

CCSU  
DEPARTMENT OF MATHEMATICAL SCIENCES  
COLLOQUIUM

Friday, April 22  
2:00 – 3:00 PM  
Maria Sanford, Room 101

**WHEN KNOT THEORY MEETS  
GRAPH THEORY: KNOT DIAGRAMS  
AND THE TUTTE POLYNOMIAL**

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**Abstract:** The field of knot theory, which emerged from early attempts to create a periodic table of elements, has benefitted greatly from its connections to geometry, topology, and graph theory as well as from its applications to biology, chemistry, and physics. We will focus on the connections between knot theory and graph theory.

Mathematical knots differ from our everyday notion of knots in that mathematical knots are required to be knotted loops. We view two knots as being equivalent if one knot can be deformed to look like the other knot. The two main driving questions of knot theory ask whether or not a given knot can be unknotted and ask whether or not two given knots are equivalent.

A famous one-to-one correspondence between decorated knot diagrams and decorated planar graphs has led to, for example, a number of useful connections between polynomial invariants of knots and polynomial invariants of graphs. In this talk, we will introduce the knots and graphs that will be studied and will show how a relatively recent interpretation of the Tutte polynomial from graph theory can be used to study the large family of sigma-adequate knots. No specific background in knot theory or graph theory will be assumed.

**For further information:**  
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