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Non-Hamiltonian simple 3-polytopes with only one type of face besides triangles. (English)

Zbl 0571.05033

Convexity and graph theory, Proc. Conf., Israel 1981, Ann. Discrete Math. 20, 241-251 (1984).

[For the entire collection see [Zbl 0549.00001](#).]

Various authors [see for instance *H. Walther*, Discrete Math. 33, 107-111 (1981; [Zbl 0476.05051](#))] have studied the Hamiltonicity of simple 3-polytopes (i.e. 3-connected cubic planar graphs) with faces of only two different valencies, p and q . Here it is shown that if $p = 3$ and $q = 8, 9$ or 10 , not all such 3-polytopes are Hamiltonian, and in fact the shortness coefficient of the graphs concerned is less than 1. Still open are the cases $(p, q) = (3, 7), (4, 7), (5, 6)$ and $(4, 2k)$ for $k \geq 4$.

Reviewer: [N.Wormald](#)

MSC:

[05C45](#) Eulerian and Hamiltonian graphs

Cited in **12** Documents