

Counting Faces of the Tridiagonal Birkhoff Polytope

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We determine the number of alternating parity sequences that are subsequences of an increasing m -tuple of integers. For this and other related counting problems we find closed formulas that are combinations of Fibonacci numbers. These results are applied to determine some combinatorial features of the polytope of tridiagonal doubly stochastic matrices, namely, the number of vertices of any face, the number of edges and the number of 2-dimensional faces.

Joint work with E. Marques de Sá.