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Two Kinds of Numbers and Their Applicatins

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摘要   computational formula of Hankel determinants on some classical combinatorial sequences such as Catalan numbers and polynomials, Bell polynomials, Hermite polynomials, Derangement polynomials etc. From a pair of matrices this paper introduces two kinds of numbers. Using the first kind of numbers we give a unified treatment of Hankel determinants on those sequences, i.e., to consider a general representation of Hankel matrices on the first kind of numbers. It is interesting that the Hankel determinant of the first kind of numbers has a close relation that of the second kind of numbers.
关键词   combinatorial sequence   Hankel determinant   combinatorial identity
分类号   05A10

Two Kinds of Numbers and Their Applicatins

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Abstract C. Radoux (J. Comput. Appl. Math. 115 (2000) 471--477) obtained a computational formula of Hankel determinants on some classical combinatorial sequences such as Catalan numbers and polynomials, Bell polynomials, Hermite polynomials, Derangement polynomials etc. From a pair of matrices this paper introduces two kinds of numbers. Using the first kind of numbers we give a unified treatment of Hankel determinants on those sequences, i.e., to consider a general representation of Hankel matrices on the first kind of numbers. It is interesting that the Hankel determinant of the first kind of numbers has a close relation that of the second kind of numbers.

Key words   combinatorial sequence   Hankel determinant   combinatorial identity

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