

BOUNDARIES IN GEOMETRIC GROUP THEORY

organized by
Misha Kapovich and Bruce Kleiner

Workshop Summary

Boundaries in Geometric Group Theory, June 13-17, 2005

AIM workshop report

A variety of different constructions of boundaries at infinity have long played an important role in geometric group theory and related areas such as Kleinian groups, rigidity theory for lattices, 3-manifolds, and nonpositive curvature. In the last 10 years or so, there has been particularly intense progress on boundaries, especially boundaries of hyperbolic groups and CAT(0) groups. The main goal of this workshop was to bring together mathematicians who are working on this topic – particularly representatives from fields which would normally have little contact with one another – in order exchange ideas and foster further research.

After soliciting suggestions prior to the meeting, we scheduled 12 expository lectures on a variety of topics. Based on the feedback we received, participants found these lectures very helpful, with the possible exception of one lecture which was too elementary for many people. Judging by comments we heard, for many, this format was a welcome change from the traditional barrage of research lectures.

Another major component of the workshop was the series of problem sessions. These were organized around subtopics, for instance “The Topology of Boundaries”, “Analysis on boundaries”, or “The Cannon Conjecture”. Again, our sense was that these went well – many people contributed, the discussion was lively, and the topics were obviously of interest to a broad audience. One disappointment was that during the session on “Analysis on Boundaries”, the Analysts remained largely silent due to a misunderstanding: they were expecting geometric group theorists to suggest a list of problems for them to work on, instead of presenting problems of their own.

It is too early to tell how successful the workshop was in achieving the principal goal. We did learn from conversations with different people that Analysts were able to fully appreciate, for the first time, the group theoretic context for some of the analytic questions; and that Geometric Group Theorists and Geometric Topologists learned more of the analysis side of the story.

On the basis of the problem sessions we have compiled a list of open problem on boundaries of groups which, in the future, will be expanded and published as part of the problem list in the geometric group theory (this project initiated by Mladen Bestvina).