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Cayley graphs and symmetric 4-polytopes

In any abstract 4-polytope P, the faces of ranks 1 and 2 constitute, in an obvious way, the vertices of a graph which has been called the medial layer graph of P. We consider the Cayley graph for the group generated by a natural set of polarities of a finite, self-dual, regular or chiral 4-polytope P as a covering graph of the medial layer graph of P.