

Polycirculant graphs and Polycyclic configurations

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Abstract

A graph of order n admitting a non-trivial automorphism α that can be written as a product of h disjoint cycles, each of length m , is called a **polycirculant graph**. More precisely, it is an h -multirculant. The prime motivation for the study of polycirculants comes from the longstanding polycirculant conjecture, posed by Marušič half a century ago, asking whether every vertex-transitive graph is a polycirculant. However, polycirculants are very useful and have been object of intense studies also in the non-vertex-transitive case. Among geometric configurations of points and lines in the plane one frequently encounters configurations admitting rotational symmetry in which all symmetry classes have the same cardinality. Such configurations have been called **polycyclic configurations**. In this talk we present a close connection between polycyclic configurations and polycirculant graphs via cyclic covering graphs and reduced Levi graphs.