

A Note on 2-Factors with Two Components

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Abstract

In this talk, we consider a minimum degree condition for a hamiltonian graph to have a 2-factor with two components. Let G be a graph of order $n \geq 3$. Dirac's theorem says that if the minimum degree of G is at least $n/2$, then G has a hamiltonian cycle. Furthermore, Brandt et al. proved that if $n \geq 8$, then G has a 2-factor with two components. Both theorems are sharp and there are infinitely many graphs G of odd order and minimum degree $(|G| - 1)/2$ which have no 2-factor. However, if hamiltonicity is assumed, we can relax the minimum degree condition for the existence of a 2-factor with two components. A hamiltonian graph of order $n \geq 6$ and minimum degree $5n/12 + 2$ has a 2-factor with two components.