ENUMERATION OF THE IRREDUCIBLE GRAPHS FOR THE TAMMES PROBLEM USING DISTRIBUTED CALCULATIONS

A.S. Tarasov

Institute of Systems Analysis of Russian Academy of Sciences, Moscow
tarasov.alexey@gmail.com

Tammes problem says: how one can arrange a set of the N points on a sphere to increase minimal distance between any two points from the set. This problem was solved for N<=13 and N=24. Basic method for finding solution was the investigation of the so-called irreducible graphs, i.e. localy rigid graphs, where any single vertex cannot be shifted without the decreasing of minimal distance.

In addition to the problem Tammes a irreducible graphs are of independent interest, since it is essentially a stable molecular conformation.

We are listed and classified all the irreducible graphs for the number of points N <= 11.

For this classification it is required to apply the massing of computer calculations using distributed computing.