

Hamilton-connectedness of 3-connected $\{K_{1,3}, \Gamma_3\}$ -free graphs

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We show that every 3-connected $\{K_{1,3}, \Gamma_3\}$ -free graph is Hamilton-connected, where Γ_3 is the graph obtained by joining two vertex-disjoint triangles with a path of length 3. This resolves one of the two last open cases in the characterization of pairs of connected forbidden subgraphs implying Hamilton-connectedness. The proof is based on a new closure technique and structural analysis of small subgraphs, cycles and paths in line graphs of multigraphs. The most technical steps of the analysis are computer-assisted.

In the talk, we discuss motivations and related results, and point out some difficulties of the proof of this particular case.