Biangular lines with maximal sum of the squared inner products

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Line systems, passing through the origin of an n-dimensional Euclidean sphere generate corresponding antipodal spherical codes. When these line systems admit exactly two angles between their elements, they are called biangular and the corresponding spherical codes have five inner products. Recently Ganzhinov and Szöllösi [1] explored various connections between biangular lines and other objects such as binary codes, few-distance sets and association schemes. They also posed several open problems, connected to the existence of biangular lines with some parameters. Here we give an answer to one of them.

References

[1] Ganzhinov M., Szöllösi F., Biangular lines revisited, Discrete Comput Geom (2021). https://doi.org/10.1007/s00454-021-00276-6