A brief story about the operators of the generalized fractional calculus

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Fractional Calculus and Applied Analysis (2008)
Volume: 11, Issue: 2, page 203-220
ISSN: 1311-0454

Access Full Article

Abstract

2000 Mathematics Subject Classification: 26A33, 33C60, 44A20In this survey we present a brief history and the basic ideas of the generalized fractional calculus (GFC). The notion “generalized operator of fractional integration” appeared in the papers of the jubilarian Prof. S.L. Kalla in the years 1969-1979 when he suggested the general form of these operators and studied examples of them whose kernels were special functions as the Gauss and generalized hypergeometric functions, including arbitrary G- and H-functions. His ideas provoked the author to choose a more peculiar case of such kernels and to develop a theory of the corresponding GFC that featured many applications. All known fractional integrals and derivatives and other generalized integration and differential operators in various areas of analysis happened to fall in the scheme of this GFC.

How to cite

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@article{Kiryakova2008,
abstract = {2000 Mathematics Subject Classification: 26A33, 33C60, 44A20In this survey we present a brief history and the basic ideas of the generalized fractional calculus (GFC). The notion “generalized operator of fractional integration” appeared in the papers of the jubilarian Prof. S.L. Kalla in the years 1969-1979 when he suggested the general form of these operators and studied examples of them whose kernels were special functions as the Gauss and generalized hypergeometric functions, including arbitrary G- and H-functions. His ideas provoked the author to choose a more peculiar case of such kernels and to develop a theory of the corresponding GFC that featured many applications. All known fractional integrals and derivatives and other generalized integration and differential operators in various areas of analysis happened to fall in the scheme of this GFC.,
author = {Kiryakova, Virginia},
journal = {Fractional Calculus and Applied Analysis},
keywords = {26A33; 33C60; 44A20},
language = {eng},
number = {2},
pages = {203-220},
publisher = {Institute of Mathematics and Informatics Bulgarian Academy of Sciences},
title = {A Brief Story about the Operators of the Generalized Fractional Calculus},
url = {http://eudml.org/doc/11340},
volume = {11},
year = {2008},
}

TY - JOUR
AU - Kiryakova, Virginia
TI - A Brief Story about the Operators of the Generalized Fractional Calculus
JO - Fractional Calculus and Applied Analysis
PY - 2008
PB - Institute of Mathematics and Informatics Bulgarian Academy of Sciences
VL - 11
IS - 2
SP - 203
EP - 220
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UR - http://eudml.org/doc/11340
ER -

Article Keywords

Fractional Calculus, Generalized Fractional Integrals and Derivatives, Generalized Hypergeometric Functions, 26A33, 33C60, 44A20

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