

Applications of the Operator T in q -Polynomials

Rasha H. Jaber, Sadeq M. Khalaf, Husam L. Saad*

Department of Mathematics, College of Science, University of Basrah, Basra, Iraq

*Corresponding author E-mail: hus6274@hotmail.com

ARTICLE INFO	ABSTRACT
<p>Keywords Cauchy polynomials, bivariate Rogers- Szegő polynomials, the generating function, Rogers formula, Mehler's formula</p>	<p>In this paper, we define the polynomials $V_n(a, b, c, f, x, y)$. In order to determine the generating function, Rogers' formula, Mehler's formula, and their extensions for polynomials $V_n(a, b, c, f, x, y)$, we utilize the q-exponential operator T. Some results for the Cauchy polynomials $P_n(x, y)$ and the bivariate Rogers-Szegő polynomials $h_n(x, y q)$ are obtained by inserting special values into the identities of the polynomials $V_n(a, b, c, f, x, y)$.</p>

Received 4 Oct 2023; Received in revised form 19 Nov 2023; Accepted 12 Dec 2023, Published 31 Dec 2023

