

Optimality of E8 and Leech lattices

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The E8 root lattice and the Leech lattice are exceptional mathematical objects and they possess a number of extremal properties. In this talk we will show that these lattices provide optimal sphere packings in their respective dimensions. Moreover we will see that these two configurations are universally optimal. In this lecture we will consider other similar optimization problems and will explain the proof techniques. Our particular focus will be on “magic functions” and their construction.

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