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The Abel Prize 2003-2007. The first five years.

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The book is about the first five years of the Abel Prizes, young yet prestigious awards delivered to outstanding mathematicians. It is edited by Helge Holden and Ragni Piene. The laureates were: 2003 Jean-Pierre Serre, 2004 Michael Atiyah and Isadore Singer, 2005 Peter Lax, 2006 Lennart Carleson, 2007 Srinivasa Varadhan.
In the preface the editors comment:
In 2002, the year marking the bicentennial of Abel's birth, the Norwegian Parliament established the objective of creating an international prize for outstanding scientific work in the field of mathematics - the Abel Prize.
The book takes off with the history of the Prize itself.
The members of the Abel committee were five including as chairman a professor from a Norwegian university. The board for the Niels Henrik Abel Memorial Fund were five persons assisted by a permanent observer.
Each laureate provided an autobiography, a curriculum vitae and a list of publications whereas experts present the overall significance of the authors' achievements.
Publications are given in a chronological order, hence they should ease the understanding of the evolution of the authors' ideas and facilitate inquiring references. Contributions by Serre are the longest because they include a text both in English and in French.
Ahead of the sections concerning the six laureates, Nils A. Baas comments on the Honorary Abel Prize to the renowned Norwegian mathematician Atle Selberg in recognition of his status as *one of the world's leading mathematicians.*
Lets mention some snapshots on the rich material:
Serre seams to be too modest when he claims: Sudden discoveries are rare; they have only happened to me twice in sixty years, But they are illuminating moments; truly exceptional. Pila Bayer states: The work of Jean-Pierre Serre represents an important breakthrough in at least four mathematical areas: algebraic topology, algebraic geometry, algebra, and number theory. Nigel Hitchin comments the Abel Prize citation for Michael Atiyah and Isadore Singer: The Atiyah-Singer index theorem is one of the great landmarks of twentieth-century mathematics influencing profoundly many of the most important later developments in topology, differential geometry and quantum field theory.
Atiyah: I found memorizing large bodies of factual information very boring and so I gravitated towards mathematics where only principles and basic ideas matter. From this point on it seemed clear that my future lay in mathematics. Singer declares: Anticipating new directions is not easy.
The growth and evolution of mathematics since I became a gradient student sixty years ago is astonishing. To have been a key participant in the development of index theory and its applications to physics is most gratifying, And beyond that I am fortunate to have experienced first hand the impact of ideas from high energy theoretical physics on many branches of mathematics. Helge Holden and Peter Sarnak provide a comprehensive article on Lax's contributions to mathematics, whereas Lax himself argues: Mathematics is sometimes compared to music. He finds a comparison with painting better. In painting there is a creative tension between depicting the shapes, colors and textures of natural objects, and making a beautiful pattern on a flat canvas, Similarly, in mathematics there is a creative tension between analyzing the laws of nature, and making beautiful logical patterns, The Late Lennart Carleson's contribution termed 'Carleson for beginners' is actually a marvelous carefully written survey of harmonic analysis by Tom Körner. Let us just mention one episode. Since every continuous function is an L^2 function, Carleson's theorem settles the convergence problem as it would have appeared to Fourier and his successors but, in view of the difficulty of Carleson's L^2 proof, it may be asked whether it might not be possible to extract an easier proof which merely applies to continuous functions. Two years after Carleson's result, J.-P. Kahane and Y. Katznelson produced a construction (which may not have been an example of power but was certainly one of extreme cleverness) which showed that given any se E of measure zero there exists a continuous function f whose Fourier sum diverged at every point of E (and possibly others). Terry Lyons about Varadhan's role in the development of stochastic analysis: His contributions are plentiful, original, sand surprising.They have had strategic significance in many different directions so that no-one except perhaps Varadhan could be authoritative on them all, and I doubt if Varadhan could have guessed the range of ways they would be used.
Varadhan expresses a final statement: Professionally I consider myself to have been fortunate, in that my career spanned a period, when science and mathematics were generously funded by the public.
We are looking forward to seeing next years producing further highlights in mathematical research.

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