22(5)

One-regular normal Cayley graphs on dihedral groups of valency 4 or 6 with cyclic vertex stabilizer

Jin Ho KWAK, Ju-Mok Oh

Mathematics, Pohang University of Science and Technology, Pohang, 790-784 Korea

摘要   A graph G is one-$regular$ if its automorphism group ${\rm Aut}(G)$ acts transitively and semi-regularly on the arc set. A Cayley graph ${\rm Cay}(\Gamma,S)$ is {\it normal} if Γ is a normal subgroup of the full automorphism group of ${\rm Cay}(\Gamma,S)$. Xu, M. Y., Xu, J. (Southeast Asian Bulletin of Math., {\bf 25}, 355--363 (2001)) classified one-regular Cayley graphs of valency at most 4 on finite abelian groups. Maru${\rm \breve{s} i \breve{c}}$, D., Pisanski, T. (Croat. Chemica Acta, {\bf 73}, 969--981 (2000)) classified cubic one-regular Cayley graphs on a dihedral group, and all of such graphs turn out to be normal. In this paper, we classify the 4-valent one-regular normal Cayley graphs G on a dihedral group whose vertex stabilizers in ${\rm Aut}(G)$ are cyclic. A classification of the same kind of graphs of valency 6 is also discussed.

关键词   one-regular graph   Cayley graph   dihedral group   half-transitive graph

分类号   05C25

One-regular normal Cayley graphs on dihedral groups of valency 4 or 6 with cyclic vertex stabilizer

Abstract A graph G is one-$regular$ if its automorphism group ${\rm Aut}(G)$ acts transitively and semi-regularly on the arc set. A Cayley graph ${\rm Cay}(\Gamma,S)$ is {\it normal} if Γ is a normal subgroup of the full automorphism group of ${\rm Cay}(\Gamma,S)$. Xu, M. Y., Xu, J. (Southeast Asian Bulletin of Math., {\bf 25}, 355--363 (2001)) classified one-regular Cayley graphs of valency at most 4 on finite abelian groups. Maru${\rm \breve{s} i \breve{c}}$, D., Pisanski, T. (Croat. Chemica Acta, {\bf 73}, 969--981 (2000)) classified cubic one-regular Cayley graphs on a dihedral group, and all of such graphs turn out to be normal. In this paper, we classify the 4-valent one-regular normal Cayley graphs G on a dihedral group whose vertex stabilizers in ${\rm Aut}(G)$ are cyclic. A classification of the same kind of graphs of valency 6 is also discussed.

Key words   one-regular graph   Cayley graph   dihedral group   half-transitive graph

通讯作者   Jin Ho KWAK Jinkwak@postech.ac.kr

扩展功能

本文信息
- Supporting info
- PDF(0KB)
- [HTML全文](0KB)
- 参考文献

服务与反馈
- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 复制索引
- Email Alert
- 文章反馈
- 浏览反馈信息

相关信息
- 本刊中 包含"one-regular graph"的相关文章

本文作者相关文章
- Jin Ho KWAK
- Ju-Mok Oh