

THE KAVLI PRIZE

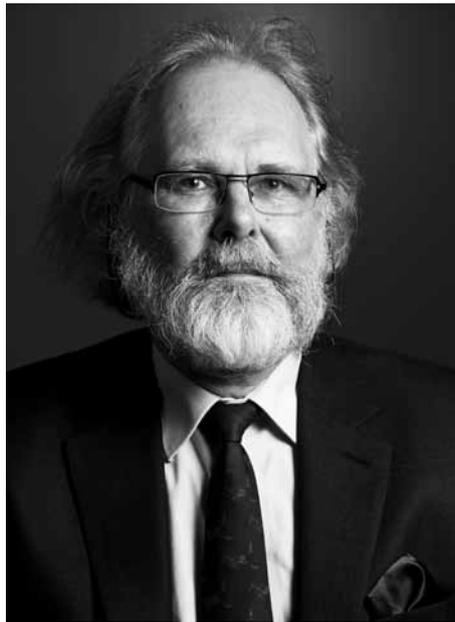
NAMES OF THE 2010 KAVLI PRIZE WINNERS ANNOUNCED

June 3, 2010 - Oslo - EIGHT scientists whose discoveries have dramatically expanded human understanding in the fields of astrophysics, nanoscience and neuroscience has been recognised with the award of the million-dollar Kavli Prizes.

The laureates were chosen for research that has transformed our knowledge of basic units of matter, laid the foundations for the field of nanotechnology, revealed the molecular basis for the transfer of brain signals and other physiological functions, and made possible the building of telescopes that can see deeper into space and further back in time.

These are the second group of recipients of the biennial Kavli Prizes, following the successful launch of the awards in 2008. They were set up to recognise outstanding scientific research, honour highly creative scientists, promote public understanding of scientists and their work and to encourage international scientific cooperation. The Norwegian Academy of Science and Letters, The Kavli Foundation and the Norwegian Ministry of Education and Research created the prize scheme in partnership.

Winners have been selected by committees of leading international scientists in the three fields. The prize committees are appointed by The Norwegian Academy of Science and Letters after receiving recommendations from international academies and scientific organisations including the Chinese Academy of Sciences, the French Academy of Sciences, the Max Planck Society of Germany, the US National Academy of Sciences and the UK's Royal Society.



The President of the Norwegian Academy of Science and Letters, Nils Chr. Stenseth, announced the winners of the 2010 Kavli Prize. Photo: Eirik Furu Baardsen

Today's announcement was made in Oslo by Nils Chr. Stenseth, President of the Norwegian Academy of Science and Letters, and transmitted live at the opening event of the World Science Festival in New York. The laureates will each receive a scroll, a gold medal and share of the \$1,000,000 prize for each of the three fields.

The Kavli Prize was initiated by and named after Fred Kavli, founder of The Kavli Foundation, which is dedicated to advancing science for the benefit of humanity, promoting public understanding of scientific research, and supporting scientists and their work. Mr Kavli said: "The Kavli Prizes were established to recognize truly exceptional scientists whose research has fundamentally and

profoundly advanced our understanding of astrophysics, nanoscience and neuroscience. With this year's prizes, we continue to honor these pioneering researchers and their discoveries."

Jerry Nelson, of the University of California, Santa Cruz, US, **Ray Wilson**, formerly of Imperial College London and the European Southern Observatory, and **Roger Angel**, of the University of Arizona, Tucson, US, share the astrophysics prize for their respective innovations in the field of telescope design that have allowed us glimpses of ever more distant and ancient objects and events in the remote corners of the Universe.

Angel created mirrors made of cheap glass and molded them to incorporate a honeycomb pattern of holes, to reduce their weight and increase their rigidity, allowing the building of larger telescopes. Approaching the same problem from a different direction, Wilson developed computer-controlled actuators to make small constant changes to telescope mirror shapes to correct for distortions caused by gravity, wind and temperature, during use. Nelson meanwhile abandoned the idea of using a single large mirror in favour of a system comprising of multiple small hexagonal mirror tiles that are carefully shaped and controlled by computerised actuators to constantly maintain the ideal reflecting surface.

The nanoscience prize was awarded jointly to US scientists **Donald M. Eigler**, of IBM's Almaden Research Centre, San Jose, California, and **Nadrian Seeman**, of New York University.

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See also:

The Kavli Prize
www.kavliprize.no

The Kavli Foundation
www.kavlifoundation.org

Eigler reserved his place in the history of science in 1989 when he became the first person ever to pick up an individual atom and move it precisely to another location, and then went on to make a series of breakthroughs that have helped us to understand some of the the most basic units of matter. A decade before Eigler's historic achievement, Seeman invented structural DNA nanotechnology when he realised the building blocks of the genetic blueprint of living organisms could be harnessed to create the raw materials for new, nanoscale circuits, sensors and medical devices.

Three US-based scientists - **Thomas Südhof**, of Stanford University School of Medicine, **Richard Scheller**, of the biotech company Genentech, and **James Rothman**, of Yale University - are the joint recipients of the neuroscience prize for their work to reveal the precise molecular basis of the transfer of signals between nerve cells in the brain.

Scientists had already identified the existence of tiny bubble-like structures called vesicles that release neurotransmitters to allow signals to pass between neurons at synapses. From the late 1980s Südhof and Scheller cloned and sequenced the genes that encode the proteins that control the functioning of vesicles and their release of neurotransmitters. Südhof discovered that calcium sensing protein synaptotegmin was the switch for neurotransmitter release. Scheller later provided the first evidence to demonstrate this finding. Rothman took this further by clarifying how vesicles are directed to the points at which they are needed and when to release their contents, not just

for those involved in the release of neurotransmitters in the brain but in a wide range of key physiological functions in the body, such as hormone release, insulin secretion and cell division.

Nils Chr. Stenseth said: "The Kavli Prizes help enhance the status in the society of science in general and astrophysics, nanoscience and neuroscience in particular. The prize winners furthermore serve as good role models for young people, motivating them to choose a career in science."

For detailed information on each of the prizes, the winners and their work, see the Kavli Prize web page www.kavliprize.no

