Generalized Krawtchouk polynomials and the complete weight enumerator of the dual code

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Abstract

A well-known result in Coding Theory is that using the complete weight enumerator of a code, the complete weight enumerator of the dual code can be obtained. In this article, it is established that an associated matrix of coefficients is a generalized Hadamard matrix. The complete weight enumerator of the dual code can be expressed in terms of generalized Krawtchouk polynomials. Orthogonality conditions and recurrence relations satisfied by these polynomials are presented.

Keywords: *Generalized Krawtchouk polynomials, orthogonality, recurrence relations*