

Inside Story

A teacher's discerning perspective

Physical-sciences teacher **Lizelle Swanepoel** describes how her participation in CERN's High School Teacher (HST) programme is helping her to inspire a new generation of scientists.

I was one of 50 teachers who took part in a three-week residential programme at CERN in July 2015 to get a taste of frontier research in modern physics. Participants in the programme were selected from 32 countries across the world, and I was also the only teacher from the African continent. Having been selected to undertake a course at CERN has been a career highlight and a personal dream come true.

The grand scale of innovation going on at CERN is impressive. After its famous discovery of the Higgs boson in 2012, the second run of experiments started last year. Since then, they have discovered another new particle called the pentaquark. I feel privileged to have been at CERN during that time, and to have received a lecture about the pentaquark just days after its discovery. Of course, in addition to the large LHC experiments, there are many other cool experiments going on at CERN. These include the radioactive ion-beam facility ISOLDE, COMPASS, AMS (which is attached to the International Space Station to look for dark matter) and the Antimatter Factory.

The feeling of collaboration and discovery is tangible at CERN. It was a hub of activity while I was there, with so many summer students from across the world doing experiments. Young and old all contribute to physics at CERN. Nobel laureates can also be spotted. It is truly the most inspiring place on Earth from a scientific point of view!

Our programme consisted of three hours of daily lectures in particle physics, cosmology and astrophysics, in addition to workshops, visits to facilities and time spent on chosen projects for presentation at the end of the course. The projects ranged from the detection of cosmic rays, LHC data analysis and medical applications of CERN technologies to the importance of women in physics, educational games and comparing science curricula from across the globe. My workgroup had hours of fun building a working prototype of the



Deborah Hunter

The author inside the LHC tunnel near CMS, during her stay at CERN in 2015.

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ATLAS detector's magnetic system. We also had Q&A sessions with experiment leaders and the former Director-General, where we discussed the future of CERN and education, CERN in the media, and how to educate the public about science. I also had the opportunity to meet the new Director-General, Fabiola Gianotti, who is the first woman to head CERN.

CERN's International High School Teacher (HST) programme inspires teachers to raise and maintain the interest of students in science and specifically modern physics. CERN recognises the teacher's ability to instil a feeling of mystery and the potential for discovery in their students, which can motivate them to study science and engineering at university. My time at CERN has enabled me to promote what goes on at this extraordinary laboratory by sharing it with pupils and teachers alike.

The HST programme is the ideal platform for equipping teachers to inspire and prepare our future scientists and engineers.

Since my return from CERN, I have enjoyed sharing my experience with students and with other teachers in South Africa, in addition to writing articles about CERN for the wider public in newspapers and magazines. I have also championed an after-school science club (appropriately named CERN Club), in which we create activities to teach our budding young scientists how to explore the wonders of the universe. It is truly rewarding to see how interested these young people have become in physics, and science in general.

I will cherish my experience at CERN and will continue to share it in the years to come. Connections made with like-minded teachers from so many different countries have been hugely valuable. We have become ambassadors for CERN and would like to expose our students to the spirit of collaboration and internationalism felt there. I hope to continue to foster more of these qualities in my students, and to take a group of students to CERN in the near future. Thank you, CERN and the HST programme!

● *Lizelle Swanepoel, head of chemistry at Saheti School, Johannesburg, South Africa.*