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Shankar Rao Munjam, Ram Prakash Sharma and Jifeng Cui

THERMAL DISPERSION AND BUOYANCY EFFECTS IN MIXED CONVECTION
STAGNATION-POINT FLOW USING HAM

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Abstract: The two-dimensional mixed convection flow in the vicinity of the stagnation-point of a heated plate embedded in a saturated porous medium is investigated, together with the effects of thermal dispersion and radiation. An analytical approximations of this nonlinear system is obtained by the Homotopy analysis method (HAM), which are in excellent agreement with the numerical results given by the Keller-Box Method (KBM). The convergence of the Homotopy solutions is derived. The error analysis is done to compute the average squared residual errors for flow and temperature. Although lots of numerical results have been reported, to our best of knowledge, no one has reported as explicit, totally analytic, uniformly valid solution for this problem.

H. Khabazian

RACIAL DECOMPOSITION FOR MODULES

25-48

Abstract: Block decomposition for rings is extended to modules in [1]. Applying eliminator submodules, we extend this definition to modules differently, name it **racial decomposition**, and show that every module M has a unique racial decomposition $M = \bigoplus_{i=1}^n M_i$ where each M_i is an eliminator submodule. We also show that the block decomposition for any ring R and the racial decomposition for the module R_R , are identical. Racial decomposition provides us with a decomposition for $\text{End}(M)$ because $\text{End}(M) \cong \prod_{i=1}^n \text{End}(M_i)$.

Manasi Mandal, Mandobi Banerjee and Nantu Sarkar

DIFFERENT TYPES OF ROUGH STATISTICAL CONVERGENCE OF ORDER α
IN PROBABILITY

49-63

Abstract: In this paper, following the line of work of Das et al. [8] we provide a new approach to some well known summability methods and introduce six new notions namely, rough statistical convergence of order α in probability, rough strong Cesàro convergence of order α in probability, rough lacunary statistical convergence of order α in probability, rough N_θ -convergence of order α in probability, rough λ -statistical convergence of order α in probability and rough $[V, \lambda]$ -summable of order α in probability. From [8], if $\alpha = 1$, then among these six concepts of convergence in probability only three are distinct i.e.,

rough statistical convergence in probability \cong rough strong Cesàro convergence in probability, rough lacunary statistical convergence in probability \cong rough N_θ -convergence in probability, rough λ -statistical convergence in probability \cong rough $[V, \lambda]$ -summable in probability. For $0 < \alpha < 1$ some new examples are constructed to ensure the deviation of six concepts of convergence. So all the six concepts of convergence don't follow the nature of usual extension properties which will be discussed here.

Artion Kashuri, Rozana Liko and Muhammad Adil Khan

COMFORTABLE FRACTIONAL INTEGRAL INEQUALITIES OF HERMITE-HADAMARD TYPE FOR TWICE DIFFERENTIABLE GENERALIZED BETA (r, g) -PREINVEX FUNCTIONS 65-95

Abstract: In the present paper, a new class of generalized beta (r, g) -preinvex functions is introduced and some new integral inequalities for the left-hand side of Gauss-Jacobi type quadrature formula involving generalized beta (r, g) -preinvex functions are given. Moreover, some generalizations of Hermite-Hadamard type inequalities to generalized beta (r, g) -preinvex functions that are twice differentiable via conformable fractional integrals are established. These general inequalities give us some new estimates for Hermite-Hadamard type conformable fractional integral inequalities and also extend some results appeared in the literature [17]. Some applications to special means are also given.

Balvir Singh and Saurabh Porwal

ON A CONVEX SUBCLASS OF HARMONIC UNIVALENT FUNCTIONS 97-111

Abstract: The main object of this article is to investigate a new subclass $V_H(\lambda, \beta)$ of harmonic univalent functions. In this paper, we obtain coefficient inequalities, extreme points, distortion bounds, covering result, convolution and convex combination. We also discuss a class of integral operator that preserve this class. The results obtained for this class reduce to the corresponding results for several known classes in the literature are briefly indicated.

James F. Peters

PROXIMAL PLANAR SHAPES. CORRESPONDENCE BETWEEN TRIANGULATED SHAPES AND NERVE COMPLEXES 113-137

Abstract: This article considers proximal planar shapes in terms of the proximity of shape nerves and shape nerve complexes. A shape nerve is collection of 2-simplexes with nonempty intersection on a triangulated shape space. A triangulated planar shape is a shape nerve complex, which is a collection of shape nerves that have nonempty intersection. A main result in this paper is the homotopy equivalence of a planar shape nerve complex and the union of its nerve sub-complexes.

Ramazan Kama, Bilal Altay and Feyzi Basar

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Abstract: In this study, we introduce some new sequence spaces by means of the domains of backward difference matrix in ℓ_∞ and c_0 , and series in a normed space for the

characterizations of completeness and barrelledness of normed space, where ℓ_∞ and c_0 denote the classical spaces of all bounded and null sequences, respectively. Also, weakly unconditionally Cauchy series in normed spaces are characterized via operators from these sequence spaces to a normed space.

Abdul Adheem Mohamad

QUESTIONS ABOUT PROPERTY (a) AND FRIENDS

155-166

Abstract: Various strengthenings of Matveev's property (a) are introduced. Questions are raised, and some solutions given, concerning the relationships between the properties and their ability to replace normality in a variety of classic results.
