

**Thomas Harriot** (1591-1607) considered arrangements of cannon balls, and used an atomic theory in optics. He influenced Kepler in adopting the atomic theory and in investigating sphere packings.

**J. Kepler** (1611) described the face-centered cubic lattice and states that “the packing will be the tightest possible, so that in no other arrangement could pellets be stuffed into the same container”.

**Isaac Newton** and **David Gregory** (1694): How many balls of equal radius can touch a given ball of the same size?

**J.L. Lagrange** (1773) determined the densest lattice packing of circles.

**C.F. Gauss** (1831) determined the densest lattice packing of balls.

**A. Thue** (1892, 1910) determined the densest packing of circles.

**K. Schütte** and **B.L. van der Waerden** (1953) proved that the kissing number of the three dimensional ball is 12.

**C.A. Rogers** (1964): “The present seems to me an opportune time for the publication of such a book, since I have the impression that most of the simplest general results of the subject have already been discovered, and that further progress may be rather slow, depending on detailed and complicated technical developments. If I am proved wrong in this I shall be happy.”

**P. Delsarte** (1972) introduced a *linear programming method* for giving upper bounds for the cardinality of codes and the density of packings.

**V.M. Sidelnikov** (1973), **V.I. Levenstein** (1975), **G.A. Kabatjanskiĭ** and **V.I. Levenstein** (1978) used Delsarte’s method to derive asymptotic bounds for the density of the densest packing of congruent balls in  $d$ -dimensional Euclidean space. These bounds improve the previously known best bounds in exponential order of magnitude.

**V.I. Levenstein** and independently **A.M. Odlyzko** and **N.J.A. Sloane** (1979) used Delsarte’s method to show that the kissing number of an 8-dimensional ball is 240 and the kissing number of a 24-dimensional ball is 196560.