faster growth and more consistent quality of crops. It is an innovative approach to agriculture that has the potential to revolutionize the way we grow food. Agriculture is being revolutionized by hydroponics, which has many advantages including improved productivity, less water use, and space optimization. Due of its potential to address global food security, this technology has grown in favor in recent years. Overcome obstacles, lessen environmental impact, and boost crop quality. Additionally, hydroponic systems give farmers the freedom to expand their food production in cities with constrained agricultural space. Despite some challenges, such as high startup costs and the need for technical expertise, the benefits of hydroponics are evident, making it a promising solution for the future of agriculture. This review paper will explore the current state of hydroponics, its potential benefits and drawbacks, and its role in sustainable agriculture.

Keywords: - Hydroponic, Agriculture, sustainable agriculture.

ETRD-2023

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IJIRG GCETRD23 1042	IMPACT OF VARIABLE VISCOSITY, NON-LINEAR THERMAL RADIATION AND IRREGULAR HEAT SOURCES ON NON-DARCY HYDROMAGNETIC CONVECTIVE HEAT TRANSFER FLOW PAST A STRETCHING SURFACE FILLED WITH AL_2O_3-WATER NANOFLUID

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In this paper, we examine the combined influence of nonlinear convective and irregular heat sources on non-Darcy convective heat transfer flow of Al_2O_3-water nanofluid past a stretching sheet with variable properties. Using similarity variables, the non-linear partial differential equations are converted into ordinary differential equations and are solved by using Finite-element method with quadratic shape functions. From this analysis, it is observed that primary velocity, temperature enhance, secondary velocity with viscosity parameter (B). Nu grows decays for higher values of viscosity parameter. Higher the strength of the space/temperature (A11/B11) dependent heat source leads to depreciation in the flow variables.

Keywords: - Al_2O_3-water nanofluid, Stretching sheet, Non-linear thermal radiation, Finite Element Method, Irregular heat sources.

ETRD-2023

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IJIRG GCETRD23 1043	INVESTIGATION OF STRUCTURAL DYNAMICS OF POLYMER INDUCED DRUG

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The present work reports structural and dynamical properties of aqueous Polyvinyl-pyrrolidone(K-30) $[C_6H_9NO]_n$ in the presence of non-steroidal anti-inflammatory drug Ibuprofen [$C_{13}H_{18}O_2$] using Time Domain Reflectometry in the frequency region of 1 GHz to 30 GHz over the temperature range of 278.15 K-298.15 K. The frequency dependent complex dielectric permittivity has been analyzed by Harviliak - Negami equation. For aqueous polyvinylpyrrolidone and ibuprofen induced aqueous polyvinylpyrrolidone the concentration range covers in molar concentrations are $0.00 \leq c/M \leq 0.10$ and $0.00 \leq c/M \leq 0.05$ respectively. Cole-Davidson model is used for the description of the complex dielectric permittivity spectra $\varepsilon^*(\nu)$. Dielectric parameters such as the static dielectric constant ε_0, the high frequency limiting dielectric constant ε_∞, relaxation time τ_0, dipole moment μ, Kirkwood correlation factor g were calculated. For all the studied concentrations of polyvinylpyrrolidone and ibuprofen, it was observed that static dielectric constant was found to be decreasing with increase in temperature at all the used concentration of polyvinylpyrrolidone and ibuprofen. It has been observed that relaxation time also linearly increases with concentration of polyvinylpyrrolidone but it was almost independent of ibuprofen concentration. The relaxation time increases with increase in the concentration of polyvinylpyrrolidone but it shows non-linear behavior with ibuprofen concentration. As temperature increases the relaxation time continuously decreases at all concentrations of polyvinylpyrrolidone and ibuprofen. Correlation factor (g) provides information regarding orientation of electric dipoles between solute and its nearest neighbor molecules. Observations suggest that orientation of dipoles is not uniform with concentration and temperature.

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Keywords: - Polyvinyl-pyrrolidone, Ibuprofen, Time Domain Reflectometry, Dielectric Relaxation, Dipole Moment.

ETRD-2023

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IJIRG GCETRD23 1044	DIELECTRIC RELAXATION STUDIES OF INDOLE IN THE VICINITY OF DMSO IN THE GHZ REGION

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The effect of microwave frequencies on the structural and dynamical properties of heterocyclic organic compound such as Indole in the surrounding of DMSO (Dimethyl sulfoxide) molecule has been studied over the temperature region 298.15 K to 273.15 K using Time Domain Reflectometry (TDR) in the frequency region of 10 MHz-50 GHz. Dielectric parameters including Static permittivity (εi'), Dielectric constant (εi), Relaxation time (τi) Kirkwood correlation factor (g) and dipole moment (μ) which is well supported by thermodynamic parameters such as activation and molal/molar Free energy (ΔFi), Entropy (ΔSi) and Enthalpy (ΔHi) have been calculated. The dielectric permittivity spectra and relaxation behavior of Indole in different concentrations with DMSO was analyzed using Debye model. Two relaxation processes i.e., low and high frequency processes were apparently observed for each solution in the frequency range concerned. Dielectric loss peak for the system under study over the used temperature observed to be shifted towards low frequency side with increasing concentration. Molecular interaction between solute and solvent molecules has been interpreted in terms of dielectric parameters.

Keywords: - Indole, DMSO, Structural dynamics, Dielectric parameter, Thermodynamic parameter.

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IJIRG GCETRD23 1045	η-DUAL OF SOME DOUBLE SEQUENCE SPACES

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The nation for duals for sequence spaces introduced by Köthe and Toeplitz. B.C. Tripathy and B. Sharma have generalized Köthe-Toeplitz dual of some double sequence spaces. The notion of α −duals is generalized by Chandra and Tripathy on introducing the notion of η −duals for sequence spaces. The notion of double sequences is found in Browmich. C.G. Lascarides introduced a study of certain sequence spaces of Maddox and a generalization of a theorem of Iyer. In this article we find η −dual of some double sequence spaces and discuss the perfectness of different double sequence spaces relative to η −dual.

Keywords: - Dual space, Perfect space, $\alpha - and\ \eta - duals$.

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IJIRG GCETRD23 1046	PARAMETRIC STUDIES ON THE INTERFERENCE EFFECT OF RECTANGULAR FOOTING: A FINITE ELEMENT MODELLING

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Due to the result of urban development, buildings were constructed near existing buildings due to the limited construction area or other constraints. Thus, close footing placement would change the soil's behavior of supporting the structure because of change in bearing capacity. The purpose of this study was examining parametric studies on interference effects on rectangular footing using a finite element analysis tool (Abaqus). The study covers experimental work to determine its engineering properties for investigating the effects of footing size aspect ratio, horizontal spacing, embedment depth and width ratio of two nearby rectangular footings on their bearing capacity for different combinations. According to the study, rectangular footings that are constructed near each other results in increased interference factors for bearing capacity. This is due to the soil confinement between the footings. The interference factor for the bearing capacity gives up to a 39% increase for a 1.5 m depth and a 30% increase for a 3 m depth at a spacing-to-average width ratio of 3. The interference factor for bearing capacity decreases beyond the spacing to width ratio of 3.

Keywords: - Shallow foundation, Interference, Numerical Modelling, Bearing Capacity, Abaqus

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IJIRG GCETRD23 1047	NEW APPROACH TOWARDS DIFFERENT TYPES OF BI- QUASI IDEALS IN B-SEMIRINGS AND ITS EXTENSION

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We introduce two types of bi-quasi-ideals in b-semirings. Each bi-quasi-ideals generated by single element and set are established. We characterize various 1-regular (2-regular) by using generalized-1-bi quasi-ideal, 1-bi quasi-ideal, weak-1-right ideal, weak-1-left ideal, right ideal, left ideal, bi-ideal, quasi-ideal (generalized 2-bi quasi-ideal, 2-bi quasi-ideal, weak-2-right ideal, weak-2-left ideal, right ideal, left ideal, bi-ideal, quasi-ideal). Every quasi-ideal is a bi-quasi-ideal and reverse implication does not hold. Examples are provided to strengthen our results.

Keywords: - Bi-Quasi Ideals, B- Semirings.

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IJIRG GCETRD23 1048	NEW ALGEBRAIC STRUCTURE FOR DIOPHANTINE Q NEUTROSOPHIC SUB-BISEMIRING OF BISEMIRING

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We introduce the notion of diophantine Q neutrosophic subbisemiring (DioQNSBS), level sets of DioQNSBS of a bisemiring. The concept of DioQNSBS is a generalization of fuzzy subbisemiring over bisemiring. We interact the theory for DioQNSBS over bisemiring. Let H be the DioQNSBS of a bisemiring S and M be the strongest diophantine Q neutrosophic relation of S , we observe that H is a DioQNSBS of S if and only if M is a DioQNSBS of S×S . Let H_1, H_2, ..., H_n be the family of DioQNSBSs of S_1, S_2, ..., S_n respectively. We show that $H_1 \times H_2 \times ... \times H_n$ is a DioQNSBS of $S_1 \times S_2 \times ... \times S_n$. The homomorphic image of DioQNSBS is a DioQNSBS. The homomorphic preimage of DioQNSBS is a DioQNSBS. Examples are provided to illustrate our results.

Keywords: - Diophantine, Bisemiring, Q Neutrosophic.

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IJIRG GCETRD23 1049	ANALYSIS OF M/M (a, b)/1 MWV QUEUING SYSTEM OF ENCOURAGED ARRIVAL WITH Br

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This study investigates the encouraged arrival with breakdown in the General Bulk Service Rule-compliant M/M(a,b)/1/MWV queuing model. When the system is not in use, or when it is vacant, the server goes on vacation. The concept of encouraged arrival is introduced during the regularly busy time of this model, which deals with multiple working vacations that are exponentially distributed. In this study, we examine a model of numerous vacation queues in which there could be a breakdown at the service station while it is in use. After a repair, service is immediately resumed, and at the conclusion of each hectic period, a vacation is begun. Encouraged Arrivals have a Poisson process, and their rates vary depending on whether the system is in a condition of vacation, service, or breakdown. In addition to calculating the mean queue length (Lq).

Keywords: - Encouraged Arrival, Breakdown, General Bulk Service Rule, Working Vacations, Queuing model.

ETRD-2023

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IJIRG GCETRD23 1050	PERFORMANCE STUDY OF THE M/M(a,b)/1/MWV QUEUING SYSTEM WITH HETEROGENEOUS ARRIVAL

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In this paper, we studied the $M/M(a,b)/1/MWV$ queuing model with heterogeneous arrivals. Queuing system with heterogeneous customers that arrive according to the Poisson process with parameter λ_v. The server provides service with parameter μ and under the working vacation period customer provides the service with parameter μ_v it follows the exponantial process. In this model, customers are served batch wise under the General Bulk Service Rule, each batch contains minimum 'a' and maximum 'b' units of customers. For this model, we have obtained steady-state probabilities, the mean queue length, and measures of performance. Particular cases have been analysed in details and compared with the known results.

Keywords: - Busy state, Idle state, Heterogeneous, Multiple Working vacation (MWV), Working state.

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IJIRG GCETRD23 1051	ECOPRENEURSHIP A VIABLE WAY FOR SUSTAINABLE ECONOMY

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The sustainability concerning the surrounding is the high matter for the flourished operations of economic system. Whatever there has been crucial change in the community and how much one makes ready money out of it, the concluding objective of all is to lead a contented and restful life. Nowadays, there has been a tremendous growth in the use of harmful products mixed up with harmful chemicals which are started creating life danger for people. To solve these problems to some extent, a new branch of entrepreneurship has been evolved to create a sustaining life on earth with healthy atmosphere and a better giving to the people that is ecopreneurship. Ecopreneurship is a term originated to constitute the procedure of how the concept of entrepreneurship appeals to develop a business that solve out the ecological issues. The present paper gives a brief overview about the concept of entrepreneurship, its importance, its barriers as well as some live examples of successful ecoprepreneurs in India. The present paper analyses a brief overview regarding the penetration of ecopreneurship as a business initiative in India. It was found that that there was encouraging startups of ecopreneurship ventures and it is gaining much more importance in the mind of young generation for a better sustainability.

Keywords: - Ecopreneurship, sustainability, penetration.

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IJIRG GCETRD23 1052	DETERMINATION OF SOIL TEXTURAL CLASS BY USING USDA SOIL TEXTURE TRIANGLE

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In this paper an attempt has been made to determine the soil textural class by using USDA (United State Department of Agriculture) soil texture triangle. The physical capacities of soil are influenced by the size, proportion, arrangement and composition of soil particles. Soil texture is determined by relative proportion of soil separates (Like sand, silt and clay) in a particular soil [1]. The dielectric constant depends on the texture of soil. These dielectric properties of soil can be used to determine soil fertility and health. In this paper six soil samples were collected from different sites of Arpa river of Bilaspur, Chhattisgarh. The laboratory procedure used for determination of amount of the various separates present in the soil is known as mechanical analysis. The international pipette method and bouyoucos hydrometer are widely for determination of texture. From the result of mechanical analysis, a textural triangle can be used o determine soil textural class. By using this USDA triangle, it is observed that sample one, two and six are sandy clay loam, sample three is sand, sample four is sandy loam and sample five is loamy sand. Soil textural profile has a great influence on plant growth. Soil texture helps to determine which type of crop can be grown on a specific land.

Keywords: - Texture, Dielectric Constant, USDA Triangle, Mechanical Analysis.

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IJIRG GCETRD23 1053

DIELECTRIC STUDY OF POLYMER- ALCOHOL MIXTURES USING SPECTROSCOPIC TECHNIQUE

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The dielectric properties of PVP (polyvinylpyrrolidone) and primary alcohols mixture has been carried out over the frequency region of 0.01 to 30 GHz at 25 0C using time domain reflectometry technique (TDR). The dielectric permittivity ε^* (w) can be well described by Cole-Cole model. In addition to this we have also calculated static dielectric constant (ε_0) and average relaxation time (τ_0). Static dielectric constant (ε_0) was found to be decreasing with increase in the concentration of PVP in all alcohols except ethanol, where as ε_0 values decrease towards higher temperature at all concentrations. It was found that relaxation time (τ_0) linearly increases with increase in PVP concentration and towards lower temperature in all alcohols.

Keywords: - Permittivity spectra; Dielectric Relaxation; Time Domain Reflectometry; Polyvinylpyrrolidone.

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IJIRG GCETRD23 1054	THE PROPERTIES OF CROSS LAMINATED TIMBER PREPARED FROM TROPICAL HARDWOOD SPECIES

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Cross laminated timber (CLT) has gained immense attention in recent time as an innovative and sustainable building material, offering a new alternative to the conventional construction material. The concept of CLT was originated in Europe which was marked by dominance of softwood species in the European market. But there is growing recognition of the potential benefits of that hardwood species can offer in CLT production. By using hardwood species for CLT production, there is opportunity for judicious utilization of resources and reduction of carbon footprints as locally produced wood can be used more efficiently in different regions. This study focuses on the development of CLT using plantation hardwood species. The CLT panels from different species were prepared using one component polyurethane and hydraulic pressing system. The hardwood species used were rubber wood (*Hevea brassiliensis*), Melia wood (*Melia dubia*), Silver oak (*Gravellia robusta*) and Eucalyptus hybrid. The CLT panels were subjected to different physical and mechanical properties in accordance with EN 16351. The properties of hardwood CLTs were either comparable or better in comparison with most of the commercially available CLTs prepared from pine spruce and fir in the market. The shift towards incorporating hardwood species for CLT production aligns with sustainable practices, promotes local forestry industries and enhances the environmental performance of the building and construction sector.

Keywords: - Mass timber, construction, carbon footprint, sustainability, hardwoods.

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IJIRG GCETRD23 1055	FIRST PRINCIPAL CALCULATIONS OF FUNDAMENTAL PHYSICAL PROPERTIES OF NaAlSi HALF-HEUSLER THERMOELECTRIC MATERIAL

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In this work, we give a theoretical analysis of the structural, electronic, thermoelectric, elastic, and thermodynamic properties of the NaAlSi Half-Heusler (HH) material using the density functional theory framework (DFT) employed in the WIEN2k simulation code. In recent years, compounds that form in the half-Heusler structure have shown to be a significant class of materials. High-performance thermoelectric materials have received a lot of attention from the scientific community because of their potential uses in power generation. These materials crystalize with the F43m space group in the MgAgAs structure. The generalized gradient approximation (GGA-PBE) with the TB-mBJ approach is used as the exchange-correlation potential to calculate the exact value of the band gap. The exchange- correlation potential is based on the generalized gradient approximation (GGA-PBE). We have combined the TB-mBJ method with GGA-PBE for band gap improvement. Numerous characteristics have been calculated and discussed, including lattice constants, band structure, bulk modulus, elastic constants, dielectric constant, absorption coefficient, Seebeck coefficient, power factor, and figure of merit. According to our calculations, NaAlSi HH material is mechanically and dynamically stable, and exhibits semiconductor properties, with an indirect band gap. The figure of merit of NaAlSi HH material is found to be 0.99 at room temperature, which ensures its potential use in thermoelectric devices. The obtained results are in good agreement with the available data.

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Keywords: - Electronic properties; Optical properties; Elastic Properties; Thermodynamicproperties; Thermoelectric Properties.

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IJIRG GCETRD23 1056	IMPACT OF SOLAR FLARES AND GEOMAGNETIC STORMS ON EARTH'S IMF AND SOLAR WIND VELOCITY DURING THE DESCENDING PHASE OF SOLAR CYCLE 24

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The Earth's magnetosphere is the outermost layer of the solar system affecting cosmic rays from the Sun and solar wind. The solar wind has major impacts on the Earth's magnetosphere, but it is unclear solar flares—a sudden eruption of electromagnetic radiation on the Sun. This work thus indicates that solar flare effects extend throughout the heliosphere. Generally, heliosphere described as Earth's protective barrier against solar wind and other solar particles, as it prevents these particles from entering the planet's other protective layers. Our aim in this paper is to investigate the impact of the solar flares and geomagnetic index to the solar wind parameters, such as solar wind velocity and the interplanetary magnetic field (IMF) Bz component, associated with solar flares and Geomagnetic storms events. The output of the ground geomagnetic field (H-component) to the solar wind parameters and the IMF B_z component various-latitude stations has also been analysed. Our findings show that the delay of the solar wind changes in the Earth's magnetosphere in response to the weak geomagnetic storm at the descending phase of solar cycle 24.

Keywords: - Magnetosphere, Heliosphere, Geomagnetic Storms, Solar wind, solar flares.

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IJIRG GCETRD23 1057	PROGRESS AND FUTURE PROSPECTS OF OXIDE-BASED DOUBLE PEROVSKITES

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In the present work, we focus to investigate the structural properties i.e., lattice constants, interatomic distance; electronic properties i.e., the density of states, band structure, band gap; optical properties i.e., refractive index, dielectric constant, absorption coefficient, energy loss function, and extinction coefficient, etc. of oxide-based double perovskite using WIEN2k code. The aforesaid qualities are obtained within the framework of density functional theory by the full potential linearized augmented plane wave (FP-LAPW) approach. Double perovskites are one of the most promising materials which can reduce the instability problem occurring in perovskite structures. Double perovskite solar cells have a large band gap relative to single perovskite solar cells. Therefore, for getting the better photovoltaic performance of the devices based on this principle we can tune the transition metals B and B'. The bulk moduli and equilibrium lattice constants are greatly enhanced by the WC-GGA functional compared to the local density approximation. For computations of the electrical structure, the Tran-Blaha modified Becke-Johnson potential (TB-mBJ) in combination with WC-GGA can be utilized. With the calculation and knowledge of these properties, we can modify their structure and use them potentially in desirable applications.

Keywords: - Photovoltaic; optical; augmented; thermoelectric; Structural.

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IJIRG GCETRD23 1058	ANALYSIS OF M^x/M/1/ MULTIPLE WORKING VACATIONS QUEUEING SYSTEM WITH BALKING

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This paper deals with an analysis Mx/M/1/ Queuing System with multiple working vacations under balking. In the model customers arrive in batches which follows compound Poisson process, service time and balking follows exponential distribution. The arrival process follows a Poisson distribution while the service time follows an exponential distribution. This system examines performance measures using probability generating function. Finally, the decomposition property and the particular cases are also discussed.

Keywords: - Batch arrival, Balking, Multiple working vacation, Probability generating function, Stochastic decomposition.

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IJIRG GCETRD23 1059	DISCUSSION ON THE FUNDAMENTAL ELEMENTS OF A CONTRACT

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The necessity of the primary elements of the contract before making a contract is given in this essay. Usually, legal action, consideration, competence, offers, acceptance are the most attractive and useful fundamental elements of the contract, which should be followed to build a perfect and ideal contract. Every contract is started with special and necessary offers, through which both the parties can find the benefits from this contract. Acceptance indicates the mutual understanding and giving easy responses about the contract to bind up. Consideration gives the way of every acceptance and process of actions, which should be introduced in a formation of a contract. Competence indicates the capacity and potentiality of the parties in the case of contract, because it determines the way of flexibility. Hence, the entire way of legal action in the contract can be developed with the application of the perfect way of contractual process two parties.

Keywords: - Offers, Acceptance, Competency, Legal action, Fundamental elements, Section and acts, Difficulties, Requirements.

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IJIRG GCETRD23 1060	AN ANALYTICAL STUDY ON IMPACT OF EXTERNAL TRANSPORTATION COST IN LINEAR PROGRAMMING PROBLEM AND THEIR APPLICATION

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The objective of this paper is to analyze the effect of external transport cost on the quality of logistics activities. In this paper, we analyze the impact of external transportation cost on short sea shipping. The aim of the research is to optimize the cost of transportation not only specifically but also another cost included in transportation costs. We measure certain parameters regarding internal transport cost which are isomorphic to each other in general cases under certain conditions.

The transportation problem is a special class of problem. Transportation problems may vary under certain conditions. We generally consider fuel charges, service charges, and vehicle charges for the necessary transport of an object from one place to another place. To achieve the Sustainable Development Goals-Agenda 2030 in the 21st century, it is necessary to create a safe environment on Earth. In most transport modes, the environment is a little affected. In the US, UK, and other countries, air pollution charges are separately paid to the service provider. Therefore, external transportation costs should be added to original transportation costs (internal transportation cost (ITC)). We derive the mathematical expression of the linear programming problem after External Transportation Cost (ETC) is included. We analyze that if some variable which does not affect the environment, by default environmental maintenance cost is zero. From this, that variable cost is zero. In assignment theory, when an object is assigned, a path is created. In this case, in this case, if greatest value among EMC says y_{kl} is less than or equal to the value of x_{ij} then path of assignment of

transport a product is not change. If the greatest value among EMC say is less than or equal to the value of then the path of assignment of transporting a product is not changed.

Keywords: - Transport cost, ITC, ETC.

ETRD-2023

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IJIRG GCETRD23 1061	THEORETICAL STUDY OF LEAD-FREE HALIDE DOUBLE PEROVSKITE Na2AgSbI6 THERMOELECTRIC MATERIAL

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In this work, novel lead-free halide double perovskite renewable energy materials Na2AgSbI6 have been studied. We have performed this computational work using the WIEN2k simulation code, which is based on the Full-Potential Linearized Augmented Plane Wave (FP-LAPW) technique. Investigation of its electronic parameters shows that it is an indirect band gap semiconductor with a band gap of 3.986 eV. Optical parameters such as dielectric constant, electrical conductivity, and absorption coefficient show that the titled material can be used potentially in photovoltaic devices. The investigation of its stability criteria shows that it is a mechanically and thermally stable material, however, the phonon spectra show its dynamical instability. For another futuristic purpose, thermoelectric parameters such as the Seebeck coefficient, power factor, and figure of merit have also been calculated; which again verifies that this material may be very useful in thermoelectric devices. Most of the parameters have been computed for the first time.

Keywords: - Refractive index; Seebeck coefficient; Halide double perovskite; Dielectric constant

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IJIRG GCETRD23 1062	RIEMANN-LIOUVILLE FRACTIONAL CALCULUS OPERATORS OF THE C-SERIES

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In the present paper, we establish the results using the new generalized C-series given by the author applying the Riemann-Liouville fractional operators. This function is more generalization of K-series, M-series, R-series, etc. The Hypergeometric function, Mainardi function, R-series, M-series, the generalized M-series, generalized R-series, and R-series follow the C-series and these functions have found essential applications in solving problems in various field of many areas of physics, biology, bio-science, engineering, and applied science, etc.

Mathematics Subject Classification— 26A33, 33C60, 44A15.

Keywords: - Fractional calculus operators, C-series R−series, Mellin-Barnes integral, Special functions.

ETRD-2023

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IJIRG GCETRD23 1063	IMPROVING THE GEOTECHNICAL CHARACTERISTICS OF EXPANSIVE SOIL USING GLASS POWDER

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Expansive soil expands and loses strength when wetted and shrinks when dried, and this makes a significant volume change. Construction on the expansive soil has become a challenge for various engineering projects around the world. As a result, it is essential to improve the engineering properties of the soil through the application of stabilizing techniques prior to construction.

The purpose of this study is to study the change of geotechnical properties of expansive soil by stabilizing with a glass powder. The experimental tests were carried out for the native soil and soil glass powder mixture. The preliminary investigation of the soil tests was natural moisture determination, grain size distribution, specific gravity, Free swell, Atterberg Limit, Moisture density Relationship, CBR and CBR swelling. The index properties involved to classify the soil samples were taken from Morka – Wacha Road segment. The obtained ten test pits belong to the A-7-5 class of soil in the AASHTO classification system. This type of soil is generally unsuitable for engineering purposes. The selected soil samples were treated with glass powder in stepped concentrations of 4%, 8%, 12%, and 16% by the dry weight of the soil. Their properties were evaluated using Atterberg limits, Free swell, the Modified Proctor test, and the CBR and CBR swell tests. The selected soil sample was also cured for seven days before being tested for the Atterberg limit, Modified proctor, CBR, and CBR swell. Analysis of the results shows an improvement in the geotechnical properties of glass powder stabilized soil. The glass powder reduces plasticity index and swelling. However, CBR increase with higher glass powder content. Specifically, the OMC decrease and The

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MDD shows an increment until 12% concentration. Therefore, this study shows that the glass powder can be used to improve the geotechnical characteristics of expansive soils.

Keywords: - Expansive soil, Glass powder, Stabilization.

ETRD-2023

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IJIRG GCETRD23 1064	STUDY OF SOLAR ACTIVITY AND INTERPLANETARY CAUSES WITH GEOMAGNETIC INDICES DURING THE SOLAR CYCLE 24

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Our studies the trend of solar interplanetary and geomagnetic indices during solar cycle 24 move upward phase of recent cycle. The sunspot numbers (*Rz*), interplanetary magnetic field and geomagnetic indices indicate trend during solar cycle 24. In the solar cycle 24, the sunspots (*Rz*) numbers, IMF (Bz) and geomagnetic indices represent the periodic nature, but the peak is low. However, IMF (Bz) and geomagnetic indices value in the solar cycle 24. We found a positive correlation among sunspots numbers (*Rz*), IMF and geomagnetic indices. This means that during this period there is a large difference between the maximum and minimum. Solar cycle 24 had a smaller magnitude of the cosmic ray decreases in the present cycles. Through continuous wavelet transform, we found that IMF, sunspot number, indices all have the highest spectral variability from beginning of cycle to end of cycle. We suggest that these unique conditions of solar interplanetary with geomagnetic indices have originated from solar activity.

Keywords: - Sunspots, Interplanetary magnetic field (IMF), geomagnetic indices.

ETRD-2023

K P S Science Academy

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IJIRG GCETRD23 1065	WATER DYNAMICS ON THE STRUCTURAL PROPERTIES OF SOME NSAID'S WITH LEUCINE IN THE PICOSECOND REGION USING TIME DOMAIN SPECTROSCOPY

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Concentration dependent dielectric response for non-steroidal anti-inflammatory drugs (NSAID'S) Aceclofenac (ACF) and Diclofenac (DCF) in the aqueous leucine solution has been reported at different concentrations and temperatures (298.15 K to 283.15 K). Time domain reflectometry technique in the frequency region 1 GHz to 30 GHz was used for the present study. Complex permittivity (ε*), Static dielectric constant (ε), dielectric relaxation time (τ), dipole moment (μ) and Kirkwood correlation factor (g) have been calculated and described in terms of molecular interaction of water and the used drugs. To give more insights into the structural dynamics of drugs induced amino acid; we have included in our study the molar enthalpy of activation (ΔH), entropy of activation (ΔS) and free energy of activation (ΔF). The overall study concludes that the drug (DCF) having potent inhibitor of cyclooxygenase found higher static dielectric constant (ε_0) than that of the drug (ACF) which is more efficient in controlling pain.

Keywords: - NSAID, Kirkwood correlation factor, water dynamics.

ETRD-2023

K P S Science Academy

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IJIRG GCETRD23 1066	STUDY OF COSMIC RAY INTENSITY WITH SOLAR ACTIVITY PARAMETERS FOR THE SOLAR CYCLES 24

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In this paper we have considered correlative study of Cosmic Ray Intensity (CRI) variations with solar activity parameters such as interplanetary magnetic field (IMF), sunspot numbers (SSN) and solar flare index (SFI) during the period of 2009-2019. From the correlative study we have found that negative co-relation between Cosmic Ray Intensity (CRI) with interplanetary magnetic field (IMF), sunspot numbers (SSN) and solar flare index (SFI), with: (i) Co-relation co-efficient -0.84 between Cosmic Ray Intensity and yearly average values of IMF, (ii) Co-relation co-efficient -0.94 between Cosmic Ray Intensity (CRI) and yearly average values of SSN, (iii) Co-relation co-efficient -0.95 between Cosmic Ray Intensity (CRI) and yearly average values of SFI.

Keywords: - Cosmic Ray Intensity (CRI), IMF, SSN and SFI.

ETRD-2023

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IJIRG GCETRD23 1067	CORRELATIVE STUDY OF PARTIAL AND HALO CMES WITH SUNSPOTS NUMBER DURING THE SOLAR CYCLE 24

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Sunspots and CMEs is one of the most important activities in the sun. The Number of Sunspots (SSNs) are interesting aspects of the sun. In this study we found that solar cycle rises with the SSNs increases and the solar cycle decelerates with the SSNs decreases. The solar cycle 24 had a rising face from 2008 to 2014 while the declining face from 2014 to 2019. Number of SSNs increased by 49.5 to 1363.3 in rising face while the number SSNs reduced from 1363.3 to 84.1 in declining face. The CMEs are powerful eruptions on the sun's surface. In this study the angular width of 360° was considered for full Halo CMEs while 121°-359° was considered partial Halo CMEs. During rising face number of Halo CMEs increases from 1-69 and partial Halo CMEs increases from 12-265 while in declining face Halo CMEs reduced from 69 to 01 and partial Halo CMEs reduced from 265 to 03 and also, we have found that good correlation ship between CMEs and SSNs.

Keywords: - Coronal Mass Ejections (CMEs), Sunspots Numbers (SSNs), Solar Cycle, Halo CMEs, Partial CMEs.

ETRD-2023

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IJIRG GCETRD23 1068	ELECTRON TEMPERATURES IN THE E & F REGION OF THE IONOSPHERE DURING DAY TIME

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The theory regarding electron temperatures within the F region of the ionosphere are reviewed. The review is split into three basic parts within the first part the speculation concerning electron heating, cooling, and strength shipping methods is reviewed, and each one the relevant expressions are up to date and the second part of the ionosphere F region contain electron temperature and it's measured by incoherent scatter radars, rockets and satellites are discussed. This portion covers electron temperature variations with, local time, season, altitude, geomagnetic activity, latitude and solar cycle. The third part is primarily dedicated to a discussion of the assorted attempts to check measured and calculated ionosphere F region electron temperatures. F region electron temperatures are highly variable, depending on altitude, latitude, local time, season, solar cycle, and geomagnetic activity

Keywords: – Electron Heating, Electron temperature, Transport, Incoherent scatter, geomagnetic activity, solar cycle.

ETRD-2023

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IJIRG GCETRD23 1069	DIELECTRIC PROPERTIES OF HERBAL BASED SOIL IN CHHATTISGARH

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Dielectric Constant is the most important parameter in microwave frequency for the study of dry and wet soils. Dielectric properties are primary function of frequency, water saturation, porosity, texture, component geometry and electromechanical metrication. Therefore, soil properties have to be understood and their knowledge should be utilized for better utilization for agriculture and sensor data. These paper focus on dielectric properties of herbal based soil Chhattisgarh state has rich forest covering 44% of total geographical area of the state. Hence Chhattisgarh has been declared as "Herbal State".

The Herbal state of Chhattisgarh is situated in Deccan bio-geographical area. Plant having active Chemical component with any of its part like root, stem, leave, bark, fruit and seed. Which produces definite curing properties in the Treatment of various diseases is regarded as herbal plants.

In India rural people widely utilized herbal plants in different ailments. Herbal plants play important role in health care system in India, because human population more dependent upon plant-based medicine due to less side effects, much efficiency and safe mode for utilization. According to the world Health Organization (WHO) approximately 80% of the population of the world still depends upon herbal medicines, due to easy availability, less side effects and sometimes only source of health care. The demand of herbal plant is increasing.

Keywords: - Herbal plants, Dielectric properties.

ETRD-2023

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IJIRG GCETRD23 1070	SIMULTANEOUS EFFECTS OF ACTIVATION ENERGY AND CHEMICAL REACTION ON MICROPOLAR NANO-FLUID PAST POROUS STRETCHING SHEET

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This study plans to investigate a Bayesian regularization network for micropolar ternary hybrid nanofluid flow over curved surfaces with homogeneous and heterogeneous reactions, Joule heating and viscous dissipation. The ternary hybrid nanofluid comprises of nanoparticles of titanium oxide ($Ti O_2$), copper oxide (CuO), and silicon oxide ($Si O_2$), with blood as the base liquid. The dimensional PDEs administering the fluid flow are changed over into dimensionless ODEs utilizing a gathering of self-similar transformations. The ODEs are solved utilizing the BVP5C shooting algorithm in MATLAB R2022a. The impacts of dimensionless actual boundaries including shape, miniature polar, radiation, attractive, Prandtl, Eckert, Schmidt, and homogeneous and heterogeneous chemical reaction parameters are investigated for velocity, micro rotational, temperature, and concentration profile. Actual amounts of designing revenue like heat transfer rate, mass transfer rate, skin friction coefficient, couple stress coefficient, and entropy generation are moreover examined in this review. A Bayesian regularization backpropagation algorithm is likewise intended for the ODEs solution. The acquired organization is investigated utilizing training state, performance, error histograms, model response, Error autocorrelation, and input-error correlation plots. It is seen that the entropy generation and the Bejan number increment for upgrading Brinkman and radiation parameter. Clinical researchers and biologists might utilize the consequences of this computational study to estimate endothelial cell damage and plaque affidavit in curved arteries with WSS profiles, by which the seriousness of these circumstances can be decreased.

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Keywords: - Ternary hybrid nanofluid, curved artery, Bayesian regularization backpropagation algorithm,homogeneous and heterogeneous chemical reactions.

ETRD-2023

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IJIRG GCETRD23 1071	NsM/NsM/c QUEUING MODEL WITH HETEROGENEOUS ARRIVAL UNDER CATASTROPHE, BALKING AND WORKING VACATION

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This paper shows the Neutrosophic soft abstraction of M/M/c queuing model with Heterogeneous arrival under Catastrophe, Balking and Working vacation. The basic parameters of queuing model are assumed to be neutrosophic numbers. Here, the system measures of performance of the described model are derived.

Keywords: - Heterogeneous arrival, Catastrophe, Balking, Working Vacation, Performance Measures.

ETRD-2023

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IJIRG GCETRD23 1072

SYNTHESIS AND CHARACTERIZATION OF BIMETALLIC (Fe, Zn) DOPED CADMIUM OXIDE NANOPARTICLES

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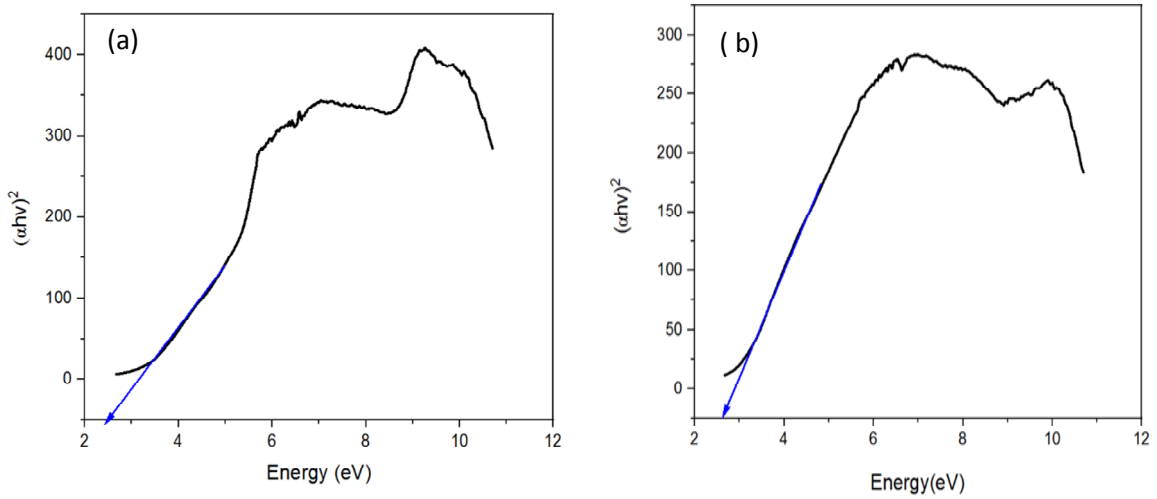
Doping with suitable elements in transparent conducting oxide CdO (n-type) nanoparticles enhanced could be used in various potential applications. The present works were adopted for the sol-gel synthesis process of Fe and (Fe, Zn)-doped CdO nanoparticles. The synthesized samples were analyzed using various characterization techniques like XRD, UV- Vis, and SEM analysis. The optical band gap of Fe- CdO and (Fe, Zn) doped CdO nanoparticles were analyzed, a graph between (αhν)2 and photon energy (eV) was drawn and extrapolated the linear portion of the curve (Fig (a,b)). The result reported about the optical band gap of Fe-CdO and (Fe, Zn)–CdO is 2.8 eV and 2.5eV respectively. The cubic phase and most intense Bragg's peak (1 0 1) confirmed by the XRD pattern of synthesized samples, agreed with the available literature. The average particle size calculated by the Debye Scherer method was about 43.76 nm of (Fe, Zn) doped CdO and 47.15 nm of Fe doped CdO.



ETRD-2023

K P S Science Academy

IJIRG
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IJIRG GCETRD23 1073	INVESTIGATION OF OPTICAL AND STRUCTURAL PROPERTIES OF Ag-C60 AT DIFFERENT TEMPERATURE

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Ag-C_{60} thin films have various applications in semiconductor industries like semi-transparent perovskite solar cells and thin-film heaters etc. In this manuscript we have reported thermally evaporated Ag-C_{60} thin films deposited at silicon substrate at different temperature for the study of desirable optical properties. The reflectance spectra and absorbance spectra of the Ag-C_{60} thin films suggested the important role played by the substrate temperature and its usefulness for future use in solar photovoltaic technology. The XPS peaks confirmed the existence of oxygen (O), carbon(C) and silver states (Ag) in Ag-C_{60} nano thin films for study of elemental analysis. Raman Spectrum observes the intensity peaks of pristine and other annealed samples at different temperature.

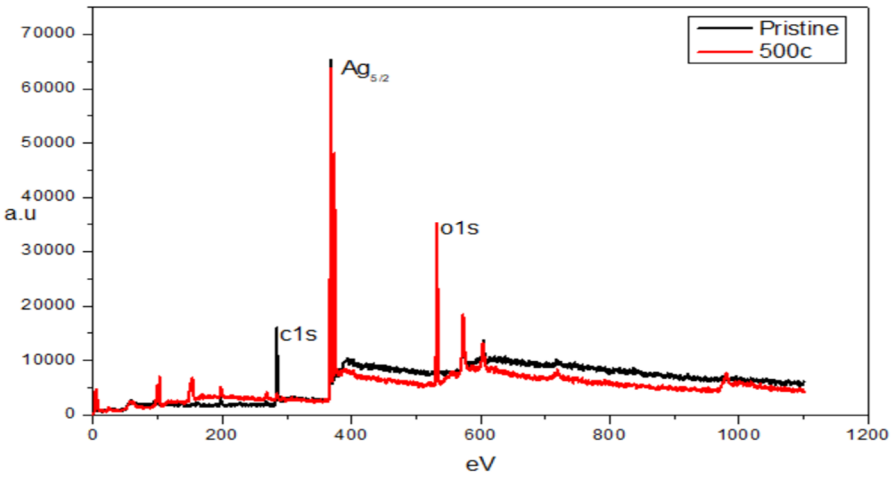

Figure: XPS Spectra shows existence of O, C and Ag states at Ag-C60 nano thin films.

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IJIRG GCETRD23 1074	STRESS MANAGEMENT BY USING BHAKTI YOGA AS DESCRIBED IN THE SHRIMAD BHAGAVAD GITA

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Shrimad Bhagwad Gita is the foundation stone of Indian culture. Geeta has the first place in Hindu scriptures. Its creator is Maharishi Vyas. Srimad Bhagavadgita is a song sung by Lord Krishna from the Mukharvind, which was narrated to Arjuna on the field of Kurukshetra. The Shrimad Bhagavad Gita is a part of the Bhishma Parva of the Mahabharata, consisting of 18 chapters and 700 verses. Lord Krishna has formulated Karmayoga, Jnanayoga, Bhaktiyoga in Bhagavad Gita, because the existence of worldly man is made up of body, mind, intellect. According to Lord Krishna, the union of these three leads to salvation, but in the present times, due to the very busy lifestyle, there is a complete lack of these three. Due to which human being is becoming functionally, emotionally and intellectually weak. Due to the weakness of the emotional side, problems like tension arise inside the person, due to which the other two sides of the person also become weak. Therefore, to strengthen the emotional side, Lord Krishna has described Bhakti Yoga in the 12th chapter of Gita. In the presented research paper, Bhakti Yoga described in Bhagavad Gita has been included to get rid of stress. Through Bhakti Yoga, the emotional side of the human mind will definitely be strengthened and problems like stress, anxiety, depression will be relieved.

Keywords: - Bhagwad geeta, Lord Krishna,Bhaktiyoga.

ETRD-2023

K P S Science Academy

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IJIRG GCETRD23 1075	SOME ASPECTS OF THE GROUP INVARIANT SOLUTIONS OF WAVE PROPAGATION FOR AN ELECTRIC FIELD E

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This paper deals with the investigation of the solution of wave propagation of an electric field in a source free, linear, isotropic, homogeneous region described by the Helmholtz equation

$$\nabla^2 u + k^2 u = 0$$

where u is wave function, k is wave number, ∇ is Laplacian-operator. The solution is derived by the general prolongation formula in closed form in terms of symmetry groups. The results derived are of general nature and include the results investigated earlier by many authors. The advantage of using general prolongation formula lies in the fact that group invariant solutions of the Helmholtz equation includes linearity, rotation and scaling symmetries.

Key Words: Space invariance, Translation, Rotation.

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IJIRG GCETRD23 1076	THE IMPACT OF YOGA ON PERSONALITY, LIFESTYLE, AND SOCIETY: A CRITICAL STUDY

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Yoga is the gift of ancient India, which has benefited the whole world. It is yoga that connects the soul to the divine. The relevance of yoga has increased even more today. Yoga is a scientific art of living, which affects all aspects of human life. It has an impact on a person's social, physical, mental, moral aspects as well as in his/her character. This method, discovered by sages, is not limited only to them, but it has become an everyday part of the lifestyle of the majority of people today.

Today, through yoga, a person is strengthening the society by adopting a systematic, cultured lifestyle. Yoga also becomes important for individuals in social life because only healthy individuals create a healthy society. When an individual is developed only then the society is developed. Yoga plays an important role in the establishment of this ideal society. It is Yoga that makes a man physically and mentally healthy, only then a healthy person can build a healthy society. Due to the prevention of physical and mental diseases by the practice of different types of activities and asanas, human thinking becomes clear and positive, which has a direct impact on the society. It is only through Yoga that a person is inspired to promote the felling of love, peace, co-operation, patience, restraint, tolerance, and selfless contribution within the society. Due to which yoga has become the inseparable part of every society in the present times. Its advantages attract the people of the society. There is no need for a huge system for the operation of yoga, yoga can be done anywhere. By the practice of various asanas of yoga, one attains physical and mental concentration and moves towards prosperity. Due to this dazzle of modernity, some distortions are coming in the life of human beings, for the removal of these distortions and for the progress of the society; Yoga is the only means which is very useful for the eradication of these distortions.

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Thus, it can be said that Yoga is a miracle which promotes balance between physical, mental, and spiritual health thereby creating a strong society.

Keyword: - Yoga, Person, Human, Mental, Physical, Lifestyle.

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IJIRG GCETRD23 1077	STUDY ON NONLINEAR CHEMICAL REACTION WITH NEW HOMOTOPY PERTURBATION METHOD

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In the present paper, we obtained a solution of nonlinear autocatalytic chemical reaction, i. e. glycolysis model, with the appearance of advection and diffusion using New Homotopy Perturbation Method. The reaction behavior of glycolysis occurs in the fields of life science, chemistry, biochemical science, open chemical reactor and so on. The obtained solution of equation was explained graphically using MATLAB. The authenticity of the proposed scheme is ensured by comparing it with extensively used numerical techniques. The comparison depicts that the New Homotopy Perturbation Method is more productive as compared to the other traditional methods, as it holds all the important properties.

Key words: Advection, Glycolysis, Diffusion.

ETRD-2023

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IJIRG GCETRD23 1078	USE OF E- RESOURCES AND ITS IMPACT: A STUDY OF AWDHESH PRATAP SINGH UNIVERSITY LIBRARY USERS

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This paper presents and analyses the current status of electronic resource services and facilities given by the APS University to their students, especially to research scholar. In this paper we have discussed about the availability, usability and satisfaction level of the university students and what kind of problems they are facing while using the given e-resources. For this, survey method has been conducted with structured questionnaire to analyze and find out the impact of e-resources among the university student's studies.

Keywords: - E-Resources, Impact of e-resources, Satisfaction level.

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IJIRG GCETRD23 1079	DECIPHERING THE RELEVANCE OF EMOTION FOR LANGUAGE AND LINGUISTICS IN INDIA CONTEXT

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This paper aims to bring out the relevance of emotion for language and linguistics. It draws the content by considering three perspectives:

(a) the conceptualization of emotions

(b) the expression of emotions and

(c) the grounding of language.

The first is the conceptualization perspective, it discusses the research on the emotional lexicon. Not only content words (N, V, A), but also prepositions are relevant (to long for, hate against). From the expression perspective, it is claimed that the expression of emotions takes place on all linguistic levels: phonological, morphological, lexical, syntactic, and on the level of figurative language use (metaphor and metonymy). 'Grounding' of language in emotion refers to the emotion as one of the preconditions required for the functioning of language (emotion is part of the embodied grounding) and for its coming into existence, both ontogenetically and phylogenetically.

Keywords: - language; emotion; conceptualization; expression; figurative language.

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IJIRG GCETRD23 1080	BHAKTI CULT' IN ARUNDHATI SUBRAMANIAM'S EATING GOD

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The cardinal and ubiquitous body of poetry that stemmed in the 16th century in the Indian continent is 'Bhakti' Poetry. Conventionally, Bhakti Poetry is a celebration of love and fidelity to Gods. The word 'bhakti' designates supernatural devotion to God. The word was primarily used in the Bhagavad Gita in the 5th century BCE to mean a 'religious path'. Bhakti Poetry projects the worshipers' intense manner of partaking in the sublime and hence also considered as 'Ecstatic' Poetry. The article attempts to explore Arundathi Subramaniam's credo of spirituality and its essence in the world which is sought with massive changes in terms of science and technology, and the essence of spirituality for survival, with special reference to the poem Eating God.

Keywords: - Bhakti, celebration, fidelity, God, religious, path, worshipper, partaking, spirituality.

ETRD-2023

K P S Science Academy

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IJIRG GCETRD23 1081	INTRODUCTION TO IMPUNITY PROFILING CONCEPT& ROLE OF ADVANCE TECHNIQUES FOR IMPUNITY PROFILING OF PHARMACEUTICALS

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The control of impurities is key to produce the better quality of pharmaceutical product. Impurity limit based on safety, reduced and control in the process of manufacturing. Now days impurity limit has a greater focus based on daily exposure limits. There are other various approaches, such as acceptable intake (AIs), permitted daily exposure (PDEs), threshold of toxicological control (TTCs) and staged TTCs all aimed at defining a virtually safe dose (VSD). acceptable intake (AIs), permitted daily exposure (PDEs).

In pharmaceuticals at trace levels potential genotoxic impurities are of increasing concern to both pharmaceutical industries and regulatory agencies due to their possibility for human carcinogenesis. starting materials and synthetic intermediates as reactive building blocks for small molecules may also be responsible for their genotoxicity. Quantification of these genotoxic impurities at trace levels requires highly sensitive and selective analytical methodologies, which poses tremendous challenges on analytical communities in pharmaceutical research and development. Analytical determination of genotoxic impurities is still has scope to develop analytical method using sensitive techniques. Liquid-chromatography-mass spectrometry (LC-MS/MS) and Gas chromatography mass spectrometry (GC-MS) are the most sophisticated analytical techniques are useful to quantify the trace level of impurities. Therefore, the present review of potential genotoxic impurities, in order to control the level of impurities in drug substances and to assess their toxicity. This review also describes the analytical considerations for the determination of potential genotoxic impurities at trace levels and finally few case studies are also discussed for the determination of some important potential genotoxic impurities. It is the authors' intention to

provide a strategy that helps analytical scientists for the analysis of such potential genotoxic impurities in pharmaceuticals.

Keywords: - Liquid-chromatography-mass spectrometry (LC-MS/MS), Gas chromatography mass spectrometry (GC-MS), Genotoxic impurity, acceptable intake (AIs), permitted daily exposure (PDEs), threshold of toxicological control (TTCs), virtually safe dose (VSD). acceptable intake (AIs), permitted daily exposure (PDEs).

ETRD-2023

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IJIRG GCETRD23 1082	HEALTH PROTECTION BY PRANAYAMA AND YOGA MUDRA

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Pranayama and yoga postures play a unique role in the protection of overall health at every moment, especially during the transition period, their utility increases further because in each transition period and various types of diseases, when a person becomes helpless. Then Pranayama and various postures described in Yoga Shastra provide strength to the person. Therefore, it would be more appropriate to say that pranayama and yoga postures have been playing the role of life-saving means for a person in every era.

ETRD-2023

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IJIRG GCETRD23 1083	INEQUALITIES FOR POLAR DERIVATIVE OF A POLYNOMIAL

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Let $P(z)$ be a polynomial of degree n and $D_\alpha P(z)$ denotes the polar derivative of $P(z)$. Using recently developed interpolation formulation, we obtain an interesting extension of

$$\max_{|z|=1}|P'(z)| \leq \frac{n}{2}\left[\max_{1\leq k\leq n}|P(e^{\frac{i(2k\pi+\lambda)}{n}})| + \max_{1\leq k\leq n}|P(e^{\frac{i((2k+1)\pi+\lambda)}{n}})|\right]$$

and some other new results as well.

Keywords: - Polynomial, Derivative of Polynomial

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IJIRG GCETRD23 1084	A CASE STUDY: EFFECT OF CHOCOLATE ON HUMAN DEVELOPMENT

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Dry cocoa solids are the components of cocoa beans remaining after cocoa butter, the fatty component of the bean, is extracted from chocolate liquor, roasted cocoa beans that have been ground into a liquid state. Cocoa butter is 46% to 57% of the weight of cocoa beans and gives chocolate its characteristic melting properties. Cocoa powder is the powdered form of the dry solids with a small remaining amount of cocoa butter. Untreated cocoa powder is bitter and acidic. Dutch process cocoa has been treated with an alkali to neutralize the acid.Cocoa contains a variety of chemicals, including antioxidants called flavonoids. It's not clear how these might work in the body, but they appear to relax the blood vessels. This could lead to lower blood pressure, and reduce inflammation and blockage of blood vessels. People most commonly use cocoa for heart disease and high blood pressure. It is also used for high cholesterol, memory, aging skin, and many other conditions, but there is no good scientific evidence to support these other uses.

Dark chocolate contains powerful antioxidants. Among the most beneficial is a flavonol called epicatechin. Flavonols are compounds found in plants that fight inflammation and protect against cell damage caused by free radicals.

These are just a few of the ways research has shown that dark chocolate can benefit you:

Balances the immune system: Flavonols prevent the immune system from going into overdrive and reduce oxidative stress, which is an imbalance caused by cells fighting against free radicals and a common cause of many diseases.

Boosts athletic performance: The epicatechin in dark chocolate increases the production of nitric oxide in the blood, which supports circulation and reduces the amount of oxygen an athlete uses while engaged in moderately intense exercise. This allows the athlete to maintain workout intensity for longer.

Reduces stress: People who ate dark chocolate reported that they felt less stressed, and researchers confirmed that after eating dark chocolate, there were reduced levels of the stress hormone cortisol. This may be related to dark chocolate's effects on heart health, since stress is a risk factor for cardiovascular disease.

Combats diabetes: Epicatechin protects cells, makes them stronger and supports the processes that help the body to use insulin better, which might prevent or combat diabetes.

Improves brain function: Flavonols in dark chocolate have a positive impact on brain function, including better reaction time, visual-spatial awareness and stronger memory. Though research is ongoing, one reason for this may be that flavonols increase blood flow to the brain.

Increases heart health: The antioxidants in dark chocolate have been shown to lower blood pressure, reduce the risk of clotting and increase blood circulation to the heart, thus lowering the risks of stroke, coronary heart disease and death from heart disease.

Keywords:- Child Life ,Heart and antioxidant.

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IJIRG GCETRD23 1085	A CASE STUDY: EFFECT OF RADIATION ON HUMAN HEALTH

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Radiation can damage the DNA in our cells. High doses of radiation can a use Acute Radiation Syndrome (ARS) or Cutaneous Radiation Injuries (CRI). High doses of radiation could also lead to cancer later in life. Gamma rays are the most harmful external hazard. Beta particles can partially penetrate skin, causing “beta burns”. Alpha particles cannot penetrate intact skin. Gamma and x-rays can pass through a person damaging cells in their path.

Radiation damage to the intestinal tract lining will cause nausea, bloody vomiting and diarrhea. This occurs when the victim's exposure is 200 rems or more. The radiation will begin to destroy the cells in the body that divide rapidly. These including blood, GI tract, reproductive and hair cells, and ultimately harms their DNA and RNA of surviving cells.

Reproductive Tract

Because reproductive tract cells divide rapidly, these areas of the body can be damaged at rem levels as low as 200. Long-term, some radiation sickness victims will become sterile.

Blood System

When a person is exposed to around 100 rems, the blood's lymphocyte cell count will be reduced, leaving the victim more susceptible to infection. This is often referred to as mild radiation sickness. Early symptoms of radiation sickness mimic those of flu and may go unnoticed unless a blood count is done. According to data from Hiroshima and Nagasaki, symptoms may persist for up to 10 years and may also have an increased long-term risk for leukemia and lymphoma. For more information, visit Radiation Effects Research Foundation.

Heart

Intense exposure to radioactive material at 1,000 to 5,000 rems would do immediate damage to small blood vessels and probably cause heart failure and death directly.

Gastrointestinal Tract

Keywords: - Health, human and radiation

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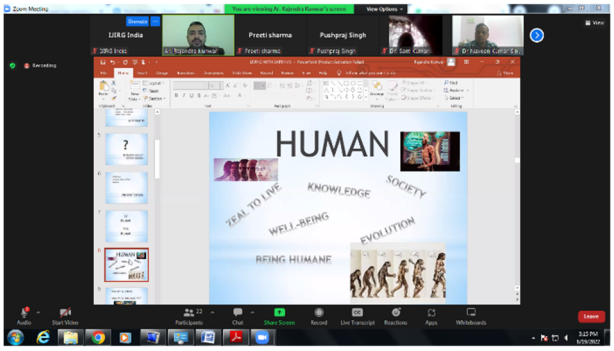

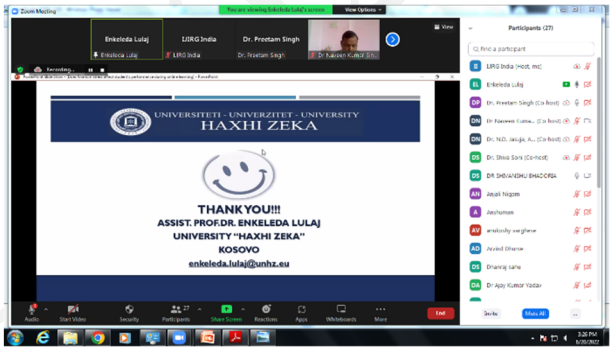

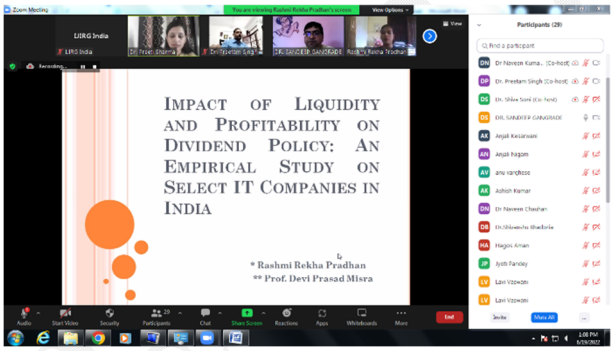

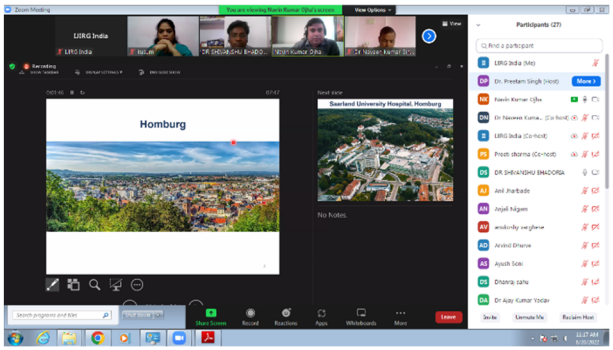

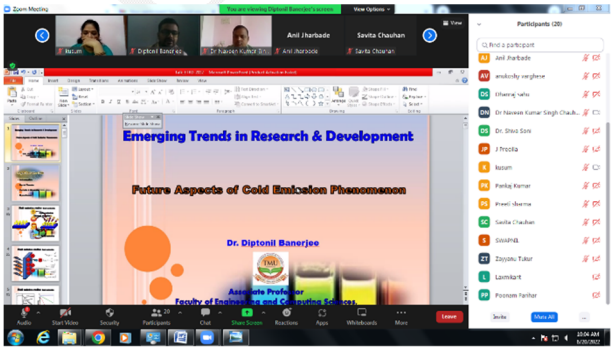

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