The first ten Abel Prizes for mathematics [English summary]

Summary

The First Ten Abel Prizes for Mathematics

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The Abel Prize for mathematics is an international prize presented by the King of Norway for outstanding results in mathematics. It is named after the Norwegian mathematician Niels Henrik Abel (1802–1829) who found that there is no explicit formula for the roots of a general polynomial of degree five. The financial support of the Abel Prize is comparable with the Nobel Prize, i.e., about one million American dollars.

Niels Henrik Abel (1802–1829)

Already in 1899, another famous Norwegian mathematician Sophus Lie proposed to establish an Abel Prize, when he learned that Alfred Nobel would not include a prize in mathematics among his five proposed Nobel Prizes. The first Nobel Prize for Physics was awarded in 1901 to Wilhelm Conrad Röntgen. Therefore, there was an attempt to organize the Abel Prize in 1902 to commemorate 100 years of Abel's birth, but it was unsuccessful. One hundred years later the Norwegian government announced that the prize would be awarded in 2002 for the two-hundredth anniversary of Abel's birth. However, the first laureate got the Abel Prize one year later. It is awarded by the Norwegian Academy of Sciences and Letters.

In this essay we survey the major results of the recipients of the first ten Abel Prizes. Each chapter contains a short biographical sketch of a particular laureate and his contribution to various fields of mathematics:

1. Jean-Pierre Serre (2003) – topology, algebraic geometry, and number theory

2. Michael Atiyah and Isador Singer (2004) – topology, geometry, and analysis

3. Peter Lax (2005) – numerical and applied mathematics

4. Lennart Carleson (2006) – harmonic analysis and dynamical systems

5. Srinivasa Varadhan (2007) – theory of probability and statistics

6. John G. Thompson and Jacques Tits (2008) – algebra and theory of groups

7. Michail L. Gromov (2009) – differential geometry

8. John Tate (2010) – algebraic number theory

9. John Milnor (2011) – differential topology, geometry, and algebra

10. Endre Szemerédi (2012) – discrete mathematics and theoretical computer science