



Young South African researchers attend the 2017 Lindau Nobel Laureate Meeting

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What do you get when 420 young scientists and 30 Nobel Laureates from around the world converge on a quaint Bavarian island for almost a week? The prestigious annual Lindau Nobel Laureate Meeting.

The 67th Lindau Nobel Laureate Meeting – dedicated to chemistry – took place in Lindau, Germany, from 25 to 30 June 2017. The annual Lindau Nobel Laureate Meetings bring together over 400 early career scientists from all over the world, along with approximately 30 Nobel Laureates, to promote scientific exchange and engagement. The motto of the Lindau Nobel Laureate Meetings – ‘Educate, Inspire, Connect’ – typifies what transpires at these events. Started in 1951 to facilitate post-war reconciliation among scientists, the first meeting was a great success and led to periodic meetings of Nobel Laureates. A few years later, young researchers were invited to join the dialogue, and this format has since been fostered into an annual event which is now attended by participants from over 70 countries.

To attend as a young researcher, most applicants must first be selected and nominated by an academic partner, and then pass the Lindau Nobel Laureate Council’s final selection process. The Academy of Science of South Africa (ASSAf) is the academic and nominating partner in South Africa and provides a travel grant through support from the Department of Science and Technology for a young researcher to attend the Meeting. For participants hailing from Africa, funding to attend the Meeting is also provided through the Horst Köhler Fellowship Programme run by the Robert Bosch Stiftung.

For many of the Nobel Laureates, the meeting is the highlight of their year, as they get to meet with enthusiastic young researchers who look to them for advice about their research, advice about their careers, and even advice about non-scientific matters. Some of the Nobel Laureates joke that the young researchers ‘keep them young’. Simply having the Nobel Laureates present is a cornerstone of the meetings; their presence inspires the young researchers, and inspires the conversations that transpire, giving an opportunity for the young researchers to converse with peers from different backgrounds without prejudice or discrimination.

The participants of the Meetings are afforded the option to either stay in a hotel or to be hosted by a local Lindau family. Being hosted by a local family allows for greater immersion into German culture, and the host families eagerly await the week that they host their guest.

Two of the participants from South Africa were Dr Nolwazi Nombona and Dr Mark Williams-Wynn. Nolwazi Nombona has a PhD in Chemistry from Rhodes University and currently works at the University of Pretoria where she designs nanomaterial sensors to detect harmful chemicals and organisms in the environment. Mark Williams-Wynn completed his PhD in Chemical Engineering at the University of KwaZulu-Natal, where he developed a process to treat oil sludge using novel solvents. He is currently completing a Post-Doctoral Fellowship at the University of KwaZulu-Natal, where he is developing processes for the recovery of valuable materials from electronic waste. These young researchers share their personal experiences from the 67th Lindau Nobel Laureate Meeting below.

Experience of the 67th Lindau Nobel Laureate Meeting: Nolwazi Nombona

The first that I heard of the Lindau Nobel Laureate Meetings was when a senior professor approached me to ask if they could nominate me to attend. I secretly thought: Why would they select me? But I submitted an application and then promptly forgot about it. Months later, I received an email that turned my world on its head. The African Academy of Sciences had nominated me for consideration to the Council and I was chosen to attend. I couldn’t believe it: I was going to Lindau! I was excited for the opportunity to meet and interact with Nobel Laureates – the remarkable people I’d only read about on the Internet. But after the initial elation, the nervousness kicked in. I worried to myself: What on earth would I possibly have to say to them?

In hindsight, my fears were completely groundless. My experience far exceeded any of my expectations. The atmosphere in Lindau was friendly and relaxed; and this made the interaction with the Nobel Laureates far less intimidating than I had expected. At the opening ceremony, the excitement in the auditorium was tangible. As became typical for the duration of the Meeting, we had an opportunity to mingle with and meet the Nobel Laureates as well as fellow researchers who hailed from all corners of the globe. The Meeting was centred on lectures, discussion sessions, and science breakfasts, but outside of these times, there were many opportunities to discuss topics ranging from current research activities to politics and cultural norms.

Over the course of the week, the Nobel Laureates delivered short lectures; some focused on the fundamental challenges in their respective research areas, whilst others shared their experiences as researchers. For me, the highlight was the keynote address that was delivered by Prof. William E. Moerner (2014 Chemistry Nobel Laureate) on behalf of Prof. Steven Chu (1997 Physics Nobel Laureate). Chu mentioned that governments seem to be in doubt about scientific evidence (especially on climate change) and emphasised the need to have political scientists who can work with governments to develop better policy options for a sustainable future. Apart from the scientific aspects that were covered during the lectures, what was of most value to me was the guidance that each Nobel Laureate imparted during their lecture. They motivated us to never doubt our abilities and inspired us to hold on to the passion we have for science. Possibly the most interesting lecture (judging from the applause given) was delivered by Prof. Ben Feringa (2016 Chemistry Nobel Laureate). In his talk, Feringa took us through his discovery of a ‘nano-car’ which he built from compounds that use light-induced chemical energy to move across a surface, highlighting the positive impact these nano-machines could have, especially in medicine.

The African delegates had a special African breakfast with Prof. Peter Agre (2003 Chemistry Nobel Laureate). This breakfast gave us a chance to meet other African delegates and we had a rare opportunity to pick Agre's brain regarding his work in Africa through his role as the Director of the Johns Hopkins Malaria Research Institute. The discussion touched on various issues, including why we have not been successful in eradicating malaria. The dialogue was so thought-provoking that ASSAf organised a follow-up lunch discussion with Agre and the researchers from South Africa.

The Lindau Nobel Laureate Meeting was a unique experience, and it exposed me to colleagues working on similar research projects around the world. The discussions were enlightening and the networks created will benefit my scientific research career for years to come. I would encourage every young scientist to apply to attend this meeting, as it provides a remarkable opportunity to interact with current and future Nobel Prize winning scientists from across the globe.

Experience of the 67th Lindau Nobel Laureate Meeting: Mark Williams-Wynn

There is a distinct lack of conversation about the Lindau Nobel Laureate Meeting in South Africa – the first that I heard of this opportunity was when I was asked by my supervisor if he could nominate me to attend the 67th Meeting. The selection process is very rigorous, and it was 4 months after submitting my application that I received an email informing me that I had been selected to attend. I was extremely excited to receive this email, to the point that I immediately rushed to my supervisor's office to tell him the news.

A travel grant was provided by ASSAf, and as the selected delegates were from different universities and research organisations throughout South Africa, ASSAf organised a pre-meeting team-building gathering, during which we met the other delegates. Several Lindau alumni were also invited to this gathering, to share their experiences and give us advice on how we should approach the meeting. This advice varied from the sensible, 'Meet as many people as you can', to the less sensible, 'Don't sleep at all'.

For my stay, I was hosted by Lindau residents, and my host family proved to be exceptional. They went so far as to organise transport for me from Munich to Lindau, and to make sure that I got onto the correct train at the end of my stay. We had many discussions, which varied from the nuances of our cultural differences, to discussions about topics raised at the Meeting, to sport, to politics, and everything in between. The experience of being hosted by locals added substantially to the entire 'Lindau experience'.

During the Meeting, numerous programme additions were organised, to which only a small group of researchers was invited. These additions were sponsored by research organisations or multinational corporations. I was fortunate enough to be invited to attend two such events. The first event was the Summer Festival of Science, which was hosted by the

German Federal Ministry for Education and Research. During this event, I found myself conversing with CEOs and vice-presidents from large multinational companies such as the Linde Group, Cabot Corporation and Lockheed Martin.

Another opportunity was a flight in a zeppelin, as a part of an introduction to the 'Clockwork Ocean' expedition being undertaken by the 'Helmholtz-Zentrum Geesthacht' of the Helmholtz Association. We were introduced to the methodology and equipment used to study the behaviour and impact of water eddies in the seas and oceans. Thereafter, we were taken on a 45-minute flight in the zeppelin for a magical view of Lindau and the Bodensee from the sky. We were joined for this flight by two Nobel Laureates, who were just as enthralled as we were by the views that unfolded.

The days of the conference flew past at a breathtaking pace, although not without presenting each of us with many opportunities to network and to learn from both the Nobel Laureates and the other researchers present. The advice from the alumni to not sleep made much more sense at this point. There were simply so many interesting people to meet and to discuss science with, that we all ended up sleeping far less than usual.

For me, the lectures that most stood out were those in which the Nobel Laureates chose to share their personal experiences as researchers. These were lectures by Agre, Dan Shechtman (2011 Chemistry Nobel Laureate) and Martin Chalfie (2008 Chemistry Nobel Laureate). After the lectures, each Nobel Laureate held a discussion session with the young researchers. I found Shechtman's discussion session particularly pertinent to me, as we discussed science entrepreneurship and education.

There was a strong emphasis on women in science, technology, engineering and mathematics (STEM) at this year's Meeting, and as such, many of the young scientists involved in discussion panels and sessions were women. In stark contrast, only one of the 29 Nobel Laureates present was a woman (Ada Yonath, 2009 Chemistry Nobel Laureate).

On the final day of the Meeting, we were treated to a boat ride to the garden island of Mainau, where we spent the day. Two occurrences during the events held on the island further highlighted women in STEM. During the closing panel discussion on 'Ethics in Science', a young researcher from the University of Cambridge, Dr Karen Stroobants, was, by far, the stand-out panel member, eclipsing the otherwise male-dominated panel. Secondly, Dr Hlamulo Makelane, from South Africa, gave heartfelt and emotive closing remarks for the Lindau Meeting on behalf of the young researchers, doing South Africa and women in STEM proud.

Everything considered, the Lindau Nobel Laureate Meeting was a once in a lifetime experience that I would recommend to anyone who is eligible to attend. Were it not for the fact that young scientists are only afforded the opportunity to attend once, I would have applied immediately for the next Meeting.

