

Euclidean t -designs from coherent configurations

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Abstract

The criterion for the spherical embedding of a d -class Q-polynomial association scheme to be a spherical t -design was given by Munemasa (in 2004) for $t \leq 5$ in terms of the Krein parameters. Suda generalized the result for any fixed $t \leq 2d$ and obtained an upper bound for the strength t of a P- and Q-polynomial association scheme as a spherical t -design.

The concept of Q-polynomial coherent configurations was introduced by Suda in 2021, which is a generalization of Q-polynomial association schemes. In this talk, we will discuss the necessary and sufficient conditions (using the Krein numbers) that the embedding of a Q-polynomial coherent configuration becomes a Euclidean t -design for some t .