

Project Title: Orbits of groups on characters

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Department: Mathematics

Project summary: The project is being carried out as planned and is still ongoing. At this point, it seems likely that a strong improvement of the bound in Theorem 2 of the proposal can be obtained, although more work is needed to complete the proof. Some important parts of the proof have been established already. During Summer II 2006, one graduate student worked on using the Computer Algebra System GAP to construct certain examples to get some insights on the problem. He was very successful; he wrote two main programs, used them to study various examples and found one that seems to be of particular interest. He enjoyed this research experience and learned a lot, this being his first exposure to a computer algebra system, and most likely, he will be one of our first PhD students in the math department.

An unexpected avenue of research opened up during the project, and following it, this led to some results on counting the cardinalities of certain sets of characters of a finite group. While this exploration delayed the progress towards the main goal a little bit, it ended up being a paper by itself and was recently submitted for publication to a refereed journal. When the main result is established, it will be the starting point for more research in this vein and thus will serve as the basis for external grant applications, probably later this year.