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On the Mean Order of Certain Types of Substructures of Graphs

The problem of finding the mean order of the subtrees of a tree was introduced by Jamison in 1983. It is known that paths have the smallest mean subtree order among trees of a fixed order. However, the problem of determining the structure of trees with maximum subtree order remains open. We discuss some progress on the latter for subclasses of trees. We also present some extensions of the mean subtree order of a tree to other classes of graphs and present results for these new invariants. (This is joint work with Lucas Mol and Alexander Stephens.)