

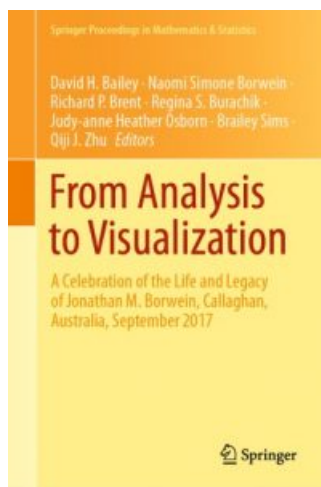
**Karl Dilcher***Book Review Editor*


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*Book Reviews bring interesting mathematical sciences and education publications drawn from across the entire spectrum of mathematics to the attention of the CMS readership. Comments, suggestions, and submissions are welcome.*

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## From Analysis to Visualization

A Celebration of the Life and Legacy of Jonathan M. Borwein

Edited by David H. Bailey et al.

Springer, 2020

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Reviewed by Karl Dilcher

The late Jon Borwein (1951–2016) spent most of his career in Canada (at Dalhousie, Waterloo, and SFU), during which time he was a strong force in research, education, publishing, and matters of policy and administration. He served for the CMS in numerous capacities, including a term as president from 2000 to 2002; several tributes can be found in the December, 2016, issue of the CMS Notes.

Jon spent the last part of his career at the University of Newcastle in Australia, and quickly became as influential in Australian mathematics as he had been in Canadian mathematics. The volume under review contains the proceedings of a conference in Jon's memory that took place in September, 2017, in Newcastle, NSW. In the interest of full disclosure I must mention that I participated in this event and have a paper published in this volume.

The book begins with a detailed preface, the contents of which are best summarized by its section headings: Jonathan Borwein: Mathematician Extraordinaire; A Portrait of the Man as a Mathematician; Nonlinear Analysis and Optimization; Experimental Mathematics; Number Theory, Special Functions and Pi; Mathematical Finance; Mathematical Education and Public Communication; Visualization; and Summary.

The research papers in this collection are then organized in four parts, each with an introduction by the relevant editors. Part I: *Applied Analysis, Optimisation, and Convexity*, edited by Regina S. Burachik and Guoyin Li, contains the following papers: "Symmetry and the Monotonicity of Certain Riemann Sums," by David Borwein, Jonathan M. Borwein and Brailey Sims; "Risk and Utility in the Duality Framework of Convex Analysis," by R. Tyrrell Rockafellar; "Characterizations of Robust and Stable Duality for Linearly Perturbed Uncertain Optimization Problems," by Nguyen Dinh, Miguel A. Goberna, Marco A. López and Michel Volle; "Comparing Averaged Relaxed Cutters and Projection Methods: Theory and Examples," by Reinier Díaz Millán, Scott B. Lindstrom and Vera Roshchina.

Part II: *Education* was edited by Naomi Borwein, and contains "On the Educational Legacies of Jonathan M. Borwein," by Naomi Borwein and Judy-anne Osborn; "How Mathematicians Learned to Stop Worrying and Love the Computer," by Keith Devlin; "Crossing Boundaries: Fostering Collaboration Between Mathematics Educators and Mathematicians in Initial Teacher Education Programmes," by Merylyn Goos; "Mathematics Education in the Computational Age: Challenges and Opportunities," by Kathryn Holmes; "Mathematics Education for Indigenous Students in Preparation for Engineering and Information Technologies," by Collin Phillips and Fu Ken Ly; "Origami as a Teaching Tool for Indigenous Mathematics Education," by Michael Assis and Michael Donovan; "Dynamic Visual Models: Ancient Ideas and New Technologies," by Damir Jungić and Veselin Jungić; "A Random Walk Through Experimental Mathematics," by Eunice Y. S. Chan and Robert M. Corless.

Part III: *Financial Mathematics* was edited by David H. Bailey and Qiji J. Zhu, and contains the following papers: "A Holistic Approach to Empirical Analysis: The Insignificance of P Hypothesis Testing and Statistical Significance," by Morris Altman; "Do Financial Gurus Produce Reliable Forecasts," by David H. Bailey, Jonathan M. Borwein, Amir Salehipour and Marcos López de Prado; "Entropy Maximization in Finance," by Jonathan M. Borwein and Qiji J. Zhu.

Part IV: *Number Theory, Special Functions, and Pi*, edited by Richard P. Brent, contains the following papers: "Binary Constant-Length Substitutions and Mahler Measures of Borwein Polynomials," by Michael Baake, Michael Coons and Neil Mañibo; "The Borwein Brothers, Pi and the AGM," by Richard P. Brent; "The Road to Quantum Computational Supremacy," by Cristian S. Calude and Elena Calude; "Nonlinear Identities for Bernoulli and Euler Polynomials," by Karl Dilcher; "Metrical Theory for Small Linear Forms and Applications to Interference Alignment," by Mumtaz Hussain, Seyyed Hassan Mahboubi and Abolfazl Seyed Motahari; "Improved Bounds on Brun's Constant," by Dave Platt and Tim Trudgian; "Extending the PSLQ Algorithm to Algebraic Integer Relations," by Matthew P. Skerritt and Paul Vrbik; "Short Walk Adventures," by Armin Straub and Wadim Zudilin.

This sizeable volume is a fitting tribute to the legacy of Jonathan Borwein, who made enormous and lasting contributions to so many different areas of mathematics and of learning.

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