

# Lacunary sums of binomial coefficients via duality

Luis Verde  
UAM–Iztapalapa

Binomial coefficients can be represented as the result of evaluating a Taylor functional at a power polynomial. On the other hand, the algebra generated by the Taylor functionals is isomorphic to the algebra of proper rational functions. Using these facts and the duality pairing between the algebras of polynomials and rational functions we can reduce the determination of closed forms for lacunary sums of binomial coefficients to the summation of geometric progressions of rational functions. These ideas can be used to find sums of several kinds of generalized binomial coefficients.