

NATURAL CLASSIFICATION OF KNOTS

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One of the principal objectives of knot theory is to provide a simple way of classifying and ordering all the knots. Interesting approach consists of ordering the knots according to the length (length/diameter ratio) of a shortest possible cylindrical tube forming a given knot. This approach works well for simple knots. However, for complex knots the difference in the length of rope required to tie different knots with the same crossing number may be smaller than our current precision of determining the minimal length of the rope required to form these knots. A natural classification of knots based on a set of basic quantum numbers that can be easily determined for minimal diagrams of alternating knots will be discussed. These numbers are: crossing number, writhe, number of topological domains in the diagram and the average relaxation value.

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