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The Number of Holes in the Union of Translates of a Convex Set in Three Dimensions

Abstract for the Combinatorics Seminar 2016 April 5

I will show that the union of n translates of a convex body in 3-space can have a cubic number of holes in the worst case, where a hole in a set is a connected component of its complement. This gives improved lower bounds on the complexity of motion planning problems.

This is joint work with Boris Aronov, Otfried Cheong, and Xavier Goaoc.
