ANATOLY KORYUKIN, Sobolev Institute of mathematics, Novosibirsk, Russia
Gröbner-Shirshov bases of the Lie algebras A_n^+, B_n^+, C_n^+, D_n^+

Over a field of characteristic 0, the linear reduced bases and reduced Gröbner-Shirshov bases (RGSB) are calculated of the Lie algebras A_n^+, B_n^+, C_n^+, D_n^+ for an arbitrary ordering of the generators corresponding to the simple roots.

Previously, linear reduced bases and RGSBs were calculated only for a specific ordering of the generators. Within the statement of the problem under consideration, the generators of a Lie algebra are fixed, while they are ordered in an arbitrary way, and we analyze an arbitrary basis of the $n!$ bases and the RGSB determined by each of them (here n is the number of generators).

An approach is proposed which combines the systems of roots, the linear reduced bases of the Lie algebras A_n^+, B_n^+, C_n^+, D_n^+, and their RGSBs.