Dilip Kumar, Yuri Luchko G. Suresh Singh *Editors* 

## Recent Advances in Mathematical Analysis and their Applications





Department of Mathematics University of Kerala Thiruvananthapuram, Kerala-695 581, India 2022

P. 24000	さずも	811 3	11 18 18			0
T. Little	1. 2	1.1	11. 生人	그는 김 -	- P.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
		11	新 席1	Et al al al	44 M	A. 161 1

	Red from at ( )	
	Largent design prody mention find that knowl	
	Charles and the trend of a final state of the second states of the secon	
	Cargardiana in painte condi	
$\sum_{i=1}^{N} \frac{1}{i_{i_{i_{i_{i_{i_{i_{i_{i_{i_{i_{i_{i_{$	TABLE OF CONTENTS	
	bitementer al pedermaniat	
	最高级规 <sup>制了 1</sup> 和林子林林	
	Cener Toil hypergeometric function	
List of Symbols	Mulag-Letter Amazon Three permonent Mulag Letter function	7
1 Dille I Comana	ting Polotions Involving Cogonbauer Polynomials	
1. Bilateral Genera	ting Relations Involving Gegenbauer Polynomials	
– M.A. Pa	than	9
7 10; }	Remaining a subjution that of degrees to us and	
2. A Survey on $_pR$	$_{q}(\alpha, \beta; z)$ Function and its Applications	
–Ankit Pa	l, Rachana Desai, R.K. Jana & A. K. Shukla .	19
3. A quick survey applications	of the bicomplex integral transforms and their	
	者。 ····································	55
4. A Time Series A	pproach to Model Multiple Entropy of a Physical	
	Vright Distribution	
— Shanoja	R. Naik	89
5. P-transform on		
– Deepa I	I. Nair	15
Index	$\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots,\dots$	29

## Preface

pur environt Advances in Adathematical Analysis and the provision is publicated by collecting the mount works in the and the second state of the second their Applications, the book courses and the second the basemational Webinar on Maillennitical Analysia attend to the structure (FWALAA) organized by the department of Mathantime l'aimman of Kenala held from 22 to 26 Fahrmary 2021. The and Homedol by the Chiel-Patron and Homenble Vice-Chaucellor Why the always an Pillal for bringing this publication was remarkable. is mysha pregnamoe was mangarated by the Honorable Pro-vice gambar in P.P. Ajayakaman. The participation of Bruce C. Bocadt affield Waldschmidt as resource persons touck the webinner to a differsibul mort mainimentan menue ante to activitantian from the And to all the Marken Aller Shukles, M. M. M. M. M. Manhard Shukles Recent Advances in Mathematical Analysis and their Applications Dr Dilip Kumar, Dr Yuri Luchko, Dr Suresh Singh G., Editors Information of allowed to guessiant and should be and Copyright©2022. Department of Mathematics, University of Kerala, Thiruvuananthapuram, Kerala, India ( reamed desceribles the

All rights reserved. No part of this book may be reproduced or transformed in any form or any other means, electronic or mechanical, by photostat, microfilm, verography, recording, or incorporated into any information storage or retrieval system, without prior permission in writing from the copyright owner.

ISBN: 978-81-86660-48-5 81-86660-48-8 Published for Department of Mathematics, University of Kerala by: Southern Book Star, T.C.7/2047-1, S.B. Tower, Medical College P.O. Ulloor, Thiruvananthapuram, Kerala, India A quick survey of the bicomplex integral transforms and their applications

Ritu Agarwal<sup>1</sup>, Urvashi Purohit Sharma<sup>2</sup>, & Mahesh Puri Goswami<sup>3</sup>

<sup>1,2</sup>Department of Mathematics, Malaviya National Institute of Technology, Jaipur-302017, INDIA

<sup>2</sup>Department of Science and Humanities, Kalaniketan Polytechnic College, Jabalpur-482001, INDIA

<sup>3</sup> Department of Mathematics & Statistics, Mohanlal Sukhadia University, Udaipur, INDIA

E-mail: <sup>1</sup>ragarwal.maths@mnit.ac.in, <sup>2</sup>urvashius100@gmail.com, <sup>3</sup>maheshgoswami1989@gmail.com

Abstract: Various authors have defined a number of the integral transforms in the bicomplex space. This paper presents a review of the research on the bicomplex integral transformations. These transformations' varied applications are also highlighted here. The formula for the bicomplex version of the generalized Stieltjes transform been derived in light of recent advancements in the integral transforms in bicomplex space. Its basic operational properties are also addressed.

Keywords: Bicomplex numbers, integral transform, bicomplex Stieltjes transform.

AMS Subject Classification(2020): 44A05, 30G35.

## 1 Introduction

plain an shadong to say merchanic straight

For a long time, bicomplex numbers have been investigated, and a lot of work has been done in this area. Between 1848 and 1850, Cockle [1, 2] introduced *Tessarines*, after which Segre [3] introduced bicomplex numbers.

Many bicomplex number properties have been identified. Researchers have been studying the various algebraic and geometric features of bicomplex numbers, as well as their applications, for the past few years (see, e.g. [4, 5, 6, 7, 8, 9]). In the recent developments, efforts have been