ON 3-COLOURABILITY OF ($BULL$, H)-FREE GRAPHS

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We call G an H-free graph, if G does not contain H as an induced subgraph. In a class of *bull*-free graphs, where *bull* is a triangle with two additional edges attached to its two vertices, the 3-colourability problem remains NP-complete. However, in the class of graphs defined by two forbidden subgraphs, *bull* and one of stars $S(1,1,2)$ or $S(1,2,2)$, it is possible to find a polynomial algorithm that resolves 3-colourability. Such an algorithm returns a colouring if the given graph is 3-colourable, or a certain subgraph which is obviously non-3-colourable, otherwise.

In this talk we present such algorithms for (*bull*, $S(1,1,2)$)-free and (*bull*, $S(1,2,2)$)-free graphs. The main tool used is the characterisation of perfect graphs given by the Strong Perfect Graph Theorem.

References

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