A Characterization of Simple, K^4-Free Near Outer-Planar Graphs

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A graph is *outer-planar* if it is planar and has an embedding in which every vertex lies on the boundary of the outer-face, and a graph is *near outer-planar* if it contains an edge whose removal results in an outer-planar graph. We aim to characterize a subset of the class of all near outer-planar simple graphs in terms of a finite list of excluded minimal graphs. In this subset, the graphs are not near outer-planar but every proper subgraph of the graphs is near outer-planar. We focus on simple graphs and exclude K^4 to ensure planarity and non-3-connectedness. In this article, we present a list of simple, excluded, K^4-free, minimal graphs of near outer-planar graphs, and prove that the list is complete.

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