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@
CERN

CERN Summer Student 2010

Where the Web was born!

Preface

Hi! I am Martin and I was a summer student at CERN in 2010. While searching for information on the summer student program, apart from the official documents, I came across a few blogs and individual blog posts of former CERN summer students. Those gave me some good insights on how the program would be. After being selected as a summer student, I decided to set up a blog myself to keep in touch with my friends and colleagues at home and to provide useful insights to summer students in the following years.

During my stay at CERN I filled the blog with a lot of content, especially photos.

Now, roughly three years later, I could not keep the blog itself online any longer. But I wanted to preserve its content in some way. You are now reading the result of this effort!

By now I realized I could have written a few passages of my posts differently. But I decided to keep all texts in their original version. Wherever I thought some additional explanation might be helpful, I added colored boxes with a few comments from today's perspective.

Paderborn (Germany), March 2013

Disclaimer

This document has not been authorized or endorsed by CERN. It is purely my personal point of view.

Part I: Preparations

Day -104: Confirmation

Subject: Your CERN Summer Student Application

Dear Mr. Draxler,

We are pleased to inform you that during the Summer Student selection procedure, you were chosen to spend your placement at CERN this summer

[...]

Well, let the adventure begin!

The group on Facebook still exists with most of the 2010 summer students in it. It is one of the ways we keep in touch, even after we all left CERN.

Day -103: Facebook

The “Summer Students 2010” group on Facebook grows larger each day. Interestingly I was the first summer student to search for a 2010 summies group, so I had to found one (which now is THE ONE).

I also ordered a book to “refresh” my French language skills. Nevertheless it seems to be long ago I learned some French at school.

Day -99: Waiting

I am still waiting for further information, especially on my work placement and the accommodation choices.

But: Less than 100 days to go :-)

The CERN HR department and especially the summer student team there are very nice and helpful people. But preparing the whole summer student program is a non-trivial task.

If you find yourself in the same situation like me: be patient, you will get all your required documents in time.

Day -97: Social Network Success Story

First of all: No news from CERN yet, even not about accommodation.

But now the interesting part: I met someone on Facebook who lives and studies only a few kilometers from here and will be traveling to CERN on exactly the same day as I will. Guess who will not be traveling alone? Thus social networking as finally proven itself to be useful.

Day -95:

A lot of Information

Today I received an email with a lot of information about the summer student program. The most important facts are:

- I will travel to CERN on 27.06. and return on 05.09. Both dates are Sundays to make driving a little more relaxed.
- As a consequence I will be traveling by car. Presumably together with Daniel from Herford/Bielefeld.
- I had to state my preferences for the accommodation: My first choice is Building 38, the second choice is St. Genis.

More information will be arriving at the beginning of April, including my contract and my work placement.

If you have the choice: you want to live on the CERN site and not in St. Genis – trust me!

Day -85:

Less than 3 Months

It's less than 3 months until my stay at CERN, but there are no news. I am still waiting for my contract and some information on my work project.

Day -82: My Supervisors

The contract and information on the work project will be sent to me by the end of next week. Until then: more waiting.

But the Summer Student Team was kind enough to tell me the the names of my supervisors at CERN. A quick search on Google told me that they work on grid computing, especially the WLCG. So I have at least some information on my area of work.

The summer student lectures are usually archived including video files and the lecture material. If you are interested in the work at CERN have a look at the old lectures.

Day -75: Lecture Program

The contract and work project proposal should be sent to me until the end of this week, which means they probably will arrive here tomorrow ;-)

Anyway, it seems the 2010 lecture program (or a first version of it) is already online:
<http://indico.cern.ch/scripts/SSLPdisplay.py?startdate=2010-07-05&nbweeks=8>

Day -70:

Still No Contract

Did I say the contract and the work project proposal would arrive until the end of last week? Yes I did, and no they did not arrive yet :(:(:(

Day -62:

Contract & Work Project

Today, I finally received my contract. So now I will officially be a CERN employee this summer.

Additionally I received my work project proposal which can be entitled by “Development of additional performance and stress tests for the DPM system.”

DPM is the Disk Pool Manager, which is the storage system for the WLCG (CERN GRID) used by several LHC experiments. This system needs to be tested how well it works with the (presumably huge) experiment data workload. And I will be developing such tests.

And last but not least it's (more or less) exactly two months until my stay at CERN today 8-)

Day -55: Gadgets

Yesterday I sent back the signed contract to CERN, so most of the administrative stuff is done. At least until the official registration on-site.

Now it's time to prepare myself for the stay. Two of my new tools/gadgets/gimmick arrived this Monday:

- The Book "A User's Guide to the Universe", a catchy introduction to particle physics, quantum mechanics, etc. for non-physicists. (Available on Amazon DE/EN)
- A Canon IXUS 120 IS digital camera, which means there will be pictures on this blog soon. With respect to its small shape (and small CCD chip) it produces really decent pictures, but the image quality is not as brilliant as with my Canon S5 IS. Maybe I will take along both of them.

Day -49: Hostel Reservation

Today I received the confirmation for my CERN hostel reservation. I will be staying in a "Single non smoking room with wc and washbasin at 48 . Sfr in building 38". Building 38 is at the Meyrin site near the main auditorium, which is perfect :-)

Day -41:

Social Networks Integration

Nothing new from CERN in the last few days, except some technical details about my work project from my supervisor.

But there is a new feature on this blog: I integrated it with twitter, which means new posts will be announced on Twitter, Facebook and studiVZ :-)

Day -30:

Less than one Month

A few days ago the countdown passed the “1 month” mark without me noticing it. (Shame on me!) So, what happened the last few weeks?

Most preparations are done or in progress: I checked the insurances for me and the car, I ordered a new credit card, and so on. I even start to remember some French words I learned at school years ago :-)

I also met with Daniel the fellow passenger on my journey and fellow resident in building 38. We had some very nice talking, filled with sincere anticipation.

Finally I also had a short email conversation with Oliver, my supervisor, about my work project.

Currently I am preparing myself for the “specialization exam” (Vertiefungsprüfung) on June 11th, my last exam for the master’s course.

Day -17: Two Weeks to Go!

Tomorrow in two weeks I will start my (hopefully not so long) journey to CERN :-)

Yesterday I successfully passed the last exam for my master's degree. The only thing left is my master thesis. I already have some ideas about the topic, which will be something related to cooperation and coding in 4G networks.

But two weeks also means two weeks of waiting :-(. Hopefully both will pass by quickly.

Technically it is possible to go home briefly to take an important exam at your university while staying at CERN. I met a few people who did so and I would not recommend it. Try to finish up everything you can at your university before going to CERN and concentrate fully on your work and other activities there.

Day -3:

The Adventure Starts Tomorrow

Finally, the day (or the day before the day) of my departure is here. Tomorrow morning I will start my journey to Switzerland and CERN.

Some important notes: I will have a new mobile phone number in Switzerland so, my usual (German) one will not be reachable for the next two months. I will give you the new number here as soon as possible. Additionally my landline number redirects to voicemail, so don't call it either. You can still reach me by email and also via Skype or ICQ. (But maybe the availability of Skype or ICQ will be limited!)

Two good places to follow me are this blog and my Facebook page :-)

Another thing: You can also post comments to my stories and access some more content if you register yourself!

Finally, for all family, friends, colleagues, etc. at home: See you in two months!

And for all people at CERN: See you tomorrow 8-)

The next morning I got up, packed my last few things, picked up Daniel, drove close to 1000km by car to Geneva and tried to follow a soccer worldcup game in French (Germany vs. UK, we won).

In the end, we arrived. The adventure was about to start...

Part II: At CERN

Day -2 – Day 2: Arriving at CERN

On Sunday at around 18:00 Daniel and I finally arrived at CERN. Driving was rather uneventful, but some roadworks on Route de Meyrin forced us to do a little detour through Meyrin at the end :-). But we got our rooms in the hostel and grabbed some lunch at Restaurant 1.

Because the contract started at Tuesday we had the opportunity to go to Geneva and to the lake on Monday. In the evening I went to a Pub in Geneva with some other summer students to watch the Brasil/Chile game.

On Tuesday we met in the Globe for the official welcome formalities with the summer student team. After that I got my id card, met my supervisor, got my CERN account and my office.

Last but not least some pictures from my hostel room and the (beautiful) view from my window.





Day 4:

BBQ

My first weekend at CERN started with a BBQ on Friday evening. Two other summer students celebrated their birthday there, so there was really a lot of fun (and cake, and beer).

After the BBQ, Daniel and me decided to take some photos of the Globe at night, so we grabbed our cameras and a tripod. I think, the results look quite nice.

Today (on Saturday) I slept late, did some laundry and relaxed a little bit. Later we will go to Geneva to watch the soccer game somewhere. (Perhaps at Mr. Pickwick)

If the weather is nice, I will do some hiking tomorrow.

BBQs are probably the number one social activity for summer students at CERN, closely followed by parties. More on parties later.

Also Mr. Pickwick Pub (which exists at least until today) is notable for its English speaking staff and international sports shown on TV.





 **CERN**

← **ENTREE B**

Day 5:

Hiking on Petit Saleve

Before starting to talk about the hiking tour on Sunday: We went to Geneva on Saturday to watch the soccer game at Mr. Pickwick Pub. Before that we walked around the lake a little bit.

Geneva is a great place for hiking in both the Jura and the Alps. The Saleve is fairly easy to reach by public transport and there is a cable car to go up to the mountaintop. Make sure there is still public transport available to take you back to Geneva.

Petit Saleve

After some rain on Sunday morning we decided to go hiking on Petit Seleve, which can easily be reached by bus from Geneva. We were a group of ten summer students, and it was totally awesome!!! We got up to Saleve by a cable car, walked down to Monnetier and up to Petit Saleve. Afterwards down to Veyrier and back to CERN by bus.





Day 8:

Work & Lectures

After all the posts about the activities in my time off, it seems to be good to say something about my work at CERN. Basically I work in the IT department in the “Grid Technology” (GT) group. There I do performance testing of the DPM, which is described here: <https://svnweb.cern.ch/trac/lcgdm/wiki/Dpm>
Until now I tried to become acquainted with the DPM, so I think I will start next week to prepare the real performance testing.

Furthermore the “Summer Student Lecture Program” started today, so from now on I will have lectures in the morning and will be working in the afternoon.

The only “real” lecture today (apart from the introductions) was on heavy ion collisions. Very, very interesting stuff, and even comprehensible for a non-physicist. I am curious about the other upcoming lectures!

Finally there will be a welcome drink for all summer students this evening in R1, followed by watching the soccer game Germany vs. Spain, presumably at Mr. Pickwick Pub.

Day 9: A Random Walk on the Meyrin Site

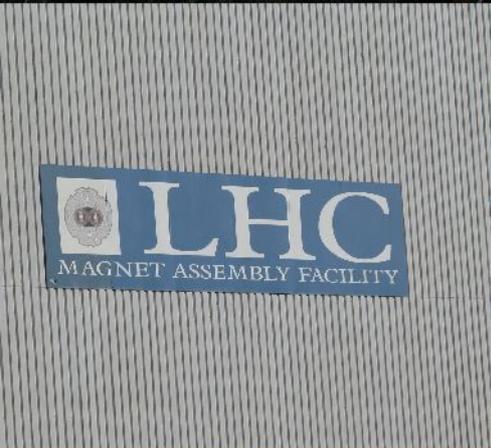
After a day with lectures and work, Daniel and me made a tour around the Meyrin site and took some photos.

The highlights include: ISR, LHC Magnet Assembly Facility, ATLAS Assembly Facility, LINAC/LEIR, a lizard and Schrödinger's Cat.

CERN is a huge and interesting place. If you have the chance, explore the sites at Meyrin and Preveessin a little bit. There is a lot of interesting stuff around!









Day 10:

Geneva at Night

On Friday we went to see the lake and Geneva at night. We had some wine, beer, cheese and bread at the lakeshore and went through the old town of Geneva on our way back to CERN.

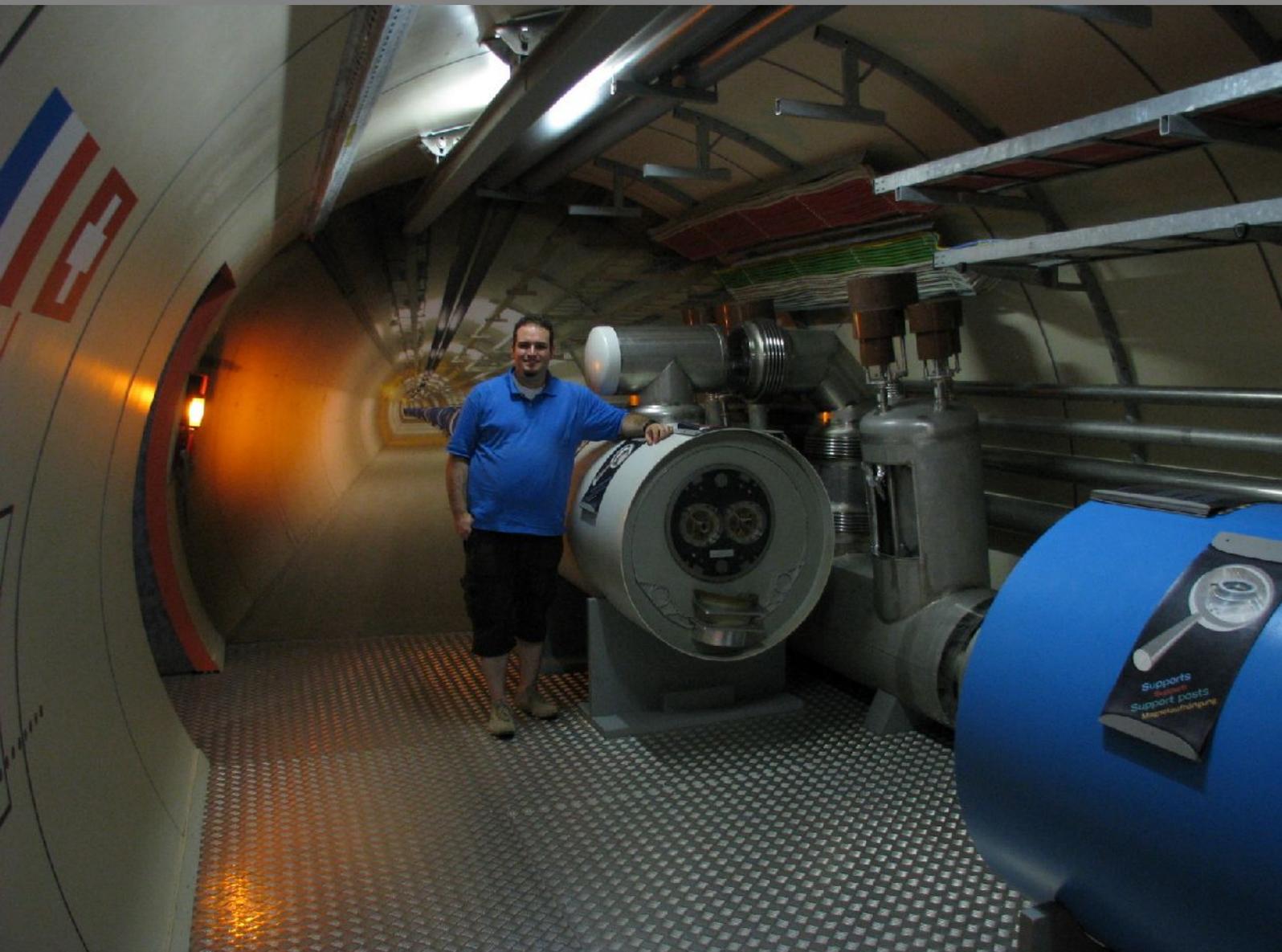
Today, on Saturday, we are headed for the Lake Parade, apparently a smaller Swiss version of the German Loveparade.

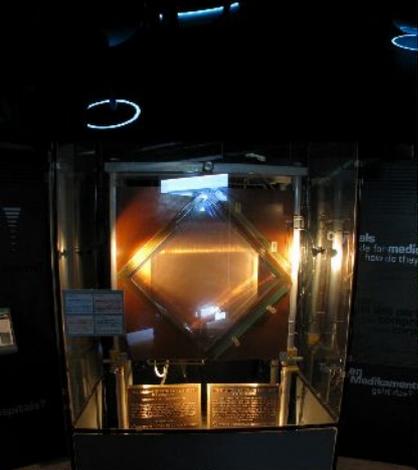
During the summer there are a lot of festivals, concerts, etc. in Geneva and the surrounding cities. If you are there, take the opportunity to attend some of them.

Day 11: Universe of Particles and Microcosm

Due to the exceedingly warm weather ($\sim 40^{\circ}\text{C}$) we postponed visiting the Lake Parade until the evening and visited the two exhibitions at CERN: “Universe of Particles” and “Microcosm”.

We also took a look at the CERN souvenir shop. I will definitely buy some stuff there before leaving: A CERN fleece sweater looks just awesome!





Day 11:

Lake Parade & Lake Sensation

Due to the hot weather we went to the Lake Parade at 18.00, but the actual parade was already over when we arrived. But the party at the lake, called Lake Sensation, was starting so we stayed there.

The music was loud but quite enjoyable, so we returned to CERN around 3.00 in the morning :-)

These texts and photos might suggest that being a summer student is more like a vacation than a job. This is of course not true! But during my time at CERN I did not really want to write too much about my work. You may rest assured that the work projects and lectures in the summer student program are very interesting and you will learn a lot.

Day 12:

Viva Espana!

Spain won the FIFA World Cup 2010. We watched the game at the fan-zone in Geneva.





Day 16: Work, Lectures and the Weekend

My last post here was 4 days ago. Why? Because the last days were pretty average 8-)

The lectures continue, and are very, very interesting. Even for a “physics newbie” like me. (Maybe the lecture on the standard model poses an exception here!) You can watch all lectures as a video online if you like: <http://indico.cern.ch/scripts/SSLPdisplay.py?startdate=2010-07-05&nbweeks=7>

I also continue to work on my project. To sum it up: There is a whole zoo of protocols to access the data on the WLCG, with some parameters each, for example RFIO or GridFTP. My job is to derive some tests to measure and compare their performance using different parameters.

On Friday and Saturday there will be the Hardronic Festival at CERN. It is a music festival with all the bands from the CERN staff. I will be working there as a sound/light engineer and we will start setting up the lights this evening.

Day 17: Antimatter

Today's lecture was one of the best so far:
"Antimatter in the Lab"

Where else in the world can you take a photo with a case of antimatter?

Sure, it is no real antimatter, but however it looks cool 8-)

So this evening is the Hardronic Festival as mentioned before.

Additionally the summer students also have a brand new set of JBL JRX 115 speakers for the Pump Hall parties.



Day 17 & 18: Hardronic Festival

On Friday and Saturday we visited the Hardronic Festival at the Preveessin site of CERN.

Professors and PhDs doing Rock'n'Roll, French Metal and much more great Music.

American Corndogs, Chili, African delicacies and awesome Filipino BBQ!

Do not miss the Hardronic Festival.

Day 19: Hiking on Grand Saleve

Today we made another tour up to Mt. Saleve. Like the last time we took the cable car to get up, but then we ascended further to the actual peak of Mt. Grand Saleve.

After that we descended on a steep and rocky path, through two caves. It was totally awesome!!! At the end we had some difficulties to find the bus stop, but we managed to get there.







Day 21:

COMPASS Experiment

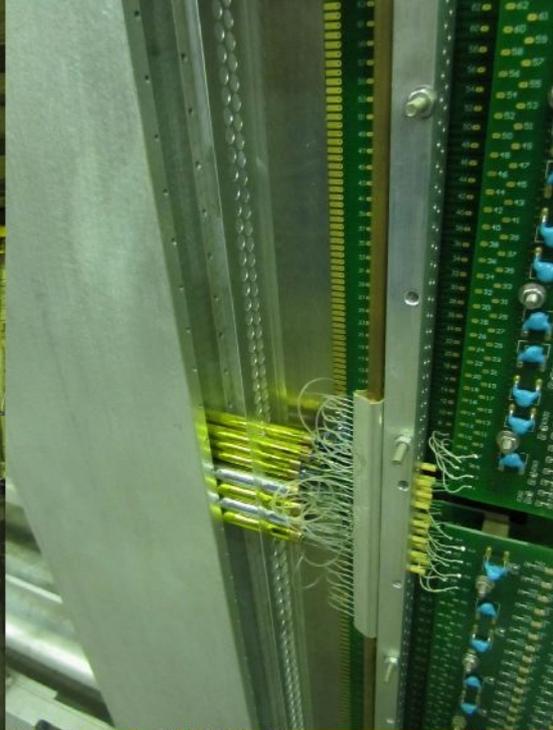
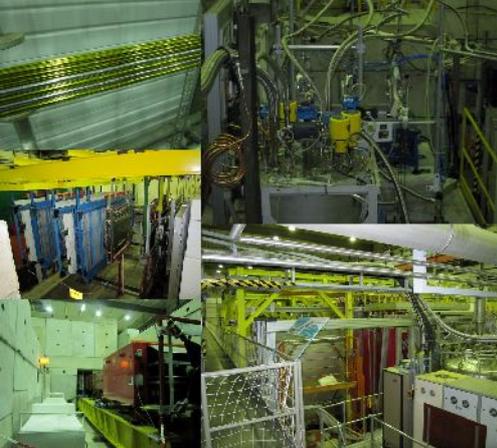
On Tuesday Daniel managed to organize a private tour for us to the COMPASS experiment, which is located at the Preveessin site. So first of all some random pictures from Preveessin.

In 2010 the LHC was running properly for the first time and there was (understandably) a huge hype around the LHC experiments. But CERN is not only the LHC - There are a lot of other smaller experiments which are worth a look. And scientists at CERN are usually happy about people who are interested in their work.

The COMPASS experiment is located at the SPS accelerator and is one of the smaller experiments at CERN. Apparently they don't get too many visitors there, so we had a very long and interesting tour of the facility. Additionally the LHC (and thus also SPS) was on technical stop this week, so we were able to take a close look at the beam-pipe (which is not really a beam-pipe, because COMPASS currently uses muon beams) and the individual parts of the detector.

It was really great to see all the different types of detectors we learned about in the lectures in real-life. I don't think I will get nearer to a detector this summer (maybe ever).





Day 23: CLOUD Experiment

Today Christina (a summer student from the UK) organized a tour to the CLOUD experiment. The experiment tries to investigate the influence of cosmic rays on cloud formation. It is the first experiment ever, that combines a particle accelerator (PS in that case) and a climate chamber (the tinfoil thing in the photos).

If you go to a party at CERN or organize one yourself in the Pump Hall, you might come across a pair of speakers we bought in 2010. Say hello and be nice to them.

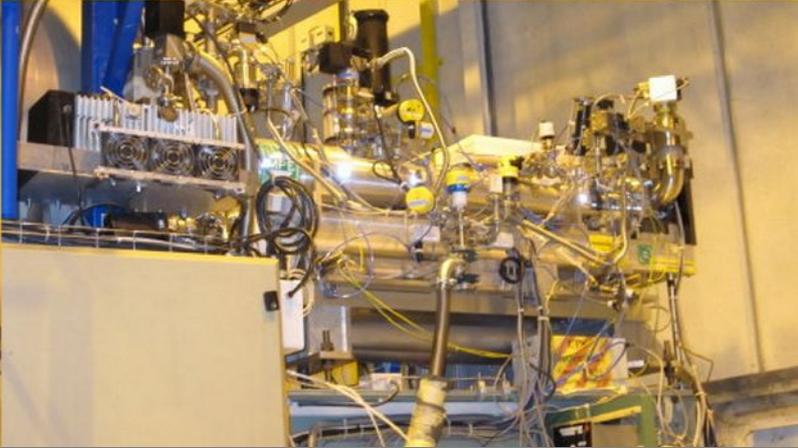
Day 27: A long Weekend

This weekend my parents visited me in Geneva, so I spent a lot of time in the city and at the lake. On Sunday we went on a boat trip on the lake, which was very recreative after the iPod party on Saturday.

On Monday I showed my parents around the Meyrin site. I also visited the CAST experiment, which tries to detect axions.







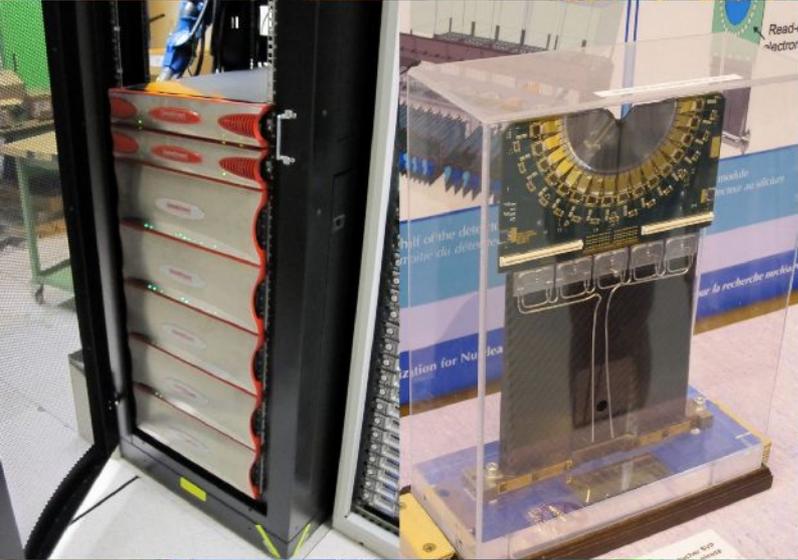
Day 29: Group Photo



Day 30: DAQ Workshop at LHCb

On Thursday I attended the DAQ (Data AcQuisition) workshop at LHCb. It was more or less a tour of the LHCb control room and the UX85a cavern, where all the readout processing takes place. Access to the actual detector in UX85b was of course not possible, because the LHC is currently running.





Day 40:

Fireworks

It has been some time since my last post here, because I had a lot of stuff to do (for example helping to organize the summer student t-shirts). Also I have some great news: I will be giving a short presentation on “Key Concepts in WLCG Data Management” in the Globe at CERN next week :-)

Back to the fireworks: After a nice afternoon in the botanical garden in Geneva followed by pizza, I saw the most stunning, loud and expensive fireworks I have ever seen! And as you might probably know, I have seen a lot of fireworks before.

Here are the videos for all who were not able to see the fireworks or those who want to see them again.

Final sequence:

<http://youtu.be/dy7JAA1Bvnc>

Full fireworks:

<http://www.youtube.com/watch?v=XngiMwFPwhs&feature=share&list=PL7FC0536D90D1CE54>

Do not miss the Fete de Geneve fireworks. It is one of the largest fireworks displays I have ever seen. And trust me, I have seen a lot!



Day 41: PS/PSB Site

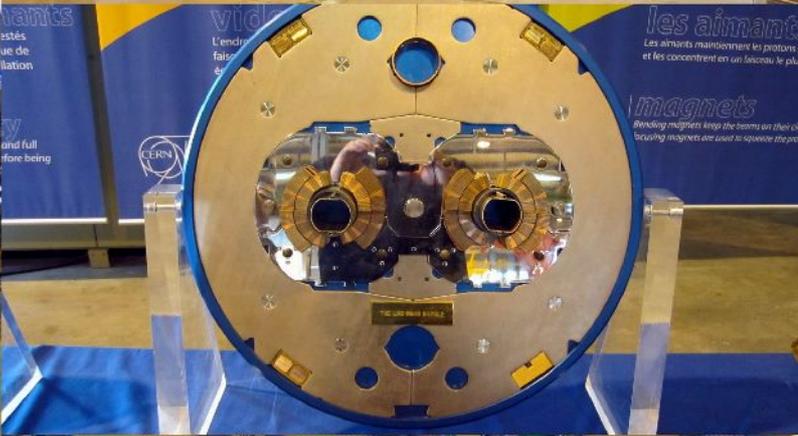
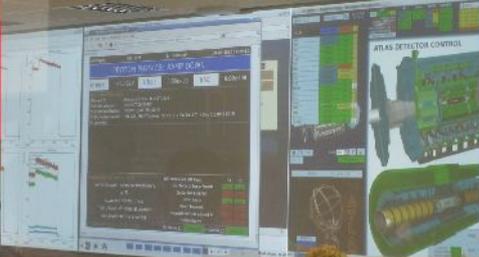
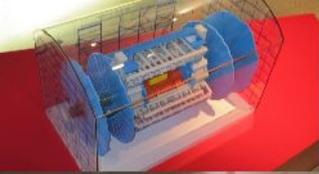
Sunday after the fireworks we decided to have a relaxed day, so the only thing we did was a small photo tour around the PS/PSB site at CERN that we missed during the last photo tour. Most of the area is sealed off due to radiation levels, but you can still see where the accelerators run. The large construction site will be the building for the new LINAC4.

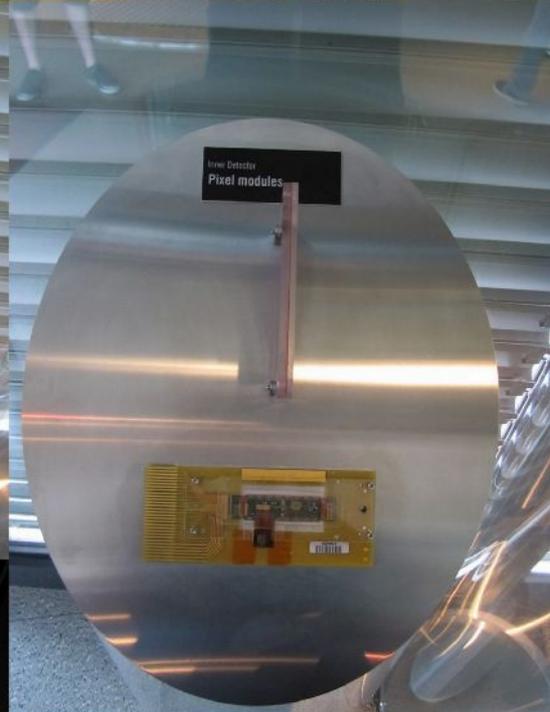
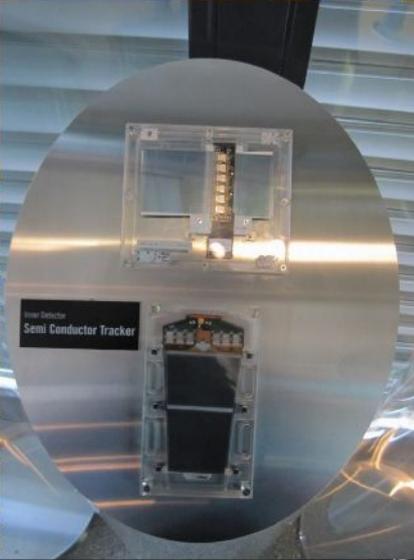
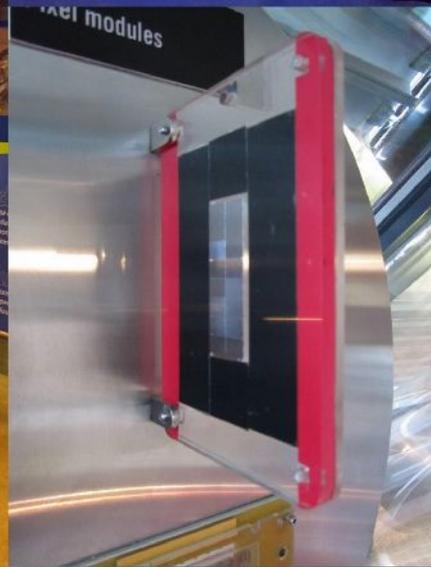
Radiation warning signs are a fairly common sight at CERN and safety is ensured thoroughly. During my stay at CERN my personal dosimeter did not register any significant dosage of radiation.

Day 42: ATLAS & SM18 Visit

Today I attended the official visit to the ATLAS exhibition and the SM18 magnet testing facility. Most of it was interesting but, only visiting the ATLAS control room and not the detector was kind of boring.







Day 43: The Cake is a Lie

CERN:

We do what we must because we can.

For the good of all of us.

Except the ones who are dead.

If you have seen the movie "DECAY" you probably recognize some of the tunnels shown in the photos. The tunnels belong to the old and decommissioned ISR accelerator and not to the LHC. The ISR area was not strictly off-limits, but you should not go there unless you really know what you are doing.

Day 44: LINAC & CC Visit

Today was another official visit. Visiting the CERN computing center was not very interesting, I have full access rights there and can even see more or it if I want to. (I should take a camera with me next time and take some photos from the inside). The LINAC, where all the protons for the accelerator chain are produced, was more interesting.





Flammable gas - Gaz inflammable



Day 45: Noble Prize Laureate

On Friday I attended the last lecture in the Summer Student Lecture Program: A talk about dark matter by Carlo Rubbia, who received (together with Simon van der Meer) the Physics Noble Prize in 1984 for discovering the W and Z bosons.



As promised before, I also took my camera inside the computing center and took some pictures (also from the basement).



Day 49: Student Session Presentation

As you might have heard already, I gave a short presentation in the Globe of Science and Innovation at CERN in the course of the Summer Student Sessions 2010 on Tuesday. The topic was “Key Concepts in WLCG Data Management” and you can find the slides as well a video recording (yes!) here: <http://indico.cern.ch/conferenceDisplay.py?confId=91591>

Take the opportunity to participate in the summer student sessions and give a talk there.



Day 52:

CLIC Testing Facility

Last Friday I attended a short visit of the CLIC Testing Facility for one of the future linear colliders at CERN. Because CTF3 is currently running, we could only see the old CTF2 prototype.

Day 53:

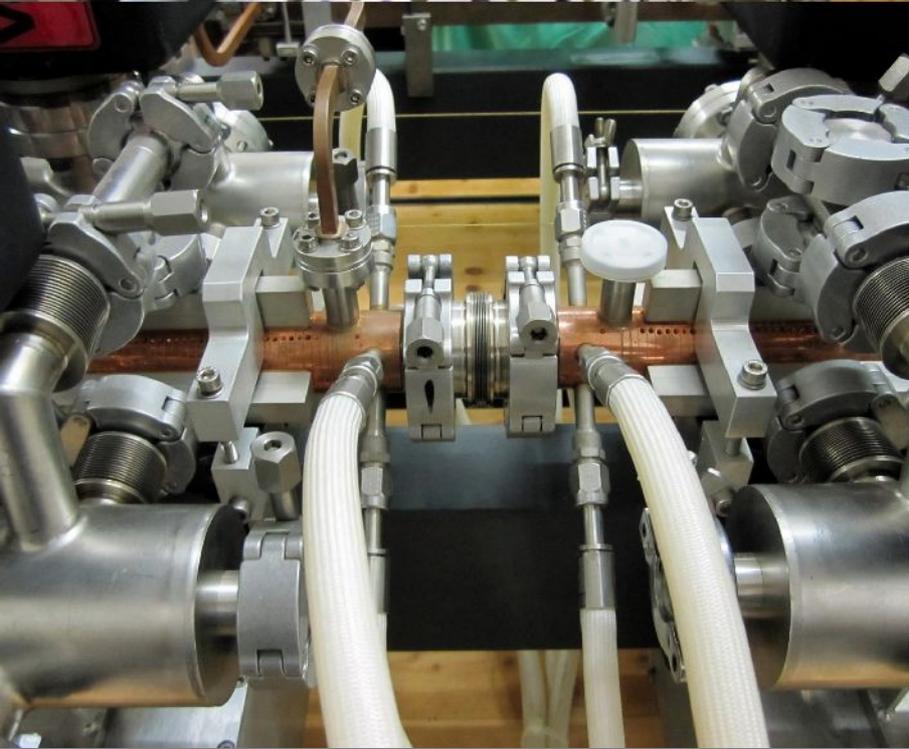
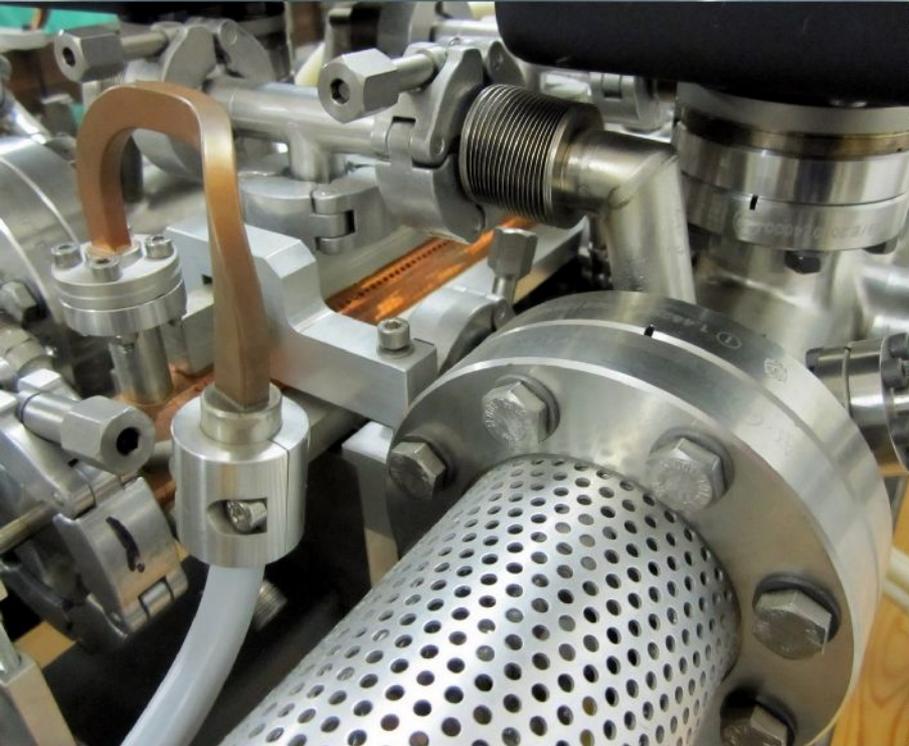
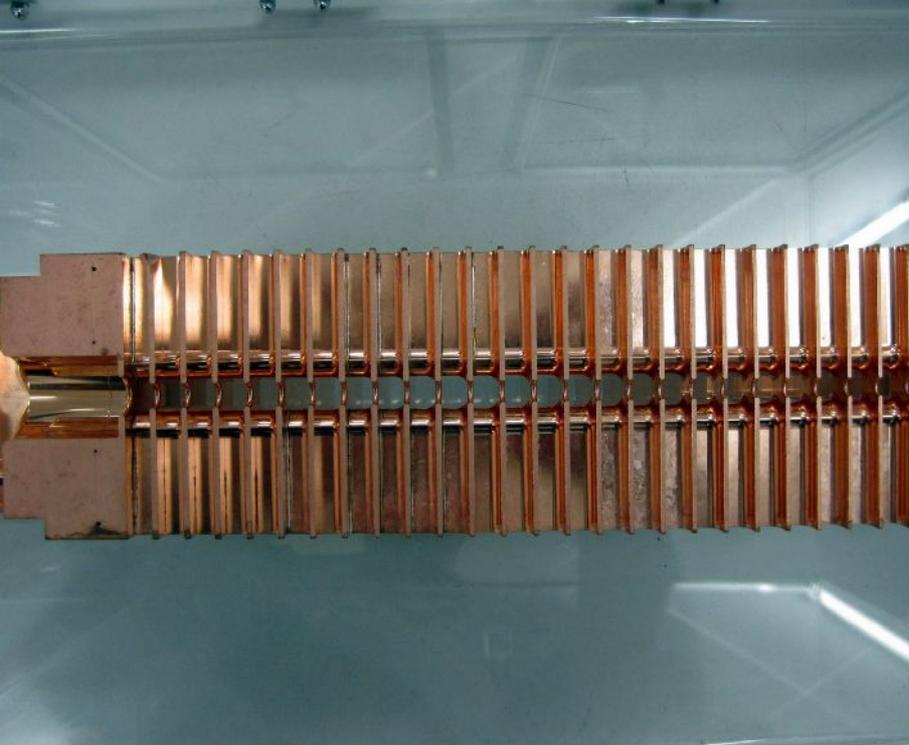
Annecy

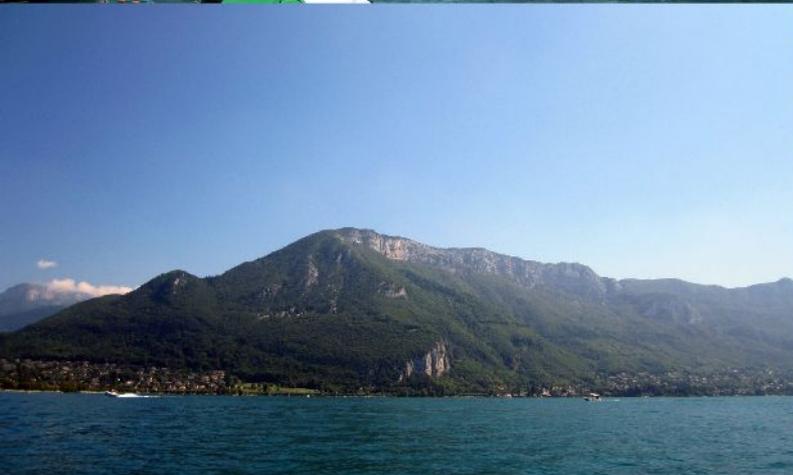
On Saturday we took the car and went to Annecy, a beautiful small French town. Annecy is actually the twin town of Bayreuth, the place where I was born.

Day 54:

Chamonix Mont Blanc

Because of the overwhelmingly good weather we went to Chamonix on Sunday. We went up to Le Flegere and further to L'Index by cable car, hiked to Lac Blanc and hiked back to Le Flegere. The views were absolutely breathtaking and the hike was really nice.

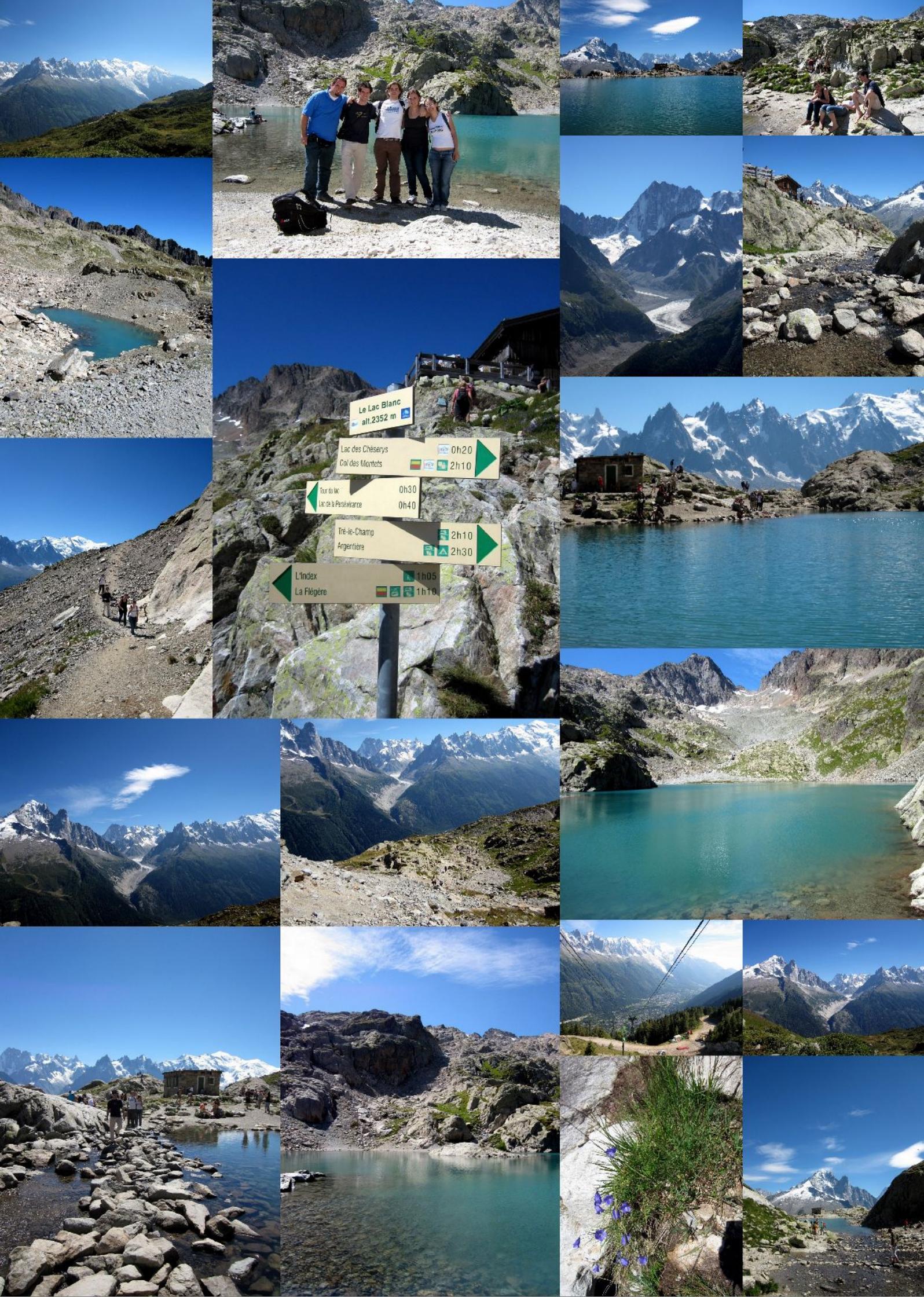












Day 58: Goodbye AMS & ISOLDE

Today I got up at 5:00 to watch the AMS detector leaving Geneva in a C5-M aircraft. The AMS will be installed at the ISS in 2011.

[Video on YouTube](#)

I also visited the ISOLDE facility at CERN in the afternoon.

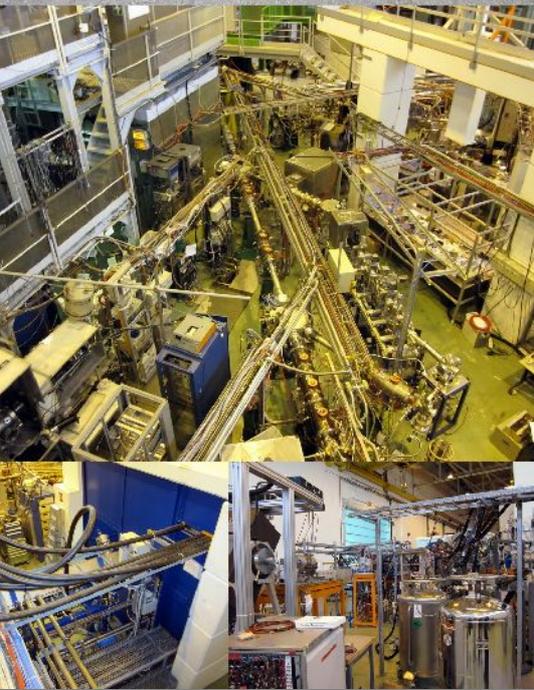
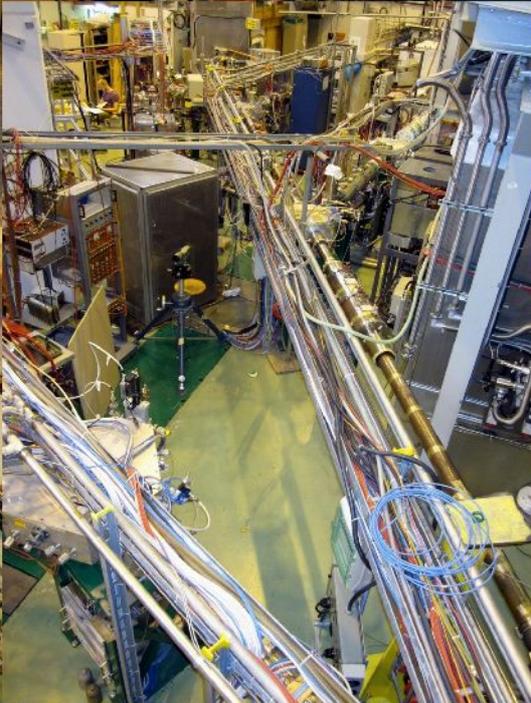


Day 61: Zürich & Bern

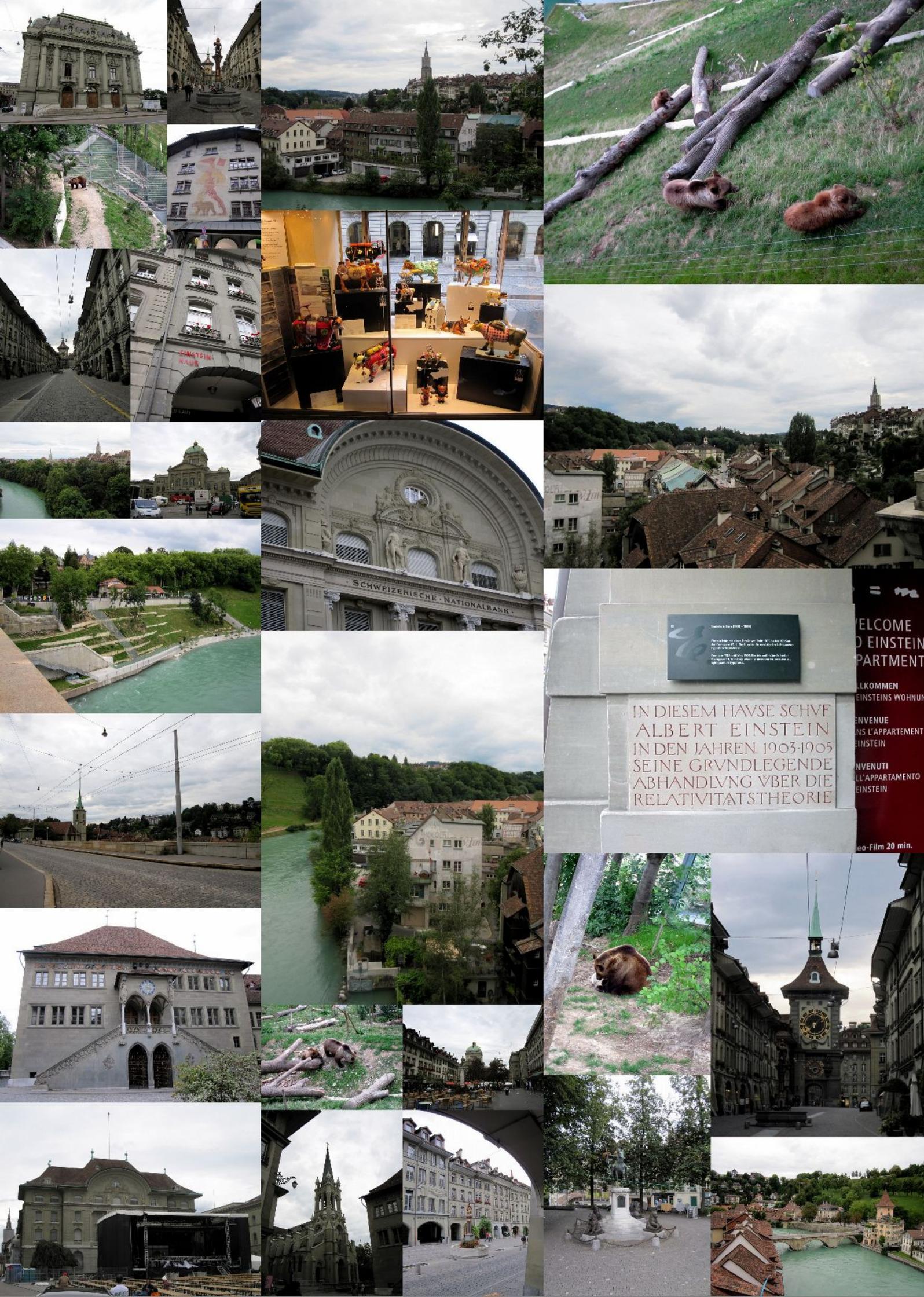
Sunday it was time for one last big trip around Switzerland. Zürich in the morning...

... and Bern in the afternoon.

Now my last week at CERN has started :-)







Day 65: The Final Days...

Sadly my time at CERN is coming to an end these days.

Today I gave a final presentation of my work project to my section. If you are interested you can find the material here:

<https://svnweb.cern.ch/trac/lcgdm/browser/performance>

Tomorrow I have to go through the administrative process to leave CERN, which means I have to give back my access card, car sticker, keys and my dosimeter. After that I will receive my final payment and will be an ordinary student again :-)



Yesterday we finalized the summer student t-shirt and beer glass project by giving the last official CERN summer student beer glass to the CERN director general Rolf Heuer.

Saturday will be the day to say goodbye to a lot of dear friends and on Sunday morning I will drive back home.

Day 68:

Fin

Yesterday I arrived back at home. It was the most wonderful summer I ever had, thanks to all the people who contributed to make it be this way. I already miss it!

During the next 6 months I will work on my master thesis and then finish my studies. I don't know exactly yet what I will do afterwards. Maybe I find a way to come back to CERN.

All this also means that I will stop writing on this blog, so I hope you enjoyed reading it as a fellow CERN summer student, a friend at home, or any other kind of person around the world. (As a side note: According to Google Analytics, the countries with the most visits were (in descending order): Germany, Switzerland, France, Malta, Greece, Sweden, Israel, US, Spain, UK)

Goodbye!



ence

Accélérateur

Epilogue

After ten exciting weeks at CERN I went back home to my normal life, finished my master thesis and received my masters degree.

In contrast to my initial plans after the summer, I did not return to CERN for a job there, but took a position as a research associate at my university in Paderborn to do my PhD.

Fortunately, friendships formed at CERN persist even after leaving CERN. During the last years I visited friends from CERN at least once a year and I regularly talk to some of them, at least via Facebook or Skype.

If you read these pages to remember the good times you shared with me at CERN: Thank you, it would not have been the same without you. See you soon(ish)!

If you read these pages as a summer student waiting to go to CERN or already at CERN: I hope you have found some useful information and have an awesome time at CERN!

If you read these pages as a student interested in applying to the summer student program: Apply as fast as you can, if you have not figured that out already!

If you like what you read or have some suggestions, consider sending me an email: martin@draexler.de