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Convex partitions with 2-edge connected dual graphs

It is shown that for every set of k disjoint convex polygonal obstacles in the plane with a total of n vertices, there is a partition of the free space around the obstacles into $n - k + 1$ convex cells whose dual graph is 2-edge connected. Every convex cell corresponds to a node in the dual graph, and every vertex of an obstacle corresponds to an edge between two incident convex cells. Questions about the dual graph of a convex partition are motivated by the geometric disjoint compatible matching conjecture.

Joint work with M. Al-Jubeh, M. Hoffmann, M. Ishaque, and D. Souvaine.