

Departmental Colloquium

Department of *Mathematical Sciences* at IUPUI

“Combinatorics and Topology of Graphs on Surfaces”

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Abstract:

Graphs on surfaces appear in many different parts of mathematics, physics, and science. In combinatorics they may be considered from a point of view of matroids. There are several matroids associated to a graph on surface. Their parameters can be assembled into so called Las Vergnas polynomial. From the topological point of view circuits of the graph may be considered as elements on the first homology group of the surface. These topological parameters also can be assembled into a polynomial introduced recently by V. Krushkal. Both polynomials generalize the partition function of the Potts model in statistical physics. It turns out that the Las Vergnas polynomial is a specialization of the Krushkal one.

I will briefly review an introduction to the matroid theory, define the two polynomials, and explain the relationship between them. Then I explain an importance of the Krushkal polynomial for the theory of knots and links.

Host: Evgeny Mukhin

The colloquium will be held in LD 229

Friday, March 4, 2011

3:30 p.m.

Refreshments will be served in LD 259 at 3:00 p.m.