

Chvátal-Erdős condition and pancyclism

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Abstract

The well-known Chvátal-Erdős theorem states that if the stability number α of a graph G is not greater than its connectivity then G is hamiltonian. In 1974 Erdős showed that if, additionally, the order of the graph is sufficiently large with respect to α , then G is pancyclic. His proof is based on the properties of cycle-complete graph Ramsey numbers. In this paper we show that a similar result can be easily proved by applying only classical Ramsey numbers.

Keywords: hamiltonian graphs, pancyclic graphs, cycles, connectivity, stability number.

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1 Introduction

We use Bondy and Murty's book [5] for terminology and notation not defined here and consider finite, undirected and simple graphs only. For a graph G we denote by $V = V(G)$ its vertex-set and by $E = E(G)$ its set of edges. The symbols $\alpha = \alpha(G)$ and $\kappa = \kappa(G)$ stand for the stability number and

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