

# AMOEBAS AND TROPICAL GEOMETRY

organized by

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## Workshop Summary

One of the workshop purposes was to establish mathematical contacts between different people encountering “amoebas” and “tropical geometry” while working in quite distant areas of Mathematics and its applications. This was achieved by scheduling a relatively few lectures combined with a number of more informal working sessions. The lectures presented connections of this emerging subject to an established area of Mathematics (Complex Analysis, Algebraic Geometry, Random Polynomials, Real Algebraic Geometry, Combinatorics, Mirror Symmetry and Symplectic Geometry). The working sessions were discussions of fundamental notions in tropical geometry and linear algebra as well as notions and results closely related to the subject. The discussion sessions were geared toward people who are new in the subject (or just a particular aspect of the subject).

The workshop was explicitly linked to the MSRI special program “Topological aspects of real algebraic geometry”. Both lectures and working session were particularly designed to involve the program postdocs and a number of graduate students from UC Berkeley who are likely to participate in the program. The subject has a number of fundamental and accessible open problems which can serve as research entry points to people looking for a new project to work after PhD or for a nice thesis topic.

Yet another output of the workshop is an attempt to establish a common language between people looking at tropical geometry from different perspectives. While some of the more advanced terminology still needs a universal agreement a consensus (at least among the conference participants) was reached on such basic terms as “tropical variety”, “complex tropical variety” and “real tropical variety” (with “real tropical variety” being a different notion from just “tropical variety”). A number of technical questions have been resolved and new collaborations were started (for instance, between Rekha Thomas and Doug Lind are now planning to develop software tools for computing amoebas).

All in all, it was a very successful workshop establishing a new exciting area of mathematics. In the words of one workshop participant: “One week ago this subject did not exist but now it does”. We think this subject has a great potential, and we plan to continue the work on it, in particular during the forthcoming MSRI program. In the final day of the workshop a number of open problems have been formulated. The list of them is to be prepared for a web page of the workshop, and we refer to this list for further details.