

1018-05-133

Michael J Schlosser* (michael.schlosser@univie.ac.at), Faculty of Mathematics, University of Vienna, Nordbergstrasse 15, A-1090 Vienna, Austria. *Elliptic enumeration of nonintersecting lattice paths.*

We enumerate lattice paths in the planar integer lattice consisting of positively directed unit vertical and horizontal steps with respect to a specific elliptic weight function. The elliptic generating function of paths from a given starting point to a given end point evaluates to an elliptic generalization of the binomial coefficient. Convolution gives an identity equivalent to Frenkel and Turaev's ${}_{10}V_9$ summation. This appears to be the first combinatorial proof of the latter, and at the same time of some important degenerate cases including Jackson's ${}_8\phi_7$ and Dougall's ${}_7F_6$ summation. By considering nonintersecting lattice paths we are led to a multivariate extension of the ${}_{10}V_9$ summation which turns out to be a special case of an identity originally conjectured by Warnaar, later proved by Rosengren. We conclude with discussing some future perspectives. (Received March 02, 2006)