

# Finite groups whose prime graphs do not contain triangles

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The prime graph (or the Gruenberg–Kegel graph)  $\Gamma(G)$  of a finite group  $G$  is a graph, in which the vertices are prime divisors of  $|G|$ , and two vertices  $p$  and  $q$  are adjacent if and only if  $G$  contains an element of order  $pq$ .

Lucido [1] described finite simple groups  $G$  such that the connected components of the graph  $\Gamma(G)$  are trees, i.e. connected graphs without cycles. Furthermore, in this paper Lucido described the structure of a finite group whose the prime graph is a tree. We consider more general problem of the description of the structure of a finite group whose the prime graph contains no triangles (3-cycles).

In the talk we discuss both the recent published in [2, 3] and some new our results on this problem.

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## References

- [1] M. C. Lucido, Groups in which the prime graph is a tree. *Boll. Unione Mat. Ital. (8)* **5B** (2002) 131–148.
- [2] O. A. Alekseeva, A. S. Kondrat'ev, Finite groups whose prime graphs do not contain triangles. I. *Trudy Instituta Matematiki i Mekhaniki UrO RAN* **21(3)** (2015) 3–12.
- [3] O. A. Alekseeva, A. S. Kondrat'ev, Finite groups whose prime graphs do not contain triangles. II. *Trudy Instituta Matematiki i Mekhaniki UrO RAN* **22(1)** (2016) 3–13.