

Lattices generated by equiangular tight frames.

Lenny Fukshansky, Claremont McKenna College

A spanning set of n unit vectors in a k -dimensional Euclidean space is called an (n,k) unit equiangular tight frame (ETF) if it defines a set of pairwise equiangular lines and satisfies a Parseval-type identity. ETFs are generally rare, and there are multiple restrictions on pairs (n,k) for which an ETF exists. We investigate properties of integral spans of ETFs, focusing on the question of when do they form Euclidean lattices. Further, we investigate properties of lattices that are generated this way and uncover some interesting constructions. We also briefly discuss a more general construction of lattices from tight frames which are not necessarily equiangular.

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