A ZETA FUNCTION FOR JUGGLING SEQUENCES

Carsten Elsner, Dominic Klyve, and Eric Tou

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We give a new generalization of the Riemann zeta function to the set of b-ball juggling sequences. We develop several properties of this zeta function, noting among other things that it is rational in b^{-s}. We provide a meromorphic continuation of the juggling zeta function to the entire complex plane (except for a countable set of singularities) and completely enumerate its zeroes. For most values of b, we are able to show that the zeroes of the b-ball zeta function are located within a critical strip, which is closely analogous to that of the Riemann zeta function.

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