

**Department of Mathematics and Statistics Colloquium**

## **Dehn coloring and the dimer model for knots**

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**Abstract:** Fox coloring is a well-known combinatorial framework for studying dihedral representations of the knot group. Dehn coloring captures the same data from the perspective of the Dehn rather than Wirtinger presentation. A recent paper of Carter-Silver-Williams discusses the relationship between the two coloring schemes focusing on how one transitions between them. In this talk, we discuss Dehn coloring and relate it to the dimer model for knots showing that Dehn coloring data is encoded by a certain weighting of the balanced overlaid Tait graph. Using Kasteleyn theory, one can compute coloring data using partition functions. These constructions are closely related to Kauffman's work on a state sum model for the Alexander polynomial. (This is joint work with two former research students Alexander Madaus and Maisie Newman who are both from Washington College in Chestertown, MD.)

**Monday, September 7 at 3:45 in Roop 103**  
**refreshments at 3:30**