

# Finite tilings

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

## Abstract

Suppose we are given a finite set of tiles (think polyominoes). Can one use copies of these tiles to tile a given region? This problem is very hard in general, both mathematically and computationally, but special cases such as domino tilings are beautiful and well understood, with connections and applications from probability to commutative algebra to graph theory. The pioneer work by Conway, Lagarias, and Thurston showed that for simply connected regions, the tileability problem is related to combinatorial group theory, and sometimes can be completely resolved via those methods. In this talk I will give a broad survey of this approach and the state of art in general. I will also mention a few of my own recent results, notably some new hardness results (joint work with Jed Yang), and finish with some open problems.

This talk should be accessible to graduate students.