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**On the existence of two-distance sets in the real Euclidean space coming
from coherent configuration of type (2,2;3)**

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Abstract

A finite set $X \subset \mathbb{R}^d$ is called a two-distance set if there are only two distinct distances between different points in X . Finding the maximum cardinality of a two-distance in \mathbb{R}^d is a classical problem and there is not much progress since Lisoněk in 1997. Lisoněk constructed a maximum two-distance set in \mathbb{R}^8 . Such construction has the elegant structure called coherent configuration of type (2,2;3). In this paper, we consider that do we have other example of a two-distance set coming from the natural embedding of a coherent configuration of type (2,2;3) in \mathbb{R}^d ? Our main theorem shows no other example.