Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 9. Juni 2015

17 Uhr s.t., Geom H4

Prof. Dr. Reinhard Diestel
(Universität Hamburg)

Connectivity in graphs and matroids

Abstract:

It is easy to define sensible notions of high connectivity for graphs. It is less straightforward to define highly connected substructures of a graph - in particular if, as the aim may be, we wish to perceive it as a coarse global structure (which may be sparse) that organises its highly connected substructures at a higher level.

The talk will start by describing some ways of making this aim precise. This will lead naturally to another kind of question: if a given graph has no highly connected substructure at all (in whatever sense we agreed on), is this always witnessed by a corresponding way of describing it as deviating only in a bounded way from some specific type of sparse graph, such as a tree?

Surprisingly, perhaps, these questions can be addressed at a very abstract level. Their solutions include theorems for matroids as unexpected windfalls. Maybe there are contexts outside combinatorics where they can be fruitful too?

Finally, I'd like to speak about infinite graphs and matroids: of how a topological perspective helped us solve combinatorial problems that for many years had seemed hopeless, and how 10 years on it has now turned out that topology isn't needed after all...

The talk is designed for a general maths audience with no background in combinatorics.

Vor dem Vortrag (ab 16.30 Uhr) stehen im Raum 327 Kaffee und Tee bereit.