Special Volume in honor of

Anders Björner

on the occasion of his 60th birthday

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Guest Editors' Foreword.
At the end of May 2008, friends, colleagues, co-authors, students and former students of Anders Björner gathered in Stockholm under the heading

"Festive Combinatorics"

in order to celebrate his 60th birthday. (The actual birthday was in December 2007, but May seemed like a better month for the celebration; this is a good tradition – after all, the birthday of the British Queen, born in April, is also celebrated in June.)

The celebration conference – reflected in this volume of scientific contributions – showed all the wonderful characteristics of Anders' mathematical work, a great variety of topics, ranging from "pure" enumerative combinatorics to the combinatorics of Coxeter groups, combinatorial geometry, topological combinatorics, algebraic combinatorics, and beyond.

Indeed, while this is not the right time and place to give anything like a survey of Anders' past and ongoing scientific work, let us take the occasion to mention a few of his great successes and masterpieces:

- his 1981 disproof of the unimodality conjecture for simplicial polytopes,
- strong fixed-point results for finite posets (joint with Ken Bacławski),
- the extensive and widely applied theory of lexicographic shellability,
- the proof (joint with Michelle Wachs) that intervals in the "strong" Bruhat orders of Coxeter groups are Cohen-Macaulay, based on their theory of CL-shellability,
- the complete characterization of the possible (f,β)-pairs for finite simplicial complexes (joint with Gil Kalai), which pioneered the use of "algebraic shifting" among other tools,
- influential work with László Lovász and Peter Shor on chip-firing games of graphs,
- work on the topology of chessboard complexes and matching complexes with László Lovász, Siniša Vrećica, and Rade Živaljević that has led to a great variety of further work,

– the decision tree bounds for the k-equal problem (joint with László Lovász and Andy Yao), based on volume estimates as well as on homology computations for associated subspace arrangements,
– the key paper with Eric Babson, Svante Linusson, John Shareshian, and Volkmar Welker on the topology of complexes of not 2-connected graphs, which brought combinatorial Morse theory to the forefront,
– his work on subspace arrangements, including the work with Torsten Ekedahl on the finite field case.

These are just a few highlights from his publication list of 89 papers so far, which also includes the highly-influential *Topological Methods* chapter from the "Handbook of Combinatorics" — plus three books, including the thick red five-author *Oriented Matroids* volume (with Michel Las Vergnas, Bernd Sturmfels, Neil White, and Günter M. Ziegler), and the recent yellow *Combinatorics of Coxeter Groups* (with Francesco Brenti).

You may see the great influence of Anders' work in the many different contributions to this Festschrift — you will see his papers quoted, see problems that he posed discussed, but also see his tools applied and extended. We hope that this volume also reflects his inspiring personality as a researcher, author, teacher, and advisor; his wonderful taste for interesting problems; his interest in connections between seemingly quite distant topics; his insistance on clarity, honesty and accessability in exposition; his strong efforts and great care for the research community; and his friendly personality, always happy to share exciting new insights.

We hope that his spirit is also present in this volume, which was edited by three of his proud former students. We learned from him not only how to do research, look at problems, work out examples, and be persistent, but also how to write and exposit – and we are still grateful for his advice on so many aspects of this. Anders continues to inspire us as a researcher, as a co-author, as a teacher, as a friend. This volume is meant as a celebration of all that.

Stockholm/Berlin, April 2009

Axel Hultman
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