

Complexity of Graph Sandwich Problems related to Partition Problems

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Abstract

In this talk we consider two decision problems. The first one is the Golumbic, Kaplan and Shamir decision sandwich problem for the property Π , where two graphs $G^1 = (V, E^1)$ and $G^2 = (V, E^2)$ are given, such that $E^1 \subseteq E^2$, plus the question whether there exists a graph $G = (V, E)$, such that $E^1 \subseteq E \subseteq E^2$, and G satisfies property Π . The second one is the Feder, Hell, Klein and Motwani decision graph partition problem, where it is given a graph G and the question whether there is a partition for the vertex set of G into at most k sets V_1, V_2, \dots, V_k , which can have inner properties (like V_i being a clique, or an independent set, or no restriction) and external properties (like $V_i V_j$ being completely adjacent, or completely non-adjacent, or no restriction).

We will discuss the complexity of the sandwich problem for properties or classes of graphs arising from partition problems.

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