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Media release

Abel Prize winner – A giant of mathematics

Today, the President of the Norwegian Academy of Science and Letters, Nils Chr. Stenseth, announced that Professor Yakov G. Sinai, Princeton University, USA, and Landau Institute for Theoretical Physics, Russian Academy of Sciences has been awarded the 2014 Abel Prize 'for his fundamental contributions to dynamical systems, ergodic theory, and mathematical physics'.

The Abel Prize is considered to be the 'Nobel Prize' for mathematics and has been awarded annually since 2003 and carries a cash award of NOK 6,000,000 (about EUR 750,000 or USD 1 million).

Sinai has been particularly influential in connecting the world of (dynamical) deterministic systems with the world of probabilistic (stochastic) systems. One of the major developments of 20th century mathematics was the development of a rigorous theory, probability theory, for discussing random or uncertain events. The power of this body of tools and language is now embedded in the fabric of our society, where stochastic differential equations are part of common place modelling in biology, economics and decision making.

He is rightly considered one of the most influential mathematicians of the 20th century, and has had a major influence on a generation of researchers.

The announcement was warmly received by the UK mathematical community. Professor Terry Lyons, President of the London Mathematical

Society, said, 'Yakov G. Sinai is a giant who has transformed so much of our understanding of systems that evolve. By considering the simple example of an elastic point bouncing around (billiards) in a convex region he was able to demonstrate how physical systems can convert predictable deterministic behaviour into organised and well understood randomness and so explain the phenomena that has challenged philosophers for generations. He made deep contributions to the study of entropy, or information production, which are vital tools for understanding these systems. This stellar input became a foundation for a stream of work that today we take for granted in underpinning our understanding of dynamical systems and mathematical physics. It is said that his letter in defence of a colleague in the then Soviet Union explains why it was only in 1981, 17 years after submitting his PhD thesis that he became a professor'.

David Youdan, Executive Director of the Institute of Mathematics and its Applications, added, ''.

Professor Sinai is an honorary member of the London Mathematical Society (1992) and a foreign member of the Royal Society (2009).

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Notes for Editors

1. The **Institute of Mathematics and its Applications (IMA)** is the learned and professional society for mathematics. It promotes mathematics research, education and careers, and the use of mathematics in business, industry and commerce. Amongst its activities the IMA produces academic journals, organises conferences, and engages with government. Founded in 1964, the Institute has 5,000 members. Forty percent of members are employed in education (schools through to universities), and the other 60% work in commercial, industrial and governmental organisations. In 1990 the Institute was incorporated by Royal

Charter and was subsequently granted the right to award Chartered Mathematician designation.

2. The **London Mathematical Society (LMS)** is the UK's learned society for mathematics. Founded in 1865 for the promotion and extension of mathematical knowledge, the Society is concerned with all branches of mathematics and its applications. It is an independent and self-financing charity, with a membership of over 2600 drawn from all parts of the UK and overseas. Its principal activities are the organisation of meetings and conferences, the publication of periodicals and books, the provision of financial support for mathematical activities, and the contribution to public debates on issues related to mathematics research and education. It works collaboratively with other mathematical bodies worldwide. It is the UK adhering body to the International Mathematical Union.

3. The Niels Henrik Abel Memorial Fund was established in 2002 to award the **Abel Prize** for outstanding scientific work in the field of mathematics. The Abel Prize was awarded for the first time in 2003. The prize is awarded by the Norwegian Academy of Science and Letters. The choice of Abel Laureate is based on the recommendation of the Abel Committee, which consists of five internationally recognized mathematicians.

4. For more information about the laureate, his achievements and the Abel Prize, visit the Abel Prize website www.abelprisen.no/en/. A photograph of Professor xxx is available from the Norwegian Academy of Science and Letters (see below).

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