# ON CERTAIN RESULTS INVOLVING SQUARE OF RAMANUJAN'S MOCK THETA FUNCTIONS

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**Abstract:** In this paper, making use of an identity deduced from Bailey's transform, certain results have been established involving the square of Ramanujan's mock theta functions.

**Keywords and Phrases:** Bailey's transform, identity, mock theta function, partial mock theta function.

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## 1. Introduction, Notations and Definitions

For $|q| < 1$, the $q-$shifted factorial is defined by

$$(a;q)_n = \begin{cases} 1, & n = 0 \\ (1-a)(1-aq)...(1-aq^{n-1}), & n \in N. \end{cases}$$

$$(a;q)_\infty = \lim_{n \to \infty} (a;q)_n = \prod_{r=0}^{\infty} (1 - aq^r).$$

Also, if $A = \sum_{n=0}^{\infty} B_n$ is a mock theta function then $B_m = \sum_{n=0}^{m} B_n$ is called partial mock theta function. For the definitions of mock theta functions of order three, five and seven one is refereed chapters 2 and 3 of the 'Resonance of Ramanujan's Mathematics, Vol. II', due to Agarwal R. P. [1] and also one can refers the some results established on mock theta functions in [2, 4, 5, 6, 7, 8] .