

Some characterizations of finite simple groups

Mahnaz Foroudi Ghasemabadi and Ali Iranmanesh

Tarbiat Modares University, Tehran, Iran

E-mail: mahnaz_mat@yahoo.com, iranmanesh@modares.ac.ir

The prime graph of a finite group G is the simple undirected graph defined as follows: the vertices of this graph are the prime numbers dividing the order of G , and two distinct vertices p and q are adjacent by an edge if G contains an element of order pq . Up to now, this graph has been extensively studied, for instance, the structure of the prime graph of finite simple groups and their connected components have been obtained in [1, 2, 3]. The influence of the prime graph on the group structure of G motivates us to work on some characterizations related to this graph. In this talk, our main goal is to present our latest results on the characterization of the simple groups $L_n(3)$, $U_n(3)$ by prime graph and OD-characterization of the simple group ${}^2G_2(q)$.

References

- [1] A. S. Kondratev, Prime graph components of finite simple groups, *Math. Sb.*, **180** (1989), 787-797.
- [2] A.V. Vasil'ev, E.P. Vdovin, An adjacency criterion for the prime graph of a finite simple group, *Algebra Logic*, **44** (2005), 381-406.
- [3] J. S. Williams, Prime graph components of finite groups, *J. Algebra*, **69** (1981), 487-513.