Indian Journal of Mathematics

Volume 35, No. 1, 1993

CONTENTS

Lajos Molnar
A condition for a function to be a bounded linear operator 1-4

Abstract: It is shown that a function A mapping a Banach space X into itself with the property that $CAC \in B(X)$ for every compact operator C is necessarily linear and continuous.

S. K. Ayyaswamy
Some results on the size of invariant means 5-8

Abstract: If S is a left amenable semigroup having minimal left ideals and if T is the two sided ideal which arises as the union of such minimal left ideals then T is strongly left thick. If, further, the size of left invariant means is smaller than that of right invariant means, then the latter is $2^{2^{|T|}}$. Using the concept of exposed points of left invariant means it is found in this paper the equality of two cardinals $\rho(S)$ and m on those semigroups having infinite number of such exposed points. The semigroups admitting a unique multiplicative invariant mean are also characterized using results concerning exposed points.

K. Gopalsamy, S. R. Grace and B. S. Lalli
Oscillation of even order neutral differential equations 9-25

Abstract: Some oscillation and comparison results are established for an even order equation

$$(x(t) + p(t)x(\sigma(t)))^{(n)} + q(t)x^{\lambda}(g(t)) = 0, \quad n \text{ even.}$$

The results unify and extend some existing results in the literature.

D. N. Sarkhel
Higher order pth power variation 27-50

Abstract: We introduce and study a simple workable notion of kth order pth power variation, and absolute continuity, of a function over an arbitrary linear set. This generalises the notion of first order pth power variation over an interval studied by N. Wiener and L. C. Young, the notions of kth order first power variations studied by A. M. Russell and the author, and also certain works of F. Riesz, E. R. Love and C. J. F. Upton.

P. M. Avhad and T. T. Raghunathan
Directed tree square root of a digraph 51-55

Abstract: In this paper, necessary and sufficient conditions for the existence of a directed tree square root for a digraph are given and proved.

M. M. Rao
Exact evaluation of conditional expectations in the kolmogorov model 57-70

Abstract: Formulas for exact evaluation of conditional expectations of the form $E(X/Y)$ when the conditioning variable Y takes values in certain locally compact groups (including all Lie groups), or when the underlying probability space is restricted (such as an abstract Wiener space) are given. These results are briefly illustrated for certain functionals of Brownian motion.

Muhammad Aslam Noor and Eman H. Al-Shemas
Fixed point methods for nonlinear complementarity problems 71-97

Abstract: This paper is concerned with iterative procedures for the generalized monotone mildly (strongly) nonlinear complementarity problem $GNLCP(T + A)$, that is

$$u \in K, Tu + A(u) \in K^*, \quad \langle u, Tu + A(u) \rangle = 0,$$

where K is a closed convex cone in R^n, T is a monotone mapping from R^n into itself, and A is a nonlinear monotone mapping, and K^* is a polar cone of K.

Our iterative methods consist of finding fixed points of appropriate continuous mappings. In the case of the generalized mildly nonlinear complimentarity problem, it is shown that the problem is solvable if and only if the sequence of iterates is bounded in which case summability methods are used to find a solution of the problem. This procedure is then used to find a solution of the generalized strongly nonlinear complementarity problem satisfying certain regularity conditions for which the problem has a nonempty bounded solution set.

****