Contribution ID: **23** Type: **not specified**

Some problems about symmetries of finite graphs

A few topics regarding symmetries of finite graphs that I find interesting, intriguing and worth studying shall be presented.

Summary

I would like to mention a few topics regarding symmetries of finite graphs that I find interesting, intriguing and worth studying.

The first topic is about lifting automorphisms along covering projections. Suppose one is given a finite connected graph Γ and a group of automorphisms G acting on it. Can one find a regular covering projection $\wp$ onto Γ such that G is the maximal group that lifts along $\wp$ and such that the full automorphism group of the graph is the lift of G? A recent partial result answer proved recently my Pablo Spiga and myself will be presented.

The second topic is about vertex-transitive graphs admitting an automorphism fixing many vertices; here a strict definition of the term "many" is intentionally avoided so that by varying it one can prove different results. Some computational data regarding cubic vertex-transitive graphs will be presented.

If time permits, a third topic regarding vertex-transitive graphs admitting an automorphism with a long orbit will be discussed; here the term "long" means a suitable fixed proportion of the order of the graph. Some results obtained recently by Micael Toledo about the cubic case will be mentioned.

Primary author: Mr POTOČNIK, Primož (University of Ljubljana)

Presenter: Mr POTOČNIK, Primož (University of Ljubljana)