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On the recognition of probe graphs of some self-complementary classes of perfect graphs

In this paper we consider the recognition of some probe graph classes. Given a class of graphs \( \mathcal{G} \), a graph \( G \) is a probe graph of \( \mathcal{G} \) if its vertices can be partitioned into a set \( \mathcal{P} \) of probes and an independent set \( \mathcal{N} \) of nonprobes, such that \( G \) can be extended to a graph of \( \mathcal{G} \) by adding edges between certain nonprobes. We show that there are polynomial-time recognition algorithms for probe cographs, probe \( P_4 \)-reducible graphs, probe \( P_4 \)-sparse graphs, and probe splitgraphs.

Joint work with Maw-Shang Chang, Ton Kloks, Dieter Kratsch and Sheng-Lung Peng.