*South East Asian J. of Mathematics and Mathematical Sciences*
*Vol. 15, No. 2 (2019), pp. 65-76*

**ISSN (Online): 2582-0850**

**ISSN (Print): 0972-7752**

# ON FINITE FORM OF ANDREW'S IDENTITY FOR BASIS PARTITION POLYNOMIAL AND GENERALIZATION

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*(Received: July 10, 2019)*

**Abstract:** Andrews gave a common generalization of the Rogers-Ramanujan series and the generating function for basis partitions. In this paper, we obtain a finite form and further generalization of this identity. As applications, some interesting identities are given.

**Keywords and Phrases:** BsP-polynomial, Bailey pair, Carlitz inversion, Rogers-Ramanujan identities, partition.

**2010 Mathematics Subject Classification:** 05A30, 33D15.

## 1. Introduction

Basis partitions are defined as successive ranks [6] or the "rank vector" of a partition and they were first considered by Gupta [10]. More precisely, an integer partition of $n$ is a basis partition if, in the set of all partitions of $n$ with a given rank vector, its weight is minimum.

A partition $\pi$ of a positive integer $n$ is a finite non-increasing sequence of positive integers $(\pi_1, \pi_2, \ldots, \pi_l)$ such that $n = \pi_1 + \pi_2 + \cdots + \pi_l$. We write $\pi = (\pi_1, \pi_2, \ldots, \pi_l)$