



university of
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NWO Spinoza prize 2016

Read all about our two winners

Lodi Nauta and
Bart van Wees



2016 is a good Spinoza year for the University of Groningen. Lodi Nauta, Professor of the History of Philosophy, and Bart van Wees, Professor of Applied Physics, both winners of the 2016 Spinoza Prize. Time to celebrate!

Bart van Wees

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Fascination for electrons

Bart van Wees, Professor of Physics of Nanodevices at the Zernike Institute for Advanced Materials of the University of Groningen, is one of the four recipients of this year's NWO Spinoza Prize, the highest distinction in Dutch academia. His research stems from his curiosity about the behaviour of electrons inside new materials, but he has always had at least half an eye on practical applications.

The objects that Van Wees studies are usually only visible under an electron microscope: he builds nanodevices, electronic circuits with a core that consists of layers just one atom thick. At this scale, the laws of quantum mechanics dominate. 'This subject already intrigued me when I was studying physics in Delft', says Van Wees in his office in the physics and chemistry building on the Zernike Campus, where he has been working since his transfer from the Delft University of Technology.

Electrons continue to surprise

'At the time, I could not choose between regular physics and applied physics. I ended up doing my final-year project with Professor Hans Mooij, who was making tiny devices to study superconductivity.' It was there that his fascination with electron behaviour was born. You would assume that physicists knew everything about electrons by now, but their behaviour inside all sorts of materials remains unpredictable. 'We can always explain things afterwards, but surprises continue to occur', says Van Wees.

Better understanding

After his transfer to the Zernike Institute of Advanced Materials in Groningen, his attention soon shifted to a new field, spintronics, which describes a quantum mechanical property of electrons, their 'spin'. This can be best imagined by picturing electrons as small spheres spinning around their own axis, causing them to behave like small compass needles. This spin can assume two values: 'up' or 'down', which makes it suitable, in principle, for storing or transporting information.

'A combination of knowledge and intuition, is what appeals to me.'

His knowledge of electron transport has enabled Van Wees to design systems that easily allow for spin transport, and the new insights thus gained have furthered our understanding of spin transport. 'During that first period, there was a certain magic to parts of the field; things were working, but we did not know how.'



Original experiments with graphene

The discovery of graphene, a two-dimensional form of carbon that is an extremely good conductor of both electricity and heat, spurred further innovation. Spin transport inside graphene proved to offer numerous possibilities, and, again, Van Wees is furthering our understanding. 'What do the electrons do then, and how can we use quantum physics to influence their properties? This is what I am trying to find out about with original experiments; it will increase our level of understanding.' Eventually, this type of research might lead to even smaller transistors.

Hot topic or hot air?

Students who obtain a Master's of doctoral degree in Van Wees's lab have an understanding of technology and the associated physics. 'And they should be able to distinguish between genuinely hot topics and hot air', Van Wees adds. He stresses that it is also in society's interest that academics are capable of giving advice and separating sense from nonsense.

Affinity with pioneers

As a designer of nanodevices, Van Wees feels an affinity with the pioneers of technology. He talks with great enthusiasm about the galleries at the Science Museum in London. They include work by the builders of the first generation of computers, or the first steam engines. How they managed to do that, often through a combination of knowledge and intuition, is what appeals to me.'

Exploring new territory

The Spinoza Prize will enable Bart van Wees to keep on pioneering. Besides the honour of receiving the prize, he can spend EUR 2.5 million on research of his choice. He still needs to have a good think about how he will spend the money: 'I could use it for my current research, but I will certainly use some of it to explore new territory too.'



PhD student Ludo Cornelissen:

Bart is very accessible

Ludo Cornelissen is a PhD student in Bart van Wees's lab. He completed his Bachelor's and Master's degrees at Delft University of Technology, specializing in nanotechnology. 'My supervisor advised me to speak to Bart. So I did, and he had an interesting project for me.' Cornelissen began to work on the transport of spin waves and is now in his third year. 'The research group has a very clear structure. It's a large group, but we are divided into smaller subgroups.'

Bart van Wees meets with the subgroups once a week. 'And the great thing about him is that he is always very accessible, even though he runs a large group and has many international obligations. When I've got new measurements, I can always go to his office and discuss them.' As a result, Van Wees always knows exactly what is going on in his group. He also trusts his group members with many responsibilities. 'He doesn't order you about. After discussing my work, he will suggest what to do next, but he doesn't tell me how to do it or when.'

Trust in his students

Cornelissen has a nice example of the trust Van Wees puts in his students. 'He was invited to a meeting of prominent scientists in the field of spintronics in Svalbard, at the end of May. But he was already booked, so he sent me to give a presentation on my work.' Last year, Cornelissen wrote a scientific paper together with Van Wees. 'If he doesn't agree with you, he'll make that very clear. But his directness meant we could make very rapid progress.'

Recently, Cornelissen took part in FameLab, an international science communication competition, and made it to the Dutch finals. He also wrote a popular article on his research for the Dutch physics magazine *Nederlands Tijdschrift voor Natuurkunde*. 'In both instances, Bart encouraged me. He was very enthusiastic about my attempts to explain our work to a broader audience.'

Lodi Nauta

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First philosopher to receive Spinoza Prize

Professor Lodi Nauta is the first philosopher to receive the NWO Spinoza Prize since its introduction in 1996, another reason to celebrate for the laureate. 'I consider this to be not merely the recognition of my own work, but also of the importance of philosophy and its history.'

It is not the first award Nauta has won: he received two awards for his book about humanist Lorenzo Valla and the Keetje Hodshon Prize issued by the Royal Holland Society of Sciences and Humanities for his dissertation in 2000. Moreover, he is a VIDI and VICI laureate and has been a member of the Royal Netherlands Academy of Arts and Sciences (KNAW) since 2011. 'But this really is the top prize in the Netherlands. It is unbelievable, and I am extremely grateful.'

Away from the ivory tower

Nauta is not one to stay in his ivory tower. As Dean of his faculty, he believes in promoting his own work and philosophy in general. Thus, he is a regular speaker at events such as the Dutch Philosophy Night. However, promoting philosophy primarily takes place in tutorials and lecture halls, and sound research flourishes wherever there is good education.

'This really is the top prize in the Netherlands.'

'I find it enormously stimulating to teach students to think critically. Reflection and analysis are crucial elements in this process. The history of philosophy is very important too: it is the philosopher's laboratory. Notions about free will, God, good and evil, knowledge, language and thought do not arise in a vacuum. We are standing on the shoulders of giants. Showing both the wealth and relevance of our intellectual heritage is at the heart of my teaching.'

New views through combination of source study and philosophical analysis

Nauta's research into the history of philosophy rests on two pillars: the craft of studying historical sources and the philosophical analysis of these sources. 'In my opinion, the combination of these activities is both fascinating and fruitful. I enjoy studying sources as this allows you to find new texts or shed new light on familiar ones. The result is often a new, more nuanced view of how thought has evolved. But source study alone is not enough; it must be combined with an analysis of the philosophical

issues raised in those texts. You therefore continuously enter into a dialogue with the thinkers who have shaped our traditions.'

New view on the role of humanist critique

Nauta's research focuses on the changes that have occurred in the intellectual and cultural history of Europe. He has made significant contributions to the study of what is referred to as the twelfth-century renaissance. He has also shed new light on the relationship between religion and philosophy in the work of seventeenth-century philosopher Thomas Hobbes. In his book about humanist Lorenzo Valla, Nauta presents a new view on the great importance of the critique of humanist thinkers for the medieval scholastic world view. 'My research shows that the humanist critique contributed significantly to the rise of the modern world view.'

A new research group

Besides the great honour, the winner of the Spinoza Prize receives a research budget of EUR 2.5 million. Over time, and in part thanks to his receiving VIDI and VICI subsidies, Nauta has surrounded himself with a substantial number of PhD students and post-doctoral researchers. The prize will allow him to establish a new research group that can conduct large-scale research projects, at least by the standards of the humanities. 'This opens up a whole range of opportunities: we can attract top researchers, start a new research group and, something I would love to do, compose a team to write a good handbook on the history of philosophy. All of this is now within reach, and I am looking forward to it tremendously.'



Former PhD student Han Thomas Adriaenssen:

Jargon is what Lodi loathes

Han Thomas Adriaenssen took his doctorate with Lodi Nauta and is now a university lecturer at the Faculty of Philosophy, where he is working on a book about Aristotelian philosophy. Lodi's supervision was very important to him when he was writing his PhD thesis. 'Lodi keeps reminding you that a wider audience needs to understand your texts. If a book is only legible to three or four specialists, it is a waste of time. You might as well send them an e-mail instead. Write your PhD thesis and papers in a style that is accessible to anyone who might want to read it.'

Plain language

Adriaenssen has found that this perspective has a huge effect on how you as a researcher deal with your research topic. It is much more than purely appearance, much more than layout alone. 'The clearer you can make a point, the better you understand it yourself. Of course, you do need to use the occasional specialist term, but you can often make your point perfectly well without relying on technical terms.'

Transparency towards your readers

This is why Lodi kept on stressing the importance of this translation into plain language. Adriaenssen: 'This is not always easy to do. You really need someone else's assistance. Lodi helped me achieve it. He has an impeccable sense for deciding where jargon is crucial and where it becomes obfuscating, pretentious and illegible. If there is one thing he dislikes, it is texts that are overly complex. He thinks authors should be transparent towards their readers. Your readers should be able to follow each and every step of your argument, and disagree if they like. I still think that this is the most important lesson I have learnt, and it is one which I am now trying to pass on to the students that I supervise.'



NWO Spinoza prize at the UG

2016 is a good Spinoza year for the University of Groningen. Two laureates have been added to its list of honour: Lodi Nauta, Professor in the History of Philosophy, and Bart van Wees, Professor of Applied Physics. In the past two years, the University of Groningen was also among the winners with Professor of Migratory Bird Ecology Theunis Piersma and Professor of Human Genetics Cisca Wijmenga. In short: time to celebrate.

The award was introduced by the NWO, the Netherlands Organisation for Scientific Research, a national organization that funds and stimulates academic research in the Netherlands. As such, it invests hundreds of millions of euros in academic research each year in the form of indirect government funding. With the Spinoza Prize, NWO aims to increase the visibility of excellent academics. All Spinoza laureates perform excellent, ground-breaking research that has a high impact. This makes them a source of inspiration to younger researchers.

A maximum of four prizes are awarded annually. The winning academics receive EUR 2.5 million for research, and are given complete freedom to choose their research subject and involve other, mostly young, researchers. Thus, the prize is part recognition for accomplished researchers and part stimulus to conduct further research.

The first University of Groningen researcher to receive a Spinoza Prize was George Sawatzky, Professor of Solid State Physics, who received the award in 1996. He was followed, four years later, by Professor of the Pathophysiology of Respiration Dirkje Postma, and, another four years later, Professor of Chemistry Ben Feringa. Things then went quiet for a while, but the University has more than compensated in recent years.

Lodi Nauta and Bart van Wees will present their research at a celebration in the Nieuwe Kerk in The Hague on Tuesday 13 September.



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Baruch Spinoza

The prize is named after Baruch Spinoza (1632–1677). Spinoza was an internationally renowned Dutch scientist and a clear example of freedom in research. A tremendous figurehead for this prize.

Elmer Sterken
Rector Magnificus

Researchers who encourage and inspire their co-workers



'I was working abroad when I received the call: we were to receive not one, but two Spinoza Prizes. It was an indescribably good feeling. Fantastic.' Rector Magnificus Elmer Sterken is 'very proud' of Lodi Nauta and Bart van Wees. 'They are researchers who encourage and inspire their co-workers, open-minded academics whose enthusiasm is catching and who take young people under their wing and thus lead by example. The same was true for their predecessors.'

For us as a university, this is confirmation that we are on the right track with our policy aimed at talent development and research quality. Ten years ago, we did not win any awards, but we are catching up fast with our two winners this year and winners in the previous two years. We are beginning to leave behind our down-to-earth Groningen mentality and are working hard on quality development.

The impact of the Spinoza Prize is enormous, both internally and externally. It has a bit of a Nobel-Prize feel to it. It gives academics the opportunity to make their dreams come true. It does not get much better than that, does it? Breaking away from our down-to-earth mentality also means that we are no longer modest about our achievements: we will make them visible, whichever way possible. I am already looking forward to the award ceremony in September. Believe me when I say that there have been worse times in my career.'

The NWO Spinoza Prize was introduced in 1995 and has been awarded to 77 researchers over the past two decades. Five of these were associated with the University of Groningen:

- > **George Sawatzky (1996)**, Solid state physics
- > **Dirkje Postma (2000)**, Respiratory pathophysiology
- > **Ben Feringa (2004)**, Chemistry
- > **Theunis Piersma (2014)**, Global Flyway Ecology
- > **Cisca Wijmenga (2015)**, Human Genetics



Cisca Wijmenga



Theunis Piersma



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