C_4-face-magic Polyominoes in the Plane

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For a planar graph $G = (V, E)$ embedded in $\mathbb{R}^2$, let $\mathcal{F}(G)$ denote the set of faces of G. Then, G is called a *C_n-face-magic graph* if there exists a bijection $f : V(G) \to \{1, 2, \ldots, |V(G)|\}$ such that for any $F \in \mathcal{F}(G)$ with $F \cong C_n$, the sum of all the vertex labels along C_n is a constant c. We investigate polyomino graphs which are C_4-face-magic.

Key words: C_n-face-magic graph, polyomino, Young tableau graph.