

Survey on vertex-minors and pivot-minors of graphs

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For a vertex v of a graph G , the *local complementation* at v is an operation to obtain a new graph denoted by $G*v$ from G such that two distinct vertices x, y are adjacent in $G*v$ if and only if both x, y are neighbors of v and x, y are non-adjacent, or at least one of x, y is not a neighbor of v and x, y are adjacent. For an edge xy of G , *pivoting* xy in G is an operation to obtain $G*x*y*x$ from G . A graph H is a *vertex-minor* of a graph G if H is obtained from G by a sequence of local complementation and vertex deletions. A graph H is a *pivot-minor* of a graph G if H is obtained from G by a sequence of pivoting and vertex deletions.

Motivated by the big success of the graph minor structure theory developed deeply by Robertson and Seymour since 1980s, we propose a similar theory for vertex-minors and pivot-minors. This talk will illustrate similarities between graph minors and graph pivot-/vertex-minors and give a survey of known theorems and open problems on vertex-minors and pivot-minors of graphs.