# $\mathbb{Z}_2$-embeddings of Clustered Graphs

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Hanani–Tutte theorem is a classical result proved for the first time in 1930s that characterizes planar graphs as graphs that admit a drawing in the plane in which every pair of edges not sharing a vertex cross an even number of times. We generalize Hanani–Tutte theorem to clustered graphs with two disjoint clusters, and show that a straightforward extension of our result to flat clustered graphs with three or more disjoint clusters is not possible. Similarly as Hanani-Tutte theorem, our generalization gives a polynomial-time algorithm for clustered planarity testing in the case of two clusters. We also discuss possible extensions of our results and their consequences for other variants of planarity.