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*Kissing number of the hemisphere in dimension 8*

The kissing number of spherical caps asks for the maximal number of pairwise non-overlapping unit spheres that can simultaneously touch a central spherical cap in  $n$ -dimensional Euclidean space. Bachoc and Vallentin proved using semidefinite optimization that the kissing number of the hemisphere in dimension 8 is 183. In this talk I will explain our rounding procedure to determine an exact rational solution of the semidefinite program from an approximate solution in floating point given by the solver. Furthermore, I will show that the lattice  $E_8$  is the unique solution for the kissing number problem on the hemisphere in dimension 8.