

Krushkal polynomial of graphs on surfaces

Sergei Chmutov

Ohio State University at Mansfield
1760 University Drive, Mansfield, OH 44906, USA

`chmutov@math.ohio-state.edu`

The Krushkal polynomial is the most general polynomial invariant of graphs on surfaces. It was introduced in [1]. A collection of edges forms a spanning *quasi-tree* if the regular neighborhood of the corresponding spanning subgraph has one boundary component. In the case of plane graphs it is just a spanning tree. The set of edges of a spanning quasi-trees is a feasible set of the corresponding delta-matroid. If the edges of the graph are ordered then one can introduces activities relative to a spanning quasi-tree [2]. The goal of my talk is to present a quasi-tree expansion of the Krushkal polynomial discovered by Clark Butler in [3].

References.

- [1] V. Krushkal, , Graphs, links, and duality on surfaces., *Combinatorics, Probability and Computing*, 20, 267-287 (2011).
- [2] A. Champanerkar, I. Kofman, N. Stoltzfus. Quasi-tree expansion for the Bollobás-Riordan-Tutte polynomial., *Bull. Lond. Math. Soc.*, 43(5), 972-984, 2011.
- [3] C. Butler. A quasi-tree expansion of the Krushkal polynomial., Preprint `arXiv: 1205.0298 [math.CO]`, 2012.