A GENERAL FRACTIONAL INTEGRAL OPERATOR OF THE PRODUCT OF A GENERAL CLASS OF MULTIVARIABLE POLYNOMIALS AND THE MULTIVARIABLE ALEPH-FUNCTION

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Abstract. The primary objective of this paper is to introduce and derive a fractional integral operator that acts on the product of a general class of multivariable polynomials and the multivariable Aleph-function. The fractional integral operator presented is characterized by its generality, which allows for a broad range of applications across various

classes of polynomials and functions. By applying this operator to the product of these mathematical structures, we obtain a general formula that encompasses a wide variety of results in fractional calculus, including new insights into the behavior of multivariable polynomials and Aleph-functions.

The paper further explores the implications of the general nature of the operator and demonstrates how it can lead to several important and novel outcomes. Some of these results include known identities and special cases within the realm of fractional integrals, as well as new findings that contribute to the existing body of knowledge on fractional calculus and special functions. We conclude by briefly discussing several interesting special cases that arise from the main formula, providing a foundation for future research and exploration in this area.