

On a spherical code with 2025 points

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Joint work with Danila Cherkashin and Peter Dragnev

We consider a remarkable spherical code on \mathbb{S}^{21} of cardinality 2025. Forbidding suitable distances to appear we define a class of so-called T -avoiding codes, where the set T corresponds to the forbidden distances. We prove that this code is maximal when $T = (-4/11, -1/44)$, it is a minimal spherical 4-design when T is either $(-4/11, -1/44)$ or $(-1/44, 7/22)$, and, finally, it is universally optimal in the sense of Cohn-Kumar when T is again either $(-4/11, -1/44)$ or $(-1/44, 7/22)$.