Edited by Helge Holden and Ragni Piene.


The Abel Prize is given to one or more mathematicians for an outstanding scientific work. In 2010 the book The Abel Prize, 2003–2007 [Springer, Berlin, 2010; MR2605604 (2011i:01012)] was published. The laureates of the Abel Prize in the first five years were presented there. The book was intended to be the first volume of a series, each volume for five years. Indeed, the second volume was published and presents the laureates of the Abel Prize for 2008–2012.

Except for some other short chapters, the book may be divided into seven parts. The first part is the article “The Abel Prize—the missing Nobel in mathematics?” by Kim G. Helsvig. Here the history of the Abel Prize and many circumstances accompanying the establishing of the award are presented.

The following five parts are devoted to the laureates in particular years. In each of those parts, an autobiographical article written by the recipient of the prize himself is included, as well as one or more texts that describe precisely the laureate’s mathematical work, a list of publications (recent publications, published after receiving the prize, are also included) and a curriculum vitae for the laureate (presented as a list of degrees, positions, awards, honorary degrees, etc.).

In 2008 the Abel Prize was awarded to John G. Thompson (University of Florida) and Jacques Tits (Collège de France, Paris) “for their profound achievements in algebra and in particular for shaping modern group theory”. In this part of the book, three articles accompany standard entries. Francis Buekenhout divided his presentation of Tits and his results into two articles: “A biography of Jacques Tits” and “A report on the scientific contribution of Jacques Tits”. The article “The work of John Griggs Thompson: a survey” was written by Richard Lyons and Robert M. Guralnick. The results of both laureates presented there and the enclosed lists of publications are impressive. It is interesting that according to those lists Thompson and Tits did not write any joint paper together (which was not the case in 2004, when also the Abel Prize was given to two mathematicians).

The prize in 2009 was given to Mikhail Gromov (Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France) “for his revolutionary contributions to geometry”. In this case the presentation of the achievements of the laureate is rather unusual, as the long (96 pages divided into 10 parts) article “A few snapshots from the work of Mikhail Gromov” was written by nine authors. However, each contribution is a single-authored paper. The authors are: Dima Burago (who wrote the introduction), Yasha Eliashberg (who wrote two chapters of the article), Anatoly Vershik, Tony Phillips, Franc Forstnerič, Larry Guth, Alex Nabutovsky, Mladen Bestvina and John Roe. The paper shows Gromov’s very broad research area, where he obtained his magnificent results.

In 2010 the laureate was John Tate (University of Texas at Austin) “for his vast and lasting impact on the theory of numbers”. His results are presented in “The work of John Tate” by J. S. Milne. This article is also very long, consisting of 82 pages. The motto of this presentation is a quotation from Andrew Wiles: “Tate helped shape the great reformulation of arithmetic and geometry which has taken place since the 1950s.” The paper fully proves this statement.

John Milnor (Institute for Mathematical Sciences, Stony Brook University, New
York) obtained the award in 2011 “for pioneering discoveries in topology, geometry and algebra”. In the case of Milnor, the presentation of his results is given in three articles written by different authors. They are “Milnor’s work in algebra and its ramifications” by Hyman Bass, “John Milnor’s work in dynamics” by Mikhail Lyubich and “John W. Milnor’s work on the classification of differentiable manifolds” by L. C. Siebenmann. The articles show significant achievements of Milnor in very different areas of mathematics, from the discovery of exotic spheres in 1956 through his extraordinary results in algebra to one-dimensional dynamics he got interested in in the 1970’s.

Finally, in 2012 the Norwegian Academy of Science and Letters decided to award the Abel Prize to Endre Szemerédi (Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Budapest, and Department of Computer Science, Rutgers, The State University of New Jersey, USA) “for his fundamental contributions to discrete mathematics and theoretical computer science, and in recognition of the profound and lasting impact of these contributions on additive number theory and ergodic theory”. The results of Szemerédi are described in the article “The mathematics of Endre Szemerédi” by W. T. Gowers. In the article many of the outstanding achievements of the laureate are presented, although Timothy Gowers writes “it will not be possible in an article such as this to do justice to either the breadth or the depth of his work”.

The last large chapter of the book is the article “Abel and the theory of algebraic functions” by Christian Skau. The article is mathematical reflections stimulated by the letter Niels Henrik Abel sent to August Leopold Crelle on 25 September 1828. The facsimile of this letter, its contents (in German) and an English translation are also enclosed.

Some other short articles or pieces of information are also included in the book. Lists of the members of the Abel Committee and the Niels Henrik Abel Board from 2008 to 2012 are provided. The full list of Abel Lectures in 2003–2012 is included. Also, the list of Abel Laureate Presenters in 2003–2012 is given. Finally, we have “Addenda, Errata and Updates”. This chapter of the book contains the list of publications and updates of CV’s of the Abel Prize Laureates in 2003–2007 (i.e., Jean-Pierre Serre, Michael Atiyah, Isadore M. Singer, Peter D. Lax, Lennart Carleson and S. R. Srinivasa Varadhan) concerning the period after publishing the first volume.

Several interesting photographs are included in the book. The articles presenting the results of the recipients of the prizes are written perfectly.

Note that each of the two volumes (the previous one and the reviewed book) presents six mathematicians, as in each five year period the Abel Prize was once given to two mathematicians (2004 and 2008). However, the first volume consists of 326 pages; the second volume contains as many as 571 pages. On the other hand, the first volume was accompanied by a DVD, which contained interviews with each laureate. Now no DVD is enclosed, but there are given the addresses of web pages where those interviews and other video material (the Abel lectures by laureates and some lectures in connection with the Abel Prizes to those laureates) are available. These addresses are www.springerimages.com/videos/978-3-642-39448-5 and www.abelprize.no.

The motto of the book is a quotation from Abel: “It seems to me that if one wants to make progress in mathematics, one should study the masters, not the pupils.”

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