## 1035-33-1631 William Y. C. Chen\* (chen@nankai.edu.cn), Center for Combinatorics, Nankai University, Tianjin, 300071, Peoples Rep of China, and Ernest X. W. Xia (xx@cfc.nankai.edu.cn), Center for Combinatorics, Nankai University, Tianjin, 300071, Peoples Rep of China. The q-WZ Method for Infinite Sums.

We develop a q-WZ method for justifying nonterminating basic hypergeometric summation formulas by computing the WZ-pairs as certificates which may involve some infinite q-shifted factorials. Using this approach, we can verify a wide variety of classical summation formulas, with typical examples including the q-binomial theorem, the q-Gauss sum, the  $_6\phi_5$  sum, the Ramanujan  $_1\psi_1$  sum, and Bailey's  $_6\psi_6$  sum. In many cases we can discover the companion identities. This work is inspired by the study of two elegant identities involving partial theta functions due to Andrews and Warnaar from the telescoping viewpoint. The key point lies in the fact that the q-Gosper algorithm is effective to deal with q-hypergeometric terms multiplied by the infinite q-shifted factorials. (Received September 20, 2007)