

Cyclic embeddings of knots and their applications

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Let \mathcal{C}_n be the 3-dimensional *cyclic polytope* on n vertices. A cycle T in \mathcal{C}_n is just a sequence of lines l_0, \dots, l_{k-1} , $k \leq n$ where two consecutive lines l_i and l_{i+1} (modulo k) have a common vertex, say v_{i+1} , belonging to \mathcal{C}_n and with all vertices v_i different.

A knot K is said to have a *cyclic embedding* if there is an integer m such that \mathcal{C}_m has a cycle T isotopic to K . After showing that any knot (or link) has a cyclic embedding, we will discuss some applications of these special embeddings to different problems.