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*p, q-deformed Touchard polynomials and statistics on set partitions*

A two-parameter deformation of the Touchard polynomials, based on the NEXT  $q$ -exponential function of Tsallis, defines two statistics on set partitions. The generating function of classical Touchard polynomials is a composition of two exponential functions. By applying analysis of a combinatorial structure of the deformed exponential function, we establish explicit formulae for both statistics. Moreover, those statistics let us formulate a new combinatorial proof of some known combinatorial identities.