

## The second step of the Lasserre hierarchy for the kissing number

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A spherical code with distance  $\cos(\theta)$  is a subset of the sphere such that for all points in the set, their inner product is at most  $\cos(\theta)$ . The kissing number problem asks for the maximum size of a spherical code with minimum distance  $1/2$ , or equivalently, the maximum number of unit spheres that can simultaneously touch a central unit sphere. In this talk, I will show how we can compute upper bounds on this quantity using the second step of the Lasserre hierarchy. The results can also be used to compute the second level of the Lasserre hierarchy for energy minimization on the sphere.