Report on the Educational Workshop "Geometric inequalities"
Florence, May 16-20, 2005

The main scope of the workshop was to present surveys and developments in convex geometry, geometric structures of Banach spaces, probabilistic features of phenomena in high dimensions, integral geometry and geometric probability.
Moreover, the Workshop has been organised to celebrate the 65th birthday of professor R. Schneider, from Freiburg, who is one of the most distinguished experts in the theory of convex bodies and contributed to this field with a wide variety of significant results.

The Workshop had around 85 partecipants, mainly from Europe but also from Israel, China, United States and other countries.
Beyond its international character, one of the features of the audience of this Workshop was to be composed by scientists coming from various distinct areas of mathematics: classic convex geometry, geometric functional analysis, probability theory, theory of partial differential equations and calculus of variations.

During the workshop there have been ten invited lectures, of one hour each, given by recognized experts in the fields of Brunn-Minkowski theory of convex bodies, integral geometry, theory of valuations, theory of random matrices and geometric functional analysis. Here is the list of invited speakers and corresponding titles.

- Richard J. Gardner, Western Washington University, Bellingham, USA: "The dual Brunn-Minkowski theory and some of its inequalities".
- Paul Goodey, University of Oklahoma, Norman, USA: "Classes of centrally symmetric convex bodies".
- Peter M. Gruber, Technische Universität, Wien, Austria: "John type theorems".
- Daniel Hug, Universität Freiburg, Germany: "Valuations, integral geometry and linear dependencies".
- Peter McMullen, University College London, Great Britain: "The algebra of polyhedra".
- Vitali D. Milman, University of Tel Aviv, Israel: "The ZigZag approximation of the euclidean ball and other applications to Convex Geometry of Chernoff probabilistic bound".
- Alain Pajor, Université de Marne-la-Valle, France: "Geometry of random $-1, 1$-polytopes".
- Aljosa Volcic, Università della Calabria, Cosenza, Italy: "Hammers X-ray problem, open questions and algorithmic aspects".
- Wolfgang Weil, Universität Karlsruhe, Germany: "Determination of convex bodies by projection functions".
- Jörg M. Wills, Universität Siegen, Germany: "Convex Bodies and Lattice Points".

The level of invited lectures was introductory so to permit, especially to the younger partecipants, to understand and learn.

Beyond the invited lectures, the schedule included thirty shorter communications (of twenty minutes), devoted to describe recent progresses and propose new problems and new directions in the various fields touched by the Workshop. Clearly, this has been a particularly important occasion for young researcher to explain their results to an audience of experts and to receive suggestions and comments.

One of the main scopes of the workshop, that was reached as we hope, was to bring together researchers working in different areas, namely convex geometry, functional analysis, partial differential equations and probability, to give them an opportunity to meet, discuss and exchange ideas. This can improve and strengthen the links among these subjects and can influence and help the work of younger mathematicians.