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Gregory S. Warrington. *A Continuum of Partition Statistics.*

A well-known partition theorem states that the generating function for integer partitions by area and number of parts is $\prod_{i=1}^{\infty} (1-tq^i)^{-1}$. This talk describes a surprising extension of this result in which the “number of parts” statistic is replaced by other statistics parametrized by positive real numbers. These statistics are defined by looking at certain ratios of arm and leg numbers that also arise in the theory of Macdonald polynomials and Hilbert schemes. We give a bijective proof of the equidistribution of all these statistics. The proof utilizes various combinatorial constructions including cylindrical lattice paths, Eulerian tours on directed multigraphs, and involutions on oriented trees. (Received September 09, 2009)