



Michael Reichmann

Self Presentation

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Biography

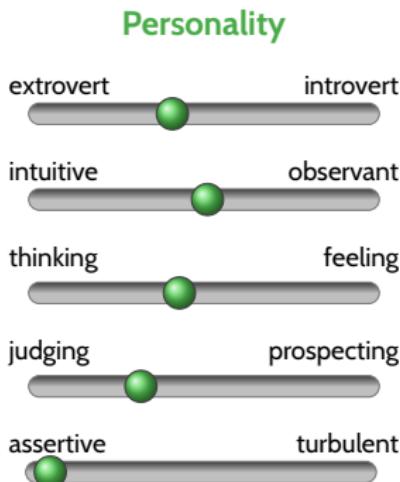


Michael Reichmann

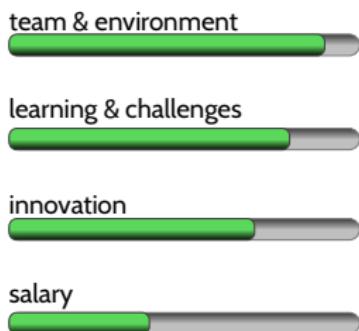
"Ultimately real is only the present moment of physical efficiency."

Fyodor Shcherbatskoy

Age	34
Education	Dr sc.
Location	Wroclaw, PL
Personality Type	Executive ESTJ-A



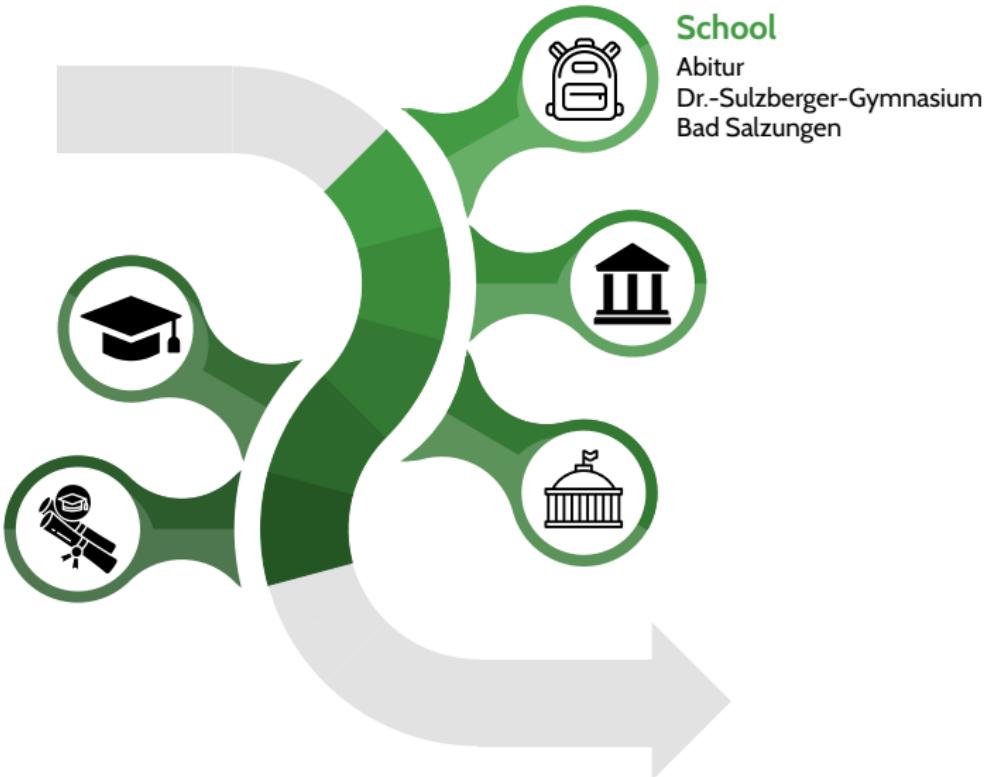
Motivations



Education



Education



Education



School

Abitur

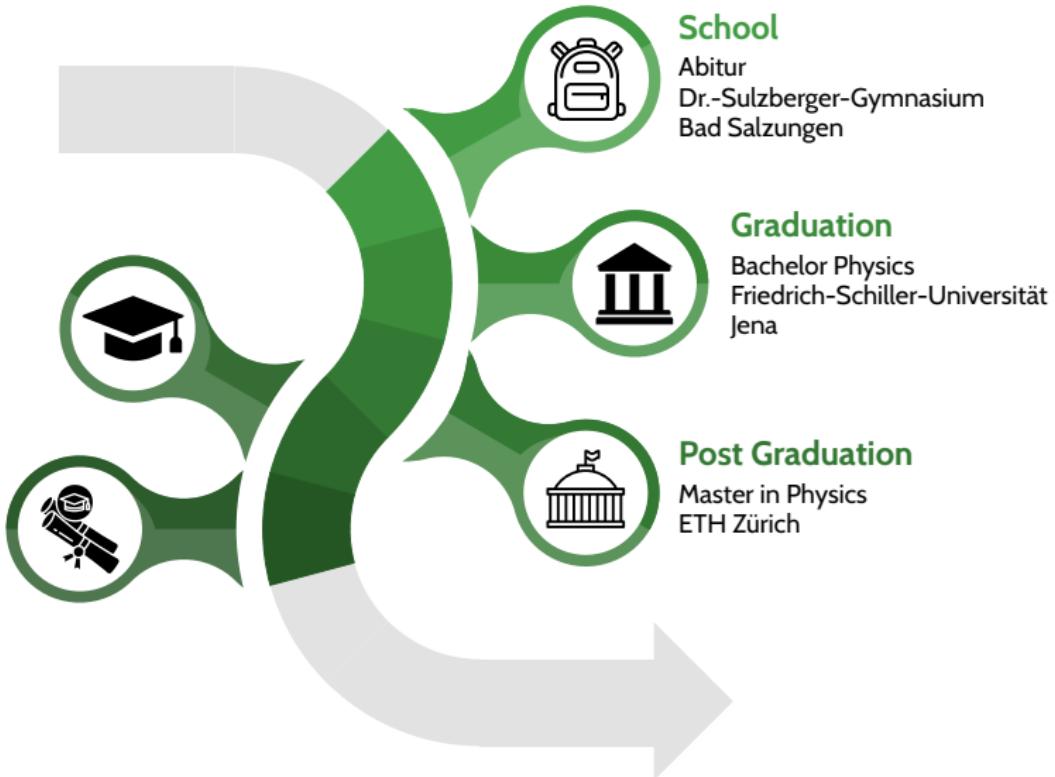
Dr.-Sulzberger-Gymnasium
Bad Salzungen

Graduation

Bachelor Physics

Friedrich-Schiller-Universität
Jena

Education



Education

Doctorate
Dr. sc Physics
ETH Zürich



School
Abitur
Dr.-Sulzberger-Gymnasium
Bad Salzungen



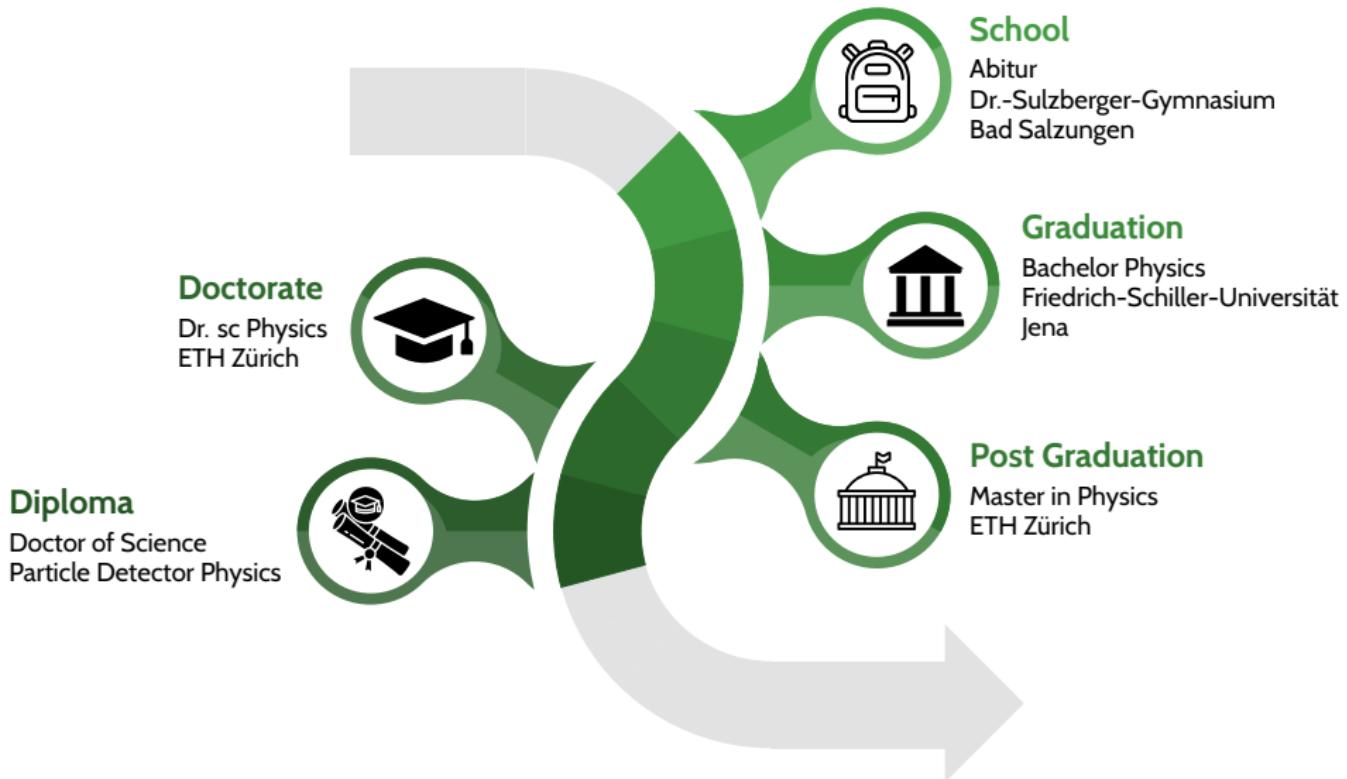
Graduation
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Friedrich-Schiller-Universität
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Post Graduation
Master in Physics
ETH Zürich



Education



Key Skills & Expertise

Languages

German native

English C2

Russian B2

Polish B1

French B1

Spanish A1

Skills



Strengths

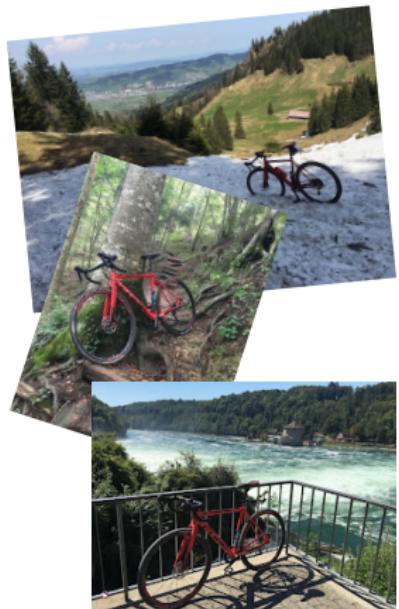
- analytical thinking
- team work
- fast learning
- structured

Weaknesses

- perfectionism
- boredom

Personal Life & Hobbies

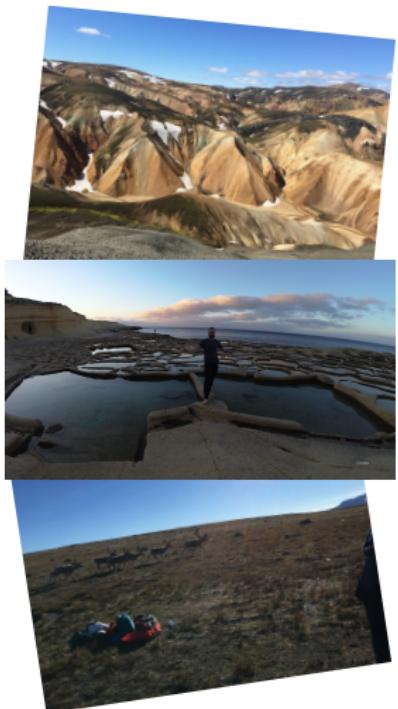
Cycling



Family



Travel



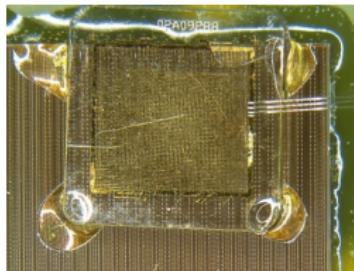
Work Experience

Customer Support



- in-game support an MMORPG
- working with both German & English
- customers ask everything
- very good understanding required

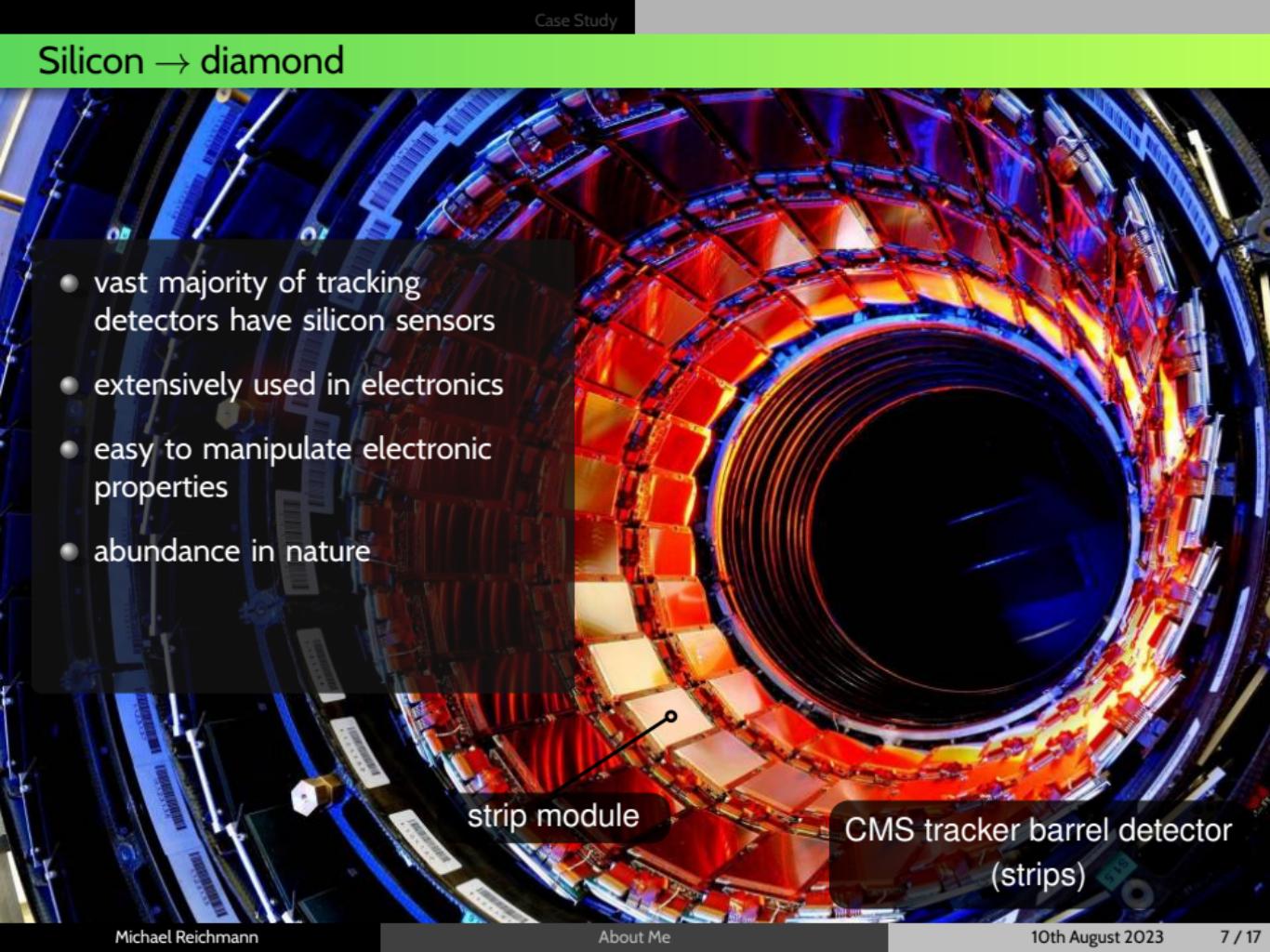
Doctorate



- studying a particle detector
- setting up experiment and data-acquisition
- leading small group
- developing data analysis software

Silicon → diamond

- vast majority of tracking detectors have silicon sensors
- extensively used in electronics
- easy to manipulate electronic properties
- abundance in nature

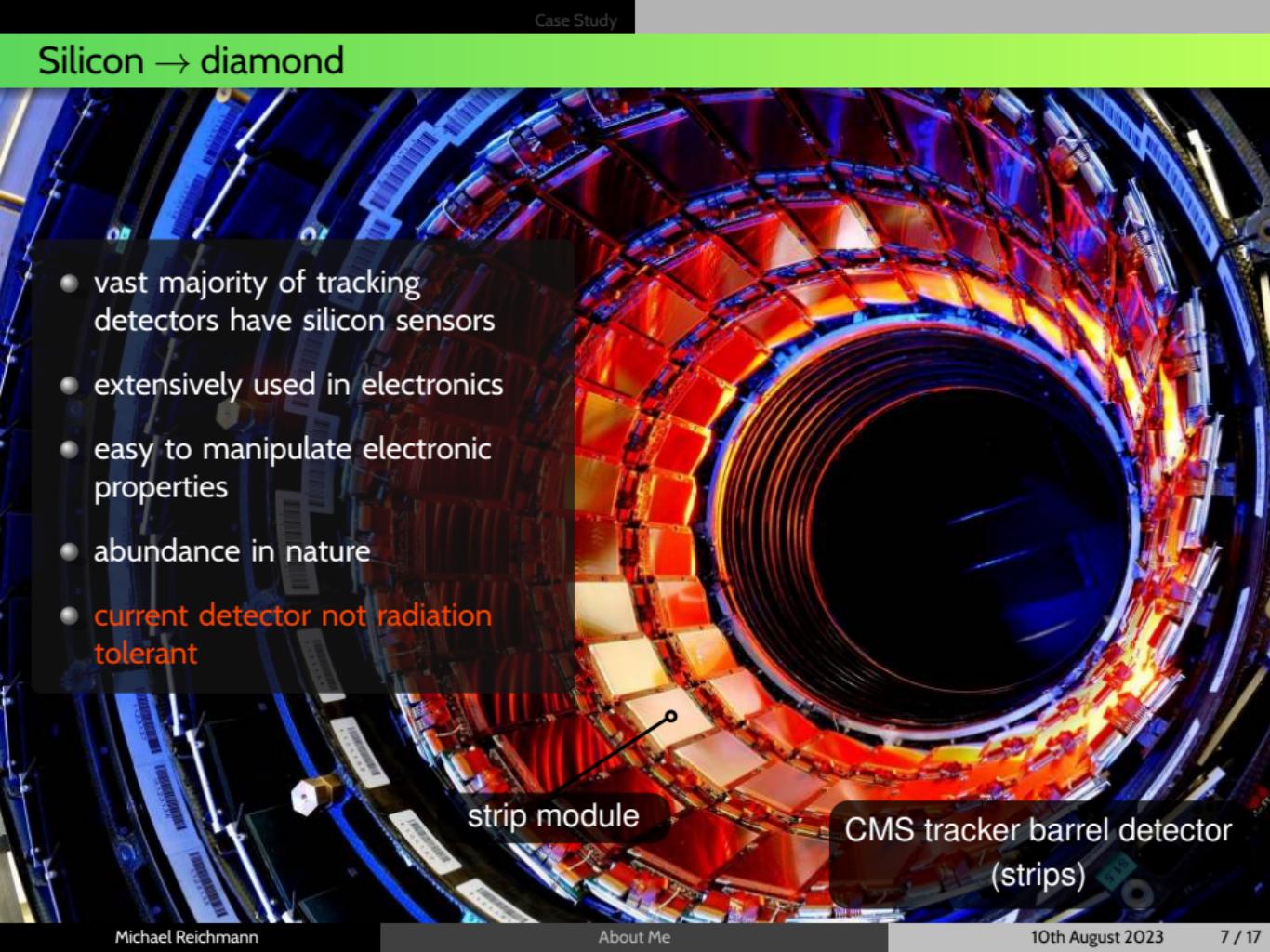


strip module

CMS tracker barrel detector
(strips)

Silicon → diamond

- vast majority of tracking detectors have silicon sensors
- extensively used in electronics
- easy to manipulate electronic properties
- abundance in nature
- current detector not radiation tolerant



strip module

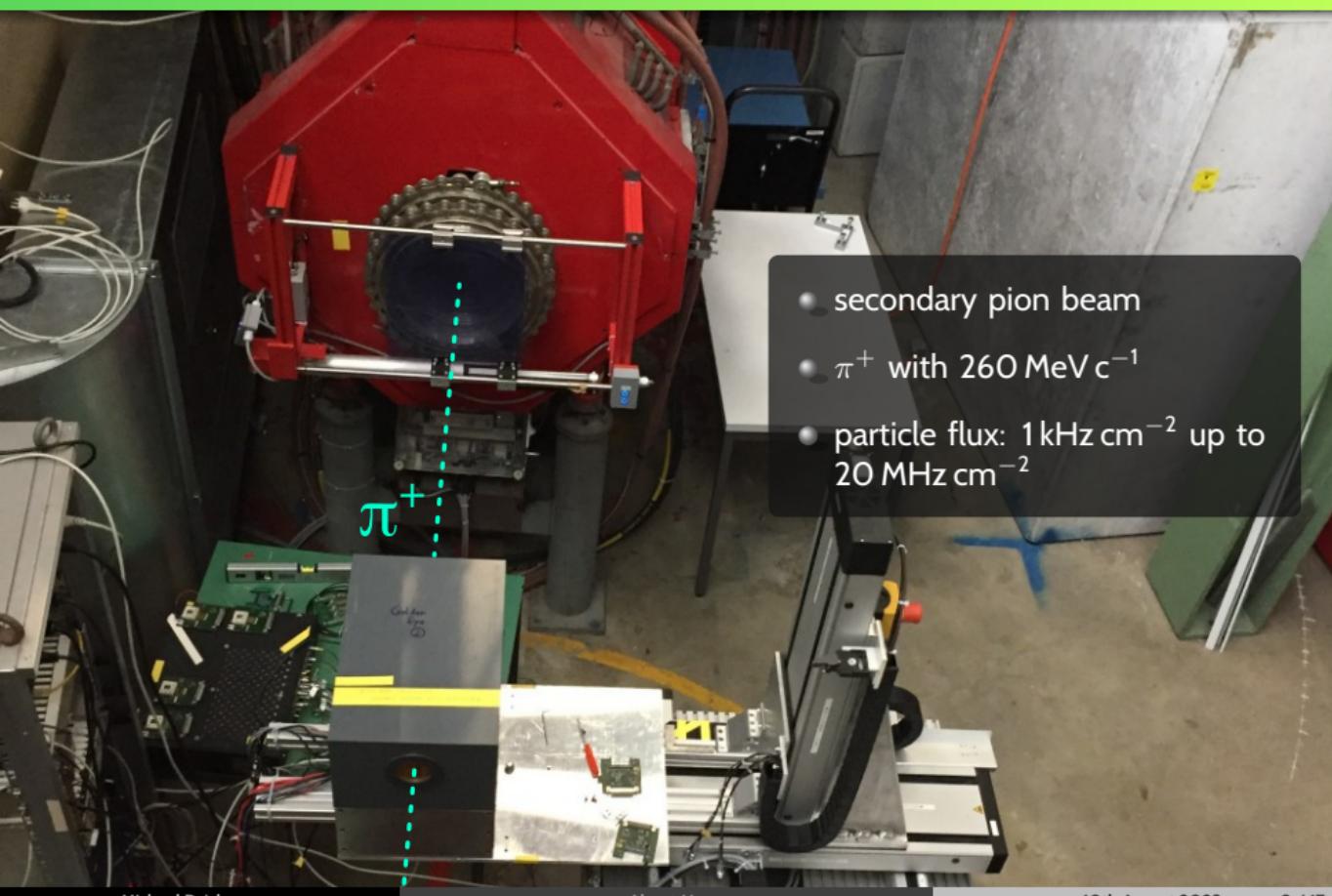
CMS tracker barrel detector
(strips)

Test site

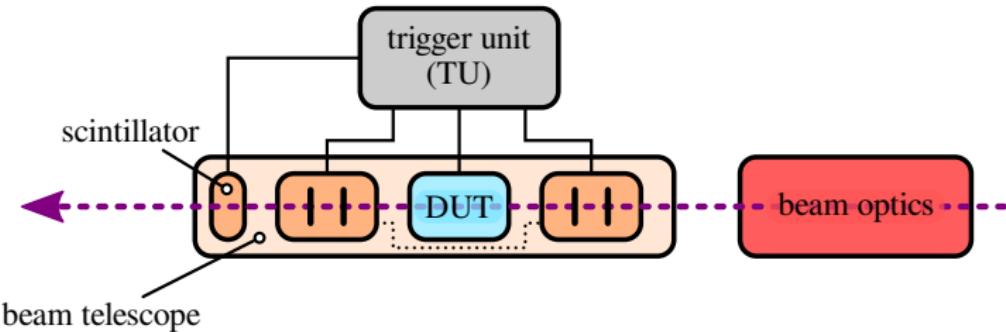
- high intensity proton accelerator (HIPA) at Paul Scherrer Institut (PSI)
- 590 MeV bunched proton beam
- up to 1.3 MW beam power



π M1 beam line

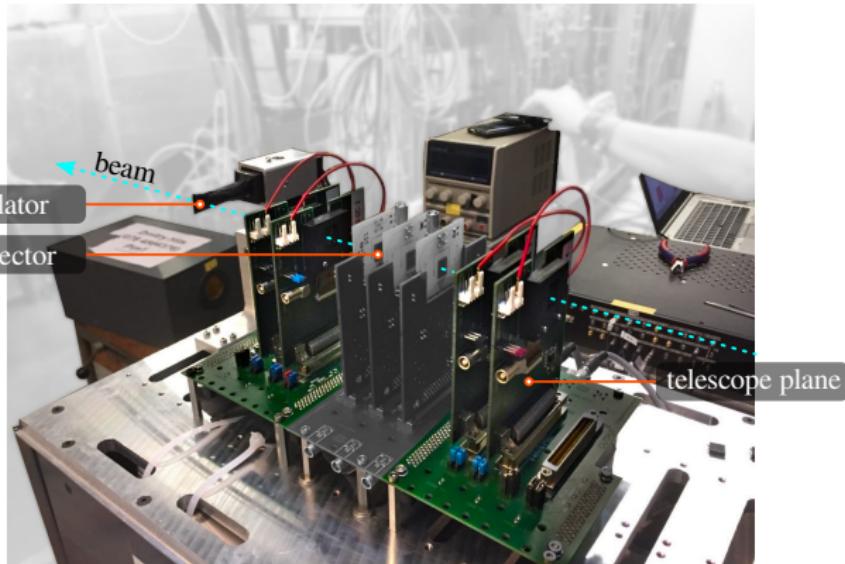


Setup



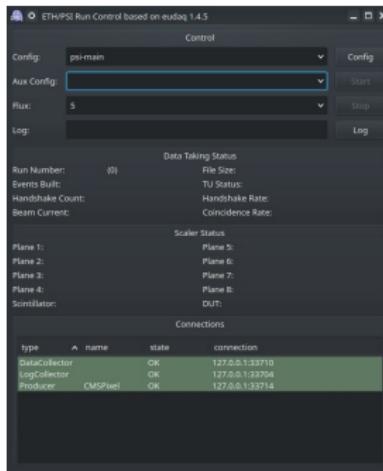
- designing and commissioning beam telescope made from hybrid Si-pixel detectors
- reconstruct trajectory of the beam particles
- other instruments: digitiser, power supplies, trigger unit, NIM logic ...

Setup



- designing and commissioning beam telescope made from hybrid Si-pixel detectors
- reconstruct trajectory of the beam particles
- other instruments: digitiser, power supplies, trigger unit, NIM logic ...

Data-acquisition



- adjusting and further developing existing software
- controlling and monitoring several devices
- save combined data stream
- long process of improvements → in the end data was taken autonomously

Debugging ...

```
...Configured (totale_konfiguration)  
*** Break *** segmentation violation
```

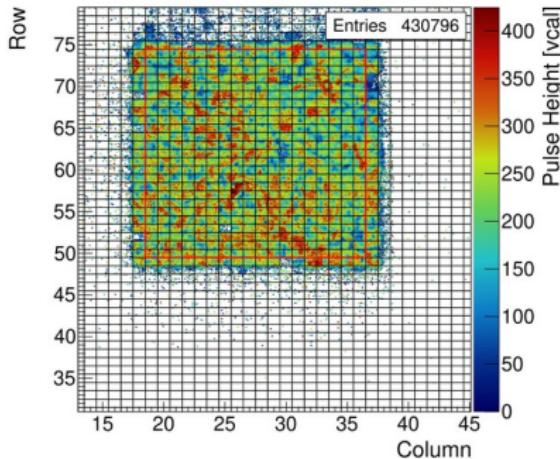
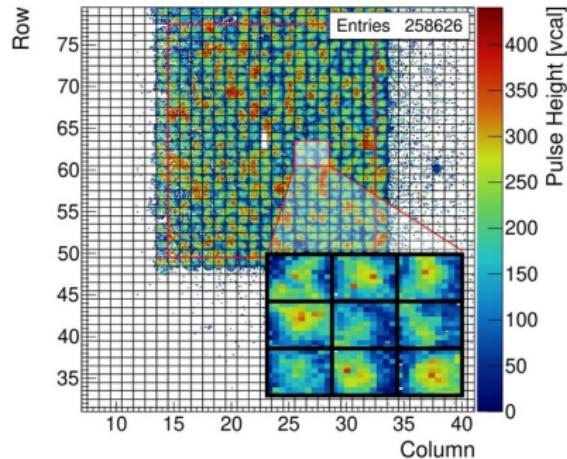
There was a crash.
This is the entire stack trace of all threads:

```
Thread 5 (Thread 0x7f0034782700 (LWP 3079)):  
#0 0x00007f003bb0b12d in poll () at ./sysdeps/unix/syscall-template.S:81  
#1 0x00007f003692ecf3 in handle_events () from /usr/local/lib/libftd2xx.so  
#2 0x00007f003692ef0 in libusb_handle_events_timeout () from /usr/local/lib/libftd2xx.so  
#3 0x00007f0036933d7d in poll_async_ libusb () from /usr/local/lib/libftd2xx.so  
#4 0x00007f003b808182 in start_thread (arg=0x7f0034782700) at pthread_create.c:312  
#5 0x00007f003bb1847d in clone () at ./sysdeps/unix/sysv/linux/x86_64/clone.S:111
```

```
Thread 4 (Thread 0x7f00267ec700 (LWP 3080)):
```

- several beam tests → each time install setup
- many devices, various persons, different programming languages, new stuff ...
- errors occurred
- on-site debugging, programming and developing

Analysis



- developed analysis framework from scratch with ~20 000 lines of code
- converting raw data, aligning telescope and data, tracking, analysing
- python script utilising several other scripts in python and C++

Results

- well working beam telescope
- diamond works well as particle detector
- ...more in my [thesis](#)

Michael Philipp Reichmann

A Particle Tracker for an Extreme Radiation Environment with Strongly Changing Fluxes: pCVD Diamond

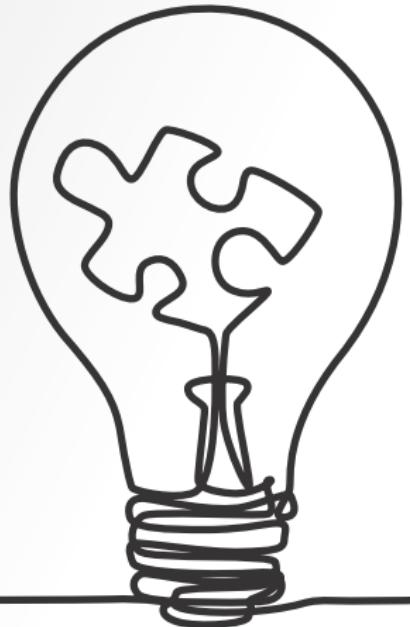
Vision

- installing & repairing detectors
- analysing & debugging software
- collaborating with colleagues
- new: working with clients



Conclusion

- excellent knowledge of detectors
- very good scripting and programming/debugging skills
- experience with lab work and using/interfacing instruments
- experience in working with customers
- innovative and willing to learn



Technical Task

- Solution ...

Del Fin



PSI Paul Scherrer Institut

HIPA high intensity proton accelerator