

Cops and robber on the n -dimensional torus

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Abstract

The pursuit-evasion game *Cops and Robbers* has enjoyed some attention in both discrete mathematics and theoretical computer science. It concerns a set of cops chasing one or more robbers on a fixed graph. Natural questions to ask are those for the number of cops required to ensure capture in finite time, and for the number of steps required in this case. Previous work both asked these questions for all graphs of fixed order, as well as for certain classes of graphs where bounds may be better due to the underlying structure of the graph. Considering the n -dimensional torus, we determine the number of cops needed in order to capture a single robber and give bounds on the capture time.

This is joint work with Sebastian Koch (University of Cambridge).