Adam Mickiewicz University
Faculty of Mathematics and Computer Science

GEOMETRY AND TOPOLOGY SEMINAR

10:15 AM, Tuesday, October 10, 2017
B1-38, Collegium Mathematicum

Speaker: Piotr Mizerka (Adam Mickiewicz University)

Title: Smith sets of finite groups

Abstract:

We are interested in investigating finite group actions on spheres with two fixed points. In particular we want to know whether the action around one fixed point has to be the same as around the second. For this purpose we use a notion of the Smith set of the group. It gives us a full answer about all possible actions we are interested in.

A useful tool for establishing Smith sets are representation rings and their variations. They are obtained via the Grothendieck construction. The point is that these are purely algebraic objects and our knowledge about them is better. We use this machinery to find the answer for some groups we are interested in.

We make a survey on the most important results concerning computations of Smith sets. We quote the essential theoretical results. We apply these results to GAP computations and present the outputs for particular groups. In addition, we point out some unproved conjectures worth investigating. One of these conjectures is the Dovermann–Suh conjecture, which asserts that if the Smith set of a finite group is trivial, then it is also trivial for all of its subgroups. This is already known not to be true in general, however we present computations of groups for which the Dovermann–Suh conjecture holds.