CONTENTS

Abstract: In this paper, the flow generated by the rotary oscillations of an approximate sphere in an incompressible micropolar fluid is studied. The velocity component and the microrotation components are evaluated in terms of modified Bessel functions and Gegenbauer's functions. The couple acting on the approximate sphere is evaluated and expressed in terms of two parameters K and K'. The variation of k and K' is studied numerically with respect to microplarityparameters, geometric parameter and oscillation parameter. The results are presented in the form of graphs. The special cases of a sphere and an oblate spheroid are deduced.

Abstract: A theoretical study of Love wave scattering due to the presence of an infinite rigid barrier in the surface layer is studied in the present paper. The medium is slightly dissipative. The Wiener-Hopf technique is the method of solution. Evaluation of the integrals along appropriate contours in the complex plane yields reflected, transmitted and scattered waves. The scatterd wave behaves as a decaying cylindrical wave at distant points. The numerical computations are carried out for the amplitude of the scattered waves

versus wave number showing sharp fall of the amplitude with slight increase in the wave number.

Ling-Yun Gao

Abstract: In this paper, using the Nevanlinna theory of the value distribution of meromorphic functions, we investigate the existance problem of admissible algebroid solutions of a class of generalized higher-order algebraic differential equations and generalize and improve some results of He Yuzan Xiao Xiuzhi. N. Toda.

Ahmed E. Radwan, Saad M. Sileem And Amaal A. Ashour

Abstract: The magnetodynamic (MHD) instability of a compressible streaming gas cylinder dispersed in an inviscid-incompressible fluid has been developed. The model is, perfectly conducting , acting upon it the compressibility effects, capillary, inertia and electromagnetic forces. The MHD basic equations are linearized and we obtained a characteristic value problem of perturbations. The stability criterion, valid for all axisymmetric and non axisymmetric modes of perturbations is derived and studied and moreover the results are confirmed numerically for some cases. It is found that the compressibility effects have a stabilising tendency as the intensity of the applied magnetic field is so strong enough. The electromagnetic force axial magnetic field is stabilizing while the streaming has always a destabilizing influence for all short and long wavelengths. The capillary force is destabilizing for small wavenumbers and not affected by the compressibility factor.

V. C. C. Raju, K. P. R. Rao and G. S. S. Bhishma Rao

FIXED POINT THEOREMS IN D-COMPACT METRIC SPACES

Abstract: In this paper we obtain a generalization of a fixed point theoram of Dhage in a D-metric spaces. Also we obtain a fixed point theorem for a pair of self maps satisfying jungck type condition in a compact D-metric space.

P. Thirupathi Reddy

CERTAIN CLASSES OF Q-VALENT FUNCTIONS WITH NEGATIVE COEFFICIENTS

Abstract: Let $P_q^*(\alpha, \beta, \mu)$ (q a fixed integer greater than zero) denote the class of functions of the form

$$f(z) = z^q - \sum_{n=1}^{\infty} |a_{q+n}| z^{q+n}$$

analytic and q-valent in $|z| < |$ for which

$$\left| \frac{\frac{f'(z)}{z^{q-1}} - q}{\mu \frac{f'(z)}{z^{q-1}} + q - (1+\mu)\alpha} \right| < \beta, (|z| < 1)$$

where $0 \leq \alpha < 1, 0 < \beta \leq 1$ and $0 \leq \mu \leq 1$. Sharp results concerning coefficient estimates, a distortion theorem and radius of convexity for the class $P_q^*(\alpha, \beta, \mu)$ are determined. Further more, it is proved that the class $P_q^*(\alpha, \beta, \mu)$ is closed under arithmetic mean and convex linear combinations.

Saher Abdullah Salman Al-Hadab, S. M. Khaleelulla And Mohammad Ali Al-Ghamdi

S-HYPERBARRELLED SPACES

4

Abstract: In this paper, we introduce a new class of topological vectors spaces called S-hyperbarrelled spaces. We also give an example. Two of the well-known results of functional analysis are the Banach-Steinhaus theorem for S-hyperbarrelled spaces.

Stevo Stev$\acute{i}$c

Abstract: In this paper we give proof to following theorem: Let $\alpha_i(i = \overline{0, k-1})$ be real, $\sum_{i=0}^{k-1} \alpha_i = 1$, $P_k(z) = z^k - \alpha_{k-1} z^{k-1} - \cdots - \alpha_0$ and let the real sequence (a_n) satisfy the inequality

$$a_{n+k} \leq \alpha_{k-1}a_{n+k-1} + \cdots + \alpha_0 \, a_n (n \in N).$$

The boundedness of (a_n) implies its convergence if and only if the zeros of the polynomial $P_k(z)$ belong to the set $\mathbf{C}/\left\{z : |z| = 1, z \neq 1\right\}$.

M. K. R. S. Veera Kumar

Abstract: In this paper $\hat{g}$- locally closed sets and different notions of generalizations of continous functions, namely, $\hat{G}LC-$ continuity, $\hat{G}LC^*-$ continuity, $\hat{G}LC^{**}-$ continuity, $\hat{G}LC-$ irresoluteness, $\hat{G}LC^*-$ irresoluteness, $\hat{G}LC^{**}-$ irresoluteness and sub-$\hat{G}LC^*-$ continuity are introduced for topological spaces along with some of their characterizations and some interrelationships. These notions fall strictly in between the respective notions of generalizations of continous maps introduced by Ganster and Reilly [8] and Balachandran, sundaram and Maki [3]. Further $\hat{g}-$ submaximal spaces are defined. It is proved that Pasting Lemma holds good for $\hat{G}LC^{**}-$ continuous functions and $\hat{G}LC^{**}-$ irresolute functions but not for $\hat{G}LC^*-$ continous functions. As an application of $\hat{g}-$ closed sets, we introduce a new seperation axiom T_f which is weaker than both T_h and $T_{\frac{1}{2}}$

axioms.

Norbert Hungerbuhler And Robert Zwahlen

Abstract: If for a linear symmetric (unbounded) operator F and a linear operator S holds

$$FSq(F) = Sp(F)$$

on the span of the eigenspaces of F for two polynomials p and q, then S is a raising operator. This means roughly that if $Fy_i = \lambda_{iyi}$ then $y_{i+1} := Sy_i$ is an eigenvector of F with eigenvalue $\lambda_{i+1} = \frac{p(\lambda_i)}{p(\lambda_i)}$. Also an inverse statement of this kind holds true. We use this technique in oreder to discuss several eigenvalue problems. Similarly, we consider lowering operators T and discuss commutator relations between S and T.

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