Intuitive Geometry Workshop and Intuitive Geometry Day in Calgary

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1 Summary

This two-day workshop was organized to provide a much desired opportunity to share research findings in the interconnected fields that are represented in Intuitive Geometry. The term *Intuitive Geometry* was coined by László Fejes Tóth to denote those geometric disciplines in which the unifying theme is that their problems themselves can be explained fairly easily, even to an advanced high school student, however, the solution of these problems require diffucult and very deep methods of modern mathematics. This Workshop is also part of a series of Intuitive Geometry conferences the first of which was organized in 1975 in Tihany, Hungary, and the last one was in 2000 in Balatonföldár, Hungary. This workshop was the sixth such meeting. The Intuitive Geometry Workshop was immediately followed by the Intuitive Geometry Day in Calgary held at the Department of Mathematics and Statistics of the University of Calgary. The Intuitive Geometry Day was a direct continuation of the Intuitive Geometry BIRS workshop. Its main purpuse was to provide an extension to the BIRS event and thus make attendance of the workshop more desirable to colleagues from overseas. In this regard, the event was a great success, out of the 30 participants 11 were from outside North America. The 30 participants of the meetings gave 24 high quality research talks on their recent results of which 16 were 30-minute and 8 were 20-minute presentations. Subject of talks covered the broad areas of general convexity, iterative geometric processes, the theory of packing and covering both in Euclidean and hyperbolic spaces, polytopal approximation of convex bodies, Minkowski geometry, combinatorial geometry, the theory of geometric transversals, extremal problems for convex sets, and abstract and convex polytopes.

The workshop was a resounding success, it brought together researchers from many different fields of Geometry, and among them, 3 advanced graduate students and several postdoctoral fellows. New collaborations among participants are already noticable, especially among the graduate students and postdocs.

Results presented at the Workshop and the Intuitive Geometry Day in Calgary will be published in a special Intuitive Geometry volume of the journal Periodica Mathematica Hungarica. In summary, the future directions for research in Intuitive Geometry are plentiful and the area is very much alive being a central part of modern geometric research.

The Intuitive Geometry Day in Calgary was generously supported by the Pacific Instutite for the Mathematical Sciences, the Faculty of Science, and the Department of Mathematics and Statistics of the University of Calgary.

2 List of Participants

Name	Affiliation
Ambrus, Gergely	University of Szeged, Hungary and University College London, U.K.
Bárány, Imre	Alfréd Rényi Institute of Mathematics, Hungary and University College London, U.K.
Bezdek, András	Auburn University, U.S.A. and Alfréd Rényi Institute of Mathematics, Hungary
Bezdek, Károly	University of Calgary, Canada
Bisztriczky, Ted	University of Calgary, Canada
Bracho, Javier	Universidad Nacional Autonoma de Mexico, Mexico
Böröczky, Károly	Eötvös Loránd University, Hungary
Fejes Tóth, Gábor	Alfréd Rényi Institute of Mathematics, Hungary
Fisher, J. Chris	University of Regina, Canada
Fodor, Ferenc	University of Szeged, Hungary
Guy, Richard K.	University of Calgary, Canada
Heppes, Aladár	Alfréd Rényi Institute of Mathematics, Hungary
Holmsen, Andreas	University of Bergen, Norway
Hubard, Alfredo	New York University, U.S.A.
Ismailescu, Dan	Hofstra University, U.S.A.
Kuperberg, Wlodzimierz	Auburn University, U.S.A.
Kuperberg, Krystyna	Auburn University, U.S.A.
Lángi, Zsolt	University of Calgary, Canada
Martini, Horst	University of Chemnitz, Germany
Naszódi, Márton	University of Calgary, Canada
Oliveros, Deborah	Universidad Nacional Autonoma de Mexico, Mexico
Smith, Ed	Jacksonville State University, U.S.A.
Soltan, Valeriu	George Mason University, U.S.A.
Solymosi, József	University of British Columbia, Canada
Swanepoel, Konrad	University of South Africa, South Africa
Talata, István	Ybl College of St. István University, Hungary
Toth, Csaba	University of Calgary, Canada
Vígh, Viktor	University of Szeged, Hungary
Weiss, Asia Ivic	York University, Canada
Zaks, Joseph	University of Haifa, Israel

3 Schedule of Talks

Intuitive Geometry Workshop

Saturday, September 1, 2007

9:15–9:45	*K. Kuperberg*	Total Curvature Estimates for the Shortest Path on the Boundary of an Elongated Convex Body
9:50–10:20	*I. Bárány*	Paths with no Small Angle
10:50–11:20	*R. K. Guy*	Some Things I Would Like to Know About the Triangle
11:25–11:55	*J. Zaks*	Characterizing Sets in E^n Which are Rationally Realizable in Some E^m
15:00–15:20	*D. Ismailescu*	Circumscribed Polygons of Small Area
15:25–15:45	*G. Ambrus*	Geometric Iterative Processes
16:15–16:35	*M. Naszódi*	Recent Results on the Bezdek–Pach Conjecture
16:40–17:00	*V. Vígh*	Typical Faces of Best Approximating Polytopes with a Restricted Number of Edges
17:05–17:35	*H. Martini*	Recent Results in Minkowski Geometry

Sunday, September 2, 2007

9:15–9:45	*A. Bezdek*	Recent Constructions Concerning Old Packing and Covering Conjectures
9:50–10:20	*E. Smith*	Relationships Between Packing and Covering in the Lower Dimensions
10:50–11:20	*K. Böröczky*	Circle-covering of the Hyperbolic Plane
11:25–11:55	*K. Bezdek*	Disk-polygons Revisited

Intuitive Geometry Day in Calgary

Monday, September 3, 2007

9:30–10:00	*K. Swanepoel*	Diameters in 3-Space
10:05–10:35	*C. Tóth*	Stabbing Numbers of Convex and Orthogonal Subdivisions
11:00–11:20	*A. Heppes*	Line Transversals in Families of Discs
11:25–11:45	*A. Holmsen*	Isolated Transversals
11:50–12:20	*J. Bracho*	Colourful Hadwiger Theorem
14:00–14:30	*A. I. Weiss*	Map Operations and k-Orbit Maps
14:35–15:05	*J. Solymosi*	Arrangements of the Log Curve
15:30–15:50	*Z. Lángi*	Covering a Plane Convex Body by Its Congruent Negative Homothetic Copies
15:55–16:15	*I. Talata*	Packing Three Spheres Into a Minimal Convex Polytope of Given Shape
16:20–16:50	*V. Soltan*	Convex Solids with Quadric Boundary
16:55–17:25	*G. Fejes Tóth*	Covering by Convex Bodies