



THE
ABEL
PRIZE
2017

Yves Meyer receives the Abel Prize

**The Norwegian Academy of Science and Letters
has decided to award the Abel Prize for 2017 to Yves Meyer (77)
of the École normale supérieure Paris-Saclay, France
“for his pivotal role in the development of the
mathematical theory of wavelets”.**

Yves Meyer was the visionary leader in the modern development of this theory, at the intersection of mathematics, information technology and computational science.

Wavelet analysis has been applied in a wide variety of arenas as diverse as applied and computational harmonic analysis, data compression, noise reduction, medical imaging, archiving, digital cinema, deconvolution of the Hubble space telescope images, and the recent LIGO detection of gravitational waves created by the collision of two black holes.

The President of the Norwegian Academy of Science and Letters, Ole M. Sejersted, announced the winner of the 2017 Abel Prize at the Academy in Oslo today, 21 March.

Yves Meyer will receive the Abel Prize from His Majesty King Harald V at an award ceremony in Oslo on 23 May.

The Abel Prize recognizes contributions of extraordinary depth and influence to the mathematical sciences and has been awarded annually since 2003. It carries a cash award of 6 million NOK (about 675,000 Euro or 715,000 USD).

An intellectual nomad

Having made important contributions to the field of number theory early in his career, Meyer's boundless energy and curiosity prompted him to work on methods for breaking down complex mathematical objects into simpler wavelike components – a topic called harmonic analysis. This led him in turn to help construct a theory for analysing complicated signals, with important ramifications for computer and information technologies. Then he moved on again to tackle fundamental problems in the mathematics of fluid flow. “During my professional life I obsessively tried to cross the frontiers,” he says.

Meyer's work has a relevance extending from theoretical areas of mathematics to the development of practical tools in computer and information science. As such it is a perfect example of the claim that work in pure mathematics often turns out to have important and useful real-world applications.

Yves Meyer has inspired a generation of mathematicians who have gone on to make contributions in their own right. His collaborator on wavelet theory Stéphane Mallat calls him a “visionary” whose work cannot



be labelled either pure or applied mathematics, nor computer science either, but simply “amazing”.

Biography

Yves Meyer, born 19 July 1939 of French nationality, grew up in Tunis on the North African coast. He entered the élite École normale supérieure de la rue d’Ulm in Paris in 1957, coming first in the entrance examination. After graduating, Meyer completed his military service as a teacher in a military school. He obtained his PhD in 1966 from the University of Strasbourg.

He became a professor of mathematics first at the Université Paris-Sud, as it is now known, (1966-1980), then the École Polytechnique (1980-1986), and the Université Paris-Dauphine (1986-1995). He moved to the École normale supérieure Cachan (recently renamed the ENS Paris-Saclay) in 1995, where he worked at the Centre of Mathematics and its Applications (CMLA) until formally retiring in 2008. But he is still an associate member of the research centre.

Awards and recognitions

Yves Meyer has been a member of the French Académie des Sciences since 1993. In 1994 he was elected foreign honorary member of the American Academy of Arts and Sciences and became a foreign associate of the US National Academy of Sciences in 2014.

Yves Meyer became a fellow of the American Mathematical Society in 2012. He was an invited speaker at the International Congress of Mathematicians in 1970 (Nice), in 1983 (Warsaw), and in 1990 (Kyoto). He was an invited speaker at the International Congress of Mathematical Physics in 1988 (Swansea).

His prizes include the Salem (1970) and Gauss (2010) prizes, the latter awarded jointly by the International Mathematical Union and the German Mathematical Society for advances in mathematics that have had an impact outside the field.

The Abel Prize

The Abel Prize is awarded by the Norwegian Academy of Science and Letters. The choice of laureate is based on the recommendation of the Abel Committee, which is composed of five internationally recognized mathematicians. The members of the current committee are: John Rognes (chair), Marta Sanz-Solé, Luigi Ambrosio, Marie-France Vignéras and Ben J. Green.

The Abel Prize and associated events are funded by the Norwegian Government.

For more information about the laureate, his achievements and the Abel Prize, please consult the Abel Prize website www.abelprize.no.

