Abstract No :FRA1

A WEAK REGULARITY CONDITION ON TRANSCENDENTAL ENTIRE FUNCTIONS

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Regularity conditions play an important role in transcendental dynamics. The aim of all regularity conditions is to prevent the maximum modulus of a transcendental entirefunction from behaving in a way that is similar to polynomial. In this paper we introduce a regularity condition which is weaker than ψ regularity used by D.J.Sixsmith, namely ψlog-regular.

Abstract No : FRA2

BERNSTEIN FRACTAL POLYNOMIAL APPROXIMATION

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Fractal functions defined via iterated function system (IFS) are used to approximate non-linear phenomena in nature. The construction of fractal function depends on the IFS parameters. Most of the research studied in fractal approximation used the condition “magnitude of scaling parameter goes to 0” under which its difficult to get a irregular approximant. In this article we study the approximation properties of a new class of fractal polynomial, namely Bernstein fractal polynomial with different set of IFS parameters. More specially we show that a monotone continuous function can be approximated using monotone Bernstein fractal polynomial without using any condition on scale factors. Further, some norm preserving fractal approximation are also established for this new class.

Abstract No : FRA3

SOME REMARKS ON α-FRACTAL FUNCTIONS AND ASSOCIATED FRACTAL OPERATOR

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Construction of α-fractal function $f_{\Delta,b}^{\alpha}$ simultaneously interpolating and approximating a given continuous function f on a compact interval in $\mathbb{R}$, which is in fact a special type of fractal interpolation function, has received considerable attention in the literature. Such an approximant $f_{\Delta,b}^{\alpha}$ is usually treated as a fractal perturbation of a given function f. This perturbation process leads to an operator called fractal operator that sends f to its fractal analogue $f_{\Delta,b}^{\alpha}$ in a suitable function space. Building on the literature, this contribution aims to extend the study of α -fractal function and fractal operator. In the first part we record the continuous dependence of the α-fractal function on the parameters involved in its definition. The second part aims at considering the invariant subspace of the fractal operator on the space of continuous functions and adjoint of the fractal operator on the space of square integrable functions defined on a compact interval in $\mathbb{R}$.

Abstract No : FRA4

RIEMANN-LIOUVILLE FRACTIONAL CALCULUS OF LINEAR FRACTAL INTERPOLATION FUNCTION IN THE SPACE CP

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Let C^pbe denotes the collection of all p times continuously differentiable functions. This study explores the Riemann-Liouville fractional integral of theC^p-linear fractal interpolation function (FIF) and shows that fractional integral of FIF interpolates the certain set of data when the integral is predefined at the endpoints. Besides this paper investigates the existence of Riemann-Liouville fractional derivative of fractal interpolation function and elucidates that the Riemann-Liouville fractional integral and derivative of C^p-linear FIF is again C^p-linear FIF for different set of data.

Abstract No.: GRT1

ON SOME RELATIONS BETWEEN INDEPENDENCE POLYNOMIAL OF A GRAPH AND ITS ASSOCIATED JULIA SET

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Graph Polynomials are widely studied and have been found many applications even in areas outside of Mathematics like applications in Chemistry and Physics. Therefore structural aspects of these polynomials like degree, behaviour of coefficients, location of roots etc are very active subjects of research .

While it is NP-hard to determine the independence polynomial $I(G,x)$ of an arbitrary graph G , we are able to determine explicit formulas for several families of graphs like Complete graph, Star graph, and Path graph etc.We use these results to explore the various relations between independence polynomial , graph energy, Julia set and its Hausdorff dimension.

Abstract No :GRT2

HYPERGRAPH ACTION SPACE

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A hypergraph H is a pair (V,E) where V is the set of vertices and E is the set of edges called hyperedges.Let $*$ be the operation defined on H. The operations are arithmetic operations, matrix operations,logical operations, set operations,shift operations etc.Apart from these terms, an action A is defined. An action is the sequence of operations to be followed by H using $*$. In the hypergraph the actions are done on vertex(ices)or edge(s)or

even on subhypergraph. The sequence of operations is followed by either self-similar or non-similar actions. That is the actions are sequential assignment of hypergraph labelling or hypergraph constraint or random hypergraph . Thus H together with operation $*$ and actions A define a space known as hypergraph action space denoted by $(H,A,*)$. If A is a self-similar action on vertex(ices) or on edge(s)or on subhypergraph,then $(H,A,*)$ is a fractal hypergraph. The inverse of an action is also defined named as counter action denoted by $\bar{A}$. Thus action is a bijective mapping from a hypergraph to extended hypergraph. Also the action and counter actions, both form an adjunction.The application in communication networks and digital image processing is also discussed.