

Characterizations of (almost) tight complex two codes

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Abstract

A complex two code is a finite subset in the complex unit sphere with two non-real inner products for any distinct points. From inner products of a complex two code, we obtain an orientation of the complete graph, which is called a tournament. In this talk we will provide the upper bound of complex two codes and characterize (almost) tight examples in terms of spectrum of skew-adjacency matrices of tournaments. This includes a new characterization of skew Hadamard matrices.