

# Indian Journal of Mathematics

Volume 38, No. 3, 1996

---

## CONTENTS

**A. Feza Güvenilir- A. Okay Çelebi**

EXISTANCE OF SOLUTIONS OF SEMILINEAR HIGHER ORDER  
ELLIPTIC EQUATIONS

203-218

**Abstract:** In this article, the existence of non-negative solutions of the equation

$$\Delta^3 u - a\Delta^2 u + \Delta u + gu^p = 0$$

in  $\mathbf{R}^n$  has been given by use of minimizing sequences, which can easily be generalized to the higher order equations of the same form. Also an example for the non-radial positive solutions is provided.

**I. Mircea Popovici, Ismat Beg and Alexandru Petcu**

DUAL OF A LOCALLY CONVEX SPACES OF TYPE  $(L)$

219-222

**Abstract:** It is shown that the dual of locally convex space of type  $(L)$  is an axial ordered normed space.

**D. N. Sarkhel**

VARIATIONAL CHARACTERISATION OF FUNCTIONS HAVING LEBESGUE  
INTEGRABLE DERIVATIVES

223-235

**Abstract:** We show that finiteness of certain strong [weak] core variation of a measurable function on a linear set is both necessary and sufficient for the function to have Lebesgue integrable ordinary [approximate] derivative a.e.; and that the integrals of the derivative and its absolute value are representable by these variations.

**Hrvoje Šikić**

TRANSITION PROBABILITIES OF SOME MEASURE-VALUED PROCESSES

237-274

**Abstract:** The transition probability function of a  $(T_t, \Psi)$ -Dawson-Watanabe superprocess is studied;  $(T_t)$  is the semigroup of a Markov process  $(\xi_t)$  and  $\Psi$  is a branching mechanism. Measures on rays are introduced to describe the transition function of  $(Id_t, \Psi)$ -superprocess, while  $(T_t, 0)$ -superprocess is easy to describe. These results enable us to approximate transition function in general case. It is shown that in the case of a Markov chain  $(\xi_t)$ , local behaviour of the  $(T_t, \Psi)$ -superprocess can be obtained, via Cameron-Martin formula, from the transition function of  $(Id_t, \Psi)$  superprocess. The complete description is given of the superprocess over deterministic Markov process  $(\xi_t)$  with branching mechanism  $\Psi$  with constant coefficient. Explicit formulas are obtained, which confirm heuristic interpretations of superprocesses.

**G. Das and Manoja Manjari Swain**

FIXED POINT AS A BEST APPROXIMANT

275-286

**Abstract:** The object of this paper is to obtain some results on simultaneous approximations, best approximation in a uniformly convex Banach space and a unique best approximation of a quasi nonexpansive map. In the case of simultaneous approximation and best approximation in a uniformly convex space the mappings is nonexpansive.

**S. M. Patel**

ON INTERTWINING  $P$ -HYPONORMAL OPERATORS

287-290

**Abstract:** In the present note, it is proved that if  $T$  is a  $p$ -hyponormal operator with  $0 < p < 1$  such that a normal part of it is reducing then  $T^*X = XT$  whenever  $TX = XT^*$  for some operator  $X$ .

**S. Basu**

ON SETS WITH PROPERTY OF BAIRE IN CERTAIN

$T_3$ -TOPOLOGICAL GROUPS

291-297

**Abstract:** Recently the author [1] has obtained the Baire category analogues of the last two theorems of Steinhaus [3]. The present paper is concerned with generalizations of these results in certain  $T_3$ -topological groups.

\*\*\*\*\*