

A result in asymmetric Euclidean Ramsey theory

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A typical question in Euclidean Ramsey theory has the following form: is it true that for any colouring of Euclidean space E^n into two (or more) colours there exists a monochromatic copy of some fixed geometric configuration F ? I will focus on the asymmetric version of this question - is it true that for any colouring of E^n in red and blue, there exists either a red copy of F_1 or a blue copy of F_2 ?

Most of the questions in this field are very easy to state, but even some simplest cases are still open. I will give a brief overview of known results. I will also present our recent result with Andrii Arman, that deals with the case of E^3 , F_1 being the configuration of two points at distance 1 to each other, and F_2 being 6 points on a line with distance 1 between consecutive points.