

**Heineken Prizes
2018 and
Heineken
Young Scientists
Awards 2018**

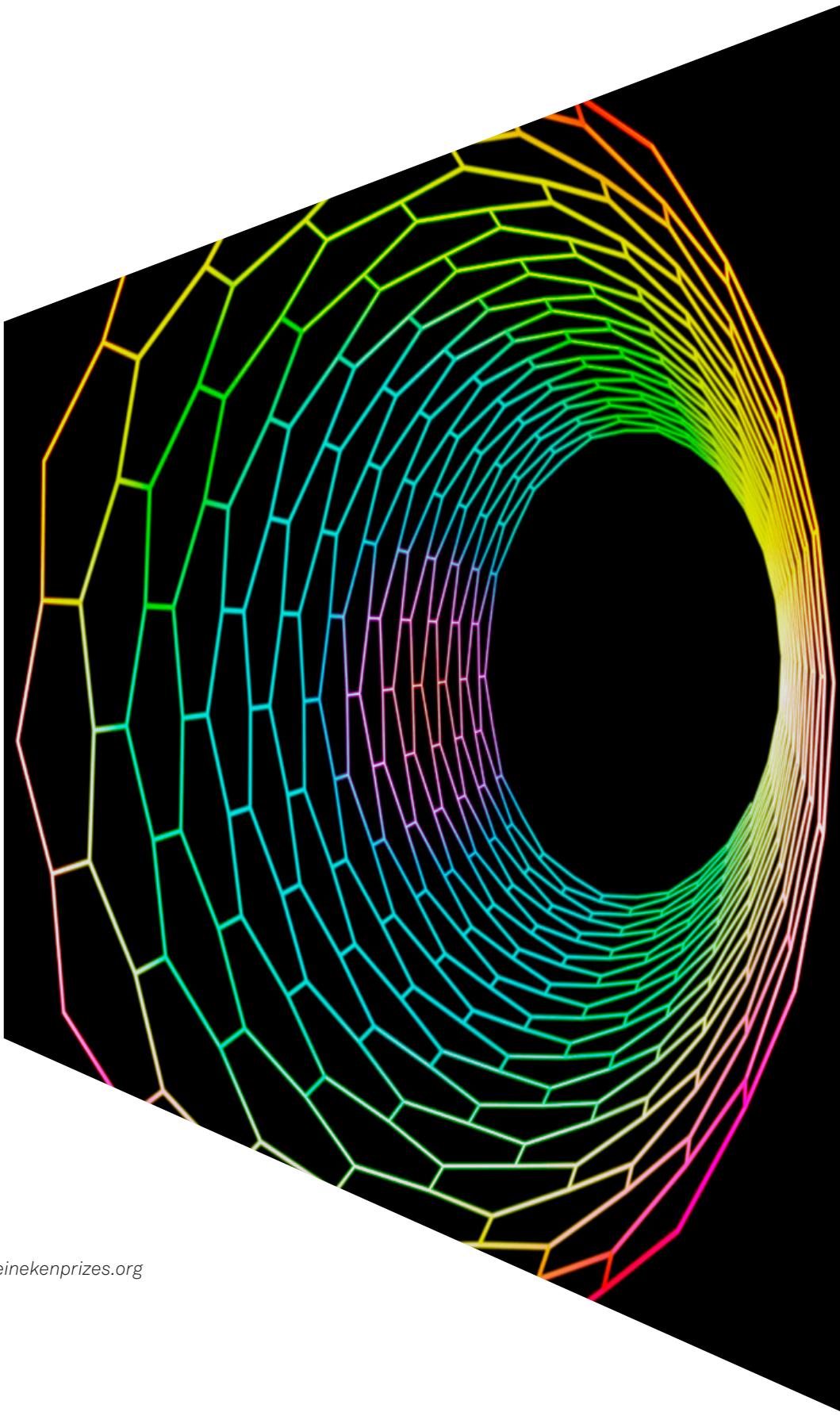


KONINKLIJKE NEDERLANDSE
AKADEMIE VAN WETENSCHAPPEN

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2018 and
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Awards 2018



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www.heinekenprizes.org

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Making a difference

Charlene de Carvalho-Heineken

Chairman of the Heineken Foundations

On behalf of the Heineken family and the foundations that present the Heineken Prizes, I welcome you to this Award Ceremony. From all previous ones, I have come away feeling inspired by what I saw and what I heard. They never failed to underscore the enormous value that science and arts can bring.

My father, Alfred Heineken, introduced the first Heineken Prize more than five decades ago. He later went on to add several others, including one for contemporary art. If you hurry, you can still visit the exhibition that celebrates the 30th anniversary of the Heineken Prize for Art this year in the Van Abbe Museum in Eindhoven.

My father had a curious mind, and enormous respect for people who respond to problems by finding creative solutions. It is wonderful for me and my children to be able to carry on in his footsteps, and to continue to shine a bright light on innovation and creativity.

Engaging with science, and with societies at large, is something that we are deeply committed to. That is true for my family as well as for the companies that carry the family name.

Let me, by way of example, tell you about a book I read this summer, and which inspired me greatly. I was not the only one: Bill Gates has donated this book to all American

college students after their graduation.

In my case, it was a gift from my daughter.

The book is called 'Factfulness', and it was written by Hans Rosling, a Swedish physician and statistician who passed away about a year ago. It is an intriguing book, that shows us the surprising amount of progress we humans have made in recent decades and centuries. Using charts and statistics, it explains how human health, income and education levels have improved dramatically almost everywhere on the planet.

Reading the book, and I urge you to do so as well, may change how you see the world. It will show you a reality that is totally different from what you thought it was. It shows that the big picture is much more positive, more uplifting and more optimistic than the way it is often portrayed. But most importantly, it strengthened my conviction that we really can make a difference by investing in science and innovation.

We must give clever minds some breathing space so that they can come up with bold



ideas and creative approaches. We must encourage people to dig deep. People such as today's laureates, whose work improves our understanding in ways that may only bear fruit decades later. Some of their creative ideas will fail, but others will be successful. If we work together on that, then a new edition of 'Factfulness', twenty years from now, will show that much more progress will have been made.

The Heineken Foundations are very grateful for how the Royal Netherlands Academy of Arts and Sciences has once again worked to select our winners and help put together an amazing ceremony. I thank them and all who were present for continuing to support the sciences and the arts!

Engaging with Science

Wim van Saarloos

President of the Royal Netherlands Academy of Arts and Sciences

For the Royal Netherlands Academy of Arts and Sciences, it is a great privilege to help present a ceremony in which six Heineken Prizes and four Heineken Young Scientists Awards are awarded. We are excited to honour researchers and an artist who have distinguished themselves, each in their own field and in their own special way.

Every two years, we use the Heineken Prizes to celebrate extraordinary achievements in both science and art.

This year we have chosen a theme that we think is particularly timely. 'Engaging Science', we called it, and you can read that in different ways.

Nine of today's prizes reward scientific achievements that appeal to us. They captivate and they fascinate us. They exemplify how science can be highly engaging.

Our theme can also be read as a call to those working in science. It is a call that has grown louder in recent years, and which we, at the Academy, fully support. It encourages researchers to engage with society, to address its pressing questions and needs. Whether it is to improve public health, to make economies more sustainable or to reinforce our democracies, it is imperative that we help society ground their efforts in methodical fact-finding and careful analysis and experimentation.

A third way to read the theme is as a call

to society to engage itself with scientific research, to not lose interest in supporting it. Last year, together with my predecessor, I had the privilege to publish an essay on the state of Dutch science. That state seems to be really good, we concluded, but we also included a warning. Our overall system of science funding might over-emphasize research that is expected to produce incremental, short-term results. That as opposed to more basic, fundamental research, the kind that may bring unforeseen, totally unexpected advances, sometimes many years down the road. It is the kind of research that lays scientific foundations.

The Dutch private sector especially, we noted, is lagging behind in supporting such science, compared to some countries around us. That is a shame, because our science does need strong foundations. We have to find new ways to entice companies to engage more with basic research.

That leads me back to this year's Heineken



Prizes, because these prizes are one inspiring example of how private foundations can support basic science, and creativity in the arts as well. In this programme you will learn about the work of six remarkable laureates, and you will hear from the juries that selected them.

Then, the focus will shift to future generations. You will meet four young researchers whose work holds great promise, and who will be presented with Heineken Young Scientists Awards. I hope you are as curious and excited as I am.

Heineken Prizes for Arts and Sciences



More information on the Heineken Prizes
can be found on www.heinekenprizes.org
and www.knaw.nl/en/awards/heineken-prizes/heineken-prizes-2018

Heineken Prizes

Over fifty years ago the first Heineken Prize was awarded as a gesture of appreciation for exceptional research achievements. Since then, the Heineken Prizes have grown to become an internationally renowned institution. Alfred Henry Heineken was the third generation of Heinekens to take over the helm at the family-run brewery. Under his direction, the company developed to become one of the largest beer breweries in the world.

Heineken was curious and fascinated by art and science, always asking questions and wanting to understand the things that confronted him. He felt that as an entrepreneur, one should do something for society in return. His lifelong interests

in science and art were the driving force to start the Heineken Prizes in 1964, in honour of his father. Charlene de Carvalho-Heineken followed in her father's footsteps as Chairman of the boards of the various Heineken foundations. In 2006, it was at her initiative that the Dr A.H. Heineken Prize for Cognitive Science was created. From 2014 this prize is known as the C.L. de Carvalho-Heineken Prize for Cognitive Science. She expanded the Heineken Prizes, now five scientific prizes and one prize for art, in 2010 with Heineken Young Scientists Awards which aim to give a younger generation of talented scientists extra encouragement.

The Royal Netherlands Academy of Arts and Sciences (KNAW)

The origins of the KNAW date from 1808 when King Louis Napoleon founded the Royal Institute of Sciences, Letters and Arts in order to promote international scientific relations. The KNAW promotes the quality and interests of science and ensures that Dutch science makes the best possible contribution to the cultural, social and economic development of society.

Alfred Heineken wanted the Heineken

Prizes to be awarded entirely independently and at the highest possible level.

It was for this reason that he asked the KNAW to select the winners. The system is comparable to the way Nobel Prize winners are selected. Researchers can be nominated and independent professional juries for each of the categories select a winner.

Trophies

Each of the scientific prizes includes a monetary award of 200,000 dollars. The prize that goes to an artist working and living in the Netherlands includes a monetary award of 50,000 euros and another 50,000 euros to fund the publication of a book and/or the organisation of an exhibition. In addition to a monetary prize, the laureates also receive a lasting memento in the form of a specially-crafted trophy. The Heineken Young Scientists Awards include a monetary grant of 10,000 euros and an artwork. The Heineken Prizes are funded by the Dr H.P. Heineken Foundation, the Dr A.H. Heineken Foundations and the C.L. de Carvalho-Heineken Foundation.

Dr H.P. Heineken Prize for Biochemistry and Biophysics (1964)



The trophy consists of a pressed crystal on which is mounted a replica of **the first lens made by Antoni van Leeuwenhoek** (1632-1723), who invented the microscope and became the first ever microbiologist. Inside the crystal is a model of a DNA-molecule as a symbol of biochemistry, light beams on a hop plant as a symbol of microbiology and an ear of barley symbolising the physiology of seed germination. The object was designed by **W. Heesen** and produced by Royal Leerdam Crystal.



Dr A.H. Heineken Prize for **Art** (1988)

This trophy is shaped like a cylinder, as a symbol for **a prize handed out**. The cylinder is made of copper, a material used in the beer brewing industry, and the medals at both ends of the cylinder are made of silver. The jury report can be kept inside the cylinder, whereby it essentially becomes a time capsule. The prize was designed and produced by **Eelco Veenman**.

Dr A.H. Heineken Prize for **Medicine** (1989)



The trophy includes an **ornamental replica of the staff of Aesculapius**, the ancient Greek symbol of medicine. The piece shows a golden snake, with diamonds for eyes, entwined around a staff. The trophy was designed and produced by **Simons Jewellers**.

Dr A.H. Heineken Prize for **History** (1990)



This trophy includes a **hieroglyph of a water clock** on a piece of plaster that has fallen off a wall. This gives the impression of it being an archaeological find. The fragment of plaster was designed using a real piece of plaster salvaged from a demolished house. The trophy was designed and produced by **Simons Jewellers**.

Dr A.H. Heineken Prize for **Environmental Sciences** (1990)



This trophy includes a **stylised version of an oak tree** on Bussumerheide Heath in North Holland. It symbolises the fact that we have to take care of the world around us. The trophy was designed and produced by **Simons Jewellers**.

C.L. de Carvalho-Heineken Prize for **Cognitive Science**

(2006)



The trophy features a **head and brain(waves)** in the shape of a heart and bearing a text by Pascal (Pensée 277), one of the founders of present-day cognitive science: 'Le Coeur a ses raisons que la raison ne connaît point'. Which means 'the heart has its reasons which reason knows nothing of'. The trophy was designed and produced by **Don Staakman**.

Heineken Young Scientists Awards

(2010)



This award is an **artwork cut from linen** and which symbolises a document, diploma or unwritten page, the meaning of which can be freely interpreted by the recipient. The artwork was designed and produced by **Jeroen Henneman**.

Heineken
Prizes
for Arts
and
Sciences
2018



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Biochemistry and Biophysics

Xiaowei Zhuang

The Royal Netherlands Academy of Arts and Sciences has awarded the Dr H.P. Heineken Prize for Biochemistry and Biophysics 2018 to Xiaowei Zhuang, Professor of Physics, Chemistry and Chemical Biology at Harvard University in Cambridge (USA). Xiaowei Zhuang is receiving the prize for her groundbreaking work on developing high-resolution imaging methods and their use in investigating a variety of fundamental biological problems.



“
Quote from the jury: “Xiaowei Zhuang is pioneering the application of new imaging methods and using them to seek answers to longstanding, fundamental questions about the machinery of biological cells.”

”



Researcher

Xiaowei Zhuang was born in Rugao (China) in 1972. She studied in China for several years but moved to the United States after receiving her Bachelor's in Physics in 1991. She obtained her PhD from the University of California in Berkeley in 1996 and conducted her thesis research on non-linear optical studies of liquid crystals and polymers under the supervision of Dr Yuen-Ron Shen.

Zhuang continued her career as a Chodorow Postdoctoral Fellow in the laboratory of Dr Steven Chu at Stanford University. She arrived at Harvard University in Cambridge in 2001 and accepted a position there in 2005 as a Howard Hughes Medical Institute Investigator.

In 2014, Zhuang was appointed David B. Arnold Professor of Science at Harvard University and a year later became Director of the university's Center for Advanced Imaging.

Zhuang is a member of the US National Academy of Sciences and the American Academy of Arts and Sciences. She has received many honours and awards, including the Sackler International Prize in Biophysics (2011) and the Lennart Nilsson Award (2017). In 2017, she was awarded an honorary doctorate by Delft University of Technology.

Examining the behaviour of molecules in living cells

Xiaowei Zhuang uses revolutionary imaging methods with single-molecule sensitivity to visualise what happens deep inside living cells. Thanks to the pioneering work of Zhuang and her team, it is now possible to visualise and track the behaviour of virions, RNA molecules and cytoskeleton filaments in living cells.

Her work builds on her own invention, STochastic Optical Reconstruction Microscopy (STORM), one of the first and most popular methods of 'super-resolution' imaging, which overcomes the diffraction limit of light to produce much sharper images than possible in conventional light microscopy and on a vast scale.

STORM uses fluorescent dyes that are activated at different times, making it possible to localise individual molecules and thus generate images of hitherto undreamed-of clarity.

Zhuang's paper announcing her invention of STORM in 2006 was a milestone in the development of super-resolution microscopy. Zhuang herself is pioneering the application of such methods and using them to seek answers to longstanding, fundamental questions about the machinery of biological cells.

The judges for the Dr H.P. Heineken Prize for Biochemistry and Biophysics 2018 were:
E.W. Meijer (chairman), C.M. Dobson,
W.T. Huck, P. Knipscheer, T. de Lange,
I.M.C.M. Rietjens, P.R. ten Wolde



More information can be found on
[www.knaw.nl/en/awards/heineken-prizes/
xiaowei-zhuang](http://www.knaw.nl/en/awards/heineken-prizes/xiaowei-zhuang)

Art

Erik van Lieshout

Dutch visual artist Erik van Lieshout has been selected as laureate of the Dr A.H. Heineken Prize for Art 2018.

Van Lieshout will receive a cash prize of EUR 100,000, half of which is meant to finance a publication and/or exhibition. The jury has praised Erik van Lieshout's work for its radical, personal and confrontational nature.



“
Quote from the jury: “There is no
taboo or danger that Erik van Lieshout
will try to avoid.”

”



Artist

Erik van Lieshout (born in Deurne in 1968) lives and works in Rotterdam. He studied at the Academy of Art and Design in 's Hertogenbosch and Ateliers '63 in Haarlem (1990-1992). His work consists of drawings, collages, sculptures and videos, often combined into multimedia installations. He always features in his own videos. 'Erik van Lieshout explodes into our consciousness,' was how one reviewer recently described Van Lieshout's exhibition *I am in Heaven* (Anton Kern Gallery, 2015). As a Manifesta 10 artist (2014), he spent two months overhauling the basement of the Hermitage Museum in St Petersburg, along with the seventy or so stray cats that live there. He sketched and filmed the process. While it appears to document the overhaul, Van Lieshout's film *The Basement* (2014) is really about Russia under Putin, gay rights,

the seizure of the Crimea, censorship and Pussy Riot. This short film was projected in a 50-metre-long tunnel made of plywood and carpet and lined with copies of politically charged sketches and photographs of the cats in the basement. Clips of this work reappear in his longer film *WORK* (2015). Viewers are overwhelmed by a whirlwind of images, impressions, snippets of text, animations, crudely fashioned props, raw charcoal drawings and film images shot with a handheld camera that show Van Lieshout talking to himself and others about idealism, utopia, harsh reality and the position that an uncompromising artist tries to claim in all of it. His work can be found in Dutch and international private and museum collections, including the MoMa in New York. In 2003, he was selected to be the Dutch entry for the Venice Biennale.

Art

In his unique, tragicomic style, Van Lieshout puts his finger on what ails society. His work never flags, continues to grow and is pure: he is not out to preach. He enters into dialogue with groups who others often give a wide berth: ghetto-dwellers, junkies, drifters, and right-wing or left-wing extremists. He raises questions about drugs, sex, violence and overregulation. There is no taboo or danger that Erik van Lieshout tries to avoid; on the contrary, he makes a beeline for them and tries to find a dialogue.



Erik van Lieshout

Untitled, 2016

Mixed media on paper, Part of Brexit Diary,

42 x 29.7 cm

Courtesy: Annet Gelink Gallery, Amsterdam

The judges for the Dr A.H. Heineken Prize
for Art 2018 were:

C.J.M. Zijlmans (chairman),

A. Demeester, A. Mik, C.H. Sieburgh,

D. Snauwaert



More information can be found on
[www.knaw.nl/en/awards/heineken-prizes/
erik-van-lieshout](http://www.knaw.nl/en/awards/heineken-prizes/erik-van-lieshout)

Medicine

Peter F.M. Carmeliet

The Royal Netherlands Academy of Arts and Sciences has awarded the Dr A.H. Heineken Prize for Medicine 2018 to Peter F.M. Carmeliet, Professor of Medicine at the University of Leuven (Belgium). Peter Carmeliet is receiving the prize for his research into the effects of growth factors on endothelial and nerve cells and for his efforts to develop treatments for vascular and neurological disorders based on his research findings.



Quote from the jury:

“Peter Carmeliet has been at the forefront of research investigating how growth factors control vascular endothelial cells at the molecular level.”



Researcher

Peter F.M. Carmeliet was born in Leuven, Belgium, in 1959. While studying medicine at Leuven, he also trained at the University of Maryland in Baltimore (USA) and the University of California in San Francisco (USA). He received his PhD from the University of Leuven in 1989.

Carmeliet's post-doctoral appointments include positions at Harvard Medical School (Boston, USA), the Whitehead Institute at MIT (Cambridge, USA), the University of Leuven, and the University of Brussels.

He founded his own research group in Leuven in 1996 and was appointed a full professor there in 1998. The following year, he was appointed professor at Maastricht University. From 2008 to 2015, he was

Director of the Centre for Cancer Biology (CCB) at the Flanders Interuniversity Institute for Biotechnology (VIB). There are now more than sixty researchers in his group.

Carmeliet is a member of the German National Academy of Sciences Leopoldina and the Royal Netherlands Academy of Arts and Sciences. His many awards and honours include the Ernst Jung Medical Award (2010), the Joseph Maisin Prize for Excellence (2010) and the European Academy of Sciences' Blaise Pascal Medal in Medicine and Life Sciences (2011). He has an honorary doctorate from Johann Wolfgang Goethe University in Frankfurt (Germany).

The effects of growth factors on blood vessels and nerve cells

Peter Carmeliet is world-renowned for his studies on growth factors and their effects, both in health and disease. For several decades now, he has been at the forefront of research investigating how growth factors control vascular endothelial cells at the molecular level.

Carmeliet studied vascular endothelial growth factor (VEGF) in particular and discovered that it also affects the growth of nerve fibres (axons). He discovered that placental growth factor (PIGF) affects the development of blood vessels and nerve bundles in embryos but also plays an important role in amyotrophic lateral sclerosis (ALS) and other neurodegenerative diseases.

More recently, Carmeliet showed how vascular endothelial cells regulate the transport of fatty acids and sugars to underlying tissues, thereby playing a critical role in cardiovascular diseases and cancer.

Basic research of this kind may eventually lead to new therapeutic interventions, for example in the treatment of paediatric brain tumours, metastasis and neurodegeneration. Carmeliet is also attempting to develop new therapies based on his research into PIGF. The antibodies that he has developed are currently being tested clinically in patients with medulloblastoma and diabetic retinopathy.



The judges for the Dr A.H. Heineken Prize for Medicine 2018 were:

C.L. Mummery (chairman),
M. Buckingham, C.M. van Duijn,
U. Lendahl, M.M. Levi, H.L. Ploegh,
I.E.C. Sommer, C.I. de Zeeuw

More information can be found on
[www.knaw.nl/en/awards/heineken-prizes/
peter-carmeliet](http://www.knaw.nl/en/awards/heineken-prizes/peter-carmeliet)

History

John R. McNeill

The Royal Netherlands Academy of Arts and Sciences has awarded the Dr A.H. Heineken Prize for History 2018 to John R. McNeill, Professor of History at Georgetown University in Washington (DC, USA). John McNeill is receiving the prize for his important work in integrating two recent branches of the study of history: global history and environmental history.



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Quote from the jury: “John McNeill’s work is exceptional for the apparent ease with which he weaves centuries, continents, cultures, scientific disciplines and languages into a single narrative.”

”



Researcher

John R. McNeill was born in Chicago (IL, USA) in 1954. After receiving his Bachelor's from Swarthmore College in Swarthmore (PA, USA) and spending a year teaching Geography and Economics in Athens (Greece), he completed his Master's in History at Duke University in Durham (NC, USA). He earned his PhD at the same university in 1981 for his study of the relationship between the French and Spanish empires and their Atlantic colonies in the 18th century.

McNeill became a member of the History faculty at Georgetown University in Washington (DC, USA) in 1985. Since 1985, he has also taught at the Edmund A. Walsh

School of Foreign Service, a centre for research and teaching on global affairs.

He became a professor at Georgetown University in 1993. Furthermore he had visiting appointments in New Zealand, Paris and Oslo. As an historian, he serves on various environmental boards and committees.

McNeill is a member of the American Academy of Arts and Sciences. He has received numerous honours and awards, including two Fulbrights, a Guggenheim Fellowship, a MacArthur Foundation Fellowship, the Toynbee Prize and the World History Association's Pioneer of World History Award.

Storyteller and investigator of unparalleled vision

John McNeill is best known for his book *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (2000), in which he tells the story of human activity during the previous century and its impact on the Earth. He describes how economic, demographic, social and technological changes influenced every aspect of the Earth's environment; conversely, he shows how the natural environment has often had a dramatic impact on the course of human history. In McNeill's view, however, the changes that took place in the 20th century were on an unprecedented scale.

As he often does, McNeill drew inspiration from many different disciplines, including the natural sciences, earth science, the technical sciences, archaeology and

agricultural science. In doing so, he helped to integrate two recent branches of the study of history: global history and environmental history.

His work is exceptional for the apparent ease with which he weaves centuries, continents, cultures, scientific disciplines and languages into a single narrative, and for his unparalleled ability to draw from sources in all these fields.

Thanks to his unique perspective, fellow historians have new questions to investigate. His lucid, precise, sparkling writing style, humorous and erudite, has enchanted scores of readers.



The judges for the Dr A.H. Heineken Prize for History 2018 were:

J.H. Blok (chairman), R.A.M. Aerts,
A. Assmann, R.F.J. de Bont,
P.K. O'Brien, C. Rapp, L. Riall,
E.J. Zürcher

More information can be found on
[www.knaw.nl/en/awards/heineken-prizes/
john-r-mcneill](http://www.knaw.nl/en/awards/heineken-prizes/john-r-mcneill)

Environmental Sciences

Paul D.N. Hebert

The Royal Netherlands Academy of Arts and Sciences has awarded the Dr A.H. Heineken Prize for Environmental Sciences 2018 to Paul D.N. Hebert, Research Chair in Molecular Biodiversity at the University of Guelph (Canada). Paul Hebert is receiving the prize for his pivotal contribution to developing a genetic barcode capable of classifying every biological species on Earth.



“
Quote from the jury: “If Paul Hebert’s project succeeds, its legacy will yield lasting benefits to humankind.”

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Researcher

Paul D.N. Hebert was born in Kingston, Ontario (Canada) in 1947. He studied Biology at Queen's University but transferred to the University of Cambridge (United Kingdom) for his doctorate in Genetics.

After obtaining his PhD in 1972, Hebert spent three years at Sydney University (Australia) and a year at the Natural History Museum in London as a postdoctoral fellow. Back in Canada, he took up his first research post at the University of Windsor in 1976.

In 1986 he became the Director of the Great Lakes Institute at Windsor; four years later, he was appointed to a chair at the University of Guelph (Canada).

In addition to his professorship, Hebert has also chaired the Huntsman Marine Science Centre; he is currently Scientific Director of the *International Barcode of Life Project* and Director of the Centre for Biodiversity Genomics.

In 2015, he was invested as an Officer of the Order of Canada. He has received various other honours and prizes, including the Aster Award from the Toronto Botanical Garden. He was awarded an honorary doctorate from the University of Waterloo (Canada) and was made an honorary professor of the Chinese Academy of Sciences' Institute of Zoology.

A catalogue for the library of life

Paul Hebert is known as the 'father of DNA barcoding', a taxonomic method that uses a short section of DNA from a standardised region of the genome to identify different species, in the same way a supermarket scanner uses barcodes to identify purchases.

Hebert first raised the possibility of such a method in 2000. He is now the Scientific Director of the *International Barcode of Life Project* (iBOL), in which researchers from 25 countries are attempting to assign barcodes to millions of species on Earth.

The project has demonstrated that DNA barcoding can speed the discovery of new species and distinguish between separate species that used to be classified as one. Thanks to DNA barcoding, we now have a more precise way of measuring the number of species that inhabit

a specific ecosystem and we can analyse complex food chains with much greater accuracy.

The *Barcode of Life Project* is generating an impressive stream of data. Hebert's research group is building digital systems to gather, store and analyse all this information and make it available to the community. The database now contains the genetic codes of approximately 600,000 species and is being used by almost 25,000 researchers worldwide.

New methods are bringing the ultimate goal of the project ever closer: a comprehensive inventory of global biodiversity. If the project succeeds, its legacy will yield lasting benefits to humankind.



The judges for the Dr A.H. Heineken Prize for Environmental Sciences 2018 were:
L.E.M. Vet (chairman), M. Dicke,
T. Filatova, H. Freitas, C. Godfray,
S.A. Levin, S.L. Pimm

More information can be found on
[www.knaw.nl/en/awards/heineken-prizes/
paul-d-n-hebert](http://www.knaw.nl/en/awards/heineken-prizes/paul-d-n-hebert)

Cognitive Science

Nancy Kanwisher

The Royal Netherlands Academy of Arts and Sciences has awarded the C.L. de Carvalho-Heineken Prize for Cognitive Science 2018 to Nancy Kanwisher, Professor of Cognitive Neuroscience in the Department of Brain and Cognitive Sciences at the Massachusetts Institute of Technology in Cambridge (USA). Nancy Kanwisher is receiving the prize for her highly original, meticulous and cogent research on the functional organisation of the human brain.



“
Quote from the jury: “Much of Kanwisher’s work continues to influence the way researchers think about the functional organisation of the human brain.”
”



Researcher

Nancy Kanwisher was born in Woods Hole (MA, USA) in 1958. After studying Biology at the Massachusetts Institute of Technology (MIT) in Cambridge (MA, USA), she was awarded a PhD in Cognitive Psychology by the same university in 1986.

In 1987, Kanwisher moved across Cambridge to join the faculty of Psychology at Harvard University. In 1988 she moved again, this time to the West Coast to take up positions at the University of California in Berkeley and Los Angeles. She returned to Cambridge in 1994. Since 2000, she has

held positions at Massachusetts General Hospital, the McGovern Institute for Brain Research and MIT.

Kanwisher is a member of the US National Academy of Sciences and the American Academy of Arts and Sciences. She has received various honours and awards, including the US National Academy of Sciences' Troland Research Award (1999), the Minerva Foundation's Golden Brain Award (2007) and the National Institutes of Health Director's Pioneer Award.

A region of the brain specialising in facial recognition

Nancy Kanwisher is an exceptionally innovative and influential researcher in cognitive neuropsychology and the neurosciences.

Early in her career, she conducted behavioural research to study visual perception. One of her discoveries was that the short-term memory drops the second occurrence of a word in a sentence or a picture in a series of images.

Kanwisher was also one of the first to use functional magnetic resonance imaging (fMRI) to understand the functional organisation of the brain. Fellow researchers — even those who remain relatively sceptical about what fMRI scans really tell us — regard her work in this area as original, intelligent, meticulous, reproducible and cogent.

Her research is teaching us a great deal about the effects of such cognitive processes as attention and awareness.

She has also localised areas of the brain that have highly specialised functions, for example perceiving places or images of the human body.

Her work has generated groundbreaking new insights into specialised brain regions and how they divide up tasks. Her discovery of the fusiform face area, a region that specialises in perceiving faces, was later confirmed in electrophysiological studies in non-human primates.

Much of Kanwisher's work has found its way into cognitive neuroscience textbooks and it continues to influence the way researchers think about the functional organisation of the human brain. For example, it plays a role in a lively, longstanding scientific debate: is our brain mainly a holistic network, or does it consist of separate modules that perform highly local, specialised tasks?



The judges for the C.L. de Carvalho-Heineken Prize for Cognitive Science 2018 were:

P. Hagoort (chairman), E.A.M. Crone,
S. Dehaene, H.M. Geurts, U. Lindenberger,
N.J. Nersessian, J.L. Theeuwes

More information can be found on
[www.knaw.nl/en/awards/heineken-prizes/
nancy-kanwisher](http://www.knaw.nl/en/awards/heineken-prizes/nancy-kanwisher)

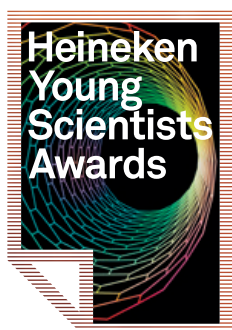
Heineken
Young
Scientists
Awards
2018

**Heineken Young Scientists Award
in the Medical/Biomedical Sciences** p. 42
Dr Joost Snijder

**Heineken Young Scientists Award
in the Humanities** p. 44
Professor Maartje van der Woude

**Heineken Young Scientists Award
in the Natural Sciences** p. 46
Dr Peter K. Bijl

**Heineken Young Scientists Award
in the Social Sciences** p. 48
Dr Marie-José van Tol



Medical/Bio- medical Sciences

Joost Snijder

Dr Joost Snijder (29) is receiving the Heineken Young Scientists Award in the Medical/Biomedical Sciences 2018 for using advanced microscopic techniques to study the molecular mechanisms of viruses.

The judges for the Heineken Young Scientists Awards 2018 were:

J.E.J. Prins (chairman), E.H. Bulte,
M.J.Th.H. Goumans, P. Hendriks,
J.S.H. van Leeuwarden



More information can be found on
[www.knaw.nl/en/awards/laureates/
heineken-young-scientists-awards/
joost-snijder](http://www.knaw.nl/en/awards/laureates/heineken-young-scientists-awards/joost-snijder)



Quote from the jury: "Joost Snijder is a highly talented, creative, independent and promising thinker and scientist. He displays both vision and courage."



Joost Snijder

Joost Snijder is extremely knowledgeable about and skilled in the use of advanced microscopic techniques, including atomic force microscopy, cryo-electron microscopy, mass spectrometry and molecular modelling. This allowed him to explore macromolecular mechanisms such as virus assembly and the molecular 'biological clock' of cyanobacteria.

The jury praised him as an exceptionally talented, creative, independent researcher with great vision and courage. He has published many articles in prestigious journals.

Researcher

Snijder studied biomolecular sciences at Utrecht University. He received his PhD there in 2015 for his work using mass spectrometry to study the molecular mechanisms of viruses.

Today, he is an independent researcher and research consultant who advises on biochemistry and molecular biology. He works with Utrecht University and respected international partners such as the University of Washington in Seattle (USA), the Max Planck Institute of Biochemistry and the Scripps Institute.

Humanities

Maartje van der Woude

Professor Maartje van der Woude (37) is receiving the Heineken Young Scientists Award in the Humanities 2018 for investigating the interplay between the law and public debate concerning such issues as terrorism, migration, and cross-border crime.

The judges for the Heineken Young Scientists Awards 2018 were:

J.E.J. Prins (chairman), E.H. Bulte,
M.J.Th.H. Goumans, P. Hendriks,
J.S.H. van Leeuwarden



More information can be found on
[www.knaw.nl/en/awards/laureates/
heineken-young-scientists-awards/
maartje-van-der-woude](http://www.knaw.nl/en/awards/laureates/heineken-young-scientists-awards/maartje-van-der-woude)



“

Quote from the jury:

“Maartje van der Woude knows how to inspire young researchers and students, and she does it in innovative, highly effective ways.”

”

Maartje van der Woude

Maartje van der Woude's work focuses on the law in a changing society. She studies how political and public debate on the one hand and the law on the other influence each other and explores how essentially separate policy domains such as migration and security become intertwined.

The jury praised her as an exceptional and inspiring research talent, a unique, passionate scientist who also seeks to connect with the public, for example in debates and a blog.

Researcher

Van der Woude studied criminal law and criminology at Leiden University and received her PhD there in 2010 for a dissertation on the drafting of Dutch counterterrorism legislation.

Today, she is professor of Law and Society at Leiden University. She is also affiliated with the Centre International de Criminologie Comparée at the University of Montreal (Canada) and the Department of Criminology and Sociology of Law at the University of Oslo (Norway).

Natural Sciences

Peter K. Bijl

Dr Peter K. Bijl (34) is receiving the Heineken Young Scientists Award in the Natural Sciences 2018 for researching the relationship between atmosphere, oceans and ecosystems in the Antarctic over the past 80 million years.

The judges for the Heineken Young Scientists Awards 2018 were:
J.E.J. Prins (chairman), E.H. Bulte,
M.J.Th.H. Goumans, P. Hendriks,
J.S.H. van Leeuwarden



More information can be found on
[www.knaw.nl/en/awards/laureates/
heineken-young-scientists-awards/
peter-bijl](http://www.knaw.nl/en/awards/laureates/heineken-young-scientists-awards/peter-bijl)



Peter Bijl

Peter Bijl developed a new, now widely used method to determine the age of sedimentary rocks in the Antarctic. Using these tools, he showed how greenhouse gases and ocean circulation patterns had major impacts on the development of the Antarctic ice sheet, global climates, sea levels, and life on land and in the sea.

The jury praised Bijl for his ability to work at the forefront of international Antarctic paleoclimate research while also communicating with the general public.

Researcher

Bijl studied earth sciences at Utrecht University and received his PhD there in 2011 for his study of the environmental and climatological evolution of the Antarctic Ocean in the Palaeogene Period (66 to 23 million years ago).

Today, he is an assistant professor in the Earth Science department at Utrecht University. He is also the director of the LPP Foundation, an advisory body that facilitates research in the fields of marine and terrestrial palynology, organic and inorganic geochemistry and limnology.



Quote from the jury:

“His climate reconstructions demonstrate how greenhouse effects and changing ocean circulations once had major impacts on sea levels and life on the planet.”



Social Sciences

Marie-José van Tol

Dr Marie-José van Tol (37) is receiving the Heineken Young Scientists Award in the Social Sciences 2018 for studying the many factors that contribute to depression and other psychiatric disorders.

The judges for the Heineken Young Scientists Awards 2018 were:
J.E.J. Prins (chairman), E.H. Bulte,
M.J.Th.H. Goumans, P. Hendriks,
J.S.H. van Leeuwarden



More information can be found on
[www.knaw.nl/en/awards/laureates/
heineken-young-scientists-awards/
marie-jose-van-tol](http://www.knaw.nl/en/awards/laureates/heineken-young-scientists-awards/marie-jose-van-tol)



“

Quote from the jury: “She is not afraid to go off the beaten path, for example when using innovative neuro-imaging techniques and analytical tools for her research.”

”

Marie-José van Tol

Marie-José van Tol's work unravels the many factors that make people vulnerable to psychiatric disorders such as depression, anxiety, suicide, and schizophrenia. She combines knowledge and methods from clinical psychiatry, neuropsychology, cognitive psychology, neuroradiology, neuroscience and other fields.

The jury praised Van Tol as a talented, creative and passionate researcher who not only bridges many disciplines but otherwise knows how to build bridges as well: she co-founded and chairs the Young Academy Groningen.

Researcher

Van Tol studied clinical and medical psychology at Utrecht University. She received her PhD from Leiden University in 2011 for her MRI study of patients suffering depression or anxiety disorders.

Today, she is assistant professor and principal investigator in the Neuropsychology faculty, part of the Department of Neuroscience at University Medical Center Groningen.

Laureates

1964—2016

Dr H.P. Heineken Prize for Biochemistry and Biophysics, since 1964

2016 Jennifer Doudna
2014 Christopher M. Dobson
2012 Titia de Lange
2010 Franz-Ulrich Hartl
2008 Jack W. Szostak
2006 Sir Alec J. Jeffreys
2004 Andrew Z. Fire
2002 Roger Y. Tsien
2000 James E. Rothman
1998 Anthony J. Pawson
1996 Sir Paul M. Nurse
1994 Sir Michael J. Berridge
1992 Piet Borst
1990 Philip Leder
1988 Thomas R. Cech
1985 Bela Julesz Werner E. Reichardt
1982 Charles Weissmann
1979 Sir Aaron Klug
1976 Laurens L.M. van Deenen
1973 Christian de Duve
1970 Britton Chance
1967 Jean L.A. Brachet
1964 Erwin Chargaff

Heineken Young Scientists Award, since 2010

2016 Edze R. Westra
2014 Celia R. Berkers
2012 Geert van den Bogaart
2010 Puck Knipscheer

Dr A.H. Heineken Prize for Art, since 1988

2016 Yvonne Dröge Wendel
2014 Wendelien van Oldenborgh
2012 Peter Struycken
2010 Mark Manders
2008 Barbara Visser
2006 Job Koelewijn
2004 Daan van Golden
2002 Aernout Mik
2000 Guido Geelen
1998 Jan van de Pavert
1996 Karel Martens
1994 Matthijs Röling
1992 Carel Visser
1990 Marrie Bot
1988 Toon Verhoef

Dr A.H. Heineken Prize for Medicine,

since 1989
2016 Stephen Jackson
2014 Kari K. Alitalo
2012 Hans Clevers
2010 Ralph M. Steinman
2008 Sir Richard Peto
2006 Mary-Claire King
2004 Elizabeth H. Blackburn
2002 Dennis J. Selkoe
2000 Eric R. Kandel
1998 Barry J. Marshall
1996 David de Wied
1994 Luc Montagnier

1992 Salvador Moncada
1990 Johannes J. van Rood
1989 Paul C. Lauterbur

Heineken Young Scientists Award,
since 2010

2016 Mariëtte R. Boon
2014 Alexander P.J. Vlaar
2012 Linda van Laake
2010 Menno van Zelm

Dr A.H. Heineken Prize for History,
since 1990

2016 Judith Herrin
2014 Aleida Assmann
2012 Geoffrey Parker
2010 Rosamond D. McKittrick
2008 Jonathan I. Israel
2006 Joel Mokyr
2004 Jacques Le Goff
2002 Heinz Schilling
2000 Jan de Vries
1998 Mona Ozouf
1996 Heiko A. Oberman
1994 Peter R.L. Brown
1992 Herman F.A. van der Wee
1990 Peter Gay

Heineken Young Scientists Award,
since 2010

2016 Karwan J. Fatah-Black
2014 Irene van Renswoude
2012 Ugur Ü. Üngör
2010 Remco Breuker

**Dr A.H. Heineken Prize for Environmental
Sciences,** since 1990

2016 Georgina Mace
2014 Jaap S. Sinninghe Damsté
2012 William Laurance
2010 G. David Tilman
2008 Bert Brunekreef
2006 Stuart L. Pimm
2004 Simon A. Levin
2002 Lonnie G. Thompson
2000 Poul Harremoës
1998 Paul R. Ehrlich
1996 Herman E. Daly

1994 BirdLife International (Colin J. Bibby)
1992 Marko Branica
1990 James E. Lovelock

Heineken Young Scientists Award,
since 2010

2016 Wouter Halfwerk
2014 Rob Middag
2012 Tjisse van der Heide
2010 Appy Sluijs

**C.L. de Carvalho-Heineken Prize
for Cognitive Science,** since 2006

2016 Elizabeth Spelke
2014 James L. McClelland
2012 John Duncan
2010 Michael Tomasello
2008 Stanislas Dehaene
2006 John R. Anderson

Heineken Young Scientists Award,
since 2010

2016 Jasper Poort
2014 Martin A. Vinck
2012 Floris de Lange
2010 Paola Escudero

Colophon

Website

For additional background material on the Heineken Prizes 2018 and the Royal Netherlands Academy of Arts and Sciences (KNAW), see:
www.knaw.nl/heinekenprizes
www.heinekenprizes.org

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KNAW

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#HeinekenPrizes

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Translations

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Photography prizes

Mark Groen

Graphic design

KentieDesign bno

Printing

Boom + Verweij grafiservices

This brochure is printed
on Heaven42, FSC® certified.



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