Crossing Spectrums for Polyomino Graphs

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From a given polyomino, one can construct a graph by placing vertices at the corners of its squares and edges along the boundaries of its squares. For a given graph G, the spectrum is the set of all possible numbers of crossings for drawings of G. We consider graphs in Po(n), the class of polyomino graphs with n squares, and analyze which graphs are "subthrackles" and which graphs have a complete spectrum; a polyomino graph of n squares is subthrackle if it can be drawn with each edge intersect each other exactly once except for n misses. Besides some general results, we study all polyomino graphs corresponding to trominoes, tetrominoes, and pentominoes.

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