

Caging and Linking

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007 Kemeny Hall, 4:00 pm
(Tea 3:30 pm 300 Kemeny Hall)

Abstract

For a planar domain, a finite point configuration is said to be caging, if the set of Euclidean motions of the domain not hitting the point configuration is bounded. Caging configurations are important in robotics and are a popular topic in computational geometry.

We argue that caging (and some related problems, like piano movers' problem) is best understood in topological terms, manifesting itself as nontrivial linking of certain closed curves (in the group of motions of Euclidean plane). The corresponding linking numbers can be translated into effectively computable invariants of pairs of framed planar curves.

This talk should be accessible to graduate students

