13/04/2018

InterCity - seminar

Bern - Neuchâtel - **Fribourg/Freiburg**

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Time	Speaker	Talk
14:00	Georg Loho (EPFL)	**Tropical matroid-like structures**
		Abstract: This talk gives a short survey of combinatorial structures, which generalize relations for tropical matrices, and presents new results in this direction. Matroids can be considered as a combinatorial abstraction of the Pluecker relations. Equipping them with an additional sign information leads to the concept of oriented matroids. These can be used to describe the decomposition induced by a central hyperplane arrangement or the pivoting in the simplex method. Analogous advances have been made to describe tropical point configurations, tropical halfspace arrangements and tropical determinants. I will explain the interplay between tropical oriented matroids, signed tropical matroids and linkage matching fields, and report on recent advances concerning these objects. The talk is based on joint work with Ben Smith.
15:30	Esther Galby (Fribourg - CS)	**On contact graphs of paths on a grid**
		Abstract: Given a collection **C** of interiorly disjoint compact sets in the plane, the *contact graph* of **C** is defined as the graph whose vertex set is in one-to-one correspondence with **C** and two vertices are adjacent if and only if the corresponding sets touch. Contact graphs of various types of geometric objects have been extensively studied in the literature, with an emphasis on the characterisation problem. Among many other such results, it was shown for instance that a graph is the contact graph of a collection of interiorly disjoint closed disks if and only if it is planar. We here consider *Contact graphs of Paths on a Grid* (*CPG graphs*) for which no characterisation is known. As a first step towards answering this question, we examine this class from a structural point of view which leads to constant upper bounds on the clique number, the chromatic number and the clique chromatic number. We further investigate the relation between planar and CPG graphs and show that CPG graphs are not necessarily planar and not all planar graphs are CPG.

The talks will take place in Room 2.73 of the Physics building (PER 08) at the university of Fribourg.

For further informations please refer to the seminar's webpage

www.combinatorialmethods.ch/intercity/

or contact the organisers:

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