Fixed Point Theory in Probabilistic Metric Spaces

by

Olga Hadžić and Endre Pap

Institute of Mathematics, University of Novi Sad, Yugoslavia



KLUWER ACADEMIC PUBLISHERS DORDRECHT / BOSTON / LONDON

Contents

Introduction					
1	Tria	ngular norms	1		
	1.1	Triangular norms and conorms	1		
	1.2	Properties of t-norms	5		
	1.3	*	10		
	1.4		13		
			13		
			15		
			19		
		1.4.4 Isomorphism of continuous Archimedean t-norms with either			
		•	21		
			22		
	1.5	t-norms with left-continuous diagonals	24		
	1.6	e e e e e e e e e e e e e e e e e e e	26		
	1.7		29		
			29		
		-	33		
			35		
	1.8		38		
2	Pro	babilistic metric spaces	47		
-	2.1		47		
			47		
			50		
	2.2		53		
	2.3	1 1	55		
	2.0	÷ •	56		
			59		
		0 1	60		
	2.4	Topology, uniformity, metrics and semi-metrics on probabilistic metric	50		
	2.1		62		

	2.5 2.6 2.7 2.8	Random normed and para-normed spaces65Fuzzy metric spaces70Functions of non-compactness75Probabilistic metric spaces related to decomposable measure852.8.1Decomposable measures852.8.2Related probabilistic metric spaces91) 5 5		
3	Pro 3.1 3.2	babilistic B-contraction principles for single-valued mappings95Probabilistic B-contraction principles96Two special classes of probabilistic96q-contractions111	;		
	3.3	Generalizations of probabilistic <i>B</i> -contractions principles for single- valued mappings			
	$\begin{array}{c} 3.4\\ 3.5\end{array}$	Fixed point theorems of Caristi's type			
4	Pro 4.1 4.2 4.3 4.4 4.5 4.6	babilistic B-contraction principles for multi-valued mappings 155 Multi-valued contractions of Miheţ's type 155 Multi-valued probabilistic Ψ-contractions 158 Probabilistic Nadler q-contraction 162 A fixed point theorem of Itoh's type 168 Fixed point theorems in probabilistic metric spaces with convex structures 174 A common fixed point theorem for sequence of mappings 181))		
5	Hick 5.1 5.2	Ks' contraction principle185Hicks' contraction principle for single-valued mappings	,		
6		ed point theorems in topological vector spaces and applications andom normed spaces 205 Tychonoff's and Browder's fixed point theorems	;		
	6.4 6.5	Continuous dependence of the fixed points on the parameters of (α, g) - condensing mappings			
Bibliography 245					
In	dex	271			