

The Eulerian adic dynamical systems and path counts in the Eulerian graph

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This is a report on very recent joint work with Alexander Varchenko. In order to identify the ergodic invariant measures for the adic (Bratteli–Vershik) dynamical system based on the Eulerian graph or its higher-dimensional analogues it is necessary to generalize formulas for the Eulerian numbers $A(n, k)$ which count the number of permutations of a set of $n + 1$ elements with exactly k rises, equivalently the number of paths in the Eulerian graph from the root to any vertex, and to determine the asymptotics of the ratios of these numbers. We have done this, first for dimension two and then also for higher dimensions.