

# Discrete Curvature Flows and Their Applications

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Scientific report

My visit was to the Mathematical Physics Sector of SISSA, Trieste, from 5th till 25th of June 2005.

The main purpose was to study the current work on discrete curvature flows and compare it to the Ricci flow. Ricci flow is a technique introduced by Richard Hamilton and used by himself and Grigory Perelman to prove the Geometrization Conjecture. It is one of the motivations to study discrete analoga.

During my stay I benefited much from several talks on Ricci flow given at SISSA and at the neighboring ICTP (The Abdus Salam Center of Theoretical Physics). I studied papers and preprints of Glickenstein, Luo and others. One of the problems in discrete curvature flows is degeneration of simplices constituting the manifold. Some progress was achieved in the analysis of necessary transformations of the triangulations and conditions under which no degeneration occurs. Certain similarities with the curvature pinching estimates as in the case of the classical Ricci flow became apparent.