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Hamilton paths in Cayley graphs on generalized dihedral groups

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Abstract

We investigate the existence of Hamilton paths in connected Cayley graphs on generalized dihedral groups. In particular, we show that a connected Cayley graph of valency at least three on a generalized dihedral group, whose order is divisible by four, is Hamilton-connected, unless it is bipartite, in which case it is Hamilton-laceable.

Keywords: Hamilton-connected, Hamilton-laceable, Cayley graph, generalized dihedral group, honeycomb toroidal graph.

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Hamiltonove poti v Cayleyevih grafih posplošenih diedrskih grup

Povzetek

V članku raziskujemo obstoj Hamiltonovih poti v povezanih Cayleyevih grafih posplošenih diedrskih grup. Natančneje, pokažemo, da je povezan Cayleyev graf stopnje vsaj tri, pripadajoč posplošeni diedrski grupi, katere red je deljiv s štiri, zagotovo povezan s Hamiltonovimi potmi, kadar ni dvodelen; v tem primeru pa obstaja Hamiltonova pot vsaj med poljubnima dvema vozliščema iz različnih delov dvodelne množice vozlišč.

Ključne besede: povezan s Hamiltonovimi potmi, dvodelno povezan s Hamiltonovimi potmi, Cayleyev graf, posplošena diedrska grupa, torusni graf.