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University San Marcos. Finding minors in graphs with a given path structure.

A routing of a graph H in a graph G with $V(H) \subseteq V(G)$ is a collection of |E(H)| paths, consisting of one u, v-path in G for each edge uv in H. An H-subdivision corresponds to a routing in which the paths are internally vertex disjoint, whereas an H-immersion corresponds to a routing in which the paths are edge-disjoint.

The study of H-routings that force G to have an H-minor naturally leads to H-immersions with the additional property that all paths in the routing that contain the same vertex must have a common endpoint. If H has the property that every graph G with such an H-immersion contains an H-minor, then we call H routing contractible.

We show that K_4 , $K_{2,3}$, trees and cycles are routing contractible, but that complete graphs on more than 6 vertices as well as many subdivisions of $K_{2,3}$ are not routing contractible. (Received February 03, 2009)