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CONTENTS

Abstract: A study of one-dimensional wave propagation in a non-homogeneous fluid saturated incompressible porous medium is presented. Method of characteristics is applied to solve the governing equations and the results for the discontinuities across the wave front are derived by taking general non-homogeneity function. Effect of non-homogeneity has been shown graphically for impulsive input and for exponential non-homogeneous functions.

Abstract: In the paper we study the growth properties of composite entire and meromorphic functions which improve some earlier results.

Abstract: It is pointed out that a statement previously made by Goenner about embedding of class two Riemannian 4-spaces,

is not as general as was established.

Abstract: The Heapsort algorithm is a fast technique and is efficient in both time and space utilizations. It is also an elegant and simple technique. This paper examines and implements the Heapsort algorithm in an easy to understand fashion. Aspects of the complete binary tree and the Heap data structure which are necessary for the implementation of the Heapsort algorithm, are also examined.

Abstract: This paper deals with the effects of magnetic fields on the Couette flow of viscous, incompressible and electrically conducting fluid between two horizontal parallel porous flat plates with transverse sinusoidal injection at the stationary plate and its corresponding removal by constant suction through the plate in uniform motion. This type of injection velocity makes the flow three-dimensional. The governing equations are solved numerically by finite difference method. The effects of magnetic field and injection/suction parameter on main flow, cross flow and skin-friction coefficients τ_x and τ_z have been shown graphically. Numerical values of heat transfer coefficient (Nusselt number) N_u, of air and water under the influence of magnetic field are furnished in a table.

Aribindi Satyanarayan Rao

Abstract: It is proved that if X_0 is a finite-dimensional subspace of a (general) reflexive Banach space X, B is a bounded linear operator on X into X_0, and f is a Stepanov-almost periodic continuous function from the real line to X, then any Stepanov -bounded solution of the differential equation $(d/dt)u(t) = (A + B)u(t) + f(t)$ is almost periodic, where A is a densely-defined closed linear operator in X satisfying certain conditions.

P. R. Sengupta and Shyamal Kumar Kundu

Abstract: In this paper an attempt has been made to investigate the problem of flow of a Reiner-Rivlin fluid between two co-axial circular cylinders with porous walls in presence of uniform radial magnetic field. The inner and the outer cylindrical surfaces forming the boundaries of the annular region are rotating with different angular velocities. The velocity components of the fluid elements are obtained in closed form in terms of Bessel's functions. Two particular cases of the problem have also been derived by passing to the limit, firstly when $\Omega_2 \to 0$ and $\Omega_1 \to \Omega$ and secondly when $\Omega_1 \to 0$ and $\Omega_2 \to \Omega$. In the investigated problem when Ω_1 and Ω_2 are both non-zero, numerical calculations for velocity profile have been derived and presented in the forms of tables and graphs. In the hydromagnetic case the velocity component is diminished in comparison with the viscous case without magnetic field.

Abstract: Reflection of thermal wave is considered from free surface of a cracked elastic solid half-space. The amplitude ratios for various reflected waves calculated and are shown graphically with the angle of incidence, for Lord-Shulman and Green-Lindsay cases. These results are compared with those in absence of cracks. The effect of second thermal relaxation time on reflection coefficients is also observed.

Abstract: Countably S-closed spaces have been introduced in this paper. All S-closed spaces are countably S-closed. An example of a countably S-closed space which is not S-closed is given. It is further proved that a countably S-closed subset of real numbers must be finite. It follows that the range of an S-continuous real valued function defined on a countably S-closed space is finite.

Abstract: Recently author [25] defined $\hat{g}$ -closed sets and studied $\hat{g}$ -locally closed sets and $\hat{G}LC$ -functions. In this paper, we study many basic properties of $\hat{g}$ -closed sets together with the relationships of these sets with some other sets. As applications of $\hat{g}$ -closed sets, we introduce two new separation properties, namely $\hat{T}_b$ spaces and ${}_\alpha\hat{T}_b$ spaces. We also obtained a new characterization for semi- $T_{1/2}$ spaces. Further we introduce and study

ĝ -continuity and ĝ - irresoluteness. Moreover we introduce and briefly investigate ĝ -homomorphisms and ĝc -homomorphisms.

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