[1]

Fractal and Chaos in Picard-Mann Hybrid Orbit

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Fractal and chaos has been studied in Picard, Mann, Ishikawa, Noor and Junck orbits. Picard - Mann hybrid iteration scheme was given by Safeer H. Khan in 2013 showing faster convergence of the sequences than Ishikawa orbit. It is an example of three-step feedback process. In this paper, Picard - Mann hybrid iterations have been introduces in fractals and chaos. As a result, Julia and Mandelbrot sets for the polynomials $z^m + c, (m \geq 2) \subset N$ have been obtained in Picard-Mann hybrid orbit.

The logistic map $f(x) = rx(1 - x)$ is the foundation stone for the theory of nonlinear dynamics and basis of modern chaos theory. Further, Picard - Mann hybrid iteration scheme has been introduced in the study of stability of logistic map.

[2]

Fixed Point Theory of $\alpha-$ Admissible Mappings

Dhananjay Gopal
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In this talk, we discuss on the recent development in the area of fixed point of $\alpha-$admissible mappings. In particular, we present several new fixed point results along with some new open problems in this topic.

[3]

Generalization of New Type of Sequence Space

Rayees Ahmad and Syed Najam u Hassan
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The space $r^p(u, p, s)$ of non-absolute type have recently been introduced and studied (see, M.F. Rahman and A.B.M.R. Krarim, Generalized Riesz sequence space of non-absolute type and some matrix mappings, Pure and Applied math. Journal, 4(3)(2015), 90-95). In the present paper, we introduce the space $r^p(\Delta_u^p(s))$, we show its completeness property, prove that the space $r^p(\Delta_u^p(s))$ and $l(p)$ are linearly isomorphic and compute their Köthe-duals. Furthermore, we construct its basis and in our last section, we have characterized some matrix classes of infinite matrices.

[4]

Algorithm to Normalize the Hamiltonian and Its Application to Discuss the Non-Linear Stability of Equilibrium Point

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A symbolic algorithm for construction of a real symplectic change of variables that reduces the Hamiltonian determining the motion of an autonomous two degree of freedom system in a neighborhood of an equilibrium state to the normal form is discussed. The application of the algorithm to the generalized photo gravitational Chermnykh-like problem under the influence of a disc with power-law density profile, which is rotating about common center of mass of the system, is demonstrated. Moreover, non-linear stability of triangular equilibrium points in non-resonance case is discussed by the use of Arnold-Moser theorem. The expressions obtained for the coefficients of the Hamiltonian normal form agree with that of A. Deprit, derived earlier in case of classical restricted three body problem.

[5]

Some Fixed Point Theorems on $S_{\_}$ Metric Spaces

Aradhana Sharma[a] and G S Said[b]
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In this paper we prove some fixed point theorems on S-metric spaces. Our presented results are proper generalization of Sedghi et al.,we also give an example in support of our theorem.

[6]

Fixed points of contraction mappings in S-metric and S_b-metric spaces

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There are various generalizations of metric space of which S-metric and S_b-metric spaces are recently developed spaces. In this note, we will discuss about various types of contraction mappings. Emphasis will be given about the existence of fixed point of contraction mappings in S-metric and S_b-metric spaces.

[7]

Asymptotic Center, Chebyshev Center and Fixed Point Theorems

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Let X be a Banach space and K be a nonempty subsets of X. A self mapping $T : K \to K$ is said to be nonexpansive if $\| Tx - Ty \| \leq \| x - y \|$ and isometry if $\| Tx - Ty \| = \| x - y \|$ for all $x, y \in K$. In this paper, we analyzed asymptotic center, chebyshev center and proved some fixed point theorems where asymptotic center, chebyshev center are the fixed point of the self map T.

[8]

A Common Coupled Fixed Point Theorem in S_b-Metric Spaces

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1. Department of Mathematics
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In this paper, we prove a common coupled fixed point theorem for mapping satisfying a nonlinear contraction in S_b-metric spaces and some results are also given in the form of corollaries.

[9]

A New Common Coupled Fixed Point Theorem in S_b-Metric Space

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In this paper, we investigate the existence of common coupled fixed point and coupled coincidence points in a setting of two S_b-metric spaces by using a pair of w-compatible mappings.

[10]

A Generalized Fixed Point Theorem of Presić Type in Modular Metric Spaces

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Present paper deals with Presić type fixed point theorem in Moduler metric space for two mappings $f : X_w \to X_w$ and $T : X_k^w \to X_w$ also given one example to support our result.

[11]

Local Convergence of ChebyshevS Method in Banach Space Under Majorant Condition

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TA local convergence analysis for Chebyshevs method for solving nonlinear operator equations in Banach space by using majorizing sequence, is presented in this article. Here we are using new type of majorant condition for proving the convergence. We will also try to obtain two important special cases about the convergence results based on the Kantorovich-type and Smale-type assumption.

[12]

Finite Element Approximations of Parabolic Equations in Nonconvex Polygonal Domains with Measure Data

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We study the spatially semidiscrete finite element approximations of parabolic problems with measure data in a plane nonconvex polygonal domain. We consider two kinds of problems, namely, measure data in time and a measure data in space. Due to the presence of measure data the solutions of these kinds of problems exhibit low regularities which make finite element error analysis difficult. Therefore, an effort has been made in this paper to investigate the convergence properties for the spatially semidiscrete scheme for these problems. The order of convergence in $L^2(0, T; L^2(\Omega))$ norm which is optimal for the convex polygonal domain with smooth boundary is reduces for the case of nonconvex polygonal domain due to the singularity in the solutions near the reentrant corner.

[13]

A Panoramic View of the KKM Theory

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and

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It is well-known that the Brouwer fixed point theorem in 1912, Sperners combinatorial lemma in 1928, and the Knaster-Kuratowski-Mazurkiewicz (KKM) theorem in 1929 are mutually equivalent and have nearly one hundred equivalent formulations and several thousand applications. The KKM theory is the study of applications of the generalizations or equivalent formulations of the KKM theorem. The aim of this talk is to survey on the recent study on the foundations of the theory mainly achieved by the present author. This talk is organized as follows:

1. Introduction
2. Old mathematical trinity
3. Equivalents of the Brouwer FPT
4. Abstract convex spaces
5. Multimap classes in the KKM theory
6. A Metatheorem on KKM spaces
7. Known examples of KKM spaces
8. Some typical theorems.

[14]

New Contraction For Obtaining Fixed Point Theorem In Metric Space

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Metric Fixed Point Theory and Applications coined when Banach has given a very nice analytical prove of a fixed point theorem in a complete metric space. Let T be a self mapping defined on a complete metric space satisfying: $\mathbf{d}(\mathbf{Tx}, \mathbf{Ty}) \leq \alpha \mathbf{d}(\mathbf{x}, \mathbf{y})$ for all x, y $\in X$ and $\alpha \in (0, 1)$. Then T has a unique fixed point. The above inequality has been used in many ways by good number of researchers since 1922. In 60's many generalizations of Banach Fixed Point Theorem can be seen in the literature of Metric Fixed Point Theory and Applications. Some examples can be see such as Rakotch(E. Rakotch, A note on contractive mappings, Proc. AMS 13(1961), 459 - 465.), Kannan(R. Kannan, Some Results of Fixed Points, Bull. Cal. Math. Soc. Proc. 60(1968), 70 - 78.), Ciric (Lj. B. Ciric, A generalization of Banach Contraction Principle, Proc. AMS 45(1974), 267 - 273.), Gregus(M. Greguš, A fixed point theorem in Banach Spaces, Buu. Univ. Math. Ital. 17(A), 193-198,1980.), Rhoades(B. E. Rhoades, Some theorms on weakly contractive maps, Nonlinears Analysis 47 (2001), 2683-2693), etc. In this paper we wish to introduce a new type of contraction which is weaker than (φ, ψ) contraction.

[15]

Remarkable History for Obtaining Fixed and Common Fixed Points

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Fixed Point Theory (or stability point theory) is a very old and most popular branch of studies in functional analysis. There are many mathematicians even before Banach (S. Banach, Surles operations dans les ensembles abstraits et Leur application aux equations integrales,Fund. Math.3 (1922), 133-181.(French)) who obtained some sort of solutions of algebraic equations, differential equations and integral equations, etc. But due to elegant proof given S. Banach and its applications in various fields of mathematical sciences and other fields of sciences. Even such theories are now these days developed with the help of computer programming to ease the human beings for designing various graphs, carpet designing etc. There are a few tools for obtaining common fixed points like commutativity, continuity, completeness of the spaces,etc. So we shall discuss all such results of the history which can be extended by using the above said tools.

[16]

Yet Another Generalization of Sylvesters Theorem

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In this paper, we consider the Sylvesters theorem on the largest prime divisor of a product of consecutive terms of an arithmetic progression. As an extension of this theorem, we prove the existence of an odd term in a given arithmetic progression whose prime divisor is greater than the number of terms of the progression.

[17]

Applications of Fixed Point Theorems and Best Proximity Point Theorems to Generalized Nash Equilibrium Points

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Applications of fixed point theorems to various fields are well known. In this talk we aim to discuss the role of fixed point theorems and best proximity point theorems of multi-valued maps in the study of existence of Nash equilibrium points.

[18]

Fixed Point Theorems And Best Proximity Point Theorems Related to Non-Expansive And Relatively Non-Expansive Mappings and Some Related Open Problems

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A normed linear space X is said to have fixed point property if every non-expansive self map on a non empty closed bounded convex subset has a fixed point. In 1965, Kirk proved that if a reflexive Banach space has normal structure then it has fixed point property . In this talk it is intended to discuss some open problems related to fixed point theorems of non-expansive mappings. In this direction we also plan to discuss some results related to best proximity point theorems.

[19]

Homotopy Perturbation Method with Laplace Transform for Boundary Value Problems

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In this work, we have solved the Homotopy Perturbation Method using Laplace Transform (LT-HPM) for various types of differential equations by using BVPs. Some numerical examples have been solved by using this method. This method based on an embedding parameter and provides the approximate solution without discretization and computing of the Hes polynomials. The results show that LT-HPM is very supportive and simple to implement for solving these types of differential equations.

[20]

Serendipity Fixed Point Using Dual Quasi Contraction

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The concept of Serendipity fixed point was initiated by Powar et al. in (P.L.Powar, G.R.K. Sahu, Serendipity Fixed Point, International Journal of Mathematics and Computer Applications Research ISSN 2249-6955, vol.3, Issu 3, Aug 2013, 65-78). Further, Powar et al. [P.L. Powar, G.R.K. Sahu, Akhilesh Pathak, A Serendipity Fixed Point using dual F-Contraction, IOSR Journal of Mathematics May -June 2015, 63-66.] established the result of existence of Serendipity Fixed Point using dual F- Contraction. Recently, PoomKuman et al. (PoomKuman , Nguyen van Dung, A generalization of Ciric Fixed Point theorems, Filomat 29:7(2015), 1549-1556.) extended the result of Ciric and established uniqueness of Fixed Point. Considering the lighter concept of completeness, in the present paper, authors have established the existence and uniqueness of Serendipity Fixed Point under dual quasi and dual generalized quasi contraction condition.

[21]

Fixed Point Theorems for Kannan Type Mappings in b-Metric Like Spaces

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In the present work, we introduce new class of Kannan type F-contraction to establish certain fixed point results for such mappings in the setting of b-metric like spaces. Some unconventional examples will intricate the results, for the same computer simulation is done. Our examples involve a series of complicated structured functions which can not be treated by classical fixed point methods. We apply our results to establish the existence of solution of some nolinear problems. Recent noteworthy work done in this direction are referred in the following(see D Singh, V Joshi, P Kumam and N Singh, Fixed point results for generalized F-contractive and Roger Hardy type Fcontractive mappings in G-metric spaces, Revista de la Real Academia de Ciencias Exactas, Fsicas y Naturales. Serie A. Matemticas (RACSAM), 111(2), 473-487(2017); D Singh, V Joshi, M Imdad, P Kumam, Fixed point theorems via generalized F-contractions with applications to functional equations occurring in dynamic programming, Journal of fixed point theory and applications (JFPTA), 19(2), 1453-1479; D Singh, M Younis, M Imdad, Generalized (F, ψ)-contraction: Applications and Consequences, Communicated in Nonlinear Analysis: Modelling and Control (NAMC); M Younis, D Singh, D Gopal, A Goyal, Existence of solution of ordinary differential equations of first and second order in partial b-metric spaces, Communicated in Analysis and Mathematical Physics (AMP)).

[22]

On Kannan Fixed Point Theorem

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The celebrated fixed point theorem by Kannan and that due to Chatterjea are remarkable for two reasons: (a) these theorems chatterize metric completeness, and (b) these are the genesis of the question, which remained an open problem for about these decades, on the existence of contractive mappings which are discontinuous at fixed point. Subrahmanayam proved that Kanna's theorem characterizes metric completeness, that is, a metric space is complete if and only if every Kannan mapping on X has a fixed point. He further proved that Chatterjea's theorem also characterizes metric completeness. we discuss some consequences of these theorems.

[23]

Relation - Theoretic Contraction Principle and Some Recent Related Results

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Aligargh Muslim University, Aligargh

In this talk, we mainly discuss yet another new and novel variant of classical Banach contraction principle on a complete metric space endowed with a bnary relation which, under universal relation, reduces to Banach contraction principle. Consequently, we observe that various kinds of binary relations, such as partial order, preorder, transitive relation, tolerance, strict order, symmetric closure, etc., utilized by earlier authors in several well-known metrical fixed point theorems can be weakened to the extend of an arbitrary binary relation. Finally, we shall also visit some very recent results, which are essentially inspired by our earlier ordered-theoreic contractions principle.

[24]

Fixed Points of (α, β, φ) - Contractive Maps and Property(P), and Common Fixed Points of a Pair of Maps in S-Metric Spaces

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In this talk, we discuss S-metric spaces and convergence properties of S-metric spaces. We define the notion of generalized (α, β, φ)-contractive maps in S-metric spaces and prove the existence of fixed points of such maps in complete S-metric spaces. Also, we extend this discussion to (α, β, φ)-generalized weakly contractive maps, and show that these maps have property(P).

Further, we define φ-almost contractive maps in the setting of partially ordered S-metric spaces for a pair of self maps F and g and prove the existence of common fixed points of φ-almost contractive g-monotone maps.

We provide examples in support of the validity of our results. Our results generalize some of the existing results that are available in the literature.

[25]

Coupled Fixed Point Theorems for Nonlinear Contractions in Kaleva-Seikkala's Type Fuzzy Metric Spaces

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In this paper, we discuss the existence of coupled fixed points for a mapping in the sense of Kaleva and Seikkala type fuzzy metric spaces. We consider nonlinear contraction of Boyd-Wong type, Alber-Guerre Delabriee's type and ($\phi - \psi$-type and present several new coupled fixed point theorems for these contractions in complete fuzzy metric spaces respectively.

[26]

C-Class Contraction Condition for Set Valued Mappings

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The main purpose of this paper is to establish a common fixed point for a pair of set-valued mappings using a C-class contraction condition in the view of Gregus type condition. Our theorem extend the result of M. R. Singh, L. S. Singh and P. P. Murthy, Common fixed points of set valued mappings, Int. J. Math. Sci., 25(6)(2001), 411-415.

[27]

New Methodologies in Metric Fixed Point Theory

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In recent times there have been some new approaches in the domain of metric fixed point theory. This has made possible new results to appear. Several concepts which were otherwise necessary to assure the existence of fixed points, could be replaced in favour of newly defined ones. In the present context some aspects of these new methodologies are included.

[28]

Orbital Continuity and Fixed Points of Discontinuous Maps

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In the present paper we prove common fixed point theorems for orbitally continuous self mappings, which is independent of the known continuity definitions. As an application of orbital continuity we prove common fixed point theorems under contractive conditions of semi R-weakly commuting mappings of type (Af) or of type (Ag). We also take up the continuity condition and weaken the condition in as much as the mappings become discontinuous at the common fixed point.

[29]

Common Fixed Point Theorems for Three Self Maps in Cone 2-Metric Space

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In this present paper we establish a fixed and common fixed point theorems in complete 2-metric space for new symmetric rational expression. Our result generalize and unify some well known results.

[30]

On Fixed Points of Multivalued Mappings Without Using Hausdorff Distance in Symmetric Spaces

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The purpose of this paper is to establish some new fixed point results for multivalued mappings satisfying two new contractive conditions without using Hausdorff distance on α-complete symmetric spaces. We also present examples to illustrate the usability of our results. Consequently, we discuss an application of the obtained results to the probabilistic spaces.

[31]

Convergence Theorems for Asymptotically Nonexpansive Nonself Mappings in CAT (0) Spaces

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In this paper, we study an iterative approximation of asymptotically nonexpansive nonself mappings and establish Δ-convergence and strong convergence theorems for asymptotically nonexpansive nonself mappings on a CAT(0) spaces.

[32]

Solving Various Non-linear Problems in Engineering and Science via Fixed Point Theorems

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The main object of this talk is to highlight the ascendancy of fixed point theorems and their applications in various real world problems arising in different branches of science and engineering. In this talk, certain fixed point results are established which are validated by innovative non-trivial examples. Innovative approach of visualizing examples is attempted. This approach gives a new direction especially to applied problems related to geometrical interpretation. The second part of the talk will be devoted to spotlight primarily the applications for existence of the solution of various functional equations occurring in dynamic programming, differential equations, integral equations, stability of a functional equation of the spiral of Theodorus, fractional differential equations, equations arising in oscillation of a spring, equations representing LCR circuits and simple harmonic motion etc. Our emphasis will also be on visualizing exact solution, approximate solution and error function of some non-linear problems. Moreover in the current talk we draw attention towards the outstanding applications of best proximity point, namely the Global Minimization of some real-valued multi-objective functions. Some open problems are also suggested which may be solved using fixed point technique.

[33]

Role of Birkhoff-James Orthogonality in the Geometry of Banach Space

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We talk of Birkhoff-James orthogonality in Banach spaces which generalizes the notion of orthogonality or perpendicularity in Euclidean spaces. The notion of Birkhoff-James orthogonality plays a very important role in the study of geometry of Banach spaces. We plan to talk of applications of Birkhoff-James orthogonality that involves characterizing smoothness of a bounded linear operator.

[34]

Some Fixed Point Theorems for α-rational type Geraghty Contraction Mapping in Metric Spaces

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In this paper, we introduce a notion of α - Geraghty contraction rational type mapping in the setting of complete metric space. And establish some fixed point theorems for such maps and give a suitable example to illustrate our results.

[35]

Some Common Fixed Point Theorems Under a New Contractive Condition

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In this paper, we introduce the new concept of generalized (ψ, φ) - weak quasi contraction condition and establish a some fixed point theorems for a two pairs of occasionally weakly compatible selfmaps satisfying property (E.A).

[36]

Approximation of Fixed Point for Suzukis Generalized Nonexpansive Mappings

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In this paper, In this paper, we deal the problem of approximation of fixed point by the iterative algorithm introduced by Akbar et. al., [A. Abkar, and M. Shekarbaigi, *A novel iterative algorithm applied to totally asymptotically nonexpansive mappings in CAT(0) Spaces*, Mathematics 2017, 5, 14; doi:10.3390/math5010014.] for Suzuki's generalized nonexpansive mappings and establish some weak and strong convergence theorems for same iterative algorithm in a uniformly convex Banach space. We also provide an example to illustrate the convergence behavior of our iterative algorithm and compare with iterative algorithm mainly available in current literature (see e.g. R.P.Agarwal, D.ORegan and D.R.Sahu, *Iterative construction of fixed points of nearly asymptotically nonexpansive mappings*, J.Nonlinear Convex Anal.,8(1), (2007), 6179, and B.S. Thakur, D.Thakur and M. Postolache, *A new iterative scheme for numerical reckoning fixed points of Suzukis generalized nonexpansive mappings*. Appl. Math. Comput., 275, (2016), 147155., Picard iteration).

[37]

Some Extensions of Matkowski'S Contraction Principle

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With a view to generalize the Banach contraction principle, Matkowski [J. Matkowski, Integrable solutions of functional equations, Dissert. Math. (Rozprawy Math.), 127, Warszawa, 1975] prove a fixed point theorem for a system of n maps on the finite product of metric space, which is known as Matkowski's Contraction Principle(MCP). Matkowski fixed point theorem is applicable to find the solution of a system of functional equations, which attracts several mathematicians to work along this direction. In this talk, we will discuss some extensions and development of MCP and some recent results.

[38]

An Empirical Study In Convergence Rate Of Some Iteration Methods

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The problem of finding solution of an operator equation can be recast as seeking fixed points of a suitable operator. Iterative algorithm plays a crucial role in approximation of fixed points. Successive iteration sometimes fails to converge to fixed point. In past 50 years a number of iterative algorithms have been appeared using the idea of averaging the iterates which succeeds where the ordinary iteration fails. In recent years a number of results regarding convergence rate of these iterations have been established. The purpose of the present talk is to discuss some empirical evidence related to convergence rate of these iterations.

[39]

The Existence of Fixed Point Theorems in Complex Valued b-Metric Spaces for Two Self Mappings

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In this paper, we consider complex valued b-metric spaces which are introduced as a generalization of complex valued metric spaces by Raoet. al. Then we prove fixed point theorems in complex valued b-metric spaces. The aim of this paper is to prove common fixed point theorem for two self- mappings in a complete complex valued b-metric spaces.

[40]

Solvability of Functional Differential Equations via Fixed Point Theory

Hemant Kumar Nashine
Texas A and M University-Kingsville, Texas, USA

In this talk, importance of contractive and non-constructive (both) types fixed point results in different space structures in solving of functional (integer/non-integer) differential equations will be discussed. Some new directions will be suggested for future work in the related areas.

[41]

Strong Convergence Theorem for Accretive Non Self Mapping With Application

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In this paper, we include new BP condition which is weaker than completely continuous mapping in Banach space. Let E be a Banach space and $T : E \to E$ be a bounded linear operator, then $u - T_u = f$ has a solution with condition $x_0 \in E$ arbitrary $x_{n+1} = T_{x_0} + (f + T_f + ... + T_f^{n-1})$ with help of simple iteration scheme and proof strong convergence theorem for accretive non self mapping with BP condition.

Our result improve and extend the corresponding results given by various authors.

[42]

Existence of Solution of Nonlinear Functional Integral Equation via Measure of Noncompactness and Petryshyn Fixed Point Theorem

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In this paper, we discuss the existence of solution of nonlinear functional integral equation via measure of noncompactness. The Petryshyn fixed point theorem is main tool for investing the solution of nonlinear functional integral equation.

[43]

Best Proximity Point Results via Simulation Functions

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In this paper, we discuss the existence of the best proximity points of certain mappings via simulation functions in the frame of complete metric-like spaces. Some consequences and examples are given of the obtained results.

[44]

Common Fixed Point Theorems For Weakly Compatible Mappings In Complex Valued b-Metric Spaces

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In this paper, we prove a common fixed point theorem for weakly compatible mappings in complex valued b-metric space and also improve the condition of contraction of the results of M. Kumar et al.[M. Kumar, P. Kumar, S. Kumar, Common fixed point theorems in Complex valued metric spaces, Journal of Analysis and Number Theory, 2(2), 103- 109(2014).]. Further, we prove common fixed point theorems for weakly compatible mappings with (E.A.) property and (CLRg) property.

[45]

Existence of Solutions of Non-linear Fractional Differential Equations With Integral Boundary Value Condition

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This paper deals with the existence of positive solutions of the following fractional differential equation of arbitrary order with fractional integral boundary conditions.

$$\begin{cases} D_0^{\alpha} + \alpha(t) f(t, u(t)) = 0, & 0 < t < 1; \\ u(0) = u'(0) = u''(0) = ...u^{(n-2)}(0) = 0, & \\ u(1) = \lambda l^p u(\eta), & 0 < \eta < 1; \end{cases}$$

where $n-1 < \alpha \leq n$, $D_0^{\alpha}+$ is the standard Riemann-Liouville fractional derivative of order α, I^p is the standard Riemann-Liouville fractional integral of order p.Here, by a positive solution to the given problem, we mean a function $\in C[0,1]$, which is positive on (0,1)and satisfies the given problem.

[46]

On the Existence Results For a System of Nonlinear Fractional Differential Equations

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In this paper, we present a system of m-nonlinear fractional differential equations of arbitrary order of the following form

$$
\begin{aligned}
{}^{c}D^{\,\alpha_1}u_1(t) &= f_1(t, u_2(t)),\\
{}^{c}D^{\,\alpha_2}u_2(t) &= f_2(t, u_3(t)),\\
&\vdots\\
{}^{c}D^{\,\alpha_{m-1}}u_{m-1}(t) &= f_{m-1}(t, u_m(t)),\\
{}^{c}D^{\,\alpha_m}u_m(t) &= f_m(t, u_1(t)),
\end{aligned}
$$

with boundary conditions

$$
\begin{aligned}
u_1(\eta_1) = u_1'(0) = u_1''(0) = \cdots = u_1^{n-2}(0) = 0, l^{p_1}u_1(1) = 0\\
u_2(\eta_2) = u_2'(0) = u_2''(0) = \cdots = u_2^{n-2}(0) = 0, l^{p_2}u_2(1) = 0\\
\vdots\\
u_m(\eta_m) = u_m'(0) = u_m''(0) = \cdots = u_m^{n-2}(0) = 0, l^{p_m}u_m(1) = 0
\end{aligned}
$$

where $t \in [0,1], 0 < \eta_i < 1, -1 < \alpha_i \leq n_i (1 \leq i \leq m), n_i \in \square, n_i \geq 3$ and ${}^{c}D^{\,\alpha_t}$denotes the Caputp fractional derivative of order $\alpha_i (1 \leq i \leq m), I^{p_i}$ is the Riemann-Liouville fractional integral of order $p_i, f_i : [0,1] \times \square \to \square (1 \leq i \leq m)$ are continuous functions and $\eta_i^{n_i-1} \neq \frac{\Gamma(n_i)}{(p_i+n_i-1)(p_i+n_i-2)\ldots(p_i+1)}$. We give new existence and uniqueness results using Banach contraction principle and Scheafer's fixed point theorem. To justify our results, we illustrate some examples.

[47]

Fixed Point Theorem in b-Metric Like Spaces And Application to Periodic Boundary Value Problem

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This article deals on combination of two space structures. This paper is mainly devoted in investigating the existence of a solution of first-order periodic boundary value problem :

$$\begin{cases} x'(t) = f(t, x(t)), \quad t \in I = [o, \tau]; \\ \\ x(0) = x(\tau), \end{cases}$$

where $\tau > 0$ and $f : I \times \mathbf{R} \to \mathbf{R}$is a continuous function, in a space where self-distance is non-zero. To accomplish this goal, we launch a new α-weakly contractive mapping which involve rational terms and then construct up fixed point results for weakly α-admissible mapping. To illustrate our results, we give throughout the paper some counter examples.

[48]

Some Multivalued Fixed Point Theorems via Simulation Functions in Metric Spaces

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In this paper, considering a wider class of simulation functions some fixed point results for multivalued mappings in alpha-complete metric spaces have been presented. The obtained results in this paper extend and generalize some well-known fixed point results of the literature. Some illustrative examples are also given to show the usefulness of the results.

[49]

On the Convergence of Mann type Iteration Process

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Let C be a nonempty subset of a normed space X and $ST : X \to X$ be two mappings such that T and S-nonexpansive. Demiclosedness principle for S-nonexpansive mapping is given and is used to prove weak convergence of iteration process defined as:

$$Sx_{n+1} = (1 - \alpha_n)Sx_n + \alpha_n Tx_n, n \geq 0,$$

where α_n is a sequence of real numbers in $[0, 1]$. The condition on C, X, S, T and iteration parameter are shown which guarantee the strong convergence of iteration process to a common fixed point of S and T. Our results extends the corresponding results of Ishikawa and Senter and Dotson.

[50]

Best Proximity Point Theorems for Generalized Proximal Contraction in Complete Metric Spaces

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The purpose of this paper is to study a generalized proximal contraction and consider its existence to a best proximity point of non-self-mapping defined on a complete metric spaces. Some example is given to support our main results.

[51]

Fixed Point Theorem For Weak Contraction Condition In PM-Menger Space

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In this paper is to establish fixed point theorem for single value map with using weak contraction condition cubic terms in a PM-space. This result is extension as well as generalization of several know results.

[52]

Proximity Points in Metric Spaces for Noncyclic Contractions

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Proximity point problems have been extensively studied in metric spaces. The basis purpose of these problems is to construct algorithoms to find the distance between two subsets of the metric space. Various types of mappings have been used in these problems. Here we consider noncyclic contractions for the purpose of finding proximity pairs. Our approach is by use of fixed point methodologies.

[53]

Convergence, Data Dependence, Stability results for AK-iteration Procedure

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Let $(X, \|.\|)$ be a normed linear space. Let K be a nonempty closed convex subset of X. Let $T : K \to K$ be a contractive like operator with $F(T) \neq \phi$, where $F(T) = \{x \in K : Tx = x\}$. We show that the AK iteration procedure converges strongly to a fixed point of T . Further, we prove the data dependence and T stability of this iteration procedure.

[54]

Existence of Solution of Boundary Value Problem via F-Contraction in Metric-Like Spaces

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In the present article, variants of generalized F- contractions are introduced in the setting of metric-like spaces. Existence of fixed point of such contractive mappings are investigated. Some innovative examples are also presented which authenticate the validity of obtained results. The main purpose to set up the fixed point results is that one of the results is utilized to establish the existence of solution of a boundary value problem which mathematically represents some real world problems. Our results extend and improve several results in the literature.

[55]

Fixed Point Theorem for H^+ - Reich Type Contraction on Metric Space with a Graph

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Let (X, d) be a metric space endowed with a graph G such that the set $V(G)$ of vertices of G coincides with X. We define the notion of G-Reich type maps and obtain a fixed point theorem for such mapping.

[56]

Weak Commutative Mappings Satisfying Weak Contraction Condition Involving Cubic Terms of Metric Function

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In this paper, we prove a common fixed point theorem for a pair of weakly commuting mappings satisfying a generalized ϕ -weak contraction condition that involves cubic terms of $d(x, y)$. At the end, we provide an example in support of our result.

[57]

Common Fixed Point Theorems for Rational Expressions and Weak Commuting Mappings in Complete Cone Metric Spaces

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In this paper, we obtain common fixed point for a pair of self mappings satisfying a non-symmetrical rational expression in the framework of complete cone metric spaces. We have also considered periodic point theorems for a pair of self mappings in complete cone metric spaces. Moreover, we have established common fixed point theorems for four self-mappings using the concepts of weak commutativity property through rational expressions in a complete cone metric space.

[58]

(ψ, ϕ) Berinde Type F-Contraction and Fixed Point Results in Partially Ordered Metric Like Spaces

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In this article, some new generalized (ψ, ϕ) Berinde Type F-Contraction in partially ordered metric-like spaces are introduced, furthermore some fixed point theorems utilizing established notion are proved. Some innovative examples are also presented which substantiate the validity of obtained results. Moreover our result is also utilized to maintain the existence of solution of integral equation.

[59]

Common Fixed Point Theorem for Weakly Compatible Maps in Digital Metric Spaces

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In this paper, we prove a common fixed point theorem for pairs of weakly compatible mappings in digital metric spaces.

[60]

The Iterative Method for H-accretive operator and Related Variational Inequality Problem

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In this paper, we have used a new iterative method given by Thuy, NTT, forthe class of H-Accretive operator in a q-uniformly smooth Banach space. Further, we have used this method to find a solution for the variational inequalities over the set of common fixed points of a family of nonexpansive mappings in Banach Space. Our result improves and generalizes some recent results in the literature.

[61]

Fixed Point Theorems in A Fuzzy Metric Space

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In this paper we proved fixed point theorem in fuzzy metric space using the condition epsilon-chain condition which generalised the several known results of various authors.

[62]

Common Fixed Point Theorem for Self Mappings in G-Metric Spaces Using C-Class Function

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In the present article, we have established a common fixed point theorem for self mappings on a closed subset of complete G-metric spaces, using C-class function and refinement inequality. Some innovative examples are also presented which substantiate the validity of obtained results.Our results extend and improve several results in the literature.

[63]

PPF Dependent Fixed Points and Common Fixed Points of Multi Valued Mappings in Banach Spaces

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In this paper, we prove the existence of PPF dependent fixed point and PPF dependent common fixed point for multi valued mappings satisfying generalized contractive conditions in Banach spaces. Also, we prove the existence of PPF dependent coincidence point for a pair of single valued and multi valued mappings. We draw some corollaries and provide examples in support of our results.

[64]

Metric Space and Common Fixed Point Results for Pair of Hybrid Measurable Mappings

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Let (X, d) be a complete metric space, $CB(X)$ the family all nonempty closed and bounded subsets of X and (Ω, Σ) be a measurable space and $T : \Omega \times X \to (CB(X))$ and $f : \Omega \times X \to X$ be a pair of hybrid measurable mappings, such that $T(\omega, .)$ and $f(\omega, .)$ are continuous for all $\omega \in \Omega, T(\omega, x)$ and $f(., x)$ are measurable for all $x \in X$. They satisfy the following condition

$H(T(\omega, x), T(\omega, y)) \leq a_1(\omega)d(f(\omega, x), f(\omega, y)), d(f(\omega, x), \omega, x)$
$+ a_2 max\{d(f(\omega, x), T(\omega, x)d(f(\omega, y), T(\omega, y), d(f(\omega, y), T(\omega, x))\}$
$+ a_3\{d(f(\omega, x), T(\omega, x)) + d(f(\omega, y), T(\omega, y)) + d(f(\omega, y), T(\omega, x))\}$

For every $x, y \in X$ where $a_1(\omega), a_2(\omega), a_3(\omega) : \Omega \to X$ are satisfy $a_2(\omega) > 0, a_3(\omega) > 0$ and $a_1(\omega) + a_2(\omega) + 2a_3(\omega) = 1$. If $T(\omega, \xi(\omega)) \subseteq f(\omega \times X) = X$ for each $\in \Omega$, then there is a measurable mapping $\xi : \Omega \to X$ such that $f(\omega, \xi(\omega)) \in T(\omega, \xi(\omega))$ for all $\omega \in \Omega$, T and f have a Random coincidence point.

[65]

Fixed Point Result for T-Ciric Generalized Contraction with c-distance in Cone Metric Spaces

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The purpose of this paper is to consider the notion of T-?iri? type generalized contraction under the concept of c-distance and establish the existence and uniqueness of fixed point for T-contraction type mappings in the framework of cone metric spaces as a generalization of metric space. The presented theorem generalizes and extends some well known results in the literature.

[66]

A Common Fixed Point Theorem in Fuzzy Metric Spaces Using the CLRg Property

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The purpose of this paper is to consider the notion of common limit range property i.e. CLR(g) property given by Sintunavarat and Kuman (2011) and establish the existence and uniqueness of fixed point for a pair of weakly compatible self - maps in fuzzy metric spaces . In this theorem also continuity of any mapping, completeness of the whole space or range space of any mapping are not necessary .We also cited illustrative examples in support of our result . The presented theorem generalizes and extends the several known results existing in the literature.

[67]

Some Recent Progress in Hybrid Dynamical Systems

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This paper originates from the investigation of nonlinear functional-integral equation with Erde ?lyi-Kober fractional operator. Existence results of solutions in Banach algebra are obtained under some relevant results of fixed point theorems such as Darbo's theorem concerning the mentioned goal in Banach algebra. Finally, some examples to illustrate the usefulness of our results.

[68]

Dirac Operators On $TM \bigoplus T^*M$

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Let M be a Riemannian manifold. Dirac operators on M are operators defined as $D = \sum e_i \nabla_{e_i}$ where (e_i) are local othonormal frames on tangent bundle TM and ∇_{e_i} are connections compatible with Clifford module structure. We shall attempt to construct a Dirac operator on $TM \bigoplus T^*M$ which is the direct sum of tangent and cotangent bundles.

[69]

A Common Coupled Fixed Point Theorem Using E.A.Like Property in Supernova Spaces

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In this paper, we introduce a new space, named Supernova Space and provide an example. We prove a common coupled fixed point theorem for four self maps satisfying the E.A.Like property and w - compatible in this space. We also obtain some corollaries from this result.

[70]

Quadruple Fixed Point Result in Partially Ordered G-metric Space Satisfying Mixed g-Monotone Property

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In the present paper an attempt has been made to prove a common quadruple fixed point result for mappings satisfying generalized contractive condition with mixed g-monotone property in a partially ordered G-metric space. An example has been provided to validate the result.

[71]

Approximation of Functions Belonging to $W(L^p(\xi(t))$ Class by $(C,1)$ (N,p_n) Product Summability Method of its Fourier Seties and Conjugate

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In this paper two new theorems established on the degree of approximation of function belonging to $W(L^p(\xi(t))$ class by using $(C,1)$ (N,p_n) Product Summability Method of its Fourier series and Conjugate series.

[72]

Complexity of real life problem solved by Dynamic programming Technique

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Dynamic programming is employed in conjunction with complex real life problems. This is an approach to optimization, based on the principle of taking a single, complex problem and breaking into sequence of simpler and more easily solvable sub problems. This article we approach to propose how to handle the Complexity problems and get the optimal solution. Here we represent the technique of dynamic programming to solve the knapsack problem and shortest path problem.

[73]

Coincidence Point Theorem in Menger PM-Space

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2. Department of Pure and Applied Mathematics,
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In this paper, coincidence point theorems for compatible mapping of multi-valued and single-valued mapping in Menger PM-spaces are obtained. Our results extended and improve certain result of Pathak, Cho, Chang and Kang's paper.

[74]

Proximal Point Algorithm in CAT(0) Spaces

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In 1970, Martinet (Inform. Rech. Oper. 4 (1970), 154-158 introduced the well known Proximal Point Algorithm, popularly known as PPA which serves as an important tool to solve the minimization problem. Later on, in 1976, Rockafellar (SIAM J. Control Optim. 14 (1976), 877-898) studied PPA to prove the convergence of a solution of the convex minimization problem in the framework of Hilbert space. In 2013, Bac ak (Israel. J. Math. 194 (2013), 689-701) introduced the proximal point algorithm in CAT(0) space. Note that the method has been modified so that it converges strongly by Cholamjiak (Optim. Lett. 9 (2015), 1401-1410) using the Halpern procedure. In this paper, we study proximal point algorithms for solving optimization problems in CAT(0) space via Thakur Iteration scheme.

[75]

Necessary and Sufficient Conditions for The Existence of Common Fixed Points Under Occasionally Weakly Compatible Condition

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In this paper is to prove some necessary and sufficient conditions for the existence of common fixed points in complete metric spaces.

[76]

Fractal Image Compression: An Implementation of Contractive Mapping Fixed Point

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Fractal Image compression is a relatively recent technique based on the representation of an image by a Contractive Transform on the space of images, converges to a fixed point close to the original image. In the present communication, an attempt has been made to present the concept of Fractal Image Compression with the use of IFS.

[77]

A Common Fixed Point Result in Dislocated Quasi Metric Spaces

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In this paper, a common fixed point theorem of a pair of self-maps is proved by omitting continuity condition in dislocated quasi metric spaces. It extends and generalizes the result of Sarma et al. [Theorem 5 in Sarma I. R., Rao J. M. and Rao S. S., Fixed Point Theorems in Dislocated Quasi-Metric Spaces, Math. Sci. Lett., Vol. 3, No. 1, 2014, pp. 49-52] to two self-maps by applying a more generalized contraction. It further unifies Aage et al. [Theorem 3.3 in Aage C. T. and Salunke J. N., The Results on Fixed Points in Dislocated and Dislocated Quasi Metric Space, Applied Mathematical Sciences, Vol. 2, No. 59, 2008, pp. 2941-2948] and some well-known fixed point results in the literature.

[78]

Cryptography from Vedas to Modern Times

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Cryptography was already used in ancient times in India. We have many references about Cryptography in ancient India especially in sacred Vedas (3102 B.C. to 1200 B.C.) and Arthashastra (300 B.C.). We also found the use of Cryptography in holy Bible and Quran Sharif. There are many references in the history of world also, where the Cryptography was used like Sumerians Cuneiform writings Early Cryptography 3500 BC, Egypt First known use of Cryptography 1900 BC, ATBASH Cipher Used by Hebrew scribes Substitution cipher (reversed alphabet) 500 -600 BC and A Scytale (486 BC: Greece), an early device for encryption. Rangoli and Godana of Indian culture are the two different styles to represent emotions by cryptography in Medieval and Modern India.

The cryptographic community has recently become aware of Aryabha?a because his algorithm to solve congruences can be used in place of the Chinese Remainder Theorem in certain situations. His code has had applications in securing passwords and personal identification numbers. We will discuss in detail about historical Development of Cryptography from Vedas which is very useful in development of modern Mathematics, Economics and Social Sciences.

[79]

A Provable Secure Mutual Authentication And Key Agreement Protocol Using Bilinear Pairing

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Now a days, Internet based application are rapidly gaining popularity such as wireless internet services, e-commerce, online banking etc. Due to the open architecture of the Internet, security design for Internet based application is not trivial. Mutual authentication and key agreement protocols can essentially provide the desire security in open/insecure network. The paper present a secure identity (ID)-based two party mutual authentication and key agreement protocol using bilinear pairing. The proposed protocol is the modification of Smart's protocol. Further, we will demonstrate the protocol is secure under all the known attacks and also present its computation efficiency.

[80]

Cryptanalysis on Zhang et al. Scheme

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Recently, Zhang et al. proposed a Chameleon hashing-based cloud computing scheme using bilinear pairing in random oracle model. They claimed that their scheme is secure against all known attack, but we demonstrate scheme is not secure an adversary can mount the public key attack in their scheme.

[81]

Cryptography from Classical to Modern

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The term cryptography is derived from two greed words Kryptos (secret) + Graphein (writing). Formally we define cryptography as an art and science of secret writing. In addition to secrecy, integrity, authenticity and nonrepudiation are some other desire goals of cryptography. Integrity means the message is not altered by any unauthorized person, authenticity means the receiver of the message can verify the identity of the sender and nonrepudiation means the sender cannot deny after sending any message. We can achieve these security goals using some cryptographic techniques. Here we are considering only one goal of cryptography, which is security. Security can be achieved by an encryption technique, called a cryptosystem.

[82]

An Improvement of ECC with Hill Cipher Generation for Secure Text Crypto System

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In the present paper we have proposed a new crypto-system is based on Elliptic Curve Cryptography(ECC) in the line of Hill Cipher. Our crypto-system is far better than Hill Cipher system because we use Hill Cipher with ECC and generate a data sequence for encryption and decryption purpose.Since the receiver only receives a sequence of bits and a encrypted matrix, so it is default to break the secrecy of our crypto-system.

[83]

A Gentle Introduction to Quantum and Post-Quantum Cryptography

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Cryptography is essential for the security of online communication, cars and implanted medical devices. According to Rivest, cryptography is about communication in the presence of an adversary. Quantum cryptography or quantum key distribution (QKD) applies fundamental laws of quantum physics to guarantee secure communication. It enables two legitimate users, commonly named Alice and Bob, to produce a shared secret random bit string, which can be used as a key in encrypting message and generating authentication code. Unlike conventional cryptography, whose security often relies on unproven computational assumptions, QKD promises unconditional security based on the fundamental laws of quantum mechanics.

Many commonly used cryptosystems will be completely broken once large quantum computers exist. Post-quantum cryptography (quantum safe cryptography or quantum resistant cryptography) is cryptography under the assumption that the attacker has a large quantum computer; post-quantum cryptosystems strive to remain secure even in that scenario. This relatively young research area has seen some successes in identifying mathematical operations for which quantum algorithms offer little advantage in speed, and then building cryptographic systems around those. The central challenge in post-quantum cryptography is to meet demands for cryptographic usability and flexibility without sacrificing confidence. Presently, a world level crypto competition on post quantum cryptography is going on.

In this lecture, first I will introduce quantum and post-quantum cryptography followed by role of mathematics in designing post quantum crypto algorithms.

[84]

Computation Efficient Group Key Transfer Protocol based on Secret Sharing Scheme

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Recently many Group Key transfer(GKT) protocols based on Shamir's secret sharing scheme are proposed. In traditional, GKT protocols, first all the group members shall register themselves into a key generation center(KGC) and also at

the time of registration they have to share there long term secret password with KGC.

Then KGC randomly selects a group key and securely distribute it to all the authorized group members. In this paper, we propose a novel and efficient new group key transfer protocol based on secret sharing scheme. In our scheme information related to group keys is hidden by using a matrix embedded on extended Bergman's endomorphism ring END($Z_p \times Z_{p^2}$). The security analysis of our proposed protocol provide the key freshness, key authentication and key confidentiality. Also the most important security feature in group communications such as forward and backward secrecy are handel in our protocol. At last, in terms of computation and communication, we give, a comparison of our protocol with some recent protocols are included in this paper.

[85]

Modelling of Neuronal Activations Dead Zones a New Paradigm

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The problems that confront the scientist community in the present day world are highly complex and interdisciplinary. It is important to note that tools and techniques developed in one context may be applied for a variety of problems in different situations. For example techniques developed for classical problems in physical sciences have been found extremely useful in the study of biological, behavioural, and life sciences. This naturally necessitates interdependence among the scientists belonging to various traditional disciplines and thereby promotes interdisciplinary research. When genuine interdisciplinary work does materialize, it can be highly fascinating and extremely rewarding. In this talk, I propose to discuss the activational dynamics of neuronal systems that would pave way for the development of more sophisticated and robust intelligent machines. We discuss new ideas related to the creation of zones of no activation, which would render deeper understanding of the more realistic phenomena associated with these systems.

[86]

An Analysis of Automatic Evaluation of Text Coherence

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This paper considers the problem of automatic evaluation of text coherence. The task of text coherence in linguistics is what makes a text semantically meaningful. It is one of the most challenging as well as commercially attractive problems in Natural Language Processing (NLP) community.Aim of proposed model is to decide which text is more coherent among given text. This problem has been addressed from many different perspectives.We have discussed few of these novel approaches for automatic evaluation of text coherence through this paper. In particular there exist model of the noun phrase syntax with statistical distribution of the discourse structure and relations. Researchers have considered the text coherency problem as ranking learning problem rather than a classification problem. This paper provides a survey of previous work on automatic evaluation of text coherence and proposed that combining few independent semantic features to determine the coherency of text may lead to improvement in accuracy of the text coherence system based on these study. We may apply PDTB discourse relations and coreference model over the entity grid, a popular model of local coherence. Our study of related works believes that this proposed model achieves higher accuracy than current state-of-the-art model for text coherency.This paper reviews the different approaches to handle automatic evaluation of text coherence and its applications such as text summarization. The paper reviews journals and conference proceedings to evaluate the progress, challenges faced and to identify the future research work in this area.

[87]

On a Class of Finsler Metrics with Special Curvature Properties

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In the present talk we will discuss a class of Finsler metrics, called spherically symmetric Finsler metric with special curvature properties. The classification of polynomial metric with isotropic E-curvature will be discussed. Finally we will discuss a condition under which a polynomial metric reduces to Randers metric.

[88]

On Metric Structures Associated with Finsler Metrics

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We study the spatially semidiscrete finite element approximations of parabolic problems with measure data in a plane nonconvex polygonal domain. We consider two kinds of problems, namely, measure data in time and a measure data in space. Due to the presence of measure data the solutions of these kinds of problems exhibit low regularities which make finite element error analysis difficult. Therefore, an effort has been made in this paper to investigate the convergence properties for the spatially semidiscrete scheme for these problems. The order of convergence in $L^2(0,T;L^2(\Omega))$ norm which is optimal for the convex polygonal domain with smooth boundary is reduces for the case of nonconvex polygonal domain due to the singularity in the solutions near the reentrant corner.

[89]

On Bochner Ricci Semi-Symmetric Hermitian Manifold

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The aim of the present paper is to study a Bochner Ricci semi-symmetric quasi-Einstein Hermitian manifold (QEH)n, a Bochner Ricci semi-symmetric generalised quasi-Einstein Hermitian manifold G(QEH)n and a Bochner Ricci semi-symmetric pseudo generalised quasi-Einstein Hermitian manifold P(GQEH)n.

[90]

Weighted Quasi-Metrics Associated with Finsler Metrics

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The current paper deals with some new classes of Finsler metrics with reversible geodesics. We find weighted quasi-metrics associated with these metrics. Also, we investigate some important geometric properties of weighted quasi-metric space.

[91]

Constructions of Some Projectively And Dually at Finsler Metrics

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In this paper, we consider Randers change of some special (α, β) - metrics. First we find the fundamental metric tensor and Cartan tensor of these Randers changed (α, β) - metrics. Next, we establish a general formula for inverse of fundamental metric tensors of these metrics. Finally, we find the necessary and sufficient conditions under which the Randers change of these (α, β) - metrics are projectively and locally dually flat.

[92]

Projective Relation Between Two (α, β)-Metrics Characterised By β-Change of Riemannian Metric

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Guru Ghasidas Vishwavidyalaya, Bilaspur

In this paper, we study the projective relation between exponential metric and Kropina metric. And derive necessary and sufficient condition for locally projectively flatness of exponential metric respective to Kropinametric .

[93]

A Geometrical Study of Wang-Chen System in View of KCC Theory

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The present paper discuss the stability of Wang-Chen system from the approach of KCC theory. we show that the system is Jacobi unstable for any value of parameter where as it is linear stable for some chosen parameter. We also show the dynamics of deviation vector near the equilibrium point.

[94]

Holomorphic Functions on Manifolds

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The purpose of this article is to discuss some interesting aspects of the holomorphic functions on manifolds. This paper also serves as a quick introduction to some basics of the holomorphic functions.

[95]

Hyper-Surface Of A Semi-Almost Hermitian Manifold

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In this paper, we have induced a connection on a hyper-surface of a semi-almostHermitian manifold equipped with quarter-symmetric non-metric connection and proved that induced connection is a quarter-symmetric nonmetricconnection. Further, we have obtained Weingarten equation, equationof Gauss curvature and the Codazzi-Mainardi equation of the hyper surface ofa semi-almost Hermitian manifold equipped with quarter-symmetric non-metricconnection.

[96]

On Semi C-Reducibility of General (α, β) Finsler Metrics

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In this paper, we have studied general (α, β) Finsler metrics and proved that every general (α, β)-metric is always semi C-reducible but never be $C2$-like. As a consequence of this result we have proved that every general $(\alpha, \beta))$-metric satisfying Ricci flow equation is Einstein.

[97]

The Class of Kasami Negabent Boolean Functions

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Negabent function belongs to the class of Boolean functions whose spectral values have equal magnitude with respect to nega-hadamard transform. Negabent functions acquired a lot of attention because of its application in the field of coding theory and cryptography. In this paper, we examine the negabent functions in the class of kasami Boolean functions.

[98]

On Lie Nilpotent Modular Group Algebras

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Let K be a field of characteristics $p > 0$ and let KG be the group algebra of an arbitrary group G over K. It is known that if KG is Lie nilpotent, then its lower as well as upper Lie nilpotent index is t least $p+1$. The group algebras KG for which these indices are $p+1$ or $2p$ or $3p-1$ or $4p-1$ have already been determined. In this paper, we classify the group algebras KG for which the upper Lie nilpotency index is $5p-1, 6p-1$ and $7p-1$.

[99]

La-Noetherian in a Generalized La-Ring

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The present study introduces the notion of an LA-Noetherian in an LA-ring and a generalized LA-ring. Moreover, it extends the notion of ideal in an nLA-ring and LA-module over LA-ring and its substructure to LA-Noetherian.

[100]

Generalization of Pure-Supplimented Modules

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Let R be an associative ring with identity and M be unital non zero right R-module. M is called H-supplemented module if given any submodule A of M there exist a direct summand submodule D of M such that $M = A + X$ iff $M = D + X$ where X is a submodule of M. In this paper we will give a generalization for H-supplemented which is called pure-supplemented module. An R-module M is called pure-supplemented module if given any submodule A of M there exists a pure submodule P of M such that $M = A + X$ iff $M = P + X$. Equivalently, for every submodule A of M there exist a pure submodule P of M such that $\frac{A+P}{P} \ll \frac{M}{P}$ and $\frac{A+P}{A} \ll \frac{M}{A}$.

[101]

Generalization of Semi Perfect Rings and CS-Modules

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Any right R-module M is called a CS-module if every submodule of M is essential in a direct summand of M. A ring is said to be CS-ring if R as right R-module is CS[9].In this paper we study semiperfect ring in which each simple right R-module is essential in a direct summand of R. We call such ring as a extending for simple R-module. Here we find that for such rings, every simple R-module is weakly-injective if and only R is weakly -injective if and only if R is self-injective if and only if R is weakly-semisimple. Examples are constructed for which simple R-module is essential in a direct summand.

[102]

A Study on Properties of Iso-Retractable Modules

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We call an R-module M iso-retractable if, for every nonzero submodule N of M, M is isomorphic to N. In the present discussion, we investigate iso-retractable modules and study properties of it over some rings. Also, we provide characterizations of them. Mathematics Subject Classification:

[103]

On The Images of Power Maps in Groups of Lie Type

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There has been a classical problem to understand when the exponential map associated with a Lie group is surjective. Inspired by this, in recent decades studies have been undertaken as to when the power maps, mapping g to its nth power for integers n greater than 2, are surjective. The results are also extended to other groups analogous to Lie groups, modeled over, and including matrix groups over, other fields. In this talk I shall present an overview of the area aimed at a broader audience (in particular familiarity with Lie groups will not be required).

[104]

On Iso-Artinian Rings

Surya Prakash and A. K. Chaturvedi
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A ring R is iso-artinian if for every descending chain $I_1 \geq I_2 \geq \ldots$ of ideals of R, there exists an index n such that $I_n \cong I_j$, for all $j \geq n$. In this paper, we investigate some properties of iso-artinian rings. We discus structure of semiprime iso-artinian rings.

[105]

Historical development of mathematics in India

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In this talk I shall present an overview of the historical development of mathematics starting from the Indus valley civilization and the vedic period until the onset of modern mathematics in the 19th century. Highlights of geometry from the sulvasutras and ancient Jaina sources, the mathematical developments in arithmetic, geometry and algebra associated with the Siddhanta tradition with the work of Aryabhata, Brahmagupta and Bhaskaracharya, the Patiganita of Sridhara and Mahavira, the Bakhshali manuscript, mathematics of the Kerala school will be indicated.

[106]

Rough Intuitionistic Q - Fuzzy Sets And Rough Intuitionistic Q - Fuzzy R - Subgroups of Near-Rings

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In this paper, we introduce the notion of rough intuitionistic Q-fuzzy sets and investigate some related properties. We also give the definition of rough intuitionistic Q-fuzzy R-subgroups of a near-ring.

[107]

Rough Intuitionistic Fuzzy N-Ary Subgroupoids and Subquasigroups

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In this paper, we introduce the notion of rough intuitionistic fuzzy n-ary subgroupoids and n-ary ideals of n- ary groupoids. We also give the idea of rough intuitionistic fuzzy n-ary subquasigroups of n-ary quasigroups.

[108]

Rough Intuitionistic Fuzzy Sets and Rough Intuitionistic Fuzzy Subgroups

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In this paper, we introduce the notion of rough intuitionistic fuzzy sets and rough intuitionistic fuzzy subgroups for a group. The aim of this paper is to combine the concepts of rough sets and intuitionistic fuzzy sets, and introduce the concept of rough intuitionistic fuzzy subgroups.

[109]

Soft Intuitionistc Fuzzy Sets and Soft Intuitionistic Fuzzy Subgroups

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Soft set theory introduced by Molodtsov is a new mathematical tool for dealing with uncertainity and is free from certain difficulties which one faces while using existing methods. In this paper, we introduce the notion of soft intuitionistic fuzzy sets and soft intuitionistc fuzzy subgroup for a soft set over an initial universe. The aim of this paper is to combine the concepts of soft sets and intuitionistic fuzzy sets.

[110]

Fuzzy Pre Compactness in Sostak Fuzzy Topological Space

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In the present paper, we introduce the concept of fuzzy pre compactness in Sostak fuzzy topological space. Further we investigate their significant characteristic properties.

[111]

(P, L)-Fuzzy Rough Approximation Operators Based on Tied Adjointness Algebra

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Nehad N. Morsi, W. Lotfallah and M.S. El-Zekey in 2006 introduced tied adjointness algebra and presented the concept of (L, P) valued rough sets based on tied adjointness algebra determined by L-valued fuzzy sets and P-valued T-partition, where L and P are two independently chosen complete lattices and T is a t-norm.

In this paper, we propose a new constructive approach to introduce one as well as two pairs of (P, L) - fuzzy rough approximation operators based on tied adjointness algebra determined by P-fuzzy approximation space and L- valued fuzzy sets, where P-fuzzy approximation space is defined on arbitrary P-fuzzy relation on a non-empty universe. Here using new constructive approach, basic properties and links of one pair and two pairs of (P, L)-fuzzy rough approximation operators are studied in detail. Moreover, the relationship between one pair of (P, L) - fuzzy rough approximation operators and L-topologies on an arbitrary universe is also discussed.

[112]

Operations on Fuzzy Number-Valued Fuzzy Graphs

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Graph theory has an important role in the area of applications of networks and clustering. In the case of dealing with uncertain data, we must utilize ambiguous data such as fuzzy value, fuzzy interval value or values of fuzzy number. In this study, values of fuzzy number were used. Initially, we utilized the fuzzy number value fuzzy relation and then fuzzy number-value fuzzy graph on nodes and arcs. In this study, some operations of the fuzzy graph on fuzzy number-value fuzzy graph were examined. The Ring Sum, union and join operations on fuzzy number-value fuzzy graphs were defined with examples.

[113]

Characterization of Willmott Intitionistic Fuzzy Implications Based on Mathematical Connectives

Priyanka Singh, Amitabh Banerjee
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Intuitionistic fuzzy implication is a generalization of fuzzy implication which is used to impliment "IF-THEN" rules. The cncept of intuitionistic fuzzy implication (—F— for short) was first introduced by Krassimir Atanassoy in 1983, he presented the concept of types of certainty and uncertainty (vagueness for short) which is called inttionistic fuzzy set. Riecan Beloslav, Krassimir Atanassov and Magdalena Rencova proposed some intuitionistic fuzzy operations on Lukaslewicz and Zadeh's intitionistix fuzzy implication in this paper we characterize a new fuzzy implications such as Willmott intuitionistic fuzzy implication using some mathematical connectives such a Negation ($\rightharpoonup$), Conjunction($\wedge$, Disjunction($\vee$), implication ($\rightarrow$), Subtraction(-).

[114]

Complex Dynamics Induced by Anti-Predator Behaviour of Prey: A Mathematical Study

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In this paper, we propose a three species model for antipredator behaviour of prey. The model system describes the relation between one prey and two predators where prey species are equipped with defensive ability. Boundedness, local and global stability of model system is analysed. In numerical simulations, phase portraits, time evaluation and bifurcation diagrams show the complex behavior of model system.

[115]

Mathematics in Vedas: Historical and Astrological Perspective

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The Vedas which are the sacred Hindu scriptures embody eternal knowledge. Astrology is a scientific study and application of the language of the heavenly bodies. These heavenly bodies, determined on the basis of astronomy and mathematics are mapped in the form of a horoscope. Their specific locations in the horoscope indicate specific happening in the case of individuals, of multitudes and of geographical regions. Whether the sun, the moon, the planets and the stars themselves influence the terrestrial phenomena, or they only indicate such phenomena by their various dispositions is immaterial. What is important to us is what variations in their disposition determine variations in the event on the earth; there are three main subdivisions of Astrology. Samhita, Siddhanta or Ganit (Mathematics) and Hora.Siddhanta or Ganita deal with the mathematical aspect of astrology. These are several treatises on Siddahantaastrology but five among them are considered as particular important. They are Surya siddhanta, PaulishaSidddhanta, RamkaSiddhanta, VaishthaSiddhanta and paitamahasiddhanta.

In the present paper the author has presented the mathematical part of Astrology and its effect on human being

[116]

Conformal Multi Dirac Structures

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Dirac structure was introduced by Courant and Weinstein as a maximal isotropic subspace of $TM \bigoplus T^*M$. Conformal Dirac structure was studied by A. Wade on $TM \bigoplus R \bigoplus T^*M \bigotimes R$ in 2000. Vankerschaver, Yoshimura and Marsden introduced multi Courant bracket and worked on multi Dirac structure on $\bigwedge(TM) \bigoplus(T^*M)$ In the present work extended multi Courant bracket has been introduced and its associated conformal multi Dirac structure has been studied on the space $\bigwedge(TM \bigotimes R) \bigoplus(T^*M \bigotimes R)$.

[117]

Ensemble of Data Mining Classofiers on Cancer Dataset

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Ensemble model plays an important role in classification. In ensemble model the outcomes of two or more classifiers are integrated to develop an ensemble model to improve the classification accuracy of a system. In this paper an attempt ha been made to improve the classification accuracy of the system using data mining classifiers decision tree(DT) and Support Vector Machine (SVM) on Cancer data. The dataset used for implementation of ensemble model is taken from UCI machine

learning dataset. The classification accuracy of the ensemble model is measured using statistical measures like accuracy, specificity and sensitivity. From experimental result it was found that the ensemble model exhibits w3ell as compared to the individual models for classification of cancer dataset.

[118]

Square Root Algorithm Using Vedic Mathematic

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In digital signal processing, a square root operation based on basic arithmetic is generally used. But there is too much complexity for its implementation on FPGA. In this paper a square root algorithm using Vedic mathematics is being presented. This presented algorithm contains only adders, subtractions and registers which results to consume very less area, high operating frequency and less power. 24 bit floating point and 16 floating point are used for the operation in which 24 bits as an input and 16 bits as an output will be used. . The proposed square root algorithm, its hardware description, and its FPGA implementation using Xilinx tool will be discussed in this paper. The major merit of proposed algorithm is that it can be also implemented on decimal numbers.

[119]

Neural Network Technique in Stock Market Prediction

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Prediction in any field is a complicated, challenging and daunting process. Employing traditional methods may not ensure the reliability of the prediction. Prediction of stock market returns is an important issue in finance.

Neural Network is being used for the prediction of stock index values as well as daily direction of change in index. In the present paper we have described how Neural Network is useful for the prediction of stock market trend.

[120]

Use of MLR, PLSR and PCR Analysisin The Development of Quantitative Structure Activity Relationship: A Case Study on Isatin Derivatives as Human Intestinal Carboxylesterase Inhibitors

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Faculty of Pharmaceutical Sciences
ShriShankaracharyaGroup of Institutions, Bhilai

Multiple linear regression (MLR), partial least squares regression (PLSR) and principal component regression (PCR) analysis methods were used in developing quantitative structure activity relationship between Isatin derivatives for their Carboxylesterase inhibitory activity. The dataset composed of 49 compounds (Isatin derivatives) were used in the present study. For creation of training and test set molecules, various data selection methods i.e., random selection, sphere exclusion and biological activity sorted in ascending manner (manual) were used in order to validate the QSAR models (internal and external validation). QSARPro software of VlifeSciences was used in the present study. Total 13 significant models (error term is less for r2, q2 and pred_r2) produced by MLR, 12 models by PLSR and 5 models by PCR regression statistical methods. This gives an idea that MLR and PLS statistical methods produced maximum numbers of significant QSAR model for the selected data set. In the random data selection trials, maximum number of significant models (8) was generated for 65 percentage trail.

The best model generated (Random 65 percentage) using partial least squares regression analysis explains 94.50 percentage (r2= 0.9450) of the total variance in the training set as well as it has internal (q2) and external(pred_r2) predicative ability of 91.45 and 75.693 percentage respectively. The F-test = 111.64 shows the stastical significance of 99.99 percentage of the model is in 10,000. In addition randomization test shows confidence of 99.9percentage that the generated model is not random and hence it can be selected as the QSAR model.The developed PLS model reveals that the descriptors slogp plays an important role ($\approx$ percentage) in determining CE inhibitory activity.The other important factor governing variation in activity is SsCH3E-index (17 percentage) The other descriptor i.e. T_2_C_6 is inversely proportional to activity (-14 percentage).

[**121**]

Drag on a Porous Sphere Embedded in Micropolar Fluid With Non-Zero Spin Boundary Condition

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This paper examines an analytical study of creeping flow of an incompressible micropolar fluid past a porous sphere with non homogeneous boundary condition for microrotation vector. The Brinkman equations and Stokes equations are used for the flow inside and outside the porous sphere respectively in their stream function formulations. The drag experienced by porous sphere is evaluated and its variation with respect to material parameter is studied. Results are validated with past known cases.

[**122**]

Application of Mathematics In Economics : A Study With Different Perspective

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When one studies economics for the first time, one will probably never come across any equation or calculation other than the simple mathematics. There are so much to read around basic concept and understanding the various aspect of market, economy, business and simple understanding of price, demand and supply and costs etc. But as we indulge further into this subject, we realize that there is more to it than just a theory an talk. Beside what better way of explaining the concept of prices, Quantity of goods sold and the costs without refereing any numerical examples? As students wants further education in economics, it rather helps to know your maths as well. There are basically two purpose of applying mathematics in economics. The first is, this make us comfortable talking about the economics by using shorthand of economics and the second is in economics there are certain mathematical tools which are needed to understand economic arguments as well. Mathematics helps and allow the economists to form the meaningful and reliable propositions about the wide range of difficult subjects which could less easily expressed. The purpose of this research paper is to provide A brief knowledge of mathematics which is commonly applied in the field of economics. The major focus of the study is the application of mathematics which plays a vital role in various fields of economics as well as in the research process.

[**123**]

Modern Cosmological Concepts In Ancient Indian Sanskrit Literature

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The modern concept of space - Time and Theory of Cyclic model , Nebular hypothesis , Protoplanet hypothesis, Cosmogony , Cosmic elements, Matter and Energy etc. also exist in Ancient Indian Sanskrit literature. We examine exclusively about the modern cosmological ideas ,which were found in Rigveda and other Vedas, Shatapatha Brhmana, Aitereya Brhmana,Vednga Jyotisha , Yoga-Vashistha, Vyu Purna etc. In this paper we have proved that the modern cosmological model also existed in ancient India . Notation: In this paper we have adopted notation normally used in computer literature which is quite handy and less space -consuming. E.g., symbol for multiplication will be$*$.

[**124**]

A Study on Application of Mathematical Science in Forensic Investigations

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This paper is a study on application of mathematical science in forensic investigations and throw light that how much we are dependent on mathematics in different branch of forensic science. Applications of mathematics in forensic science can most clearly be seen in the fields of forensic biology and pathology, DNA sequences use power series as a powerful tool to compare DNA from crime scenes, forensic anthropology, Blood Pattern Analysis, Crime Scene Sketches,Engineering, Entomology, Fingerprints, Fire and Explosives, Firearms, footprint, odontology, question document, taphonomy, toxicology, Trace - Ratios and Proportions, vehicle accident analysis. Calculus is needed to estimate the time of death. This paper will reveal how vast is the application of mathematical science in forensic science and criminal investigations . It is back bone of forensic opinion . This study will also give a idea in which branch forensic science what types of mathematical science is applied.

[125]

Study of Associated Conjugate Series of a Fourier Series

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In this paper we prove a theorem on absolute generalized cesro summability with index k, k being real of the conjugate series of Fouries series. Our result generalizes result of Bosanquet, L. S. and Hyslop, J. M., Mohanty, R. and Ray, B. K., Jena, S. C. and Abid, M. D.

[126]

Study on Methodology System of Sports Statistics Data In Excel

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In the practical activities of physical education and sports, we often collect numerous data, how to fully exploit more valuable information that are hidden among the large numbers of data, we will need to choose reasonable method of data processing that will be provided the basis for scientific judgment and analysis. Method: Based on the introducing of the sports statistics processing need statistics, parameters and its classification, analyzes the type of sports statistical data and processing requirements, The authors analysis sports statistics data types and processing requirements from statistical properties and mathematical statistics group needed. Result: The authors describe Excel methodology for sports statistical processing from the four aspects of data analysis: NO.I. "The function method", I. "The chart function equations to obtain statistics and functions", III. "Pivot tables and perspective", and IV. "Analysis Tool Pak". Conclusion: Although Excel has not been grouped into statistical software, as long as we take the actual practise into consideration, fully tap the power of Excel statistical functions, improve methodology system of sports statistics data in Excel, enhance data exchange with other statistical software to realize resource sharing, further study and research Excel software development, we can achieve maximum results with little.

[**127**]

On Existence of Williamson Skew-Type Symmetric Matrices

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In this paper we consider a particular type of partition of Zn, called skew H-partitions and H-partitions and obtain a necessary and sufficient condition for existence of a set of one skew-type symmetric circulant and three symmetric back-circulant matrices for a Skew-type Hadamard matrix of order 4n in terms of such partitions when $n(=3)$ odd.

[**128**]

Einstein Generalized Kropina Conformal Change of M-th Root Metrics

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In this paper, we consider generalized Kropina conformal change of m-th root metric and prove that if it is an Einstein metric, then it is Ricci flat. Moreover, if generalized Kropina conformal change of m-th root metric is weak Einstein metric, then it is also Ricci flat. If generalized Kropina conformal change of m-th root metric is of scalar flag curvature $K(x, y)$ and isotropic S-curvature, then $K = 0$.

[**129**]

Solution of Goldbach's Conjecture Theorem

Dhanush Prasad Bhardwaj

In this paper we establish for Goldbach's Conjuecture theorem on 7th June 1742, the Prussian Mathematician Christian Goldbach wrote a letter to Leanhard Euler."Every even linteger greater than 2 can be written as the sum of two prime's $p+q = 2n$ wherever p, q prime number and $2n$ an even number. My answer definitely to support and complete to the prime number.

[130]

Assessment of Stock Length for One Dimensional Cutting Stock Problem With Sustainable Trim Loss

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The cutting stock problem is to cut orders of a certain number of small pieces by cutting available large pieces in stock in such a way that trim loss is minimized. The study was carried on for designing Transmission tower where various small pieces of angle iron are required. In this paper a method is proposed that can predict the stock length with respect to the order length for One Dimensional Cutting Stock Problem (1D-CSP). This method can be used to select the suitable stock length that is easily transportable. Considering t percent overall sustainable trim loss, at each stage of determining the stock length U_j, we compute the sustainable trim corresponding to that particular stock length U_j. It has been observed that the variable t plays a key role in deciding the number of various stock lengths of different measures and to control the total trim loss.

[131]

A Study on Mathematics in Finance and Economics

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The use of mathematics in the service of social and economic analysis dates back to 17 th century. The mathematization of Economics began in earnest in the 19 th century. From the later 1930s an array of new mathematical tools from the differential calculus and differential equation, convex sets, and graph theory in a way similar to new mathematical methods earlier applied to Physics. Vilfredo Pareto analyzed micro Economics by treating decisions by economic actions as attempts to change a given allotment of goods to another, more preferred allotment. The main articles-foundation of economic analysis and differential calculus used in Pareto efficiency

and Walrasian auction. Linear algebra, Linear Programming and Perron- frobenius theorems are used in restricted models of general equilibrium. W. Leontief built his model of input- output analysis from the material-balance tables constructed by soviet economist.

Mathematical optimization refers to the selection of a best element from some set of available alternatives. Linear programming was developed to aid the allocation of resources in firms and in industries during the 1930s in Russia and during the 1940s in the United State. J.O. Neumann, working with O. Morgenstern on the theory of games, broke new mathematical ground in 1944s by extending functional analytic methods related to convex sets and topological fixed point theory to economic analysis .

Mathematicians are critical thinkers who analyze, assess situation, and find solutions to problems. Direct applications of mathematics may be seen in many aspects of modern life. Knowledge of Mathematics open gateways to many different professions such as commerce, economics, finance, management, physics or chemistry.

[132]

A Modified Weighted Method of Time Series Forecasting Using Type 2 Fuzzy

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In this paper, we proposed a method for type 2 fuzzy time series forecasting which is an extension of type 1 fuzzy time series model to enhance the accuracy in forecasted outputs. The proposed method uses frequency distribution approach to define the appropriate length of intervals. High and low observations are used to define type 2 fuzzy time series and different fuzzy logical relationship groups (FLRGs) have been obtained for both high and low observations. Further, weight function are defined with the help of FLRGs to compute forecasted outputs by a simple arithmetic operations rather than complicated union and intersection operator of type 2 fuzzy sets. The proposed method has been implemented for forecasting the University enrollments historical data sets. It is shown that the proposed method as higher accuracy rates in terms of mean absolute percent error (MAPE) and root mean square error (RMSE) as compared to the other fuzzy time series methods in literature.

[133]

Double Diffusive Free Convective MHD - Chemically Reacting Flow Past a Low -Heat -Resistance Sheet with Soret And Dufour Effects

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In this manuscript an attempt has been taken to understand the variation in velocity , temperature and concentration for double diffusive MHD chemically reacting free convective fluid flow past a low heat resistance sheet after inclusion of soret and dufor parameter. The boundary layer flow in viscous media is presented in terms of physical model which is transformed in the set of Coupled Ordinary differential equation using similarity transformation. The set of differential equation solved numerically using spectral collocation method. The main emphasis is given on the Varity of physical parameters while change in soret and dufor parameter. The velocity , temperature and stream function is plotted w.r.t to different physical parameter w.r.t the soret and dufor parameters. The internal heating is neglected in this work since it has no meaning when the solutal is dominated over heat effect. A detailed study is made in this work for physical parameter to understand the physical changes while inclusion soret and duffor parameter.

[134]

Mathematics in Economics - An Application of Basic techniques of Calculus in Economic Problems

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Basically economics is the theoretical subject and social science (arts). Later it was renamed as science subject in both arts and science. The major development of the second part of 20th century is a field economics. The development of mathematical economics is not revolutionary step. Way back Sir William Petty (1623-1687) is believed to be the first attempt made by him in this field, he used the terms of symbols in his studies, that it was not popular and didn't came into light, after 1890's Alfred Marshall in his "Principal of Economics" and Irving fisher his Ph.D Thesis "Mathematical investigations in the theory of value and prices" showed a great developmental change in economic theory. After attempts such an interest begun in this field and many of them attempted to use mathematics in economic analysis. Introduction: Calculus is the most common type of mathematical

application in economics. Calculus includes the use of various formulas to measure limits, functions and derivatives etc. Many economists use differential calculus when measuring economic information. Differential calculus is the specific measuring of a derivative that relates to a specific function. In basic terms a function usually represents a straight line known as a tangent. This represents a functions normal operation. Objectives: 1. to study the application of mathematics in economics. 2. To describe the use of calculus mathematical technique in the economic analysis. Methodology: The study is based on secondary data. The author refers the research reports, Text books, articles, Journals and Websites. The use of mathematical techniques and tools in economic theoretical concepts are explained through illustrations. Conclusion: Mathematics must be used to obtain answers to economic problems. In economics, we deal with relationship between variables which can be measured. These relationships can be put in various functional forms. Use calculus to find the sales tax that will maximise tax yield.

[135]

The Science Of Statistics: Its Application in Sports Performance Analytics

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While the prevalence of performance analysts in sport is increasing, there is a lack of tools to analyses performance data. Game Changer is founded on statistical analysis tools for sports-performance statistics and offers user-friendly and quick performance analysis Indeed, there is even a specialty just for people who specialize in statistics about baseball: Saber metrics. Statistics is used to rate players, decide on who gets cut from the team, and decide who plays on which days and against which teams and with which teammates. It's used in salary arbitration. They are analysed for performance of both the individual and the team. Variations are developed to combat oppents tendencies. PR uses them to determine what games and players draw the most attendance. It has become an obsession with some and it is highly over used in my opinion. The word 'statistics' can be considered either as a collection of numbers or as an active science.In the case of the collection of numbers, 'stats' (i.e. data) are now ubiquitously, inexpensively and quickly collected in every walk of life: in health, in business, in sports. In terms of the active science, statistics (or data analytics, as it is becoming more popularly known) encapsulates collecting, modeling, visualizing and drawing inference from data, while accounting for uncertainty.

[136]

On Harmonic Analogous of Analytic Univalent Functions

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Harmonic univalent mappings have attracted the serious attention of complex analysts only recently after the appearance of a basic paper by Clunie and Sheil-Small in 1984. These researchers laid the foundation for the study of harmonic univalent mappings over the unit disk as a generalization of analytic univalent functions. Interestingly, almost at the same time, the famous Bieberbach conjecture which was posed in 1916 by L. Bieberbach and was settled by Louiz de-Branges in 1985. Harmonic univalent mappings are very close to the conformal mappings. But, unlikely to conformal mappings, harmonic univalent mappings are not at all determined with their image domains. Although analogues of the classical growth and distortion theorems, covering theorems, and coefficient estimates are known for suitably normalized subclasses of harmonic univalent mappings, still many fundamental questions and conjectures remain unresolved in this area. There is a great expectation that the "harmonic Koebe function" will play the extremal role in many of these problems, much like the role played by the Koebe function in the classical theory of analytic univalent functions. In the present review talk we will discuss some of the above geometric properties of harmonic univalent functions. An attempt shall be given to construct various harmonic maps by using shearing techniques.

[137]

A New Method of Forecasting Based on Moving Average Fuzzy Time Series

Surendra Singh Gautam, Abhishekh, S.R. Singh

Conventional fuzzy time series model is one of the most popular time series forecasting models. In this paper, we develop a novel forecasting method based on moving average time series data. The main objective of this applying moving average approach in develop method is providing a better results to enhance the accuracy in forecasted output by reducing the fluctuation in time series data sets. Further, the develop method is to define the universe of discourse of equal length of intervals which is based on average-length method. Triangular fuzzy sets are defined and obtain the membership grades of each moving average historical datum rather than actual datum of historical fuzzy time series data. Here the process of fuzzification is based on moving average historical data to their maximum membership

grades obtained into corresponding triangular fuzzy sets. The general suitability of developed model has been examined by implementing in the forecast of student enrollments at the University of Alabama. Further, it has also been implemented in the forecast the market price of State Bank of India (SBI) share at Bombay Stock Exchange (BSE), India. The develop method of moving average fuzzy time series provides an improved forecasted output with lesser mean square error (MSE) and average forecasting errors (AFE) which shows that our developed method is more superior than other existing models available in literature based on fuzzy time series data.

[**138**]

Construction of Hadamard Matrix

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In this article, we have extended the Paley constructions for Hadamard matrices and obtained some series of Hadamard matrices which are non-isomorphic to the matrices obtained by standard Paley constructions or combination of Paley construction and Sylvester construction. In fact we have used the conference matrix in some different manner which is applicable for any odd prime.

[**139**]

Some Sequences of Quaternary Complex Hadamard Matrices With Full Spectrum

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In this paper we have given a construction of quaternary complex Hadamard matrices called Sylvester quaternary complex Hadamard matrix and obtained some sequences of non-isomorphic quaternary complex Hadamard matrices of order $2^k, k \geq n_0 \in \mathbf{N}$ having both full row and column sign spectrum, which consequences the unlike result of uniqueness of sequence of full sign (row and column) spectrum for binary Hadamard matrix.

[140]

Biorthogonal Wavelets in Sobolev Space Over Local Fields of Positive Characteristic

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A general construction of biorthogonal wavelets with respect to the Sobolev Space over local fields $H^s(K)$ is given. Some results are discussed. An example of biorthogonal wavelets is presented.

[141]

The Necessay Condition and Sufficient Conditions for Wavelet Frames in Sobolev Space Over Local Fields

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In this paper we construct wavelet frame on Sobolev space. A necessary condition and sufficient conditions for wavelet frames in Sobolev space are given.

[142]

A Characterization of Orthonormal Wavelet Families in Sobolev Space Over Local Fields of Positive Characteristic

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In this paper, a chracterization of orthonormal wavelet families in Sobolev space over local fields $H^s(K)$ is established.

[143]

Improvement of Wireless Sensor Network'S Performance Byintelligent Reninforcement Learning Algorithm (Irla)

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Presently, wireless sensor network attracted more researchers to work on certain critical areas like human machine interaction, volcano monitoring, underwater sensor network, precision agriculture and many more. Wireless sensor network has also certain limitation like energy consumption, packet delivery ratio, delay, latency and throughput. Reinforcement learning is the key techniqu eof unsupervised learning in which learning comes by experience later on converted to well define policy. That policy keepsstate, reward and action plan used to store in Q-table. Some have developed intelligent reinforcement learning algorithm (IRLA)to improve the performance of wireless sensor network through learning agent. Finally we have compared our IRLA algorithm with existing algorithm like RLLO and RL-CRC algorithm to better prove our research study.

[144]

Motion of A Permeable Shell in A Spherical Container Filled With Non-Newtonian Fluid

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This paper presents an analytical study of the creeping motion of a permeable sphere in a spherical container which is filled by micropolar fluid. Drag experienced by the permeable sphere is studied at the instant when it passes through the center of spherical container. The stream function solution for the flow fields are obtained in terms of modified Bessel functions. The pressure fields, microrotation components, drag experienced by a permeable sphere, wall correction factors, flow rate through the permeable surface are obtained for cases (i) frictionless impermeable spherical container (ii) zero shear stress at impermeable spherical container. Variation of drag force and wall correction factor with respect to different fluid parameters are studied. It is observed that drag force, wall correction factor and rate of flow are greater for frictionless impermeable spherical container as compared to zero shear stress at impermeable spherical container. Several cases of interest are deduced from present analysis.

[145]

Drag Experienced by a Composite Sphere in an Incompressible Micropolar Fluid

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This paper concerns an analytical study of an incompressible micropolar fluid past a permeable sphere that contains a solid sphere. The mathematical expression for the flow fields are obtained in terms of stream function by using modified Bessels function and Gegenbauer function. The appropriate boundary conditions on the surface of the sphere are used. It is assumed that the fluid obeys Darcy law at the permeable surface. The internal and external drag force exerted by the fluid on the sphere, flow rate and the relevant quantities such as pressures, microrotation vectors have been calculated. It is observed that drag is maximum for impermeable sphere than the permeable sphere. As permeability parameter increases the flow rate also increases rapidly. Various useful results are obtained and the results are compared with the previous particular cases.

[146]

On Different Approaches for Integrals of Physical Dynamical Systems

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For driven time dependent harmonic oscillator a detailed and systematic study of several methods for the building of Integrals is carried out. The central feature of the present discussion is the establishment of Integrals for the dynamical system. In spite of their different procedural details all the approaches lead to the same invariant for the given classical system. Advantage and limitations of different methods are briefly highlighted.

[147]

Analysis of Security Attacks Based Upon Residual Energy

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Presently, wireless sensor network localization algorithms attracted various researchers towards research study and experiments. Now a days various researchers are determining the location of nodes by Wireless Sensor Network localization algorithms, which have been proved as a boon to the research study. Wireless Sensor Networks are widely used in data gathering and data transmission with the help of wireless networks. The location of nodes can be determined by various localization algorithms. These wireless sensor network localization algorithms are vulnerable and can be compromised for their security. There are various network security attacks like Wormhole, Impersonation, Compromise and Duplicate attacks which degrade the performance of WSNs. In this research paper we have tested Wireless Sensor Network localization algorithms by mobility of sensor nodes and node density as performance matrices, to find out the compromised WSN nodes residual energy. The simulation result shows the vulnerability to network security attacks.

[148]

Dark Energy And Dark Matter

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A brief review on understanding of Dark Energy and Dark Matter has been taken up. Issues pertaining to Dark Matter including observational evidences for its existence are discussed. More emphasis is given on Dynamical Dark Energy models with time dependent equation of state. This includes Quintessence, Chaplygin Gas, Phatom Dark Energy models and Brane world models. The fate of the Universe in these models will be discussed.

[149]

On A Family of Perfect Fluid Balls of Class One in General Relativity

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All the solutions of conformal perfect fluid are known, but non-conformal perfect fluid solutions are yet to be exhausted. In this paper, we have considered a spherical symmetric metric in 5D flat form and derived invariant solutions of non-conformal accelerating perfect fluid solutions to Einstein field equations by using similarity transformations method. And some new solutions have positive and monotonically decreasing pressure and density (p and $c^2\rho$) with increasing radius r . Moreover $p \geq c^2\rho$. The solutions are free from physical and geometrical singularities i.e. finite and positive values of central pressure, central density and non-zero positive values of g_{11} and g_{44} and have the positive and monotonically decreasing expression for fluid parameter $\xi = fracpc^2\rho$ with increasing radius r.

[150]

Some Developments on the Dynamics of Transcendental Entire Functions

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Dynamics of transcendental entire function deals with the study of properties associated with iteration (under composition) of transcendental entire function. We shall give a brief introduction to this dynamics of transcendental entire function and later give some recent developments on this field especially on the emerging topic viz. escaping sets of transcendental entire functions.

[151]

Replenishment Policy for EMQ Model with Imperfect Production

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In this paper we have developed an EMQ model With rework. In a real life and in multiple shipment a production system may not perfect and produced some imperfect item. We start the rework at the end of production cycle with a constant rate also we have consider a multiple shipment for fixed interval and quantity at end of rework. We have developed a continuous production system depending on time and optimize total production cost along with delivery cost and numerical example presented to illustrate this model.

[152]

One Dimensional Cutting Stock Problem

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In the present talk, our discussion would be focused on Transmission Tower Manufacturing Industry. We shall be discussing cutting plan covering cost minimization, space constraint, manpower management and trim loss. Applying the concepts of summability methods, sustainable trims have been defined and on the basis of the sustainable trims, the total trim loss has been computed. We shall be discussing all these techniques in details. In our further discussion, we would elaborate that for the given data set, the prediction of total trim loss can be obtained in advance with the help of spline approximation.

[153]

A Non-Newtonian Power Law Model for Two Phase Cerebral Blood Flow in Human Artery During Bacterial Meningitis

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In this paper we discuss the Power law model during bacterial meningitis. Clinical evaluation of data collected in a hospital is also presented graphically. This study aims at providing the considerable role of red blood cells in two phase blood flow. The role of hematocrit is explicit in bacterial meningitis. The solution technique adopted is analytical as well as numerical. The clinical data based on empirical ground is analyzed with the help of mathematical interpretation.

[154]

Soft Computing Techniques BasedImage Classification Using Support Vector Machine Performance

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In this paper we compare different kernel had been developed for support vector machine based time series classification.Despite the better presentation of Support Vector Machine (SVM) on many concrete classification problems, the algorithm is not directly applicable to multi-dimensional routes having different measurements.Training support vector machines (SVM) with indefinite kernels has just fascinated consideration in the machine learning public. This is moderately due to the fact that many similarity functions that arise in practice are not symmetric positive semidefinite. In this paper, by spreading the Gaussian RBFkernel by Gaussian elastic metric kernel.Gaussian elastic metric kernel is extended version of Gaussian RBF. The extended version divided in two ways- time wrap distance and its real penalty.Experimental results on 17 datasets, time series data sets show that,in terms of classification accuracy, SVM with Gaussian elastic metric kernel is muchsuperior to other kernels, and the ultramodern similarity measuremethods.In this paper we used the indefinite resemblance function or distance directly without any conversion, and, hence, it always treats both training and test examples consistently. Finally, it achieves the highest accuracy of Gaussian elastic metric kernel among all methods that train SVM with kernelsi.e. positive semi-definite (PSD) and Non-PSD, with a statistically significant evidence while also retaining sparsity of the support vector set.

[155]

The Associated Results of Fourier-Weierstrass Transforms

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An expression is obtained for the Fourier -Weierstrass transforms (FW transform) of the function in terms of their existence. It is can be extended to hold for FW transform for several functions.

[156]

MHD Flow And Heat Transfer of A Viscous Fluid Past A Vertical Plate With Heat Source

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The aim of this paper is to study the effects of heat source on heat transfer through a viscous incompressible electrically conducting fluid past an infinite vertical porous plate when the plate is subjected to a time dependent suction velocity normal to the plate in the presence of a uniform transverse magnetic field and heat source. The effect of different pertinent parameters on the flow field are discussed with help of graphs.

[157]

Comparative Analysis of Adaboost with other Face Detection Algorithms

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Image Processing is involved with three basic processes. Image capturing , Image detection and Object recognition. A digital image can be processed and various objects can be detected by applying various algorithms. These algorithms are categorized by two ways. Image based methods which uses classifiers which are trained on the basis of large amount of sample data sets available in database. Another approach is Geometrical based method which uses geometrical structure of parts of face like eyes, ear, forehead. Adaboosting is a mixed approach which uses both method.in contrast to haar features used by adaboost, intensity and luminosity values are also important aspect in it. This paper is a comparative analysis of previous methods and Adaboost method. Various methods and their outcomes will be contained inside the paper

[158]

Statistical Techniques and its applications

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Statistics is the science which deals with methods of collecting, classifying, presenting, comparing and interpreting numerical data collected to throw light on any sphere of enquiry. In the ancient time statistics was regarded as the science of statecraft and was used to collect information relating to population, wealth, crimes, military strength etc. by the government officials for the purpose of administration or political arrangements. It is difficult to imagine any face of our life untouched by numerical data. The modern society is essentially data based Statistics is viewed not as a mare device for collecting data but as means of developing sound techniques for their handling and analysis and drawing valid inferences from them. It is therefore essential to know how to extract useful information from such data. This is primary objective of statistics. It is now finding wide applications in almost all sciences, social as well as physical. In the present paper the authors have described various applications of statistics in different areas.

[159]

Mathematical Modeling of Neural Network

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Mathematical modeling is the process of using various mathematical structures-graphs, equations, diagrams, scatterplots, tree diagrams, and so forth to represent real world situations. Neural networks are simplified models of the biological nervous system and therefore have drawn their motivation from the kind of computing performed by a human brain. The basis of using Neural Network as Mathematical Models is "mapping". Mapping Network in essence deals with the approximation of a mathematical function. More specifically, a mapping network implements a bounded mapping or function from a bounded set of n dimensions to another bounded set of m dimensions. Suppose we use a neural network to approximate a function f. Let FNN denote the function directly encoding the network operation. The network is trained so that FNN approximate f i.e. FNN $\approx$ f. In the present paper we have extended the notion of General Mathematical Modeling to Neural Network as Mathematical Model.

[160]

A study of Dengue Disease Model with Vaccination Strategy

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In this paper, we proposed and analyzed the effects of vaccination strategy on the transmission of the Dengue diseases. We propose SIR model with logistic recruitment rate, and analyzed the Steady state and stability of the equilibrium points. If $R_0^* < 1$ then the non- infected steady state P_1^* will be stable. Also if $R_0^* > 1$ then the endemic equilibrium P_2^* is stable. Numerical simulations show that the effect of newborn vaccination is significantly less effective than vaccinating susceptible population. Also the effect of vaccination is to replace multiple outbreaks with a single outbreak.

[161]

Application of Mathematics in Economics

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Mathematics has been around since the beginning of time and it most probably began by counting. Mathematics expresses itself everywhere in almost every facet of life in nature all around us and in the technologies in our hands. Traditionally, application of mathematics has been restricted to the physical sciences and the theories in the social sciences had been neglected, but in these days we notice that mathematical economics is flying high. Economics is a social science. It just describes what goes into the economy. It attempts to explain how the economy operates and to make predictions about what may happen to specified economic variables if certain changes take place. And here, mathematics is fundamental to any serious application of economics to these areas. The purpose of this paper is to study how different mathematical techniques are applied in economics. This paper reveals the nature, importance and application of mathematics in economics.

[162]

Performance Evaluation of Radial Basis Function Neural Network for Evaporation Estimation in Chhattisgarh Plains Agroclimatic Zone

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Evaporation plays an important role in developing sustainable water resource management strategies to utilize the available water resources for agricultural and domestic purposes. Attempts are being made during the recent decade to model the non-linear relationship associated with evaporation and other climatic factors using different soft techniques for evaporation estimation. In this paper, performance of radial basis function neural network (RBFNN) is examined for evaporation estimation in Chhattisgarh Plains agro climatic zone. RBFNN models were developed with input combinations of meteorological parameters as input features. RBFNN model with temperature, humidity, wind speed, sunshine hours and vapor pressure as input features, provides better estimation of evaporation with superior RMSE values of 0.37 and 0.37 with monthly dataset, 0.45 and 0.55 with weekly data set and 0.92 and 0.99 with daily dataset during training and testing phase of simulation studies respectively. RBFNN models with less no. of input features produces inferior RMSE values. Other performance evaluation criteria such as efficiency factor (EF), agreement index (d) and coefficient of determination (R2) between observed and estimated evaporation also exhibits the similar results. Simulation studies suggest that the evaporation can be successfully estimated using these RBFNN models.

[163]

An Infinite Series of Generalized Negacirculant Weighing Matrices Of Weight 3

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In this paper we have constructed an infinite series of Generalized Negacirculant Weighing matrices of order 2^{n+1} and weight 3, from Sylvester's Hadamard matrices of order 2^n for all positive integer ≥ 2.

[164]

Triaxial Model with Varying Axial Ratios for the Intrinsic Shape Determination of Elliptical Galaxies

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We know that elliptical's are triaxial in nature. A triaxial mass model can be constructed in the following way. One considers a spherical model with density ρ as a function of scalar $r : \rho = \rho(r^2)$ and replaces r^2 by m^2, where m^2 is the ellipsoidal radius given by $M^2 = x^2 + \frac{y^2}{p^2} + \frac{z^2}{q^2}$, where (x, y, z) are the Cartesian co-ordinate and (p, q) are the axial ratio having condition $1 > p > q > 0$. It was demonstrated by Madejsky and Mollenhoff (1990) that models with equal density coaxial ellipsoidal shells with radially varying axial ratios can generate a variety of ellipticity and position angle profiles. A ellipsoidal mass model with varying axial ratio at small and at large radii was described in Chakraborty (2004).

We modify the triaxial model in Chakraborty (2004) which is triaxial generalization of deZeeuw and Carollo, (1996). We produce a triaxial model referred to as $\alpha - \beta$ model and ensembles of models are produced to make our shapes model independent. We use Bayesian statistics, and obtain the variation in the shape, following the methodology described in Statler (1994a) and Chakraborty (2008) and Singh (2011) by photometry.

[165]

On T-Strong Convergence of Numerical Sequence and Fourier Series

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The theory of summability arises from the process of summation of series and the significance of the concept of summability has been strikingly demonstrated in various contexts e. g. in Analytic Continuation, Quantum Mechanics, Probability Theory, Fourier Analysis, Approximation Theory and Fixed Point Theory. The

methods of almost summability and statistical summability have become an active area of research in recent years. This short monograph is the first one to deal exclusively with the study of some summability methods and their interesting applications. We consider here some special regular matrix methods as well as non-matrix methods of summability. Broadly speaking, signals are treated as functions of one variable and images are represented by functions of two variables. Positive approximation processes play an important role in Approximation Theory and appear in a very natural way dealing with approximation of continuous functions, especially one, which requires further qualitative properties such as monotonicity, convexity and shape preservation and so on. Analysis of signals or time functions is of great importance, because it conveys information or attributes of some phenomenon. The engineers and scientists use properties of Fourier approximation for designing digital filters. In this talk, we discuss the basic tools of approximation theory and determine the error (degree) in approximation of a signal (function) by different types of positive linear operators in various Function spaces like as in Lp-spaces. During this talk, few applications of approximations of signals will also be highlighted.

[166]

A Note On Retro Bessel Sequences in Banach Spaces

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In this paper, we define and study retro Bessel sequences in Banach spaces. Some characterizations of retro Bessel sequences have been demonstrated with the help of examples. Some results regarding construction of retro Bessel sequences and retro Banach frames have been given. Finally, we obtain an existence result for retro bi-Banach frames.

[167]

On Generalized Robertson-Walker Spacetimes

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generalized Robertson-Walker (GRW) spacetime is the generalization of the classical Robertson-Walker spacetime. In the present talk we show that a Ricci simple manifold with vanishing divergence of the conformal curvature tensor admits a proper concircular vector field and it is necessarily a GRW spacetime. Further

we show that a stiff matter perfect fluid spacetime or a massless scalar field with time-like gradient are GRW spacetimes. Also we prove that a perfect fluid space time of dimension $n \geq 4$, with (1) irrotational velocity vector field and (2) null divergence of the Weyl tensor, is GRW space time with an Einstein fiber. Conversely, a GRW spacetime with null divergence of the Weyl tensor is a perfect fluid spacetime. Finally, we show that n-dimensional perfect fluid spacetimes with divergence free conformal curvature tensor and covariently constant scalar curvature are GRW spacetimes; as a consequence a perfect fluid Yang pure space is a GRW spacetime.

[168]

A New Class of Contra-Continuous in Ideal Topological Spaces

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Authors introduced and studied the notion of weakly θ_I-preopen sets in ideal topological spaces. In this paper, we apply this notion of weakly θ_I-preopen set to introduce and study a new class of functions called contra weakly θ_I-precontinuous functions in ideal topo- logical spaces. Some characterizations and several basic properties of this class of functions are obtained. Further, we introduce the notions of contra θ_I-precontinuous, contra $\theta_I - \alpha$ continuous, contra-θ_I-semicontinuous and contra - $\theta_I - \beta$ continuous functions in ideal topological spaces and also establish relationships among these new classes of functions.

[169]

Convexificators on Vector Valued Optimization Problems Under Generalized Invexity Assumptions

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In this paper, we consider a vector valued optimization problems with inequality and set constraints as a primal problem and formulate Wolfe and Mond-Weir type duals in terms of convexificators. We establish weak, strong, converse, restricted converse and strict converse duality results under the assumptions of invexity and strict invexity using convexificators between the primal and the Wolfe dual. We also derive the respective results between the primal and the Mond-Weir dual under the assumptions of generalized pseudoinvexity, strict pseudoinvexity and quasiinvexity in terms of convexificators.

[170]

Energy consumption reduction in Mobile System : A Step towards Green Computing

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In case of mobile communication system Mobile System (MS) plays a big role. If we decrease Consumption of power in mobile system then overall energy is saved and which supports Green Communication network. This paper explains how we can reduce power consumption in MS.

[171]

Error Bounds Of Deficient Quartic Spline Interpolation

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In this paper we have to investigate spline method for Deficient Quartic Spline Interpolation to obtain error bounds

[172]

Degree of Approximation of continuous Function in the Holder Metric by $(C1)F(a,q)$ Means of its Fourier Series

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Chandra [8] was first to extend the result of Prossdorf's [5] . In 1983 ,Mohapatra and Chandra [9] result to find the degree of approximation in the Holder metric using matrix transform . Later on Das, Ghosh and Ray [10] obtained a number of interesting result on the degree of approximation of function by their Fourier series in the generalizedH?lder Metric .in 2001,Lal and singh ,yadav [11] was most interesting result on degree of approximation of function belonging to the Lipschitz class by (C 1) (E 1) means of its Fourier series. In 2008, Singh and Mahajan [12] deduced many previous result to extend the error bound of periodic signal in H?lder

Metric. Later on Shrivastava and Rathore [13] to find the degree of approximation of continuous function in theH?lder Metric by F(a,q) mean . In 2009, Lal and Kushuwaha [14]defined (C 1) (E q) summability of Fourier series.It is known that F(a,q)mean includes(E,q) mean. So in the present paperwe have defined (C 1)F(a,q)mean of Fourier series and generalizing the above two result obtain the degree of approximation of continuous function in the H?lder metric by (C 1)F(a,q) mean.

[173]

Hyperbolic Measure of Information

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Information is knowledge about a particular subject, issue, event or process. Information can be obtained from various sources. Information is closely related to data. Data are plainfacts. Data itself are fairly useless, but when data are interpreted and processed to determine its true meaning they become useful and can be named as information. The loss of information during transmission can be easily measured mathematically. In the present paper measure of information involving hyperbolic function is given for entropy.

[174]

New Pathway Fractional Integral Operator Involving the Product of Two I- Functions

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The object of the present paper is to study pathway fractional integral operator associated with the pathway model and pathway probability density for certain product of special functions with general argument. We establish new results on applying the faigo- operators to the product of two I-functions.

[175]

Stability Analysis and Performance Evaluation of SEIQRV Model in Wireless Sensor Network

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Network security is one of the fundamental challenge of wireless sensor networks due to critical operational constraints. Wireless Sensor Network is an easy target against malware (worm,virus,malicious code etc.) attacks due to weak security mechanism. The transmission of malware propagation starts from a compromissed single node and spread in the whole network through wireless communication. Owing to epidemic nature of worm transmission in the network,it is essential to implement a defense mechanism against worm attacks. Motivated by malware quarantine,we propose an improved mathematical model which aggregates quarantine and vaccination techniques.Furthermore, obtained basic reproduction number, equilibriaum points,and their stability. The basic reproduction number that determines whether malware is extinct in the system or not.The basic reproduction number helps in calculation of node density and communication radius threshold value. The impingement of various parameters on this model is analyzed.The performance of propose model is significantly ameliorate than existing models and verified by extensive simulation results,in the terms of reducing the number of infectious nodes and decreasing the malware speed of propagation.

[176]

Properties of Input Independent Fuzzy Automata

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In this paper we have introduced input independent fuzzy automata and discussed their properties. Sink fuzzy automaton and quasi cyclic fuzzy automaton are defined in this paper. We also introduce weak fuzzy automaton isomorphism on input independent fuzzy automata. Characterizations of weak fuzzy automaton isomorphism on input independent fuzzy automata, sink fuzzy automata and quasi cyclic fuzzy automata are also obtained.

[177]

Block Structured (Complex) Hadamard matrices from (Complex) Orthogonal Designs

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We have constructed block structured (complex) Hadamard matrices using (complex) orthogonal designs which have resulted in block structured weighing matrices. A block structured complex Hadamard matrix is also constructed without using orthogonal design.

[178]

The Theory of Inference for Statement Calculus in Reference of Composition Mappings and Relation Matrix

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In this article we prove that set of Complex numbers $C = a + ib$; where $a, b \in R$ and $i =$ imaginary number also know as by iota ($i^2 = 1$, is the set of largest number, while set of Natural numbers $N = \{1, 2, 3, ...n...\}$ is the set of least numbers by comositions of mappings or product of mappings. We verify the inclusion relation $N \subset W \subset I \subset Q \subset R \subset C$ by relation matrix and graph of relation.

[179]

Fixed Point Results on Modified $\alpha - \phi$-Fuzzy Contractive Mappings with an Application

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In this attempt we introduce the notions of modified $\alpha - \phi$-fuzzy contractive mapping and prove some results in fuzzy metric spaces for such kind of mappings. Presented theorems provide a generalization of some interesting results in the literature. Two examples and an application to integral equations are given to illustrate the usability of our theory.

[180]

Coupled Best Proximity Point Theorems For g-Mixed Monotone Mappings In Partially Ordered Metric Spaces

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In this paper, we establish existence and uniqueness of coupled best proximity point for a g-mixed monotone mapping satisfying the proximally coupled weak (ψ, ϕ) contraction in partially ordered metric spaces. The results presented in this paper generalize the results of Kumam et al. [Fixed point theory and applications 2014, 2014:107].

[181]

Application of Zadeh-Deshpande Formalism in Air Quality Assessment

Ashok Deshpande

Dealing with uncertainty has been one of the objectives of scientific research over a period of time. The formalisms based on statistical mechanics including optimization techniques has embraced bivalent logic and two valued based probability theory wherein random variable is used as the basis of probability computations. The standard probability theory is not designed to deal with imprecise probabilities or Z-probabilities which pervade real-world uncertainties. Computing with Words via Fuzzy set theory is the other way of modeling uncertainty due to imprecision, fuzziness, vagueness. In fuzzy logic, in moving from numerical to linguistic variables, we are moving a counter traditional direction. Statistical measure theory has given rise to probability theory Fuzzy X means generalization of X, fuzzy set theory is the generalization of classical set theory. . Less data and more applicability in decision research is the uniqueness of fuzzy set theory. Part A of the talk is an attempt to convenience that fuzzy logic is not fuzzy. Part B is devoted to Fuzzy logic basedZadeh-Deshpande (ZD) formalism with application in environment management woth focus on air quality assessment which is complete departure from traditional Ai Quality Index (AQI). Though applied in Educational Data Mining, the sequel will present application of ZD formalism in air quality classification.

[182]

Hybrid Steepest Descent-Like Method For Variational Inequalities Under Property ($\mathscr{A}$) And Applications

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The property ($\mathscr{A}$) has a key role in the study of common fixed points of a family of mappings due to its firm connectivity with asymptotic regularity of the family of mappings. We develop a Hybrid steepest descent-like method and its convergence theory for solving a variational inequality problem over the set of common fixed points of a family $\{T_t : t \in \Lambda\}$ of operators having the property ($\mathscr{A}$). We apply our convergence theory for solving the variational inequality problem when $\{T_t : t \in \Lambda\}$ is a semigroup or a family of nonexpansive mappings or firmly nonexpansive mappings. Our results provide significant refinements and improvements on corresponding results in the existing literature. In order to demonstrate the effectiveness, performance, and convergence of our algorithms, we present numerical comparisons of the algorithm with the existing algorithms.

[183]

Revisiting the Sierpinski Space

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The two-point Sierpinski space in topology (denoted as 2_S here), which is just a two-point set with the topology having only one non-trivial open set, is too well-known. However, most existing topology texts give it very little attention, except possibly using it as an example of a T_0-space, which satisfies no higher separation axiom (thereby using it also as a simple example of a non-metrizable space). The fact, however, is that it has a number of interesting and significant properties, some of which highlight its key role, e.g., in characterizing (1) every topology T on a set X as being precisely the topology induced on X by the family of all continuous functions from (X, T) to 2_s, (2) all T_0-spaces, (3) all sober spaces*, (4) all injective T_0-spaces, (5) all Alexandroff spaces**, and (6) the category TOP of all topological spaces, among a large class of categories. Property (1) above has been used by E.G. Manes [Algebraic Theories, Springer, 1976] to define the notion of a Sierpinski object in a fairly general category.

Owing to the above indicated properties of 2_S, its counterparts have also been identified and studied in many spaces, which are closely related to topological spaces, e.g., uniform spaces, convergence spaces, probabilistic convergence spaces, approach spaces and bitopological spaces, to name a few. In the recent past, its counterparts have also been identified and studied in the contexts of L-topological spaces,

intuitionistic fuzzy topological spaces, interval-valued fuzzy topological spaces, Q-topological spaces (introduced in 2008 by S.A. Solovyov [Sobriety and spatiality in varieties of algebras, Fuzzy Sets and Systems, 158 (2008) 2567-2585]). The purpose of the present contribution is to give a (largely category theoretic) account of it, including our own very recent contributions.

[184]

History Of Fixed Point Theory In The Context Of Iterative Algorithms

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Luitzen Brouwer proved the first fixed point theorem in 1909. After him, fixed point theory has played very important roles in many different allied fields. One can find various of applications of fixed point theory in optimization theory, approximation theory, differential equations, variational inequalities, complementary problems, equilibrium theory, game theory, economics theory, and so forth. Among the themes of fixed point theory, the topic of approximation of fixed points of mappings by iterative algorithms is particularly important because it is useful for proving the existence as well computation of fixed points of mappings. It can be applied to prove the solvability of optimization problems, differential equations, variational inequalities, and equilibrium problems. In numerical functional analysis, fixed point iteration is a method of computing fixed points of iterated operators. The Picard-Lindelf theorem, which shows that ordinary differential equations have solutions, is essentially an application of the Banach fixed point theorem to a special sequence of functions which forms a fixed point iteration, constructing the solution to the equation. Solving an ODE in this way is called Picard iteration, Picards method, or the Picard iterative process. There are many fixed point iteration process in the context of computation of solutions of nonlinear problems. Recent, years Mann, Ishikawa and S-iteration processes are useful fixed point iterative algorithms. In this study, we deal with convergence analysis of Mann, Ishikawa and S-iteration processes for various contractive conditions in Hilbert and Banach spaces.

[185]

Residual Power Series Method for Solving Nonlinear Time Fractional Systems of Partial Differential Equations

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Fractional partial differential equations are important tool to describe physical and natural phenomenon such as damping laws, diffusion process, electrostatics, chemical kinetics, fluid flows and so on. But in most of the applications it is too complicated to obtain exact solutions in terms of composite elementary functions, therefore numerical and approximation techniques such as Adomian decomposition method, Homotopy analysis method, Homotopy perturbation method, Laplace decomposition method, Homotopy perturbation transform method (HPTM) are getting so much attention to obtain approximate solutions of non-linear fractional order partial differential equations. In this article, the residual power series method (RPSM) is employed to obtain fractional power series solutions of following inhomogeneous and homogeneous time fractional nonlinear systems of partial differential equations.

[186]

Fixed Points Of (α, ψ)-Geraghty Contractions in Metric-Like Spaces

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In this paper, we define (α, ψ)- generalized Geraghty contraction maps in metric-like spaces where α is an admissible function and ψ is an altering distance function, and prove the existence of fixed points. Our results extend the some of the known results. We provide examples in support of our results.

[187]

Approximation By Deficient Discrete Quartic Spline Interpolation

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3. G.G.I.T.S, Jabalpur

In this paper we have obtained existence , uniqueness and precise error estimate for function which interpolates at intermediate point between successive mesh points and first difference at boundary points.