

On 2-closures of abelian groups

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The goal of this talk is to discuss how to determine whether a finite abelian group is 2-closed. It is known that the 2-closure of a finite nilpotent (so abelian as well) permutation group of degree n can be constructed in time $\text{poly}(n)$ [1]. However, it would be interesting to have an explicit criterion of 2-closedness. In [2], such a criterion was introduced as a corollary of the main result. Unfortunately this criterion is wrong and we give a counterexample. Furthermore, we introduce our variant of a criterion.

REFERENCES

- [1] I. Ponomarenko, *Graph isomorphism problem and 2-closed permutation groups*, *Applicable Algebra in Engineering, Communication and Computing* **5** (1994), no. 1, 9–22.
- [2] A. Zelikovskii, *The König problem for abelian permutation groups*, *Vestsi Akad. Navuk BSSR Ser. Fiz.-Mat. Navuk* **125** (1989), no. 5, 34–39.

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