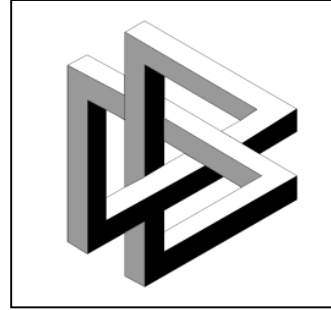


KNOT THEORY PROGRAM

LinKnot

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The *Mathematica*-based knot theory program *LinKnot* is the extension of the program *Knot2000* (*K2K*) written by M.Ochiai and N.Imafuji. *LinKnot* is the knot theory program that works with knots and links (*KLs*) given in the **Conway notation**. Conway symbols are the input used for creating Dowker codes or *P*-data (the main input for *K2K* functions). Instead of a graphical input or Dowker codes, for the first time in a computer program you can use human-comprehensive Conway notation of *KLs* represented as a *Mathematica* string and **work with links**, and not only with knots. For all *KLs* there is no restriction on the number of crossings. The program provides also the complete data base of alternating *KLs* with at most 12 crossings, and non-alternating *KLs* with at most 11 crossings, and the data base of basic polyhedra with at most 20 crossings.

By using it, it is possible to draw *KLs*, calculate all polynomial invariants of *KLs*, work with braids, reduce *KLs*, *etc.* For the first time, it is possible to compute **unknotting and unlinking numbers**, calculated according to *Bernhard-Jablan Conjecture*. For all alternating *KLs* you can compute minimum Dowker codes, find all non-isomorphic projections, work with the graphs of *KLs*, compute linking numbers, breaking and splitting numbers, signatures, and many other *KL* invariants.

The main property of the program is a possibility to use it as a tool in **experimenting** with *KLs*, for computing properties connected with infinite classes of *KLs* (*KL families*) and make **new conjectures** in knot theory. For example, except the famous Nakanishi-Bleiler example of the knot 514 with the unknotting number projection gap, by using *LinKnot* we discovered an infinite collection of such *KLs*.

The **webMathematica** interactive version of the program (supported by Wolfram Research and ICT) and the electronic book *LinKnot* you can find at the address <http://math.ict.edu.yu/>