

Department of Mathematics and Statistics Colloquium

The critical group of a graph

Peter Sin

University of Florida

Abstract: The critical group of a finite graph is a finite abelian group defined from the Laplacian matrix of the graph. It contains information about the graph such as the number of spanning trees, and arises in physical models (the sandpile model) and in connection with chip-firing games on graphs. One active direction of research has been to calculate the critical group for families of graphs. We will give a gentle introduction to all the necessary concepts, demonstrate some examples of chip-firing games and survey some of the families of graphs for which the critical group has been found, and some of the techniques from algebra and number theory that have been applied.

Monday, February 8 at 3:45 in Roop 103
refreshments at 3:30