

New Minimal Graph Classes of Unbounded Clique-width

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Clique-width is a parameter that gives a general indication of the complexity of structure in a class of graphs. A well-known result of Courcelle, Makowsky and Rotics shows that many problems on graphs which are NP-hard in general can be solved in polynomial time in any class of graphs of bounded clique-width. However, there is no known characterisation of the minimal classes of graphs of unbounded clique-width.

Lozin, Razgon and Zamaraev recently disproved an important conjecture of Daligault, Rao and Thomassé, by showing that well-quasi-orderability by the induced subgraph relation does not imply bounded clique-width. An equivalent conjecture for a 'labelled' version of the induced subgraph relation remains open.

In this talk, we present various new minimal graph classes of unbounded clique-width and suggest possible applications to other questions on graphs.

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