

**SOME HYPERGEOMETRIC GENERATING FUNCTIONS  
MOTIVATED BY THE WORK OF  
BEDIENT AND RAINVILLE**

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**Abstract:** In this article, some hypergeometric generating relations involving Kampé de Fériet's double hypergeometric functions are derived by using series rearrangement technique, a reduction formula and Whipple's quadratic transformation. Some special cases involving Appell's functions of second, third kind, Rainville polynomial and two Bedient's polynomials, are also obtained.

**Keywords and Phrases:** Hypergeometric functions, Series rearrangement technique, Whipple's quadratic transformation, Bedient polynomials.

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### 1. Introduction and Preliminaries

In our investigations, we shall use the following standard notations:  
 $\mathbb{N} := \{1, 2, 3, \dots\}$ ;  $\mathbb{N}_0 := \mathbb{N} \cup \{0\}$ ;  $\mathbb{Z}_0^- := \mathbb{Z}^- \cup \{0\} = \{0, -1, -2, -3, \dots\}$ .  
The symbols  $\mathbb{C}$ ,  $\mathbb{R}$ ,  $\mathbb{N}$ ,  $\mathbb{Z}$ ,  $\mathbb{R}^+$  and  $\mathbb{R}^-$  denote the sets of complex numbers, real numbers, natural numbers, integers, positive and negative real numbers, respectively.  
The Pochhammer symbol  $(\alpha)_p$  ( $\alpha, p \in \mathbb{C}$ ) [12, p.22 Eq.(1), p.32, Q.N.(8) and Q.N.(9)], see also [13, p.23, Eq.(22) and Eq.(23)] is defined by

$$(\alpha)_p = \frac{\Gamma(\alpha + p)}{\Gamma(\alpha)}$$