

AN INEQUALITY FOR ${}_{r+1}\phi_r$ AND ITS APPLICATIONS

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Abstract. In this paper, we use the q -binomial formula to establish an inequality for the basic hypergeometric series ${}_{r+1}\phi_r$. As applications of the inequality, we derive a sufficient condition for convergence of a q -series and two other inequalities.

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REFERENCES

- [1] G. D. ANDERSON, R. W. BARNARD, K. C. VAMANAMURTHY, M. VUORINEN, *Inequalities for zero-balanced hypergeometric functions*, Transactions of the American Mathematical Society; Volume 347, Number 5, May 1995.
- [2] G. E. ANDREWS, *The theory of partitions*, Encyclopedia of mathematics and applications; v.2. Addison-Wesley publ. Company, 1976.
- [3] G. GASPER AND M. RAHMAN, *Basic Hypergeometric Series*, Cambridge Univ. Press, Cambridge, MA, 1990.
- [4] MASAHIKO ITO, *Convergence and asymptotic behavior of Jackson integrals associated with irreducible reduced root systems*, Journal of Approximation Theory 124 (2003) 154–180.