

Preface

The Third Waterloo Workshop on Computer Algebra (WWCA 2011, W80) was held May 26–29, 2011 at Wilfrid Laurier University, Waterloo, Canada.

The conference was devoted to the 80th birthday of distinguished combinatorialist Professor Herbert S. Wilf (University of Pennsylvania, USA). Several of Professor Wilf’s books are considered classical; we mention for instance *Generatingfunctionology*, *Algorithms and Complexity*, $A = B$.

Topics discussed at the workshop were closely related to several research areas in which Herbert Wilf has contributed and influenced.

WWCA 2011 was a real celebration of combinatorial mathematics, with some of the most famous combinatorial mathematicians of the world coming together to present their talks. We had more than a 100 participants at the conference. The list of scheduled invited lectures and presentations made at the conference includes:

- Herbert Wilf, University of Pennsylvania, USA, “Two exercises in combinatorial biology”
- Gert Almkvist, University of Lund, Sweden, “Ramanujan-like formulas for $\frac{1}{\pi^2}$ and String Theory”
- George E. Andrews, Pennsylvania State University, USA, “Partition Function Differences, and Anti-Telescoping”
- Miklos Bona, University of Florida, USA, “Permutations as Genome Rearrangements”
- Rod Canfield, University of Georgia, USA, “The Asymptotic Hadamard Conjecture”
- Sylvie Corteel, Univ. Paris 7, France, “Enumeration of staircase tableaux”
- Aviezri Fraenkel, Weizmann Institute of Science, Israel, “What’s a question to Herb Wilf’s answer?”
- Ira Gessel, Brandeis University, USA, “On the WZ method”
- Ian Goulden, University of Waterloo, Canada, “Combinatorics and the KP hierarchy”
- Ronald Graham, UCSD, USA, “Joint statistics for permutations in S_n and Eulerian numbers”

- Andrew Granville, Universite de Montreal, Canada, “More combinatorics and less analysis: A different approach to prime numbers”
- Curtis Greene, Haverford College, USA, “Some Posets Related to Muirhead’s, Maclaurin’s, and Newton’s Inequalities”
- Joan Hutchinson, Macalester College, USA, “Some challenges in list-coloring planar graphs”
- David Jackson, University of Waterloo, Canada, “Enumerative aspects of cactus graphs”
- Christian Krattenthaler, University of Vienna, Austria, “Cyclic sieving for generalised non-crossing partitions associated to complex reflection groups”
- Victor H. Moll, Tulane University, USA, “p-adic valuations of sequences: examples in search of a theory”
- Andrew Odlyzko, University of Minnesota, USA, “Primes, graphs, and generating functions”
- Peter Paule, RISC-Linz, Austria, “Proving strategies of WZ-type for modular forms”
- Robin Pemantle, University of Pennsylvania, USA, “Zeros of complex polynomials and their derivatives”
- Marko Petkovsek, University of Ljubljana, Slovenia, “On enumeration of structures with no forbidden substructures”
- Bruce Sagan, Michigan State University, USA, “Mahonian Pairs”
- Carla D. Savage, NCSU, USA, “Generalized Lecture Hall Partitions and Eulerian Polynomials”
- Jeffrey Shallit, University of Waterloo, Canada, “50 Years of Fine and Wilf”
- Richard Stanley, MIT, USA, “Products of Cycles”
- John Stembridge, University of Michigan, USA, “A finiteness theorem for W-graphs”
- Volker Strehl, Universitaet Erlangen, Germany, “Aspects of a combinatorial annihilation process”
- Michelle Wachs, University of Miami, USA, “Unimodality of q-Eulerian Numbers and p,q-Eulerian Numbers”
- Doron Zeilberger, Rutgers University, USA, “Automatic Generation of Theorems and Proofs on Enumerating Consecutive-Wilf classes”
- Eugene Zima, Wilfrid Laurier University, Canada, “Synthetic division in the context of indefinite summation”

The workshop was financially supported by the Fields Institute and various offices of Wilfrid Laurier University.

This book presents a collection of selected formally refereed papers submitted after the workshop. The topics discussed in this book are closely related to Herb’s influential works. Initially it was planned as a celebratory volume. Herb’s sudden death implied that this has now become a book commemorating his contributions to mathematics and computer science.

This book would not have been possible without the dedication and hard work of the anonymous referees, who supplied detailed referee reports and helped authors to

improve their papers significantly. Finally, we wish to thank the people at Springer-Verlag, in particular Ruth Allewelt and Martin Peters, for working closely with us and for their dedicated and unwavering support throughout the entire publication process.

We feel very fortunate that we were entrusted in the organization of this conference – “unforgettable conference of historical dimension” according to comments of one of the invitees.

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