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On the structure of decompositions of 3-connected graphs

Abstract

The talk is devoted to a new approach to investigation of the structure of 3-connected graphs. We consider all 3-vertices cutsets of a 3-connected graph and define the notion of a part of decomposition of the graph by a set of cutsets. We divide all 3-cutsets of a 3-connected graph into some small parts, named complexes, and explain, how these complexes decompose the graph. Moreover, when we decompose the graph by one complex, every other complex can be uniquely put into correspondence with one of the parts of decomposition (this complex has been "almost contained" in the part). So each complex divides all other complexes and this division generates a hypertree structure on the set of complexes.

The talk is based on the joint work with Dmitriy Karpov.