

A year at CERN

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Introduction

My name is Kevin Sperin and I am currently undertaking a 12 month technical student placement at the European Organisation for Nuclear Research (CERN) in Switzerland. To me, CERN represents the very pinnacle of science in the world and to have the opportunity to work for such an organisation is a dream come true.

I first heard about placement opportunities at CERN at a recruitment presentation organised by the College of Engineering and Physical Sciences last summer. I am studying MEng Electrical and Energy Engineering and had thought of CERN as a place primarily for physicists. Although physics is the very purpose of CERN, there are also many opportunities for engineers and computer scientists as well as those for physicists.

After the presentation I decided to apply even though I thought my chances of success were rather slim. The application process consists of a single online application form: There are no interviews or assessment centres. The hardest part is waiting for their response.

In November I was informed to my delight that I had been successful and I put my third year on hold and prepared to join CERN in February.

Over the coming months I will be writing diary entries detailing my experiences, which will be uploaded here. Below you can find read my first entry, written during my first few weeks at the world's largest and most ambitious science experiment.



My first week at CERN

01/02/2013

"On the day before I was due to start I flew into Switzerland and my first sight was the snow-topped Swiss Alps as we descended over Lake Geneva. It truly was a magnificent sight and I was very excited to be starting my adventure. I reported to main reception on my first day and was given a map and a long to-do list. I realised how large the CERN main site is as I walked around the various buildings. I had to go through a number of security checks including a retina scan and a medical, and I opened a Swiss bank account—it was kind of like James Bond but without the cars, women and license to kill!

Later on I met my supervisor and other colleagues and began work, which involves creating computer models for various aspects of the Large Hadron Collider (LHC) and taking measurements in the tunnel to improve the computer models. These models are then used to make improvements to the LHC and ensure safe operation at increasingly higher energies. My group is particularly interested in a phenomenon called 'quench' which is when part of the superconductor begins to conduct normally. This is a problem because a normal conductor cannot carry as much energy as a superconductor so it gets very hot and can severely damage the machine."

Expectations vs. Reality

18/02/2013

"I am not sure what I expected of CERN. I had vague notions of high tech buildings with people speeding around on Segways like at Google. This was not exactly the case but I was very impressed all the same. The main site looks rather industrial from the outside, but inside the many buildings are all manner of advanced machines, computers and laboratory equipment. I also expected to be surrounded by Nobel laureates and Albert Einstein lookalikes. This is not entirely inaccurate, but last week my friend saw Carlo Rubbia who was awarded the Nobel Prize in Physics for his part in discovering the W and Z bosons.

The work environment is unusual in that it feels more like working for a university than a business organisation. Employees are given a great deal more freedom than in a typical workplace. The people are so passionate and talented that this freedom is not abused and lots of very impressive work gets done. Many of my colleagues are so knowledgeable and highly skilled that it was rather daunting to begin with. I began to wonder if I was up to the task of working here.

The LHC itself surpassed all expectations. I had seen pictures of the machine and the tunnel but to actually be inside the tunnel is a real experience. The tunnel is 27 km in circumference and it feels like it goes on forever. The first time I went down there I was so impressed with everything from the civil engineering of the actual tunnel to the electrical systems, monitoring systems, cryogenics and of course the superconducting magnets themselves. It really is an extraordinary place to work and I am very grateful to be here."

One month in

04/03/2013

"After my first month I have settled in and have begun work in earnest. I have spent some time in the LHC tunnel taking measurements and analyzing the data. I am currently running simulations to match the data and understand why it behaves the way it does. My French is improving which is good as I have recently moved to France. So far it has been a fantastic experience, I have made many friends, learned a lot and I look forward to what the next 11 months will bring."