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The complexity of signed graph homomorphisms

A *signed graph* (G, Σ) is a graph G where each edge is given a sign, positive or negative; $\Sigma \subseteq E(G)$ denotes the set of negative edges. Central to signed graphs is the operation of *resigning* at a vertex.

An *s-homomorphism* from (G, Σ) to (H, Π) is a vertex map that preserves edges and their signs after possibly resigning at some vertices of G . We give a simple classification of the **P/NP**-complete dichotomy for the (H, Π) -colouring problem and a direct proof of the result.

This is joint work with Foucaud, Hell, Naserasr, and Siggers.