Fields Medals awarded at the ICM2006: Okounkov, Perelman, Tao and Werner

- The winners of the Fields Medals awarded today, 22nd of August, in Madrid, during the opening ceremony of the International Congress of Mathematicians ICM2006, are: **Andrei Okounkov; Grigori Perelman; Terence Tao;** and **Wendelin Werner**.
- The Nevanlinna Prize is awarded to **Jon Kleinberg**.
- The Gauss Prize goes to **Kiyoshi Itô** (Please see separate press release for the Gauss Prize.)

The Fields Medals are the most important international prize in the world of mathematics. They are awarded by the International Mathematical Union (IMU) every four years at the ICM (International Congress of Mathematicians). They are accompanied by strict conditions. For example, the identity of the winners must remain confidential until the presentation ceremony. The awardees are chosen by a committee whose members must also remain anonymous, and who are sworn to secrecy until the official public announcement of their decisions. The award-winners are notified separately a few weeks before the official presentation, although they too are unaware of which of their colleagues have been chosen to receive the prizes.

Between two and four Fields Medals can be awarded at each ICM, and only those mathematicians below the age of 40 (on January 1st of the year in which the Congress is held) are eligible to receive them. This is because they are meant to encourage future endeavour. They are typically awarded for a body of work, rather than a single isolated achievement.

The medals, gold-minted, are named after the Canadian mathematician John Charles Fields (1863-1932) and were first awarded at the International Congress held in Oslo in 1936.

The obverse of the medals shows Archimedes facing right and the motto "Transire Suum Pectus Mundoque Potir": "To transcend one's spirit and to take hold of (to master) the world". On the reverse side, also in Latin, the inscription "The mathematicians having congregated from the whole world awarded (this medal) because of outstanding writings". The name of the Medallist is engraved on the rim of the medal.

Fields Medals ICM2006

Andrei Okounkov: "for his contributions bridging probability, representation theory and algebraic geometry"

The work of Andrei Okounkov has revealed profound new connections between different areas of mathematics and has brought new insights into problems

arising in physics. Although his work is difficult to classify because it touches on such a variety of areas, two clear themes are the use of notions of randomness and of classical ideas from representation theory. This combination has proven powerful in attacking problems from algebraic geometry and statistical mechanics. (More information in the attached document.)

Andrei Okounkov was born in 1969 in Moscow. He received his doctorate in mathematics from Moscow State University in 1995. He is a professor of mathematics at Princeton University. He has also held positions at the Russian Academy of Sciences, the Institute for Advanced Study in Princeton, the University of Chicago, and the University of California, Berkeley. His distinctions include a Sloan Research Fellowship (2000), a Packard Fellowship (2001), and the European Mathematical Society Prize (2004).

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Grigori Perelman: "for his contributions to geometry and his revolutionary insights into the analytical and geometric structure of the Ricci flow"

The name of Grigori Perelman is practically a household word among the scientifically interested public. His work from 2002-2003 brought ground-breaking insights into the study of evolution equations and their singularities. Most significantly, his results provide a way of resolving two outstanding problems in topology: the Poincare Conjecture and the Thurston Geometrization Conjecture. As of the summer of 2006, the mathematical community is still in the process of checking his work to ensure that it is entirely correct and that the conjectures have been proved. After more than three years of intense scrutiny, top experts have encountered no serious problems in the work (More information in the attached document.)

Grigori Perelman was born in 1966 in what was then the Soviet Union. He received his doctorate from St. Petersburg State University. During the 1990s he spent time in the United States, including as a Miller Fellow at the University of California, Berkeley. He was for some years a researcher in the St. Petersburg Department of the Steklov Institute of Mathematics. In 1994, he was an invited speaker at the International Congress of Mathematicians in Zurich.

Terence Tao: "for his contributions to partial differential equations, combinatorics, harmonic analysis and additive number theory".

Terence Tao is a supreme problem-solver whose spectacular work has had an impact across several mathematical areas. He combines sheer technical power, an other-worldly ingenuity for hitting upon new ideas, and a startlingly natural point of view that leaves other mathematicians wondering, "Why didn't anyone

see that before?". His interests range over a wide swath of mathematics, including harmonic analysis, nonlinear partial differential equations, and combinatorics. (More information in the attached document.)

Terence Tao was born in Adelaide, Australia, in 1975. He received his PhD in mathematics in 1996 from Princeton University. He is a professor of mathematics at the University of California, Los Angeles. Among his distinctions are a Sloan Foundation Fellowship, a Packard Foundation Fellowship, and a Clay Mathematics Institute Prize Fellowship. He was awarded the Salem Prize (2000), the American Mathematical Society (AMS) Bocher Prize (2002), and the AMS Conant Prize (2005, jointly with Allen Knutson). At 31 years of age, Tao has written over 80 research papers, with over 30 collaborators.

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Wendelin Werner: "for his contributions to the development of stochastic Loewner evolution, the geometry of two-dimensional Brownian motion, and conformal field theory".

The work of Wendelin Werner and his collaborators represents one of the most exciting and fruitful interactions between mathematics and physics in recent times. Werner's research has developed a new conceptual framework for understanding critical phenomena arising in physical systems and has brought new geometric insights that were missing before. The theoretical ideas arising in this work, which combines probability theory and ideas from classical complex analysis, have had an important impact in both mathematics and physics and have potential connections to a wide variety of applications. (More information in the attached document.)

Born in 1968 in Germany, Wendelin Werner is of French nationality. He received his PhD at the University of Paris VI in 1993. He has been professor of mathematics at the University of Paris-Sud in Orsay since 1997. From 2001 to 2006, he was also a member of the Institut Universitaire de France, and since 2005 he has been seconded part-time to the Ecole Normale Supèrieure in Paris. Among his distinctions are the Rollo Davidson Prize (1998), the European Mathematical Society Prize (2000), the Fermat Prize (2001), the Jacques Herbrand Prize (2003), the Loève Prize (2005) and the Pólya Prize (2006).

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Nevanlinna Prize to Jon Kleinberg

The Nevanlinna Prize has been awarded every four years since 1982 in recognition of the most notable advances made in mathematics in the Information Society (e.g. computational science, programming languages,

algorithm analysis, etc.). This prize consists of a gold medal bearing the profile of Rolf Nevanlinna (1895-1980), rector of the University of Helsinki and president of the IMU (International Mathematical Union). Nevanlinna was the first mathematician to introduce computation into Finnish universities in 1950.

Jon Kleinberg's work has brought theoretical insights to bear on important practical questions that have become central to understanding and managing our increasingly networked world. He has worked in a wide range of areas, from network analysis and routing, to data mining, to comparative genomics and protein structure analysis. In addition to making fundamental contributions to research, Kleinberg has thought deeply about the impact of technology, in social, economic, and political spheres. (More information in the attached document.)

Jon Kleinberg was born in 1971 in Boston, Massachusetts, USA. He received his Ph.D. in 1996 from the Massachusetts Institute of Technology. He is a professor of computer science at Cornell University. Among his distinctions are a Sloan Foundation Fellowship (1997), a Packard Foundation Fellowship (1999), and the Initiatives in Research Award of the U.S. National Academy of Sciences (2001). In 2005, Kleinberg received a MacArthur "genius" Fellowship from the John D. and Catherine T. MacArthur Foundation.