Math and Cookies

Title: Domino tilings, Perfect matchings on graphs, and the Alexander polynomial of a knot

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November 11 Wednesday 2020, 3:30-4:30 p.m. Webex

Abstract: The goal of this talk is to investigate how well-understood problems in combinatorics interact with this polynomial from knot theory.

Combinatorics – the art of counting – asks questions like "How many ways can we cover a chessboard with dominoes?" Knot theory asks "How can we tell two knots apart?"

A knot is a circle embedded in three-dimensional space. The Alexander polynomial is one example of a knot invariant – that is, if the Alexander polynomial of two knots are different, the knots must be different. This polynomial is the determinant of a matrix, and we'll construct this matrix using techniques from combinatorics.

This talk is accessible to everyone, but students who have already taken combinatorics are especially invited to attend for a taste of some Advanced Topics in Graph Theory, offered this Spring.