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The spectrum of optimal excess graphs for trees with up to four edges. (English)

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Summary: *C. Huang* and *A. Rosa* [Ars Comb. 5, 23–63 (1978; Zbl 0418.05041)] solved the spectrum problem for decomposition for trees with up to eight edges. Also, the packing and covering problems were settled for trees with up to six edges by *Y. Roditty* [J. Comb. Theory, Ser. A 35, 213–243 (1983; Zbl 0521.05053); Int. J. Math. Math. Sci. 9, 277–282 (1986; Zbl 0608.05028); Ars Comb. 19, 81–93 (1985; Zbl 0578.05013)]. In this paper, we find the spectrum of excess graphs for trees with up to four edges. Moreover, we use new techniques in our proofs and state lemmas that will be useful for generalizing our result for trees with higher number of edges.

MSC:

05C50 Graphs and linear algebra (matrices, eigenvalues, etc.)

Keywords:

covering; excess graph; design

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