



The way to becoming an assistant professor at EPFL

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What I think is important to share with you

- Personal timeline and research background
- Some tips that in my view are important to build your scientific credibility
- Pair your scientific credibility with a vision for an independent research direction
- I sincerely hope that relating my experience and sharing with you some things I learned along the way would be of help to some of you
- **Disclaimer:** these are my personal views and experiences and are by no means to be perceived as a recipe for obtaining an academic position

Personal timeline

Education:

- Bachelor of Science: Astrophysics (Sofia University, Bulgaria, 2009-2013)
- Fast-track fellow (University of Mainz, Germany, 2013-2015)
- PhD student (University of Mainz, Germany, 2015-2018)

Postdoctoral research:

- Postdoc #1 (CERN research fellow, 2018-2021)
- Postdoc #2 (University of Mainz, 2021-2021)
- Postdoc #3 (University of Florence, 2021-2022)
- Postdoc #4 (Weizmann Institute of Science, 2022-2023)



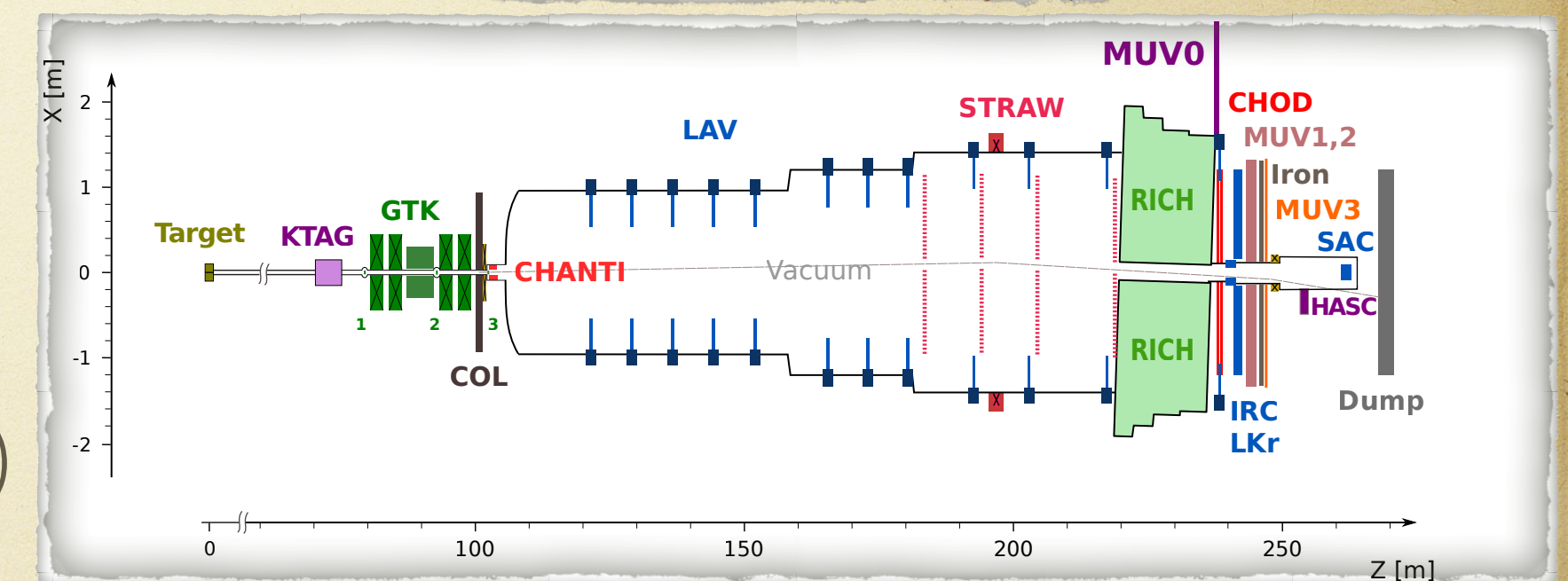
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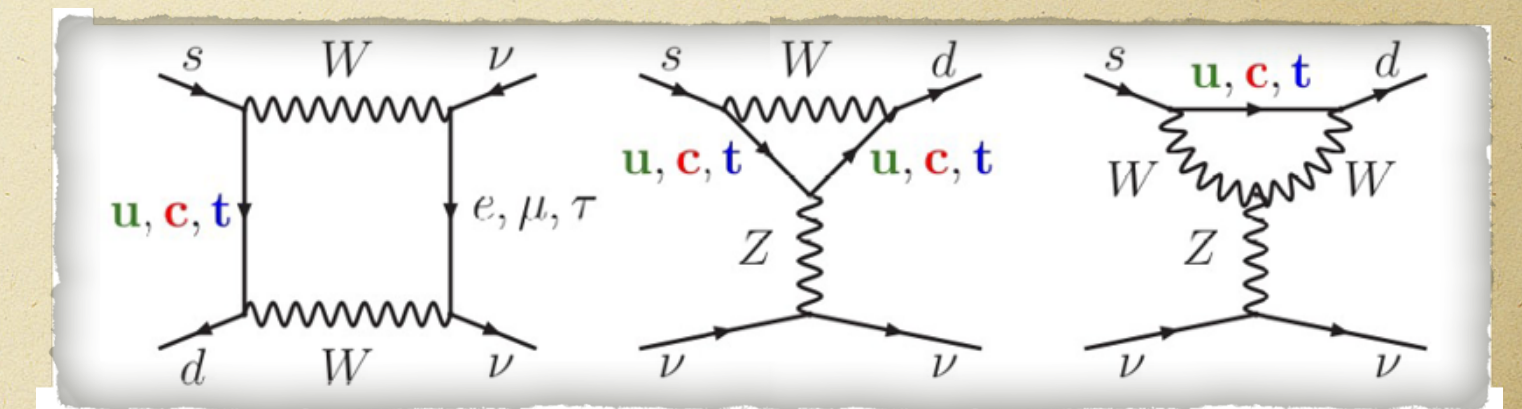
Research background: kaons and NA62

- Driven by curiosity and restlessness: understand how particle physics experiments work
- The NA62 experiment and kaons physics (2015-now) were a perfect match for me

- Construction of the hadron calorimeter in Mainz (2013-2015)
- Commissioning of the calorimeter and first data (2015-2016)
- Significant involvement in the operation of NA62 (2015-2021)
- Data analysis of the extremely rare $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ decay (2016-2022)



- Feasibility studies for a new kaon physics experiment (2021-2022)
- Data-directed searches for new physics (ATLAS, 2022-2023)



Tip #1: Publish your research

- Especially important in the early stages of your career (e.g. PhD, early postdoc)
 - shows that you are capable to bring a research project from start to finish
 - establishes your credibility as a researcher
- The quantity of publications I found not to be as important: quality is of higher value
 - some research projects take longer (many teams involved, new research direction, etc...) you might not be able to bring it to a publication during your PhD studies
 - you have spent at least 3-4 years on it, make sure you bring it to an end
- Diversity of research topics you are involved is valued but is not imperative (wasn't a factor in my case)

Tip #2: Develop a vision

- At a later stage of your career developing independence is of primary importance
- Until now you mostly follow people more senior than you
- Time to branch out and develop your own side projects
- It's quite hard because you typically have quite a lot of responsibilities at that point
- It may take quite a lot of time and you may feel lost and without any ideas (until they come)
- Apply for grants with your own research project (no better way to show your independence)
- **Important:** publication track record and scientific independence are highly valued when applying for grants or more senior positions
- **Optimise your effort:** look for places that could be a good match for your skills/interests/vision

Tip #3: Stay sane

- Doing research in our field (research in general) is a highly demanding endeavor
- A lot of movement is required: changing universities, countries, environments
- Clashes between work and personal life are almost inevitable: essential to be aware of that and develop tools to cope with it
- Maintaining drive and motivation despite the various difficulties not trivial, especially in the context of job insecurity and scarcity of permanent positions
- Learn how to take care of your mental health
 - how to work more effectively
 - not feel guilty that any time that you take for pleasurable activities is a time that you should be spending on your research instead
 - devote some time on thinking about the bigger picture: how your research fits within the global landscape

Expectation vs reality

- I often thought that the only thing necessary a successful academic career is to be good at solving research problems and everything else will somehow work out
- I found that in the current landscape of academic research the situation is far more complex, probably the hardest it has ever been
 - many excellent researchers and not enough positions
 - you have to find your own path and your own way to stand out
 - you need to interact with people and build your own network
 - chance is also quite a relevant factor (a position which is a good match for you and your vision)
- I still believe that despite the chance factor that following this approach was what gave me a shot
- Not managing to find a position should also not be viewed as a failure: most of the skills you learn through your research are transferable and would be a valuable asset to any organization

Last words

- Last tip and probably most important one: **you have to have fun**
- **We do research because of the pleasure of finding things out. Don't loose that!**
- We need bright minds that can come up with new ideas and open new research directions
- Navigating through the highly demanding research environment is a challenge on many levels
- Maintaining a positive mindset, publishing your research, and developing your scientific independence are in my opinion essential for pursuing an academic career
- Following this approach will ensure that you have left your contribution to the creation of knowledge even if you decide not pursue an academic career afterwards