

**BULLETIN OF THE
ALLAHABAD MATHEMATICAL SOCIETY**

Vol. 30, Part 1, 2015

CONTENTS

K. S. Subrahmanian Moosath and K. Fazeela

MOMENTUM MAPS ON SYMPLECTIC MANIFOLDS-II 1-28

Abstract: This article is an outcome of a detailed study of momentum maps of symplectic actions. Results in this area are reorganized and presented in a systematic way. This work is of an expository nature. Convexity results for compact group actions on non compact manifolds with proper momentum maps is discussed in detail. Necessary and sufficient topological conditions for the momentum map to be open onto its image and results on local convexity and local polyhedral structure of the image of the momentum map of a torus action is also discussed. Non-abelian analogues of certain results are also given. Cylinder valued momentum map and other generalizations of the standard momentum map due to Alan Weinstein and Guillemin and Sternberg are discussed.

Rahul Dattatraya Kitture

GROUPS WITH FINITELY MANY CENTRALIZERS 29-37

Abstract: A remarkable theorem of E. Landau in finite group theory says, that *for each positive integer n , there are only finitely many groups with exactly n conjugacy classes.* We prove an analogue of this theorem for the *centralizers of elements in a group.*

Hemant Kumar Nashine

NEW COMMON FIXED POINT RESULTS IN ORDERED PARTIAL METRIC
SPACES 39-59

Abstract: The aim of this paper is to study ordered partial metric spaces and establish new coincidence and common fixed point results for a pair of maps satisfying weakly contractive condition. To illustrate our results, we equip the paper with example.

A. R. Rajan and Azeef Muhammed P. A.

NORMAL CATEGORIES FROM THE TRANSFORMATION SEMIGROUP 61-74

Abstract: Let T_X be the semigroup of all non-invertible transformations on an arbitrary set X . It is known that T_X is a regular sub-semigroup of the full transformation semigroup. The principal left ideals of a regular semigroup with partial right translations as morphisms form a category $\mathcal{L}(S)$. The category $\mathcal{L}(S)$ is known as the normal category associated with the semigroup S . Every normal category \mathcal{C} gives rise to a regular semigroup $T\mathcal{C}$ of normal cones in \mathcal{C} . We show that the semigroup $T\mathcal{L}(T_X)$ of normal cones in $\mathcal{L}(T_X)$ is isomorphic to T_X . The powerset category $\mathcal{P}(X)$ associated with X is the category whose objects are subsets of X and morphisms are mappings. We show that $\mathcal{L}(T_X)$ is isomorphic to the category $\mathcal{P}(X)$.

M. O. Olatinwo

STABILITY AND CONVERGENCE RESULTS FOR DAS-DEBATA TYPE
ITERATIVE PROCESS USING SIMULTANEOUS SET OF CONTRACTIVE
CONDITIONS OF INTEGRAL TYPE 75-94

Abstract: The notion of contractive conditions of integral type was first employed to study T -stability of iterative processes in the paper of the author [M. O. Olatinwo, Some stability results for Picard and Mann iteration processes using contractive condition of integral type, *Creative Math. & Inf.*, **19**(1)(2010), 57-64]. In the present paper, we establish some unifying stability and strong convergence results for three nonselfmappings using a Jungck-Das-Debata type iterative process as well as employing a simultaneous set of contractive conditions of integral type. Our results generalize and extend amongst others the recent results of [S. L. Singh, C. Bhatnagar and S. N. Mishra, Stability of Jungck-type Iterative Procedures, *Int. J. Math. & Math. Sc.*, **19**(2005), 3035-3043] and [V. Berinde, *Iterative Approximation of Fixed Points*, Springer-Verlag, Berlin Heidelberg (2007)].

N. Ahmed

MHD TRANSIENT FLOW PAST A SUDDENLY ACCELERATED INFINITE
VERTICAL PLATE WITH RAMPED WALL TEMPERATURE IN PRESENCE
OF THERMAL RADIATION 95-118

Abstract: This paper deals with an exact solution to the problem of an MHD viscous, incompressible free convective flow of an electrically conducting, Newtonian non-Gray fluid past a suddenly but temporarily accelerated infinite vertical plate with ramped wall temperature in presence of appreciable radiation heat transfer and uniform transverse magnetic field.

The fluid is assumed to be optically thin and the magnetic Reynolds number is considered small enough to neglect the induced hydromagnetic effects. The resulting system of the equations governing the flow is solved by adopting Laplace transform technique in closed form. The influence of Stuart number (square of Hartmann number), radiation conduction parameter Q , Reynolds number Re and time t on the variations in the fluid velocity, fluid temperature, and skin friction and Nusselt number at the plate are demonstrated graphically. The results show that the imposition of the transverse magnetic field or high radiation retards the fluid motion and causes the viscous drag at the plate to fall. The investigation simulates that the fluid temperature drops and the rate of heat transfer from the plate to the fluids gets increased for increasing Reynolds number as well as radiation parameter.

Yaé Ulrich Gaba

ADVANCES IN STARTPOINT THEORY FOR QUASI-PSEUDOMETRIC SPACES

119-146

Abstract: This paper presents some startpoint (endpoint, fixed point) theorems for multi-valued maps defined on a left- K -complete quasi-pseudometric space. The results presented generalize recent ones already established by Gaba [4, 5]. The suggested generalization find their originality in the fact that the contractive conditions uses functionals of the variables, and not the variables themselves. The theorems proved in this article are also generalizations (in an asymmetric setting) of fixed point results for multivalued mappings of Feng-Lin type [3,9].
